Testing Tarnishment in Trademark and Copyright Law: The Effect of Pornographic Versions of Protected Marks and Works

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Federal and state law both provide a cause of action against inappropriate and unauthorized uses that 'tarnish' a trademark. Copyright owners also articulate fears of 'tarnishing' uses of their works in their arguments against fair use and for copyright term extension. The validity of these concerns rests on an empirically testable hypothesis about how consumers respond to inappropriate unauthorized uses of works. In particular, the tarnishment hypothesis assumes that consumers who are exposed to inappropriate uses of a work will find the tarnished work less valuable afterwards. This Article presents two experimental tests of the tarnishment hypothesis, focusing on unauthorized and unwanted pornographic versions of targeted works. We exposed over 1000 subjects to posters of pornographic versions of popular movies and measure their perceptions of the targeted movie. Our results find little evidence of tarnishment, except for among the most conservative subjects, and some significant evidence of enhanced consumer preferences for the "tarnished" movies. These results should place the burden on parties asserting tarnishment to prove that it actually exists, and they support changes to trademark and copyright laws with respect to proof of harm, fair use, and copyright term extension.

"The existence of a *Madeline Does Dallas* might lead to some awkward questions during bedtime stories."[1]

Copyright and trademark owners fear that the valuable images and symbols they create will be tarnished by unauthorized uses, so they seek more perfect control over their works to

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[1] *See* Stan Liebowitz & Stephan Margolis, *Seventeen Famous Economists Weigh in on Copyright: The Role of Theory, Empirics, and Network Effects*, 18 HARV. J. L. & TECH. 435, 449 fn.24 (2005).

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prevent what they perceive to be unwholesome consumer associations. For example, Disney fears the damage that might be caused by the release of an X-rated film starring Mickey and Minnie Mouse—and possibly Goofy—over the Internet. And the owners of valuable trademarks worry that consumers will not purchase their products once those marks have been associated with lewd or obscene content.[2] U.S. intellectual property (IP) law has recently been amended to provide trademark and copyright owners greater protections against these perceived risks. In 2006, Congress amended the Lanham Trademark Act to provide a remedy against those who "use of a mark or trade name in commerce that is likely to cause . . . dilution by tarnishment of [a] famous mark."[3] Instead of basing their claims on consumer confusion about the source of goods, trademark owners can now enjoin even non-confusing uses of their marks if they are tarnishing. Importantly, plaintiffs asserting tarnishment cases involving sexual uses of their marks are rarely, if ever, required to show that they have suffered meaningful harm.[4] Tarnishment theory has also affected recent developments in copyright law. In 1998, Congress retroactively extended the term copyright 20 years, a measure suggested by those who feared works falling into the public domain would be subject to misuse, again without evidence of actual risk of tarnishment.[5] With this extension period ending in 2018, copyright owners may soon use tarnishment concerns to once again argue for longer terms.

Despite its surface appeal, the theory underlying the tarnishment hypothesis is surprisingly thin. Moreover, few attempts have been made to discover whether copyright and

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[2] Even copyright skeptics admit that "Rowling, Disney and other creative authors have at least some justification for being outraged when their characters are used in contexts wholly different from the original, such as pornography." Dennis Karjala, *Harry Potter, Tanya Grotter, and the Copyright Derivative Work*, 38 ARIZ. ST. L. REV. 17, 35-36 (2006).

[3] 15 U.S.C. § 1125(c)(1).

[4] *See infra* notes 35-47.

[5] Sonny Bono Copyright Term Extension Act, PL 105-298 (Oct. 27, 1998). Overseas, the specter of tarnishment has stunted the full development of a parody defense in EU copyright law. *See* John Deckmyn and Vrijheidsfons VZW v. Helena Vandersteen and Others, C-201/13 (Court of Justice of European Union 2014) (copyright owners have the right to prevent their works from being associated with certain negative messages).

trademark owners actually suffer damage when unauthorized and unwholesome uses of their images are made.[6] This Article contributes to the latter issue by reporting the results of two novel experiments designed to test the effects of pornographic versions of creative works on the value of the underlying works. In our experiments, subjects viewed movie posters of pornographic versions of popular movies before they were asked questions about those movies. Our data show little if any support for the tarnishment hypothesis and some significant support for an alternative *enhancement* hypothesis: Some of our subjects actually perceived more value in the "tarnished" movies. We believe the results of these experiments put the ball back into the court of tarnishment theorists to prove their anxiety has a factual basis.

In Part I of this article, we explain the tarnishment hypothesis and its emphasis on sexual associations, and we demonstrate how the tarnishment hypothesis operates in U.S. trademark and copyright laws. In Part II, we summarize the extant literature on the effect of sexuality on brand perception and purchasing decisions, and we propose an experimental test of tarnishment caused by pornographic associations. In Part III, we describe our methodology and report the results of two experiments which expose subjects to posters of unauthorized pornographic films and measure the effects on subjects' responses to the target of the association along several important dimensions, including their valuation of the affected work. In Part IV, we caution policymakers about blindly accepting the tarnishment hypothesis and make some modest recommendations for reform, including the elimination of the presumption of harm currently made in certain types of trademark tarnishment cases, reconsideration of the concept of market harm in the fourth factor of the copyright fair use test, and the elimination of the distinction currently made between parody and satire in copyright law.

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[6] *See* Christopher Buccafusco & Paul J. Heald, *Do Bad Things Happen When Works Enter the Public Domain?: Empirical Tests of Copyright Term Extension*, 28 BERKELEY TECH. L. J. 1 (2013).

I. TARNISHMENT THEORY AND TARNISHMENT LAW

Tarnishment theory—the claim that unsavory uses of marks or works harm their social and economic value—has become pervasive in IP law during the last half century. In response, IP law has provided protections against tarnishment in both trademark and copyright law. Claims of tarnishment have been actionable in trademark law for decades, while the notion is more subtly embedded in copyright law. Importantly, although tarnishment theory straddles these two doctrines, its fundamental principles are very similar in both areas. First we discuss the theory, then, we describe the legal treatment of tarnishment in these doctrines.

A. Tarnishment Theory

At its foundation, a claim of tarnishment, whether it is made in the copyright or trademark context, is a claim that an interior psychological reaction by a consumer has diminished the value of an image or symbol to that consumer.[7] Accordingly, the existence or non-existence of that psychological reaction can be tested. Forming testable hypotheses, however, requires a closer investigation into the nature of the alleged harm. Unfortunately, the legal literature has provided little in the way of theory or data to justify its claims

Serious discussion of the cognitive mechanisms that might underlie tarnishment is rare, but it is possible to outline the general assumptions of the theory. Tarnishment theory rests on a series of assumptions about how people attach value to the works and marks that they consume. Tarnish theory asserts that people form mental associations with works and marks, and that these

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[7] *See, e.g.*, Ty Inc. v. Perryman, 306 F.3d 509, 511 (7th Cir. 2002) ("Now suppose that the 'restaurant' that adopts the name 'Tiffany' is actually a striptease joint. Again, and indeed even more certainly than in the previous case, consumers will not think the striptease joint under common ownership with the jewelry store. But because of the inveterate tendency of the human mind to proceed by association, every time they think of the word 'Tiffany' their image of the fancy jewelry store will be tarnished by the association of the word with the strip joint.")

associations may be positively or negatively valenced.[8] When fans think about *To Kill a Mockigbird*, their thoughts are cathected with positive associations and positive emotions that arise from their experiences with the work. And these associations are socially valuable—they generate consumer happiness and they increase the demand for copies or adaptations of the work.[9]

According to tarnishment theory, however, consumers' positive associations with works and marks can be disrupted, altered, and even inverted when they experience them in unsuitable environments or uses.[10] *Mockingbird* fans who named their children and pets after its main character may feel dismayed if they learn that Atticus Finch was a racist.[11] Or the feelings that consumers of Rolls Royce automobiles have towards the brand may be disturbed if they see the same mark being used to sell cheap tube socks, even though they do not believe that the socks were produced by the famous car maker.[12] William Landes and Richard Posner, two of the strongest proponents of tarnishment theory, suggest that if "anyone were free to incorporate the Mickey Mouse character in a book, movie, song etc., the value of the character might plummet. Not only would the public rapidly tire of Mickey Mouse, but his image would be blurred, as some authors portrayed him as a Casanova, others as catmeat, others as an animal-rights

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[8] Laura R. Bradford, *Parody and Perception: Using Cognitive Research to Expand Fair Use in Copyright*, 46 B.C. L. REV. 705, 707 (2005) ("Owners of expressive works claim loss of control over the presentation of a work, be it an image, film, character, or song, has the potential to destroy the public's positive associations with the original and so exhaust the demand for the original and its attendant products.").

[9] *Id*.

[10] *See, e.g.*, William M. Landes & Richard A. Posner, *Indefinitely Renewable Copyright*, 70 U. CHI. L. REV. 471, 487-88 (2003).

[11] *See* Elizabeth A. Harris, The Name Atticus Acquires an Unwelcome Association, N.Y. Times, July 14, 2015 (discussing the dismay of many parents who had named their children after Atticus Finch when they learned that he was depicted as a racist in the latest Harper Lee novel).

[12] Frank I. Schechter, *The Rationale Basis of Trademark Protection*, 40 HARV. L. REV. 813 (1927). "[T]he value of the modern trademark lies in its selling power . . . this selling power depends . . . upon its own uniqueness and singularity . . . [and] such uniqueness or singularity is vitiated or impaired by its use upon . . . non-related goods." Id. at 345.

advocate, still others as the henpecked husband of Minnie."[13] Having been exposed to these tarnishing uses of Mickey, the amount that consumers would be willing to pay for Mickey-related goods would decrease and so, according to Landes and Posner's formulation, would social welfare.[14] Because consumers would not desire Mickey Mouse products after their positive associations with the character had been eroded, they would get less pleasure from him and they would value him less. According to tarnishment theory, this decreased value is not just a loss for the Walt Disney Company, but a loss of social welfare more broadly.[15]

Consumers identify particular works with certain ideas or emotions. "America the Beautiful" or "This Land is Your Land," for example, may evoke feelings of patriotism or community in listeners. In order for those meanings to retain their value to consumers, they must be relatively stable.[16] Although absolute stability is undesirable, because overprotection would take from consumers the opportunity to rework meanings in valuable ways,[17] stability is given substantial weight in IP law. It is the key to legal regulation of tarnishment. As the quote by Landes and Posner above shows, granting IP rights in works and marks may assure owners worried about rogue uses of their creations. Copyright and trademark owners have the power to "shepherd" their creations, making sure that they are not attacked by outsiders who want to prey

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[13] Landes & Posner, *supra* note 10. *See also* Bradford, *supra* note 8, at 743 ("If a brand somehow has been associated with incompatible values or unpleasant images, consumers will be less likely to purchase it."). *Cf.* THOMAS J. MCCARTHY, 4 MCCARTHY ON TRADEMARKS AND UNFAIR COMPETITION § 24:89 (4th ed.) (""Judge Posner used the hypothetical of someone using the famous mark TIFFANY to brand a "strip-tease joint" nightclub, thereby creating the danger of tarnishing the reputation of the famous mark TIFFANY for a chain of up-scale jewelry stores. He argued that: "[B]ecause of the inveterate tendency of the human mind to proceed by association, every time they think of the word "Tiffany" their image of the fancy jewelry store will be tarnished by the association of the word with the strip joint.").

[14] Subsequently we discuss theoretical challenges to this view. *See infra* notes 89-111.

[15] *See, e.g.*, Bradford, *supra* note 8, at 715-16.

[16] *See* Justin Hughes, *"Recoding" Intellectual Property and Overlooked Audience Interests*, 77 TEX. L. REV. 923 (1999)

[17] For example, feminists have long appropriated the image of Barbie to undermine traditional notions of beauty and femininity, while the gay community has converted the Marlboro man into a homosexual icon. *See* Eva Wisem, *Barbie, Sexualization, and Body Image: The Debates Rage On*, THE OBSERVER, May 3, 2013 at http://www.theguardian.com/lifeandstyle/2014/may/04/sports-illustrated-cover-barbie-sexualisation-arguments-feminism-body-image.

on their vulnerabilities and dilute their value.[18] Trademark owners spend considerable attention and resources policing brand identity so the only associations that consumers can form are ones that have been chosen and crafted by the brand.[19] The authors of copyrighted works, too, fear what will happen if the meanings of their works are destabilized by unauthorized uses. For example, Arthur Conan Doyle's heirs have argued that consumers will reject Sherlock Holmes if other authors can depict him with inappropriate features or proclivities.[20]

At the most basic level, any unauthorized associations with marks or works that decrease consumer demand would qualify as tarnishing.[21] In theory, even high status associations with an otherwise low status product might be tarnishing if part of the value of the product was its low status position.[22] In practice, however, tarnishment theory is most concerned about sexual associations with otherwise wholesome products.[23] Once a trademark or work has been sullied by association with sexuality, owners fear that it will no longer be able to produce the positive, moral, decent associations that it once had. Its value will be irrevocably compromised in consumers' minds.

For example, in the copyright context, Disney battled to enjoin the sex-fueled antics of its most famous characters as they appeared in the unauthorized comic, "The Air Pirates."[24] Disney

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[18] On the role of moral metaphors in IP law see Christopher Bucafusco & David Fagundes, *The Moral Psychology of Copyright Infringement*, 100 MINN. L. REV. (forthcoming 2016).

[19] Craig J. Thompson, Aric Rinfleisch, & Zeynep Arsel, *Emotional Branding and the Strategic Value of the Doppelgänger Image*, 70 J. OF MARKETING 50, 53 (2006).

[20] *See* Klinger v. Arthur Conan Doyle Estate, Ltd, 988 F. Supp.2d 879 (N.D. Ill. 2013).

[21] *See* Buccafusco & Heald, *supra* note 4 at 23-28 (studying the possibility of tarnishing novels by exposure to low quality audiobook versions).

[22] One could imagine that the association of Pabst Blue Ribbon beer with upper middle class hipsters might tarnish the PBR brand it the eyes of working class consumers.

[23] *See* MCCARTHY, 4 MCCARTHY ON TRADEMARKS AND UNFAIR COMPETITION § 24:89 (examples of dilution by tarnishment, including "X-rated movies," "adult cartoons," "adult-content Web sites," "adult entertainment," "a topless bar," and "crude humor")

[24] Walt Disney Productions v. Air Pirates, 345 F.Supp. 108, 110 (N.D. Cal. 1972).

sought to protect its "image[s] of innocent delightfulness"[25] from the frontal assault of illustrators who thought that raunchy sex, drug use, and robbery better fitted the Disney crew.

Figure 1 – *Air Pirates* Mickey
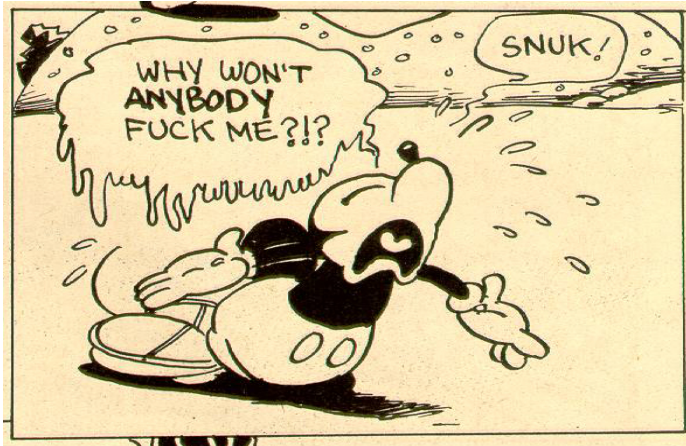
Disney succeeded in its copyright claim for injunctive relief against the infringers.[26] Years later, Judge Kozinski explained, "What I think actually motivated the court in that case, as in the case of the Dallas Cowboys cheerleaders, is that unsavory use of the characters was inconsistent with the images of the products and would have had an unfairly destructive effect on them."[27]

The anti-tarnishment protections of trademark and copyright law exist to give owners substantial control over their creations and the associations that they generate. That control is especially desired to prevent sexualization of otherwise wholesome marks and works. Perfect

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[25] *Id*.

[26] *Id*. Some courts and scholars doubt that this case would come out the same way today after the Supreme Court's decision in *Campbell v. Acuff-Rose Music, Inc.*, 510 U.S. 569 (1994). *See* Hustler Magazine Inc. v. Moral Majority, Inc. 606 F.Supp. 1526, 1537 n. 3 (C.D. Cal. 1985) ("In light of the Supreme Court's decision in *Sony Corp.,* however, which found fair use despite wholesale reproduction of a copyrighted work, the Ninth Circuit's position on this issue is clearly no longer controlling."). *See* Pamela Samuelson, *Possible Futures of Fair Use*, 90 WASH. L. REV. 815, 823-34 (2015) ("[One] contribution of *Campbell* to the evolution of fair use law was the Court's disinclination to give weight to the arguably distasteful or vulgar nature of 2 Live Crew's rap parody version of Roy Orbison's song. The Sixth Circuit had taken vulgarity into account as weighing against fair use. Judge Souter's opinion, however, returned to copyright first principles and aesthetic nondiscrimination in counseling against making any fair use judgments on the quality of the commentary.").

[27]Alex Kozinski, *Trademarks Unplugged*, 68 N.Y.U. L. REV. 960, 967 (1993). The case to which he refers involved the use of the Dallas Cowboy Cheerleader uniform in the movie *Debbie Does Dallas*. Dallas Cowboys Cheerleaders, Inc. v. Pussycat Cinema, Ltd., 604 F.2d 200 (2d Cir. 1979) (upholding injunction of film for trademark violation).

control is neither possible nor desirable, but the law attempts to protect marks and works from the tarnishment imposed by sexual associations. The following sections explain the legal doctrines that exist to prevent tarnishment.

B. Trademark Dilution Law

Traditionally, trademark law existed to protect consumers of goods from mischievous sellers who would pass off their inferior goods as those of a superior merchant. Accordingly, trademark law prevents the use of a mark that might mislead consumers about the source of the goods to which it is attached.[28] Over time, however, trademark law has expanded beyond its focus on consumer protection into the realm of mark protection. Trademark "dilution" doctrine focuses on the economic value of the mark irrespective of consumer confusion.[29]

Congress has provided protection to the owners of well-known marks against a third party use that "is likely to cause . . . dilution by tarnishment . . . regardless of the presence or absence of actual or likely confusion, of competition, or of actual economic injury."[30] Tarnishment is defined as an "association arising from the similarity between a mark or trade name and a famous mark that harms the reputation of the famous mark."[31] The Second Circuit explains that "[t]arnishment is a form of trademark dilution which occurs when a trademark is linked to products of inferior quality or when it is placed in an 'unsavory or unwholesome' setting which diminishes the commercial appeal of the mark."[32] The statute provides that "identifying and parodying" a mark are not actionable,[33] but parody is defined narrowly to

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[28] *See* RESTATEMENT (THIRD) OF UNFAIR COMPETITION § 25, cmt. b. (1995)
[29] *Id.*cmt. a.
[30] 15 U.S.C. § 1125(c)(1).
[31] 15 U.S.C § 1125(c)(2)(C).
[32] Hormel Foods Corp. v. Jim Henson Prods., 73 F.3d 497, 507, 37 U.S.P.Q.2d 1516, 1524 (2d Cir. 1996) ("The sine qua non of tarnishment is a finding that plaintiff's mark will suffer negative associations through defendant's use.").
[33] 15 U.S.C. § 1125(c)(3)(A).

protect only those third party uses that actually mean to comment upon the trademark owner.[34]

The harm associated with tarnishment attaches to the value of the mark as such. The law treats consumers as attaching positive economic or social value to trademarks, for example, the Polo pony, the Nike swoosh, or Mickey Mouse's ears. According to tarnishment theory, people may buy fewer shirts, sneakers, or trips to an amusement park once they have been exposed to uses of their favorite marks in lewd, obscene, or degenerate contexts. The owners of these marks may also suffer non-monetary reputational damage, and, in addition, consumers themselves may suffer if the fond associations they attach to marks are sullied. In theory, trademark tarnishment doctrine prevents these diminutions in value by subjecting them to liability.

Importantly, when the defendant's use of the mark is associated with sexuality, courts trust their intuitions and do not require plaintiffs to prove harm. In one such case, a Florida bank sued a strip club for trademark tarnishment for using the same term that the bank used to refer to its automated teller machine: "Cookie Jar." The strip club's billboard announced "Annie's Cookie Jar" as "Adult Entertainment" and "The most fun you can have in town (with your clothes on!)."[35] Although the plaintiff offered no direct evidence on the issue of actual injury, it submitted a photo of the bulletin board advertising the strip club.[36] That satisfied the court: "Appellee argues that 'Appellant failed to produce evidence of any nature whatsoever to suggest actual or likely injury to itself, or ... dilution of its mark.' However, we regard the exhibits of record, including photographs of appellee's billboard, as potent witnesses . . ."[37] The *Restatement (Third) of Unfair Competition* uses the "Cookie Jar" case as a prime illustration of tarnishment

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[34] *See infra* notes 51-54.

[35] *See* Community Federal Savings & Loan Association v. Orondorff, 678 F.2d 1034, 1035 (11th Cir. 1982).

[36] *Id*. at 1037.

[37] *Id.*

theory in action.[38]

Perhaps the most extreme example of the treatment of sexuality in tarnishment cases involved a seller of sexual products called Victor's Little Secret which was sued by the lingerie chain Victoria's Secret.[39] Despite the inherently sexual nature of the plaintiff's business, the Sixth Circuit held that the law "creates a kind of rebuttable presumption, or at least a very strong inference, that a new mark used to sell sex related products is likely to tarnish a famous mark if there is a clear semantic association between the two."[40] The court reasoned that the association "between a famous mark and lewd or bawdy sexual activity disparages and defiles the famous mark and reduces the commercial value of its selling power."[41] The court noted that it was making "an economic prediction about consumer taste and how the predicted reaction of conventional consumers in our culture will affect the economic value of the famous mark."[42] The court seemed to be predicting that even naughty marks can be tarnished by yet naughtier associations.

The court did not offer empirical support for its prediction about how "conventional consumers" will respond to sexual content. Instead, the court cites eight different cases from six jurisdictions in support of its presumption that sexual associations are tarnishing.[43] In fact, the

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[38] *See* RESTATEMENT (THIRD) OF UNFAIR COMPETITION § 25, cmt g. (1995).

[39] V Secret Catalogue, Inc. v. Victoria's Secret Stores, Inc., 605 F.3d 382 (6th Cir. 2010).

[40] *Id.* at 388 ("places on the owner of the new mark the burden of coming forward with evidence that there is no likelihood or probability of tarnishment. The evidence could be in the form of expert testimony or surveys or polls or customer testimony."). *See also* Jessica Taran, *Dilution by Tarnishment a Case for Vulgar Humor*, 7 INTELL. PROP. L. BULL. 1 (2002) ("Courts, although not explicitly, have held that any association of a famous mark with pornographic material is per se tarnishing."). This presumption has been criticized by a leading commentator in the field. See MCCARTHY, 4 MCCARTHY ON TRADEMARKS AND UNFAIR COMPETITION § 24:89 ("The majority's creation of a presumption of dilution by tarnishment if there is use on 'sex related products' is wildly misguided.").

[41] *V Secret Catalogue*, 605 F.3d at 388.

[42] *Id.* at 389.

[43] *Id* at 388 ("*See* Pfizer Inc. v. Sachs, 652 F.Supp.2d 512, 525 (S.D.N.Y.2009) (defendants' display at an adult entertainment exhibition of two models riding a VIAGRA-branded missile and distributing condoms would likely harm the reputation of Pfizer's trademark); Williams–Sonoma, Inc. v. Friendfinder, Inc., No. C 06–6572 JSW (MEJ), 2007 WL 4973848, at *7 (N.D.Cal. Dec. 6, 2007) (defendants' use of POTTERY BARN mark on their sexually-oriented websites likely to tarnish 'by associating those marks for children and teenager

Sixth Circuit found "no exceptions in the case law that allow such a new mark associated with sex to stand."[44] If the court had looked a little harder, it could have found even more support for its sex exceptionalism. In *Hasbro, Inc. v. Internet Entertainment Group, Ltd.*,[45] the court enjoined the use of CANDYLAND.COM for use on an adult entertainment web site, holding that the reputation of the children's board game was in grave danger. Similarly, a court found that a defendant's clever condom-containing gold card labeled with the motto, "Never leave home without it," tarnished the reputation of the American Express Company.[46] The Sixth Circuit could also have bolstered its reasoning by reference to *Toys "R" Us, Inc. v. Akkaoui,*[47] which found that the TOYS 'R US trademark was tarnished by the use of ADULTSRUS.COM as a domain name for a pornographic web site.

The assumption that sexual uses of mark are presumptively tarnishing stands in contrast to most trademark confusion cases in which the plaintiff usually will introduce survey evidence about consumer beliefs.[48] To prove that consumers are confused by similar marks, for example,

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furnishings'); *Kraft Foods Holdings, Inc. v. Helm,* 205 F.Supp.2d 942, 949–50 (N.D.Ill.2002) (pornographic website's use of 'VelVeeda' tarnishes VELVEETA trademark); Victoria's Cyber Secret Ltd. P'ship v. V Secret Catalogue, Inc.*,* 161 F.Supp.2d 1339, 1355 (S.D.Fla.2001) (defendants' internet trade names likely to tarnish famous mark when websites 'will be used for entertainment of a lascivious nature suitable only for adults'); Mattel, Inc. v. Internet Dimensions Inc.*,*2000 WL 973745, 55 U.S.P.Q.2d 1620, 1627 (S.D.N.Y. July 13, 2000) (linking BARBIE with pornography will adversely color the public's impressions of BARBIE); Polo Ralph Lauren L.P. v. Schuman, 46 U.S.P.Q.2d 1046, 1048 (S.D.Tex.1998) (defendants' use of 'The Polo Club' or 'Polo Executive Retreat' as an adult entertainment club tarnished POLO trademark); Pillsbury Co. v. Milky Way Prods., Inc.*,* 1981 WL 1402, 215 U.S.P.Q. 124, 135 (N.D.Ga. Dec. 24, 1981) (defendant's sexually-oriented variation of the PILLSBURY DOUGHBOY tarnished plaintiff's mark); *Dallas Cowboys Cheerleaders, Inc. v. Pussycat Cinema, Ltd.,* 467 F.Supp. 366, 377 (S.D.N.Y.1979) (pornographic depiction of a Dallas Cowboys Cheerleader-style cheerleader in an adult film tarnished the professional mark of the Dallas Cowboys).
[44] *Id*.
[45] 40 U.S.P.Q.2d 1479, 1996 WL 84853 (W.D. Wash. 1996).
[46] Am. Express Co. v. Vibra Approved Labs. Corp., 10 U.S.P.Q.2d (BNA) 2006.
[47] 40 U.S.P.Q.2d 1836, 1996 WL 772709 (N.D. Cal. 1996).
[48] 6 J. THOMAS MCCARTHY, MCCARTHY ON TRADEMARKS AND UNFAIR COMPETITION § 32:158 (4th ed. 2014) ("To an extent not true in other fields of law, in trademark and false advertising disputes the perceptions of large groups of ordinary people are key factual issues."); Robert Thornburg, *Trademark Surveys: Development of Computer-Based Survey Methods*, 4 J. MARSHALL REV. OF INTELL. PROP. L. 91 (2004); Irina Manta, *In Search of Validity: A New Model for the Content and Procedural Treatment of Trademark Surveys*, 24 CARDOZO ARTS & ENTER. L. J. 1027 (2007); Jerre Swan, *Likelihood of Confusion Surveys and the Straightened Scope of Squirt*, 98 TRADEMARK RPTR 739 (2008).

the plaintiff will commission a survey of consumers to test whether they believe that the defendant's mark is related to the plaintiff's mark.[49] In the tarnishment context, however, plaintiffs can simply rely on the presumption that sex tarnishes. According to one scholar, "What may be gathered from analyzing the tarnishment cases up to date is that a showing of injury is not necessary if the trademark is placed in a type of setting a particular court finds offensive . . . an association with drugs or pornography will necessarily tarnish the image of trademark."[50]

There are certain circumstances, however, in which defendants may avoid liability for otherwise tarnishing uses if they can establish that they were parodying the plaintiffs' marks. Defendants seeking to rely on a parody exception, however, must do far more than argue they are trying to be funny, ironic, or satirical when using the famous trademark. Sarah Burstein summarizes the case law and suggests that a parody is permitted only if: 1) The parody targets the famous mark owner or the mark owner's goods or services; and 2) the parody does not serve "as a designation of source" for the parodist's "own goods or services."[51] Thus, a porn parody of the movie *Stars Wars* has been allowed,[52] as has a raunchy parody of Carol Burnett's melancholy cleaning lady by the television show *Family Guy*.[53] Burstein notes, however, that "the holders of the rights to the 'Tarzan' character may still have a claim against the producers of the adult film entitled *Tarz & Jane & Boy & Cheeta* and featuring famous Tarzan characters."[54] The Tarzan name, invoked in the title, can be seen as a designation of source of the defendant's own work,

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[49] *See* Shari Seidman Diamond & David J. Franklyn, *Trademark Surveys: An Undulating Path*, 92 TEX. L. REV. 2029, 2037 (2014) ("In a survey assessing likelihood of confusion, consumers are exposed to the allegedly infringing mark and their reactions are measured.)".

[50] Taran, *supra* note 44, at XX ("The Restatement (Third) on Unfair Competition recognizes that the harm caused by tarnishment is the loss of selling power by the trademark. However, the comments suggest that certain 'inherently negative or unsavory associations' such as 'illicit drugs or pornography' are presumptively tarnishing.").

[51] Sarah Burstein, *Dilution by Tarnishment: The New Cause of Action*, 98 TRADEMARK REP. 1189, 1244 (2002).

[52] *See* Lucasfilm Ltd. v. Media Market Group, Ltd., 182 F. Supp. 2d 897, 901 (N.D. Cal. 2002).

[53] *See* Burnett v. Twentieth Century Fox Film Corp, 491 F. Supp. 2d 962 (C.D. Cal. 2007).

[54] Burstein, *supra* note 51 at 1224.

and the trademarked characters themselves, if invoked explicitly enough, may also serve as source indicators.[55] In addition, to avoid liability, the defendant's movie must clearly be targeting the original *Tarzan* as an object of commentary, rather than simply appropriating it in a lewd context.[56]

C. Copyright Tarnishment

Tarnishment theory is not as doctrinally engrained in copyright law as it is in trademark law, but it still enters into two important aspects of copyright law: fair use and term extension. In both, the risk that tarnishment can devalue works provides a strong argument in favor of giving copyright owners greater control over their works. We first explain the nature of U.S. copyright law, and then we explore claims about tarnishment and how copyright law can address it.

1. The Copyright Balance

In the U.S., copyright law rests on a consequentialist rationale of optimizing creative production by providing authors with incentives to create new works.[57] Novels, songs, and movies are expensive to create but very easy to copy.[58] Accordingly, in the absence of copyright law, copyists would simply reproduce all of the successful works, resulting in competition that would drive the price of copies down to the marginal cost of reproduction. In such a world, authors would never be able to recoup their investments in time and resource that they spent creating the work in the first place.[59] Copyright law solves this problem by giving authors a

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[55] *See id.*
[56] *See id.* at 1244.
[57] Mark A. Lemley, *Ex Ante versus Ex Post Justifications for Intellectual Property*, 71 U. CHI. L. REV. 129, 129 (2004).
[58] *Id.*
[59] *See* Christopher Buccafusco & Jonathan S. Masur, *Innovation and Incarceration: An Economic Analysis of Criminal Intellectual Property Law*, 87 S. CAL. L. REV. 275, 281 (2014).

period of exclusive control over their works during which they can charge prices above the marginal cost of reproduction.

In addition, copyright law also gives authors the right to create "derivative" versions of their works.[60] An author of the novel owns the exclusive right to turn it into a movie, and the creator of a movie owns the exclusive right to produce sequels.[61] Similarly, copyright law extends protection to certain characters in a work, preventing others from using them in separate works or telling new stories about them.[62] Rights in derivative works and characters provided additional value for authors.[63] Just as importantly, from the perspective of tarnishment theory, they allow authors to control uses of their works in subsequent productions. If Sylvester Stallone thinks it would be bad for the Rocky character to be portrayed as racist and homophobic, then Stallone's derivative works rights would provide protection.[64]

Although authors need some financial incentive to create new works, granting those incentives is costly to society. Because authors can charge higher prices for their works, some people who would have been willing to pay for the work if it were priced at marginal cost will now not be willing to pay for the work at the higher price. These lost readers, listeners, and viewers represent a "deadweight loss" that is the result of the copyright grant, and the pleasure they would have gotten from experiencing the copyrighted works is a welfare loss.[65] Accordingly, copyright law must balance the initial incentive provided to authors with the cost of

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[60] 17 U.S.C. §106 (establishing the copyright owner's exclusive rights, including the right to create derivative works).

[61] 17 U.S.C. §101 (defining "derivative work").

[62] Zahr Said, *Fixing Copyright in Characters: Literary Perspectives on a Legal Problem*, 35 CARDOZO L. REV. 769 (2013).

[63] *See* Mark A. Lemley, *The Economics of Improvement in Intellectual Property Law*, 75 Tex. L. Rev. 989, 997-98 (1997); Stefan Bechtold, Christopher Buccafusco & Christopher J. Sprigman, *Innovation Heuristics: Experiments on Sequential Innovation in Intellectual Property*, INDIANA L.J. (forthcoming 2016).

[64] *See* Stallone v. Anderson, 1989 WL 206431 (C.D. Cal. 1989) (dismissing lawsuit of author who wrote an authorized script for a new Rocky movie against Stallone for using aspects of the script in his own sequel).

[65] *See* Buccafusco & Masur, *supra* note 59.

decreased access to their works.[66] This is typically accomplished by having copyright terms expire after a certain period—in the U.S., seventy years after the death of the author for most works.[67]

In addition to limiting authors' rights over time, copyright law also limits their rights to prevent certain uses of their works during the copyright period. Certain uses of copyrighted works are deemed too important to society to allow authors to squelch them. These uses—which copyright law calls "fair uses"—are an exemption from the statutory grant given to authors.[68] Thus, uses of a work for purposes of criticism, comment, and education are deemed "fair," and authors may not prevent other authors from engaging in them.[69] One of the most discussed categories of fair use is parody in which a second creator mocks or pokes fun at an original work by copying aspects of its style.

In ruling that 2 Live Crew's version of Roy Orbison's "Pretty Woman" was likely a parodic fair use, the U.S. Supreme Court explained, "Like less ostensibly humorous forms of criticism, [parody] can provide social benefit, by shedding light on an earlier work, and, in the process, creating a new one."[70] And although this criticism could harm the market value of the work, copyright law would still tolerate it. The Court noted that "when a lethal parody, like a scathing theater review, kills demand for the original, it does not produce a harm cognizable under the Copyright Act."[71] Nonetheless, the Court clarified that there remained a "distinction

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[66] Stewart E. Sterk, *Rhetoric and Reality in Copyright Law*, 94 Mich. L. Rev. 1197, 1207 (1996) ("At some point, giving authors additional copyright protection will reduce the supply of new works because the number of marginal authors deterred from creating by the high cost of source material will exceed the number encouraged to create by the increased value of a work associated with a marginal increase in copyright protection.").

[67] 17 U.S.C. §302 (establishing the duration of copyrighted works).

[68] *See* 17 U.S.C. § 107.

[69] *Id.*

[70] *Campbell*, 510 U.S. at 579.

[71] *Id*. at 591-92.

between potentially remediable displacement and unremediable disparagement."[72] In this and other fair use cases, then, understanding the impact of a use on the market for the plaintiff's work is essential.

The above discussion focused exclusively on the economic consequences of uses of creative works because, in the U.S., these effects are the only ones that matter. An author's hurt feelings and moral outrage play no overt role in in U.S. copyright law.[73] By contrast, many European countries' laws and international treaties make specific provisions for authors' "moral rights," which prevent certain uses of works that degrade or desecrate the author or her work.[74] Although there is much to be discussed about the relationship between tarnishment and moral rights, we set these issues aside for now to maintain our focus on the economic consequences of tarnishment.

2. Tarnishment in Copyright Doctrine

Tarnishment theory asserts that when people are exposed to inappropriate uses of a work, they develop unpleasant associations with the work that undermine its value and attractiveness to them. In theory, if copyright owners have greater control over their works and can prevent tarnishing uses, the work's value is maintained and social welfare is increased.

a. Derivative Works, Fair Use, and Tarnishment

The tarnishment hypothesis has important implications for the derivative works right and fair use law. Copyright law gives authors exclusive rights to create derivative works, including new works with the same characters. These rights are limited, however, by the fair use doctrine. To a large degree, then, the derivative work right and fair use are opposite sides of the same

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[72] *Id*. at 592.

[73] Buccafusco & Fagundes, *supra* note 18, at YY.

[74] Russell J. DaSilva, *Droit Moral and the Amoral Copyright: A Comparison of Artists' Rights in France and the United States*, 28 Bull. Copyright Soc'y U.S.A. 1 (1980) (distinguishing European and U.S. copyright systems on the basis that the former is suffused with morality, while the latter is indifferent to it).

coin.[75] The line between them—infringing derivative work or fair use—is often fought on the battlefield of tarnishment theory.

Not surprisingly, copyright authors are loathe to see their characters portrayed in ways that they disapprove of. This could include portrayals of the characters displaying different features or attitudes,[76] being played by actors of different races,[77] or engaging in unseemly behaviors.[78] They fear that such portrayals will produce new and harmful associations for consumers that will devalue the original works. People may be less inclined to buy Barbie dolls for their children when they have seen images of the dolls dressed as sex slaves.

In general, most of these uses of the work are treated as prima facie copyright infringement subject to the fair use defense.[79] In tarnishment cases, the two most important aspects of fair use law are the inquiries into the "purpose and character" of the defendant's use and the effect of that use on the market for the plaintiff's work.[80] Accordingly, it is important to understand how allegedly tarnishing pornographic uses affect the tarnished work.

Courts have occasionally enjoined adult-themed uses of a copyright work because they sullied the underlying work. For example, in 1981 the Second Circuit rejected a fair use claim by the author of a "take off" of the song "Boogie Woogie Bugle Boy of Company B" called "Cunnilingus Champion of Company C."[81] In 1997, the Ninth Circuit relied, in part, on the substantial "good will and reputation" of Dr. Seuss's *Cat in the Hat* book in rejecting fair use arguments in favor of a parody of the O.J. Simpson trial using the children's book's style and

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[75] That is, if a work is an infringing derivative work, it is not a fair use, and if a work is a fair use, it is not an infringing derivative work.

[76] Salinger v. Colting, 641 F. Supp. 2d 250, 256 (S.D.N.Y. 2009)..

[77] Anthoney Tommasini, *All Black Casts for Porgy? That Ain't Necessarily So*, NYT On-line (March 20,2002) at http://www.nytimes.com/2002/03/20/arts/critic-s-notebook-all-black-casts-for-porgy-that-ain-t-necessarily-so.html?pagewanted=all.

[78] Walt Disney Prods. v. Air Pirates, 581 F.2d 751 (1978).

[79] *See* 17 U.S.C. § 107.

[80] *Id*.

[81] MCA, Inc. v. Wilson, 677 F.2d 180 (2d Cir. 1981).

characters.[82] In other cases, however, courts have allowed fair use defenses when the infringing use parodied the copyrighted work.[83] In these cases, courts have generally ruled that even though the parody may denigrate the original, leading to its devaluation, such harm is not part of the cognizable copyright interest.[84] This is because the social value associated with parody and criticism is thought to outweigh whatever harm the initial author may suffer.[85] Tarnishing uses that can claim parodic status are mostly insulated from any market harm that they cause.

Most of these fair use cases turn on whether the defendant's use can be characterized as a parody or not. But not all of the potentially tarnishing uses of a work are parodies. For example, many unauthorized pornographic movie versions simply borrow the underlying movie's main characters and plot while incorporating graphic sex scenes throughout. In these situations, understanding the pornographic version's impact on the market for the underlying work is essential to judging fair use claims.

b. Tarnishment and Term Extension

Tarnishment theory has also emerged in copyright law in debates about term extension. One way of increasing an owner's control over a work is by lengthening the term of copyright protection. When Congress retroactively extended the copyright terms of existing works by twenty years in 1998, it knew that doing so would not create any additional incentives for authors of those works.[86] Instead, economists justified the law, in part, as a way of increasing owners' control over their works to prevent unauthorized and inappropriate uses that might sap

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[82] Dr. Seuss Enterprises v. Penguin Books USA, Inc., 109 F.3d 1394 (9th Cir. 1997).

[83] *See, e.g.*, *Campbell*, 510 U.S. at 578-94.

[84] *Id.* at 591-92.

[85] *See, e.g.*, Mattel, Inc. v. Walking Mountain Productions, 353 F.3d 792, 806 (9th Cir. 2003) ("Finally, the public benefit in allowing artistic creativity and social criticism to flourish is great. The fair use exception recognizes this important limitation on the rights of the owners of copyrights. [. . .]It is not in the public's interest to allow Mattel complete control over the kinds of artistic works that use Barbie as a reference for criticism and comment.").

[86] Paul J. Heald, *Property Rights and the Efficient Exploitation of Copyrighted Works: An Empirical Analysis of Public Domain and Copyrighted Bestsellers*, 92 MINN L. REV. 1031 (2008).

their cultural value.[87] Had Mickey Mouse been allowed to enter the public domain as expected, Disney could not have used copyright law to prevent others from depicting Mickey in situations and contexts that might prove upsetting and harmful to viewers. By extending the copyright term, Mickey was saved from such humiliation.

Landes and Posner have offered a more technical argument in favor of extending copyright terms to prevent tarnishment, but their claim is fundamentally identical.[88] As discussed above, copyright law represents a tradeoff between the rights given to authors and the costs of those rights to the public. One of those costs is the deadweight loss from consumers unwilling or unable to pay the high prices associated with copyrights. When a work enters the public domain, those costs largely disappear as others can reproduce the work, driving down its price.

Landes and Posner note, though, that the benefit of the work entering the public domain may be offset by the costs associated with tarnishing uses of it. Once people can depict Mickey Mouse in pornographic situations, Mickey's value and the demand for Mickey-related products will erode. If this reduction in demand is sufficiently large, it can offset whatever social welfare benefits were gained by the reduction of deadweight losses. Accordingly, Landes and Posner argue that works of enduring social value should be able to obtain indefinitely renewable copyrights.

D. Skepticism about Tarnishment

Tarnishment theory has been subject to withering criticism, both theoretically and anecdotally. For example, Dennis Karjala and Mark Lemley have separately argued that whatever harm may arise from tarnishment does not produce social welfare losses if consumers

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[87] Landes & Posner, *supra* note 13
[88] *Id*.

simply switch to other works. The devaluation of one work might simply create an opportunity for another work to succeed.[89] This kind of "creative destruction" is no worse for social welfare than the invention of the car was for producers of horse-drawn buggies.[90] If Frodo and Bilbo. Baggins are tarnished by appearing in a sexually explicit movie, then consumers may just switch to purchasing the Harry Potter series or the Narnia books.[91]

Understanding the social welfare effects of tarnishment is further complicated by the potential benefits associated with tarnishing activity. In general, U.S. law tries to limit impositions on people's ability to express themselves and their beliefs. The law's commitment to free speech may be implicated by limitations on creators' opportunities to depict Mickey Mouse or Spiderman in ways that are inconsistent with the original owners' desires. These issues are particularly complicated when they involve political, moral, or religious contentions over the use and meaning of marks or characters. Although Scientologists may be deeply offended by a portrayal of L. Ron Hubbard and the teachings of Scientology on the satirical cartoon *South Park*, non-believers may find it hilarious.[92] Dozens of scholars have examined the free speech

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[89] "A change in the demand curve for a work, however, while showing a change in how much society values that particular work relative to whatever else is available, says nothing about the total value to society of all the goods and services available." Karjala, *supra* note 2, at 1072.

[90] *Id*. He writes, "It is most plausible that society has shifted the focus of its entertainment dollars in other directions, to the dismay of Disney but to the delight of the producers of products that are now substituting for Mickey."

[91] Copyright owners might respond, however, that producing works takes substantial investment of resources, and they might not be willing to make those investments if their works can be so easily undermined once they become valuable. Moreover, there might be switching costs for consumers who have to tear down their Lord of the Rings posters and replace them with Harry Potter posters. Those consumers might have been better off not having to invest in new posters, t-shirts, and email passwords. To the extent that consumers use trademarks and works to signify social status or convey social meanings about themselves, tarnishing those signals could impose unnecessary costs on their ability to do so. It could be very expensive to have to throw out one's entire collection of Burberry after it became associated with "chavs." *See* Jeremy Scheff, *Brand Renegades*, 1 N.Y.U. J. INTELL. PROP. & ENT. L. 128, 128 (2011).

[92] *See South Park: Trapped in the Closet*, Season 9, Episode 12 (Comedy Central television broadcast Nov. 16 2005. The episode was nominated for an Emmy Award.

implications of trademark and copyright law, and many have expressed concern that these fields excessively protect owners' interests at the expense of 1st Amendment principles[93]

In addition, other scholars doubt the empirical claims supporting tarnishment theory. There is, of course, substantial anecdotal counter-evidence to tarnishment theory. Mickey Mouse, Santa Claus, and Barbie have been subjected to endless ridicule and degradation, and yet they remain well-loved and valuable characters. In fact, Susan Fournier and Jill Avery suggest, "When a brand stands as a target of parody, this can be an indication of much-coveted cultural resonance for the original advertising campaign."[94] Being the subject of tarnishment implies that the brand or work has achieved sufficient social awareness to be worth teasing. Fournier and Avery are particularly skeptical of claims of damage when a parody does not satirize its target, and even argue that unauthorized uses can "increase brand and advertising awareness, producing effects that are positive if not simply benign."[95] They cite numerous examples of trademark owners encouraging parody memes that they deem to be beneficial to the value of their brands,[96] while also noting some vigorous defenses launched by trademark owners against unauthorized users.[97]

Laura Bradford argues that even when tarnishment occurs, it may be ameliorated or eliminated by common cognitive processes.[98] People's attitudes, including their attitudes towards creative works, can be strongly resistant to alteration.[99] She suggests that "[p]eople who

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[93] *See, for example*, David McGowan, *Some Realism About the Free-Speech Critique of Copyright*, 74 FORDHAM L. REV. 435 (2005).
[94] Susan Fournier & Jill Avery, *The Uninvited Brand*, 54 BUS. HORIZONS 193 (2011).
[95] *Id*. at 202.
[96] *Id*. (Snuggies is the best).
[97] *Id*. at 201.
[98] Bradford, *supra* note 8 at 760-67.
[99] *Id*. at 761, *citing* ALICE H. EAGLY & SHELLY CHAIKEN, THE PSYCHOLOGY OF ATTITUDES 590-608 (1993); James L. McGaugh, *Emotional Activation, Neuromodulatory Systems, and Memory, in* MEMORY DISTORTION: HOW MINDS, BRAINS, AND SOCIETIES RECONSTRUCT THE PAST 255, 255 (Daniel L. Schacter ed., 1995); *see also* Melanie C. Green, Jennifer Garst, & Timothy C. Brock, *The Power of Fiction: Determinants & Boundaries, in* THE

have a long history of positive relations with a work, such as an iconic novel like *Gone With the Wind*, are likely to discount any information that might persuade them to change their attitude."[100] In addition, consumers also consider the source of information about a work or a brand to be critically important. An inconsistent message will be discounted if the source of the message is clearly known to be an unauthorized user.[101] Consumers may be able to cabin effectively a variety of different meanings and messages as long as they are not confused about their sources.

Tarnishment may also be correlated with the frequency with which consumers encounter an inconsistent message. Bradford cites research that very frequent exposure to a work, even in its original form, may cause consumer attitudes toward it to change.[102] If so, then an unauthorized use of a work in an advertisement that consumers find difficult to avoid will be more likely to cause damage. When consumers must make an affirmative effort to find an unauthorized use, by searching for it on YouTube, for example, then the danger caused by the

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PSYCHOLOGY OF ENTERTAINMENT MEDIA: BLURRING THE LINES BETWEEN ENTERTAINMENT & PERSUASION 161, 172-73 (L. J. Shrum, ed., 2004) (noting the strength of attitudes formed through experience of fiction, though also noting at least one theory as to why those attitudes may be more vulnerable to counterpropaganda).

[100] Bradford, *supra* note 8 at 762, *citing* David W. Schumann, *Media Factors That Contribute to a Restriction of Exposure to Diversity, in* THE PSYCHOLOGY OF ENTERTAINMENT MEDIA: BLURRING THE LINES BETWEEN ENTERTAINMENT AND PERSUASION 235-36 (L.J. Shrum ed., 2004). She notes, however, that newer works may be less resistant to inconsistent messages and asserts that they may be entitled to more protection than iconic works.

[101] *Id.* at 76. She argues this is consistent with "the phenomenon observed by Tushnet and others that users seem not to mind unauthorized reworkings of popular texts in the form of fan fiction or parody so long as one 'orthodox' version exists." *Id.*, *citing* Benjamin A. Goldberger, *How the "Summer of the Spinoff" Came to Be: The Branding of Characters in American Mass Media*, 23 LOY. L.A. ENT. L. REV. 301, 353 (2003); Rebecca Tushnet, *Legal Fictions: Copyright, Fan Fiction, and a New Common Law*, 17 LOY. L.A. ENT. L. REV 651, 672-73 (1997).

[102] *Id.* at 765, *citing* John T. Cacioppo & Richard E. Petty, *Central and Peripheral Routes to Persuasion: The Role of Message Repetition, in* PSYCHOLOGICAL PROCESSES AND ADVERTISING EFFECTS: THEORY, RESEARCH, AND APPLICATIONS 185 (Linda F. Alwitt & Andrew A. Mitchell eds., 1985); Bobby J. Calder & Brian Sternthal, *Television Commercial Wearout: An Information Processing View*, 17 J. MARKETING RES. 173, 185-86 (1980) (repetition of television ads).Lynn Hasher et al., *Frequency and the Conference of Referential Validity*, 16 J. VERBAL LEARNING & VERBAL BEHAV. 107, 107-12 (1977); Scott A. Hawkins & Stephen J. Hoch, *Low-Involvement Learning: Memory Without Evaluation*, 19 J. CONSUMER RES. 212, 214 (1992); Herbert E. Krugman, *The Impact of Television Advertising: Learning Without Involvement*, PUB. OPINION Q. 349, 354 (1965); Eagly & Chaiken, *supra* note 21 at 413 & 427; Alan Sawyer, *Repetition, Cognitive Responses, and Persuasion, in* COGNITIVE RESPONSES IN PERSUASION 254 (Richard E. Petty et al. eds., 1981).

frequency effect is less likely to be present.[103] Finally, tarnishment may be less likely when the unauthorized use is subject to systematic or high level cognitive processing.[104] When an unauthorized use requires significant processing capacity, e.g. it is a book or a movie that must be thoughtfully consumed, there would be a lower likelihood of damage. A brief encounter with the unauthorized work which could be processed subliminally may be more likely to change a consumer's attitude.

One of the few quantitative studies of the effect of parody on the targeted work,[105] may illustrate role that resistance, source effects, frequency of exposure, and level of processing effort can play in minimizing tarnishment. Erickson, Kretschmer, and Mendes studied 8299 unauthorized YouTube parodies of the top 100 U.K. charting songs of 2011. They reported an average of 24 parodies per song and tracked the sales of the songs as the parodies appeared.[106] They found no substitution effect and found a positive correlation between the sales of a song and the number of views of the parodies of the song.[107] They concluded that the possibility of reputational harm to the song was minimal, especially given the fact that only 1.5% of the parodies took a "directly negative stance" and actively discouraged the purchase of the original.[108]

Perhaps this is not surprising. Fournier and Avery suggest that the existence of parody can be a signal of success.[109] Per Bradford's framework, consumer resistance to a change in the meaning of a favorite song may be quite high, and Erickson, *et al.,* report that 78% of all

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[103] Bradford, *supra* note 8 at 765-66.
[104] *Id*. at 766-67.
[105] *See* Kris Erickson, Martin Kretschmer, & Dinusha Mendes, *Copyright and The Economic Effects of Parody: An Empirical Study of Videos on the YouTube Platform and an Assessment of Regulatory Options*, REPORT OF THE INTELLECTUAL PROPERTY OFFICE OF THE UNITED KINGDOM (2013), *available at* http://www.ipo.gov.uk/ipresearch-parody-report3-150313.pdf.
[106] *Id*. at 9.
[107] *Id*. at 10-11.
[108] *Id*. at 11.
[109] Fournier & Avery, *supra* note 94 at 202.

parodists appear themselves in the parody,[110] which helps make the source of the parody clear and enhances the consumer ability to cabin responses. Both frequency of exposure and subliminal processing effects are reduced by the fact that viewers of the parodies must actively search for them on YouTube and find them. No third party is "wearing out" the song against the consumers' will, and an intentionally-found parody is likely to be systematically processed at a high level of cognition, reducing potential negative subliminal effects.

The Erickson, Kretschmer, and Mendes study suggested to us that finding a tarnishing effect might be more likely when consumers are exposed to unauthorized images which they have not sought out. In addition, consumers may be less able to resist a corrupting message if they have not first formed a strong prior opinion about the work subject to the unauthorized use. Finally, given that the study found mostly friendly, mocking parodies, we speculated that a more negative exposure might be more damaging. Consumers might react more negatively to an unsought-out association of a copyrighted work or a trademark with pornography, a fear already articulated, but untested, in the commentary and case law.

Tarnishment theory has played a significant role in trademark and copyright law in the last half century, often leading to stronger protections for owners against potentially tarnishing uses. This has been especially true in the context of sexual uses of existing works. Despite its importance and the growing scholarly concerns about it, tarnishment theory has never been systematically tested. This is particularly surprising, since the fundamental premises of tarnishment theory are easily subject to experimental investigation. Our previous experiment on audiobooks, however, is one of the only studies examining the issue.[111] Here, we expand that

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[110] Erickson *et al.*, *supra* note 105 at 3.
[111] Buccafusco & Heald, *supra* note 6.

research and direct it toward the most central feature of tarnishment theory—sexually suggestive or obscene uses of marks and works.

II. CONSUMER PSYCHOLOGY RESEARCH ON SEX AND ADVERTISING

The anxiety of copyright and trademark owners seems to be at its highest when their works are associated with what they perceive to be inappropriate sexual imagery. Since researchers in the fields of consumer psychology and advertising have conducted numerous studies on consumer reactions to sex in advertising, we turn to that body of research to help form testable tarnishment hypotheses.

A. Empirical Studies of Sex and Advertising

Clearly, not all sexual association is spurned by businesses. In fact, "sex sells" is a familiar commercial adage,[112] and it is easy to find examples in all sorts of media advertising, including Gucci's famous ad featuring its trademark *G* shaved into a model's pubic hair.[113] On the other hand, sexuality might be misused, resulting in damage to the brand. Not surprisingly, the willingness to use sex to attract consumers has been studied extensively for over thirty years, and much of the research has focused on when sexual appeals succeed and fail. The lessons from this large body of empirical work are helpful in predicting when tarnishment might occur,

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[112] *See* RODGER STREITMATTER, SEX SELLS!: THE MEDIA'S JOURNEY FROM REPRESSION TO OBSESSION (2004); Fan Liu, et al, *Consumer Responses to Sex Appeal Advertising: A Cross-Cultural Study*, 26 INT'L MARKETING REV. 501, 502 (2009) ("sex appeal has become one of the most popular and effective tactics used in advertising."); Douglas Amyx & Kimberly Amyx, *Sex and Puffery in Advertising*, 2 INT'L BUS. & MANAGEMENT 1, 2 (2011) ("The prevailing assumption by those in the advertising industry remains that sex sells," *citing* Amy Gifford, 15 Ads That Prove Sex Sells…Best? (2007), *available at* http://inventorspot.com/articles/ads_prove_sex_sells_5576; M. J. Stephey, Sex Sells. Here's Why We Buy., TIME (May 21, 2009), available at http://www.time.com/time/health/article/0,8599,1900032,00.html.).
[113] http://i.dailymail.co.uk/i/pix/2013/08/05/article-0-005D418100000258-291_634x478.jpg.

because the studies focus on the ways in which consumers form mental associations with marks and brands.

A recent meta-analysis conducted by Professor John Wirtz collected data from 48 separate empirical studies on consumer responses to sex in advertising that include a total of 8883 different subjects.[114] He was able find enough similarities in the research design of the studies to combine data along several different dimensions, all of which measure the effect of sexual content on consumers. These data indicate how sexuality impacts three separate factors: (1) advertisement attention and memory; (2) brand recognition and attitude; and (3) consumers' purchase intention.[115]

He reports several significant findings. First, the inclusion of sexual content in an ad (usually some level of nudity[116]), increased consumer attention to the ad and consumer memory of the ad.[117] When advertisements are sexy, people watch them more closely and remember the ad better. Somewhat paradoxically, however, sexual content *diminished* brand memory. That is, although consumers may have paid attention to the ad and remember it better, they tend to forget what product the ad was for.[118] Nonetheless, sexuality was positively associated with increased purchase intention.[119] Reichert and Walker attempt to explain the paradox: "[O]nce a stimulus is recognized and interpreted as sexual, a response is evoked within the viewer that consists of feelings, thoughts, arousal–responses that encourage movement toward the stimulus [but] the

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[114] John Wirtz, *Sex Attracts, Sex Distracts: A Meta-Analysis of the Effect of Sexual Content in Advertisements on Persuasive Outcomes* 1, 17 (on file with the author).

[115] *Id*. at ??

[116] *Id*. at 4 ("While there is wide variation in how sex in advertising has been operationalized, three of the most common ways are: 1) differing levels of nudity, 2) overt or implied sexual behavior, and 3) sexual imbeds.")

[117] *Id*. at 23 ("While the effects of sexual content on attention and purchase intention were significant, the effect on attitude toward the ad was not, so there does not seem to be a logical progression. Thus, we might conclude that certainly "sex attracts," it also seems that sex in ads may also distract from the brands and products featured in ads and that the intention to purchase may be a product of the effects of memory on ads.")

[118] *Id*.

[119] *Id*.

emotional response elicited by sexual content can inhibit [full processing of information]."[120]

They conclude, "This [dual] effect is supported by ad research demonstrating that sexual content

reduces product/message thoughts but increases attitudes about the ad and purchase intention."[121]

Wirtz seeks to explain the effect on brand attitude in a way that might explain

advertisers' persistent willingness to employ sex: "If sex in ads absorbs attentional resources (as

evidenced by higher recall of ads with sex), then these attentional resources may come at the

expense of processing information about the brands. In that case, brand messages would not be

processed as deeply and thus the lower evaluations may reflect a more shallow processing rather

than simply liking the brands less."[122] If a momentary mal-processing of brand image is merely

the by-product of the attention-sapping power of sexual images, rather than a long-lasting ethical

judgment made by consumers, then the use of sex might remain attractive for advertisers. At

worst, sex would be a distraction.[123]

Because different studies focused on different factors, Wirtz was only able to accumulate

adequate data for meta-analysis along the basic dimensions listed above. Other studies provide

important evidence of a broader range of factors that affect sexuality in advertising. At least four

other factors relevant to consumer reaction to sex have been tested: (1) congruence between the

sexual image and the advertised product; (2) level of eroticism present in the ad; (3) subject

gender; and (4) level of consumer cognition of the ad.

First, some studies show that consumers react negatively when a sexual message is not

congruent with the advertised product. For example, consumers in one study reacted more

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[120] Tom Reichert & Kristin Walker, *Sex and Magazine Promotion: The Effects of Sexualized Subscription Cards on Magazine Attitudes, Interest, and Purchase Intention*, 11 J. OF PROMOTION MANAGEMENT 131, 133-34 (2005).
[121] *Id.*
[122] Wirtz, *supra* note 114 at 23.
[123] *Id.* ("sex in ads may also distract from the brands and products featured in ads and [] the intention to purchase may be a product of the effects of memory on ads."); Tom Reichert, *Sex in Advertising Research: A Review of Content, Effects, and Function in Sexual Advertising*, 13 ANN. REV. OF SEX RES. 241, 252 (2002) (discussing the phenomenon of distraction).

negatively to the use of sex in an ad for frying pans than to the use of sex in an ad for perfume.[124]

Multiple studies confirm the relevance of product congruence to consumer attitude toward the advertisement itself or the brand.[125] Several researchers have speculated that this phenomenon reflects an ethical judgment made by the consumer which reflects negatively on the advertiser.[126] Sex may be less offensive in advertisements for perfume, tight jeans, sun tan lotion, and hotel rooms than for coffee, textbooks, pet grooming services, and breakfast cereal.

Second, the level and type of eroticism depicted in an advertisement may also affect consumer reaction to it (and these effects may well vary with the gender of consumer).[127] The use of full nudity or simulated sex has been found to be the most risky advertising strategy, especially where congruency is lacking.[128] It is the most attention-grabbing, but also the most likely to alienate consumers, especially female consumers.[129] High levels of nudity are likely to

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[124] Eric Reidenbach & Ken McCleary, *Advertising and Male Nudity: An Experimental Investigation*, 11 J. OF ACAD. OF MARKET SCI. 444, 450 (1983) (testing the effect of male nudity on consumer reactions to advertisements of cologne and frying pans).

[125] *See, e.g.*, Sid Dudley, *Consumer Attitudes toward Nudity in Advertising,* 7 J. MARKETING THEORY & PRAC. 89, 94 (1999); Penny Simpson, *et al*, *Male Nudity in Advertisements: A Modified Replication of Gender and Product Effects*, 24 J. OF ACAD. OF MARKETING SCI. 257, 261 (1996); Ben Judd & Wayne Alexander, *On the Reduced Effectiveness of Some Sexually Explicit Ads*, 11 ACAD. OF MARKETING SCI. 156, 166 (1983).

[126] *See* Michael LaTour & Tony Henthorne, *Ethical Judgments of Sexual Appeal in Print Advertising*, 23 J. OF ADVERTISING 81, 81 (1994) ("The findings indicate that, regardless of the respondent's gender, the use of a strong overt sexual appeal in a print advertisement was not well received."); Banwari Mittal & Walfried Lassar, *Sexual Liberalism as a Determinant of Consumer Response to Sex in Advertising*, 15 J. BUS. & PSYCH. 111, 111 (2000) ("Results show that while the ad with high sexual content was uniformly judged to be ethically more unjust (compared to ads with low sexual content), the adverse effect on attitude toward the ad is not obtained for all consumers. Our results show that it depends on the sexual liberalism of the audience and on whether or not the use of sex is considered manipulative."); Tom Reichert, Michael LaTour, & John Ford, *The Naked Truth Revealing the Affinity for Graphic Sexual Appeals in Advertising*, 2011 J. OF ADVERTISING RES. 436, 436 (2011) ("the Reidenbach- Robin Multi-dimensional Ethics Scale [was an] important predicator[ ] of viewers' emotional, attitudinal, and behavioral responses, especially as nudity increased.").

[127] *See* Ralph Weller, C. Richard Roberts, & Colin Neuhaus, *Longitudinal Study on the Effect of Erotic Content Upon Advertising Brand Recall*, 2 CURRENT ISSUES IN RESEARCH AND ADVERTISING 145, 147 (1979) ("The three recall tests suggest a pattern in terms of correct responses per level of erotic content. As erotic content increases the recall rate appears to decrease significantly.").

[128] *See* Jaideep Sengupta & Darren Dahl, *Gender Related Reactions to Gratuitous Sexual Appeals in Advertising*, 18 J. OF CONSUMER PSYCH. 62, 63 (2008) ("The authors found that whereas the seductive - relevant ad received the highest ratings in terms of ad appeal for both men and women, the nude - irrelevant combination (i.e., the most gratuitous use of sex) was rated significantly lower by both sexes," *citing* R. A. Peterson & R. A. Kerin, *The Female Role in Advertisements: Some Experimental Evidence*, 41 J. OF MARKETING 59 (1977).).

[129] *Id*. at 68, 70.

cause the most arousal (especially in men) and therefore cause the most distraction from ad and brand.[130] Milder forms of nudity, demure and seductive, obtain better results,[131] especially among women when they perceive a positive message of commitment associated with sex.[132] Researchers distinguish between "pleasurable" cognitive responses to ads and "arousal" responses.[133] The former may be less attention grabbing, but in some cases more likely to create the positive brand associations sought by the advertiser.[134]

Third, subject gender, especially when related to sexual self-schema,[135] has been found to have some predictive power in studies on sexual advertising.[136] Not every study shows that women are more likely to be distracted or alienated than men; nonetheless, when gender is included with other variables, some researchers have found significant effects.[137] As noted

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[130] *See* Judd & Alexander, *supra* note 125 at 165 (finding that sex distracts from brand memory).

[131] *See* Yahui Kang & Mark Hamilton, *The Effect of Sex Appeal on Believability, Attitude Toward the Advertisement and Brand, and Purchase Intention*, CONFERENCE PAPERS -- INTERNATIONAL COMMUNICATION ASSOCIATION, 1, 30 (2003) (finding consistently significant positive results with ads of "low to moderate level of sex appeal").

[132] *See* Min-Hui Huang, *Romantic Love and Sex: Their Relationship and Impact on Ad Attitudes*, 21 PSYCH. & MARKETING 58, 68-69 (2004) (finding "spiritual companionate love and sexual passionate love as two subtypes of romantic love separable from sex" and showing more positive consumer response to ads invoking the former); Darren Dahl, Jaideep Sengupta, & Kathleen D. Vohs, *Sex in Advertising: Gender Differences and the Role of Relationship Commitment*, 36 J. OF CONSUMER RES. 215, 215 (2009) ("women's spontaneous dislike of sexual ads softened when the ad could be interpreted in terms of commitment related resources being offered by men to women . . .").

[133] *See* Huang, *supra* note 132 at 68-69.

[134] *See id.*

[135] *See* John Davies, He Zhu, & Brian Brantley, *Sexual Appeals that Appeal: Negative Sexual Self-Schemas as a Moderator of Priming Effects of Sexual Ads on Accessibility*, 29 J. OF CURR. ISSUES IN RES. IN ADVERTISING 79, 87 (2007) ("If the sexual content in advertising poses a threat to the belief systems of individuals with negative sexual self-schema, then exposure to sexual advertisements ought to increase attention and vigilance to the sexual information in the ads, resulting in heightened accessibility of sexual constructs in memory.").

[136] *See* Sengupta & Dahl, *supra* note 128 at 73 ("women with liberal attitudes to sex . . . exhibit more positive attitudes toward the sex-based ad than the nonsexual ad."); Reichert, LaTour, and Ford, *supra* note 126 at 436 ("Sexual Self Schema, Sensation Seeking, and dimensions of the Reidenbach-Robin Multi-dimensional Ethics Scale to determine which factors best account for individual response. Findings indicate that elements of all three variables were important predicators of viewers' emotional, attitudinal, and behavioral responses, especially as nudity increased.").

[137] *See* Michael LaTour, *Female Nudity in Print Advertising: An Analysis of Gender Differences in Arousal and Ad Response*, 7 PSYCH. & MARKETING 65, 65 (1990) ("Women were found to generate more tension and negative feelings towards explicit female nudity in print ads than men. Men were more energized and positive in their feelings about such ads.").

above, women are more tolerant of demure or mildly erotic ads than blatant sexual appeals.[138]

Moreover, studies show that women with positive attitudes to sex were more likely to be attracted by sex in advertising.[139] In addition, male subjects in experiments were less positively affected by the use of attractive male models than were women subjects.[140] In some experiments, gender is clearly used as a proxy for attitudes about sex.[141]

Fourth, several researchers have suggested that the level of cognitive processing by consumers is relevant to their reaction.[142] They suggest that the greater the attention paid to the ad, the smaller the positive effect from the addition of sexual content.[143] Since the main benefit of sexual content is to attract the consumer's attention, sexuality may be most effective when consumers have little time to sort between messages.[144] In other words, the more subliminally the sexual message is processed, the more likely it is to engage a subject's memory compared to a non-sexual message.[145]

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[138] *See* Reidenbach & McCleary, *supra* note 124 at 451; *see* LaTour, *supra* note 137 at 74 ("Surprisingly, the semi-nude model group exhibited the greatest Deactivation Sleep (fatigue) and General Deactivation (calmness) across both genders," indicating that the semi-nude ads were not offensive, i.e. tension-causing.); *see also id.* at 78 ("women receiv[ed] more energized arousal from "toned down" ads").

[139] *See* Mittal & Lassar, *supra* note 126 at 111 ("Results show that while the ad with high sexual content was uniformly judged to be ethically more unjust (compared to ads with low sexual content), the adverse effect on attitude toward the ad is not obtained for all consumers. Our results show that it depends on the sexual liberalism of the audience and on whether or not the use of sex is considered manipulative.").

[140] *See* Reidenbach & McCleary, *supra* note 124 at 451; Simpson, *et al*, *supra* note 125 at 261; Amyx & Amyx, *supra* note 112 at 6. *See also* Wirtz, *supra* note 114 at ___ (overall men reacted less positively to male models).

[141] Recent survey evidence also suggests that men and women have different attitudes towards pornography. *See* Lucia C. Lykke Y Philip N. Cohen, *The Widening Gender Gap in Opposition to Pornography, 1975-2012*, SOCIAL CURRENTS (2015) (showing that although men's and women's attitudes towards pornography have both become more tolerant, men have's attitudes have changed at a faster rate than women's).

[142] *See, e.g.*, Sengupta & Dahl, *supra* note 128 at 73 ("affective reactions (rather than considered cognitive deliberations) are primarily responsiblefor influencing evaluations of sexually explicit advertising.").

[143] *See* Amyx and Amyx, *supra* note 112 at 2 ("low need for cognition (NFC) consumers favor sex appeals while high NFC customers favor non-sexual appeals").

[144] *See* Tom Reichert, Susan E. Heckler, & Sally Jackson, *The Effect of Sexual Social Marketing Appeals on Cognitive Processing and Information*, 30 J. OF ADVERTISING 13, 13 (2001) ("persuasion is largely the result of peripheral processing and distraction from somewhat unpleasant messages when receivers are expected to counterargue the message or be resistant to change.").

[145] *See* J. Stephen Kelley, *Subliminal Embeds in Print Advertising: A Challenge to Advertising Ethics*, 8 J. OF ADVERTISING 20-24 (1979). This phenomenon may be enhanced because of the reflexive nature of response to some sexual appeals, which "comes from the fact that sex is the second strongest of the psychological appeals, right

B. Formulating the Hypotheses

Research on the effects of sexuality on advertising provides valuable insight into the empirical legitimacy of tarnishment theory. The potential for harm arises if consumers who have seen a tarnishing version of a work have less positive attitudes towards the work or if they are less likely to consume it or other works related to it in the future. Interestingly, however, while both brand attitude and consumers' purchasing intentions can be affected by sexual advertising, the studies do not present a consistent picture of how. Although sex may draw attention to an ad and make it more memorable,[146] and even positively affect purchase intention, consumer attitudes toward the brand may be harmed.

Nonetheless, we discern some interesting possibilities for further research. Taken as a whole, the studies suggest that tarnishment of a copyrighted work or trademark should most likely occur when the following circumstances are present:

1. A work or trademarked product with little or no erotic content is associated with a sexual message.

2. The sexual content of the message is strong, e.g. significant nudity.

3. The target audience has negative attitudes toward sex.

4. Processing the sexual message does not require significant cognitive resources.

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behind self-preservation." *See* Liu, *supra* note 112 at 503, *citing* Richard Taflinger, Taking Advantage. You and Me, Babe: Sex and Advertising, TAKING ADVANTAGE YOU AND ME, BABE: SEX AND ADVERTISMENT 26 (1996).
[146] *See, e.g.*, Dudley, *supra* note 125 at 89 ("nudity resulted in a more attention-getting, interesting, appealing ad"); Davies, *supra* note 135 at 80 ("media content can act as a prime to increase the accessibility of constructs in memory. These constructs in turn influence evaluative judgments, change affective states, or even impact behavioral decisions.").

In the context of an affected trademark, the reputation of the product or brand might be affected, while in the context of a copyrighted work, an analogous sort of damage might affect the reputation of the work or its owner.

We predict, therefore, that any negative reputational effect should vary with the degree of sexual association already present in the copyrighted work or trademark; the strength of the unauthorized sexual message newly associated with the copyrighted work or trademark; the sexual attitudes of the respondents; and the amount of time the respondents have to process their encounters with the copyrighted work or trademark and the sexual message.

III. TWO EXPERIMENTS ON TARNISHMENT

In this Part, we report the results of two novel experiments designed to test the effects of exposure to pornographic content that could tarnish the market value of IP works. The stimuli in our experiments are movie posters from popular movies produced in the last thirty years. Our experiments ask whether subjects who have been exposed to a movie poster depicting a pornographic association with a popular film attach lower or higher value to that film than do subjects who have not been exposed to the pornographic content.[147]

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[147] In constructing our experiments, we took into account one important reality of the marketplace. Copyright and trademark owners are only legitimately concerned about the reaction of consumers in the actual markets. So, we acknowledged the reality of obscenity laws and the regulation of pornography in the United States. Laboratory studies at a university can present (and have presented!) ads to subjects containing full frontal nudity. Real world consumers will never legally confront such images in open markets, so we focus on erotic partial nudity of the sort that might be encountered in a popular magazine or in a store. Of course, some consumers will seek out more daring images in adult video stores or on-line, but when a consumer intentionally seeks out strong sexual content, he or she is unlikely to have strong negative associations with sexual content.

For this reason, we identified a series of posters for pornographic movies based on real box office hits. Some of movies are clearly parodies, for example *Bi-Tanic*, while others are simply pornographic versions of a more famous film, e.g. *The Erotic Adventures of Zorro*. The posters (which we make available on-line) vary in levels of eroticism from suggestive (men in expensive fur coats with their arms around their neighbors' shoulders in *Bi-Tanic* or a pouting starlet in *Porn on the Fourth of July*) to a highly seductive pose by a bikini model in *The Da Vinci Load*. None of the posters, however, contain enough nudity or rough language to render them illegal to run as an advertisement in a magazine aimed at the general adult public.

Based on the literature reviewed in Part I, we make a number of predictions about the effects of tarnishing movie posters on subjects' attitudes towards the underlying work:

H_1: Subjects exposed to the porn posters will have more negative attitudes towards the targeted movies after exposure to the posters.

H_2: Tarnishment effects will be greater for female subjects than for male subjects.

H_3: Subjects who are more socially conservative and/or less tolerant of nudity in movies will manifest stronger tarnishment effects than will liberal subjects.

H_4: Tarnishment effects will be stronger for subjects who have not seen the targeted movie because they will have fewer positive associations to blunt the effect of tarnishment.

Each of the above hypotheses relate to the effects of the pornographic work on the underlying work. In both trademark and copyright law, however, owners care about the continuing value of their marks and works to consumers for future purchases. Accordingly, we are interested in studying the possibility of tarnishment effects in consumers' desire to see a sequel of the targeted movie. Accordingly, in Experiment 2 we also test:

H_5: Subjects exposed to pornographic posters will have lower attitudes towards potential sequels of the targeted movies.

A. Experiment 1

1. *Methods*

Our experiments employ a between-subjects, differences-in-differences method to estimate the effect of pornographic tarnishment on movies. We measure tarnishment by the degree to which people's attitudes towards movies are affected by exposure to a pornographic

association. We do this by asking people which of a pair of movies they think more people would rather see. For example, our subjects are asked whether they think a movie theater would make more money by showing *Titanic* or *Good Will Hunting*. Prior to being asked this question, though, some subjects will have been shown a movie poster of a pornographic version of *Titanic*. If the pornographic movie tarnishes people's attitudes towards the underlying movie, people who have been exposed to it should choose *Titanic* at a lower rate than people who have not been exposed to the pornographic version. If, instead, the pornographic version is generating positive attitudes in people's minds about the underlying movie, then those who have been exposed to it should choose *Titanic* at a higher rate.

The experiment was created and hosted on Qualtrics. Subjects were recruited from Amazon Mechanical Turk[148] with a request that they complete a survey about their opinions about movies. We informed subjects that we were a research company that was employed by theaters interested in showing a mix of popular, classic, and "late night" films. They were told

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[148] Amazon Mechanical Turk (Mturk) provides researchers access to thousands of individuals who are willing to engage in online tasks for pay. Over the past few years, Mturk has become an increasingly popular platform for recruiting subjects for social science experiments. There is an extensive debate about how subjects recruited through Amazon Mechanical Turk compare to traditional laboratory experiments or other population. Some of that literature is cited below in this footnote. Some of the concerns raised by Mturk skeptics, especially about representativeness, are minimized by our use of Turk Prime in Experiment 2. *See* Leib Litman et al., *The Relationship Between Motivation, Monetary Compensation, and Data Quality Among US- and India-Based Workers on Mechanical Turk*, 47 BEHAVIORAL RES. 519 (2014) (discussing optimal mechanisms for improving data quality on AMT); Gabriele Paolacci et al., *Running Experiments on Amazon Mechanical Turk*, 5 JUDGMENT & DECISION MAKING 411, 417 (2010) ("Workers in Mechanical Turk exhibit the classic heuristics and biases and pay attention to directions at least as much as subjects from traditional sources."); Chien-Ju Ho et al., Incentivizing High Quality Crowdwork, in Proceedings of the 24th International Conference on World Wide Web (2015) *available at* http://www.www2015.it/documents/proceedings/proceedings/p419.pdf (showing how performance-based payments improve quality of AMT participant responses); John Horton, David Rand & Richard Zeckhauser, *The Online Laboratory: Conducting Experiments in a Real Labor Market*, 14 EXP. ECON. 399 (2011); Adam Berinsky, Gregory Huber & Gabriel Lenz, *Evaluating Online Labor Markets for Experimental Research: Amazon.com's Mechanical Turk*, 20 POL. ANALYSIS 351 (2012); Dan Kahan, What's a "Valid" Sample? Problems with Mechanical Turk Study Samples, Part 1, *available at* http://www.culturalcognition.net/blog/2013/7/8/whats-a-valid-sample-problems-with-mechanical-turk-study-sam.html (last visited Nov. 22, 2015); Dan Kahan, Fooled Twice, Shame on Who? Problems with Mechanical Turk Study Samples, Part 2, *available at* http://www.culturalcognition.net/blog/2013/7/10/fooled-twice-shame-on-who-problems-with-mechanical-turk-stud.html (last visited Nov. 22, 2015); Yanna Krupnikov & Adam Levine, *Cross-Sample Comparisons and External Validity*, 1 J. EXP. POL. SCI. 59 (2014); Richard Landers & Tara Behrend, *An Inconvenient Truth: Arbitrary Distinctions Between Organizational, Mechanical Turk, and Other Convenience Samples*, forthcoming 2015 in Industrial and Organizational Psychology (on file with authors).

that they would see thirty pairs of movies and would be asked to tell us which one of the pair a theater should show to make as much money as possible. Subjects were paid $2 for completing the study, which took about fifteen minutes.

Subjects entering the study were first asked a series of demographic questions and questions about their movie watching habits. We collected data on subjects' age, gender, race, income, religiosity, and political affiliation, as well as the movie genres and MPAA rating levels of movies that they watched most. We also asked them a question intended to elicit their "porn tolerance," i.e., the degree to which they objected to nudity or sexuality in films. After answering these questions, subjects were randomly assigned to one of three conditions: Baseline, Treatment, and Control.

The Baseline condition provided an initial estimate of the degree to which the population preferred one or the other movie in each pair. The first twenty pairs that the Baseline subjects were shown were filler comparisons that did not matter for purposes of our analysis. The last ten pairs were the "target" pairs. These were the pairs for which one movie in the pair would be subject to pornographic tarnishing in the Treatment condition. The target pairs are a wide variety of popular films.[149]

For each pair, subjects were shown the movie posters for a minimum of four seconds before they could advance to the next page. In addition to the poster images, subjects were also

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[149] The target comparisons were:
        Titanic vs. *Good Will Hunting*
        You've Got Mail vs. *Shakespeare in Love*
        The Da Vinci Code vs. *Mission Impossible 3*
        The Bourne Identity vs. *Spiderman*
        Harry Potter and the Sorcerer's Stone vs. *Shrek*
        Raiders of the Lost Ark vs. *Chariots of Fire*
        Superman vs. *The Deer Hunter*
        Lord of the Rings vs. *Monsters Inc.*
        Les Miserables vs. *The Avengers*
        Born on the Fourth of July vs. *Dead Poets Society*
The first bolded movie in each pair is the one that would be subject to tarnishment.

shown a short description of the movie. After the time period elapsed, subjects were asked a question like:

To maximize its profits, the theater should show:

 vs.

Good Will Hunting

Titanic

No opinion

After answering that question, subjects indicated whether they had seen the movies and whether they had heard of the movies.

The Treatment condition used the same ten target movie pairs at the end of the survey. In the prior twenty pairs, however, we replaced five of the pairs of posters with pairs that created pornographic associations with the target movies.[150] Now, before seeing the target pairs, these subjects first saw a poster containing a pornographic association with one of the movies in the pair. For example, before responding to the target comparison of *Titanic* vs. *Good Will Hunting*, these subjects were first shown the poster for a porn movie, *Bi-Tanic* and asked to choose

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[150] The pornographic versions were: *Bi-Tanic, You've Got She-Male, The Da Vinci Load, The Porn Identity, Whorrey Potter and the Sorcerer's Balls, Carolina Jones and the Broken Covenant, Superman XXX, Lord of the G-Strings, Miserable Lesbians,* and *Porn on the Fourth of July.* Participants in the Treatment condition saw five pairs of two of these parody posters each before seeing the target pairs.

between it and another porn movie. Otherwise, subjects were asked all of the same questions as in the Baseline condition.

The pornographic posters were taken from actual films that had been produced and distributed. The sample of pornographic posters included some that were explicitly described as "parodies" of the target movies and others that were simply pornographic movies with clever titles. *You've Got She-Male*, for example, is merely a clip film of segments from other transsexual porn movies. In addition, the sample included heterosexual, homosexual, and bisexual movies. Finally, the targeted works included movies rated PG, PG-13, and R. We hoped that this variation would enable us to test different effects and to study interactions.

We included a Control condition to measure whether there might be a positive or negative confounding effect in the Treatment condition from being exposed to the same work twice (once in pornographic form and once in standard form). Other research suggests that being exposed to something previously can produce positive attitudes toward it.[151] It also seemed possible that some subjects would not want to pick the same movie twice, so perhaps there might be a negative effect on attitudes towards the target movie. Thus, in the Control condition, prior to answering the ten questions about the target movies, subjects were shown each of the target movies in an earlier pair with another movie. For example, before responding to the target comparison of *Titanic* vs. *Good Will Hunting*, these subjects were first shown the pair *Titanic* vs. *Men in Black*.

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[151] Robert B. Zajonc, *Attitudinal Effects of Mere Exposure*, 9 J. Personality & Social Psych 1 (1968). *See also, e.g.*, Robert F. Bornstein & Paul R. D'Agostino, *The Attribution and Discounting of Perceptual Fluency: Preliminary Tests of a Perceptual Fluency/Attributional Model of the Mere Exposure Effect*, 12 Social Cognition 103 (1994); Eddie Harmon-Jones & John J. B. Allen, *The Role of Affect in the Mere Exposure Effect: Evidence from Psychophysiological and Individual Differences Approaches*, 27 Personality & Social Psych Bulletin 889 (2001). In this sense, the Control condition is really an experimental condition but for a different experiment on exposure effects.

By comparing the percentage of subjects who chose the target movie in each of the pairs in the Treatment condition with the percentages of subjects who chose that movie in the Baseline and Control conditions, we can measure whether subjects' attitudes towards the films change in light of exposure to the pornographic version.

2. *Results*

Our sample included 1260 people, of whom 39% were female, and the group had a median age of 29 (range: 18-68). We begin to analyze the data by first looking at the full set of ten target pairs. In the Baseline condition, subjects chose the target movie 55.15% of the time.[152] This gives us an estimate of subjects' attitudes towards the movies before the experimental manipulation. In the Control condition, subjects only chose the target movie 53.27% of the time, a marginally significantly lower percentage of the time.[153] In the Treatment condition, however, the proportion of target movies chosen rose to 57.62%. This is significantly higher than both the Baseline and Treatment conditions.[154] We provide a full discussion of the statistical analysis in Appendix A.

Figure 2: Experiment 1 – Percentage Choosing Target Movie (All Pairs Combined)

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[152] In other words, target movies were chosen 55.15% of the time. On average, subjects chose 5.49 target movies out of the ten pairs in the Baseline condition.
[153] Two-proportion z-tests (using pooled proportions for standard error):
Baseline vs Control: diff = .0188, z = 1.73, p = .08
[154] Baseline vs Treatment: diff = .0247, z = 2.27, p = .02
Control vs Treatment: diff = .0435, z = 4.01, p < .001

% Choosing Target Movie

	Baseline	Control	Treatment
% Choosing Target Movie	55.15	53.27	57.62

■ % Choosing Target Movie
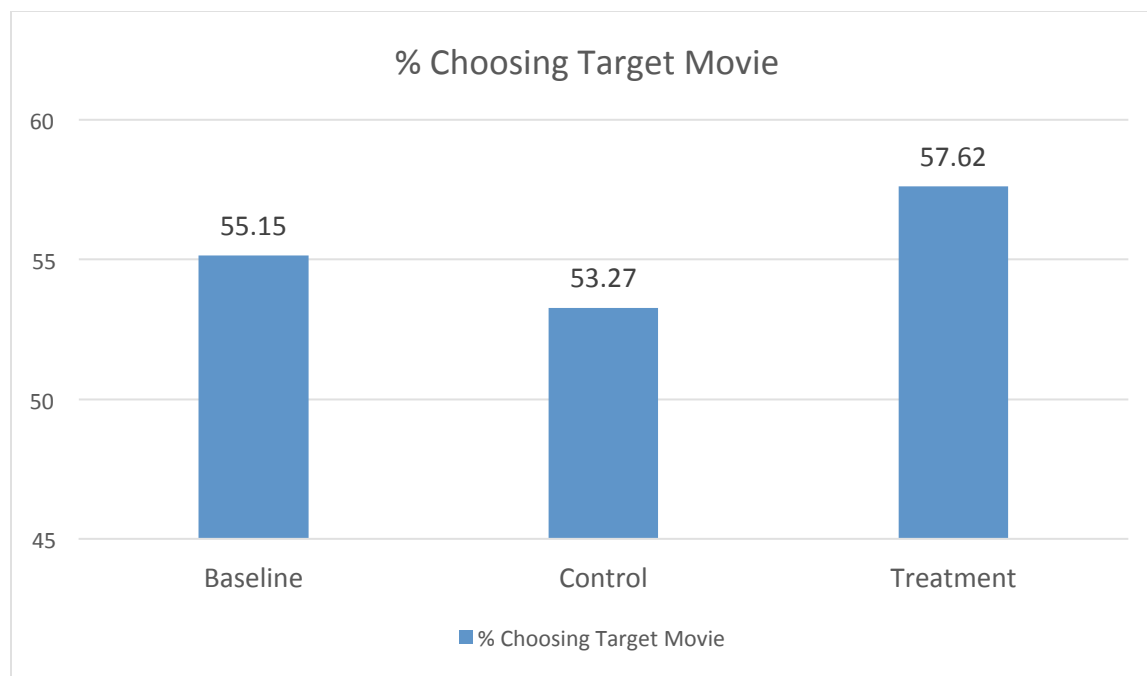
Contrary to the predictions of tarnishment theory, our results show that people who have been exposed to pornographic associations do not devalue the underlying work but actually think that it has higher value. This finding is consistent with much of the literature on the role of sexuality in advertising discussed in Part II.

We can look more closely at our data to better understand the effects that we see. When we look at each of the pairs individually, we observe significant differences between Control and Treatment conditions for five of the ten pairs.[155] In each case, the target movie is chosen *more often* in the Treatment condition than in the Control condition. For no pair of movies do we observe a significant decrease in the percentage of subjects choosing the tarnished movie in the Treatment condition.

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[155] The five pairs with significant differences were:
    You've Got Mail vs. Shakespeare In Love, Diff = .0816, z = 2.37, p = .018
    Da Vinci Code vs. Mission Impossible 3, Diff = .0818, z = 2.37, p = .018
    Bourne Identity vs Spiderman, Diff = .0775, z = 2.59, p = .010
    Harry Potter and the Sorcerer's Stone vs Shrek, Diff = .0791, z = 2.49, = .013
    Born on the Fourth of July vs Dead Poets Society, Diff = .076, z = 3.32, p = .020

We can also consider demographic differences in our data. Although there are some differences between men and women in the percentage of times that they choose the target movie, there are no gender differences in the effects of the pornographic posters on the rates of choosing the target movie. For example, although women choose some target movies less than men do (e.g. *Raiders of the Lost Ark*), women are no more or less affected by the pornographic tarnishment than men are.

Familiarity with the target movies also did not consistently moderate the pornographic tarnishment effects. Some movies showed enhancement effects specifically for people who watched them (e.g., *The Da Vinci Code*), some showed enhancement effects specifically for people who had not watched them (e.g., *Born on the Fourth of July*), and some showed no definite pattern of effects for watchers compared to non-watchers.[156] Accordingly, we do not believe that our data provide sufficient evidence to determine whether familiarity with the underlying works blunts tarnishment in the way predicted by research showing that familiarity serves as an anchor which makes consumers resistant to messages that are inconsistent with attitudes they have formed earlier.

Regression analyses of our demographic data allow us to consider the possibility of tarnishment for different groups of subjects.[157] We examined whether differences between subjects' age, gender, politics, willingness to watch R-rated movies, and belief that there is too

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[156] *Da Vinci Code* watchers: baseline vs. treatment: b = -.233, t = -5.55, p < .001; control vs. treatment: b = -.108, t = -2.60, p = .009. *Da Vinci Code* non-watchers: baseline vs. treatment: b = -.087, t = -1.58, p = .116; control vs. treatment: b = -.026, t = -.48, p = .633. *Born on the Fourth of July* watchers: baseline vs. treatment: b = -.067, t = -1.14, p = .255; control vs. treatment: b = -.101, t = -1.67, p = .096. *Born on the Fourth of July* non-watchers: baseline vs. treatment: b = -.082, t = -2.30, p = .022; control vs. treatment: b = -.058, t = -1.67, p = .095. For *Born on the Fourth of July*, a similar pattern emerges for those who have and have not heard of the movie: heard of, baseline vs. treatment: b = -.064, t = -1.56, p = .12; heard of, control vs. treatment: b = -.045, t = -1.07, p = .286; haven't heard of, baseline vs. treatment: -.090, t = -1.99, p = .047; haven't heard of, control vs. treatment: b = -.121, t = -2.77, p = .006. Other movie pairs showed differences by familiarity only in the difference between the treatment condition and one but not both of the other conditions.

[157] *See* Appendix A.

much nudity in movies affected tarnishment. Subjects' age was unrelated to choosing the target

movie in the Treatment condition.[158] In addition, men and women responded to the targeted

movies in same way. Socially liberal subjects, however, were significantly *more likely* to choose

the target movie in the Treatment condition than in the Control condition.[159] That these subjects

did not experience significant tarnishment and, in fact, demonstrated an enhancement effect is

consistent with the marketing literature reviewed in Part II. In addition, subjects who disagreed

with the statement that there is too much nudity in movies also chose the target movie more often

in the Treatment condition than in the other conditions.[160] Socially liberal subjects and those who

were not offended by nudity in movies made up a large percentage of our subject pool, so we do

not have sufficient data on conservative subjects to offer confident evaluations of their

behavior.[161] We explore this issue more deeply in our second experiment.

Ultimately, our data do not support the predictions of tarnishment theory. We see no

significant diminution in how valuable people think movies are after they have been exposed to

pornographic versions of them. In fact, we see fairly strong evidence that the opposite is true;

people (or at least some people) seem to think movies are more valuable after experiencing a

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[158] Regressing number of target movies chosen against age, gender, and treatment condition, older participants chose more target movies than younger participants did (b = .010, t = 2.27, p = .023), and participants chose more target movies in the treatment condition than in the other conditions (baseline – treatment: b = -.266, t = -2.37, p = .018; control – treatment: b = -.422, t = -3.77, p < .001) when controlling for age and gender. But an ANOVA showed no age category (25th percentile and below, 25th to 75th percentile, 75th percentile and above) by treatment condition interaction (F < 1, p > .5).

[159] Treatment vs. baseline: b = .267, t = 1.94, p = .052 (marginally significant). Treatment vs. control: b = .555, t = 4.03, p < .001. There were no significant treatment effects for conservatives.

[160] For participants who rated themselves 7 or below on the question of to what extent they agreed with the statement that there is too much nudity in movies these days: baseline – treatment: b = -.368, t = -2.47, p = .014; control – treatment: b = -.587, t = -4.02, p < .001. For participants who rated themselves above 7 on the scale, differences between the treatment condition and the other conditions were not significant, though they were still in the direction of enhancement, not tarnishment.

[161] Only about 12% of our sample identified as conservative, and 92.3% watch R-rated movies. Most subjects slightly agreed that there is too much nudity in movies, but most did not strongly agree. The latter question asked whether subjects agreed with the statement that there is too much nudity in movies these days. On a scale of 1-10 where 1 was strongly disagree, 5 was neutral, and 10 was "strongly agree," the mean was 7.5 and the median was 7, indicating that most subjects slightly agreed with the statement.

tarnishing version. Consistent with the marketing literature, some consumers, and especially those who are more liberal, have more positive associations with works that have been associated with sexual content.

B. Experiment 2

1. *Methods*

Experiment 2 extends our analysis of the effect of pornographic tarnishment on the market for derivative works. It also included a more politically balanced sample of subjects to more fully test whether there are different effects for conservatives and liberals. Tarnishment theory's principal concern is that inappropriate uses of a work will undermine the value that the public attaches to it, thereby decreasing demand for future versions of the work. The owner of a work needs to assert strong control over it in order to make sure that the characters are not misused so they retain value for subsequent uses. This need is especially pressing in the context of sequels and reboots, which (for better or worse) are an increasing part of popular culture.[162]

Experiment 2 used the same basic structure as the prior two experiments, but it added a component at the end of the survey where subjects were shown eight pairs of movie posters and asked which of the two movies they would rather see a sequel of. The sequel pair movies were all recently released films that could plausibly generate sequels.[163] Six of the eight pairs included

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[162] Mark Harris, The Day the Movies Died, GQ (Feb. 2011) available at http://www.gq.com/entertainment/movies-and-tv/201102/the-day-the-movies-died-mark-harris. For 2012 Harris noted:

> With that in mind, let's look ahead to what's on the menu for this year: four adaptations of comic books. One prequel to an adaptation of a comic book. One sequel to a sequel to a movie based on a toy. One sequel to a sequel to a sequel to a movie based on an amusement-park ride. One prequel to a remake. Two sequels to cartoons. One sequel to a comedy. An adaptation of a children's book. An adaptation of a Saturday-morning cartoon. One sequel with a *4* in the title. Two sequels with a *5* in the title. One sequel that, if it were inclined to use numbers, would have to have a *7 1/2* in the title.

[163] The sequel pairs were:
Wreck-It Ralph vs. The Lorax
Jack Reacher vs. John Carter

one movie that, in the Treatment condition, had been targeted by an earlier pornographic movie poster.[164] Because we were using newly released movies, the tarnishing pornographic versions had not yet been produced. Accordingly, we employed a graphic designer to produce movie posters for the pornographic versions.

Figure 3: Experiment 2 – Sample Pornographic Movie Posters

The remainder of the experiment functioned similarly to Experiment 1. After answering demographic questions, subjects answered subjectively framed questions about twenty filler movie pairs. That is, they were asked which of the two movies they would rather see. In the Treatment condition, four of these pairs were replaced with pairs of pornographic movie posters. In the Control condition, four pairs were replaced with pairs that repeated the target movie to control for exposure or recency effects. Subjects then answered four target movie pair questions[165] and eight sequel questions.

Interstellar vs. Prometheus
Inside Llewyn Davis vs. The Wolf of Wall Street
Her vs. Prisoners
Gone Girl vs. World War Z
The first movie in each pair was the tarnished target.
[164] The tarnishing movies were:
 Rectum Ralph
 Jack Reach Around
 Enter Stella
 Inside Lou and Davis
 Her, Her & Her
 Groan Girl
[165] The target movies were four of the ones used in the earlier experiment:

2. *Results*

The sample for Experiment 2 was recruited from Amazon Mechanical Turk using Turk Prime, a software application that utilizes previously created panels of subjects from within the population of MTurk workers to control the nature of the subject pool. The participants had previously provided demographic data to Turk Prime, allowing researchers to craft panels that are more consistent with American demographics. Using Turk Prime panels, researchers have replicated the results of the national census in ways that would not be possible using a standard Mechanical Turk sample.[166]

Our sample included 931 subjects, of whom 47% were female and with a median age of 33. Figure X demonstrates the heterogeneity of social and political views within our sample. It is similar to the distribution of those views in the U.S.[167]

Figure 4: Political Views of the Sample
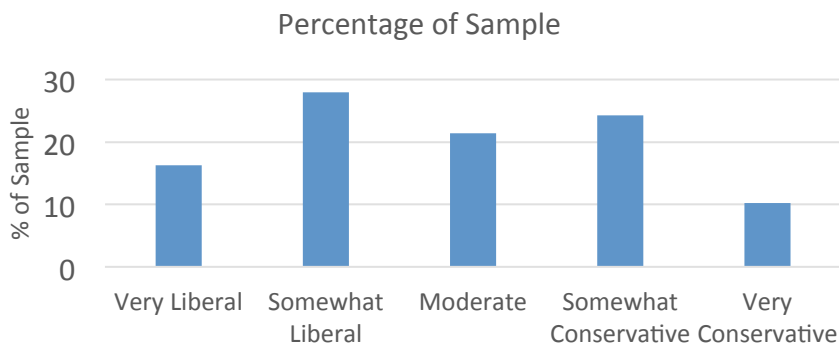
Titanic vs. *Good Will Hunting*
You've Got Mail vs. *Shakespeare in Love*
The Da Vinci Code vs. *Mission Impossible 3*
Bourne Identity vs. *Spiderman*

[166] *See* Leib Litman, Cheskie Rosenzweig & Jonathan Robinson, *Using Proprotionally Matches Samples to Enhance Sample Representativenes on Crowdsourcing Platforms*, under review 2015 (manuscript on file with authors). In this study, researchers used a proportionally matched sample similar to the one we use, and found results that were within three percentage points of a Gallup Poll survey on support for Israel or Palestine.

[167] The Pew Research Center reports that in 2014, 48% of Americans lean Democratic while 39% lean Republican. Pew Research Center, *A Deep Dive into Party Affiliation* 1-2 (Apr. 7, 2015), available at http://www.people-press.org/files/2015/04/4-7-2015-Party-ID-release.pdf. This is consistent with the percentage of our participants who self-identified as "very liberal" or "somewhat liberal" (44.2%) and the percentage of our participants who self-identified as "very conservative" or "somewhat conservative" (34.4%).

When we turn to the portion of Experiment 2 that was intended to replicate Experiment 1, we see very similar results. For the four target movie pairs, subjects were significantly more likely to choose the target movie in the Treatment condition (48.7%) than in the Control condition (42.4%).[168] Thus, once again we see an *enhancement* rather than a tarnishment effect. There was, however, no difference between the Treatment condition and the Baseline condition (48.8%). Once again, familiarity did not consistently moderate tarnishment effects.[169]

Figure 5: Experiment 2 – Combined Four Targeted Movies
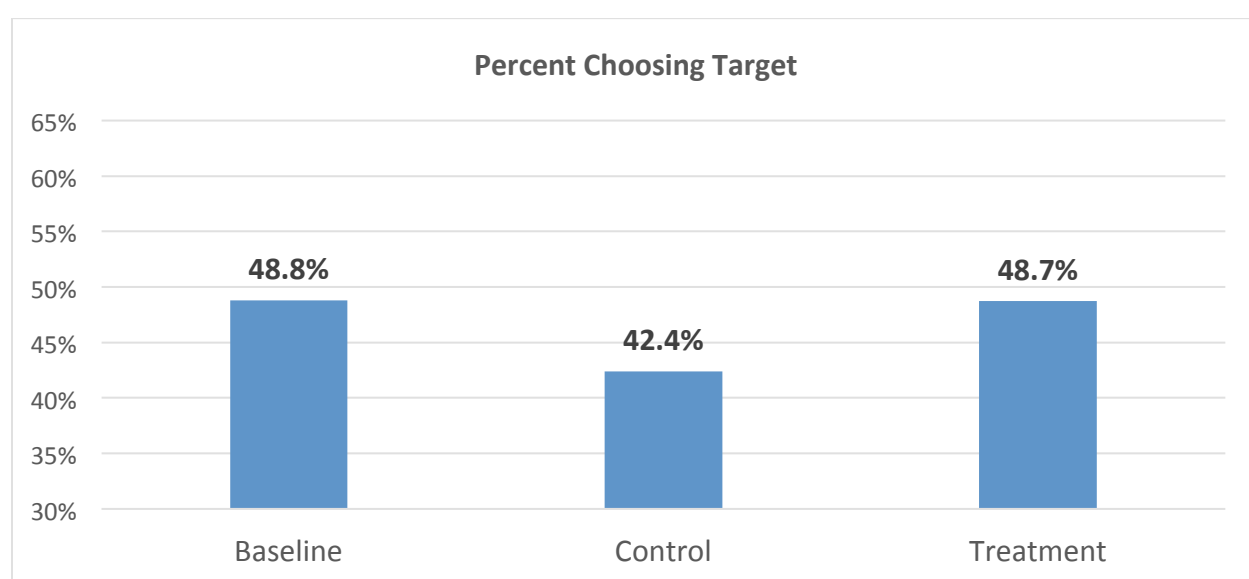
When we look at the six pairs of targeted sequel movies, the data are less clear. Combining the six pairs and including all of the subjects we see no significant difference between the three conditions (Baseline 47.2%; Control 47.2%; Treatment 44.7%).[170] Regression did show marginal tarnishment when comparing the treatment condition to the combination of

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[168] Diff = .063, z = 3.06, p = .002.
[169] For *Titanic*, which had an enhancement effect overall from the parody poster (treatment vs. non-treatment b = .070, t = 2.06, p = .040), this effect is driven by people who had seen the movie (Baseline: 35.2%, Control: 31.9%, Treatment: 42.9%) while those who hadn't show non-significant potential tarnishment (Baseline: 12.5%, Control: 5.3%, Treatment: 3.0%). For *the Da Vinci Code*, which had a marginal enhancement effect (b = .059, t = 1.65, p = .099), people who had seen the movie showed significant enhancement from control to treatment (49.4% vs 60.6%, z = 2.05, p = .041) but no difference between baseline and treatment, while people who had not seen the movie showed non-significant enhancement compared to both conditions (B: 37.2%, C: 30.9%, T: 42.2%; T – B: diff = .050, z = .79, n.s.; T – C: diff = .113, z = 1.86, p = .063).
[170] Baseline – Treatment: diff = .0257, z = 1.52, p = .129; Control – Treatment: diff = .0253, z = 1.50, p = .134

the two other conditions, but the differences from the baseline and control conditions individually were not significant.[171] For some of these pairs, subjects choose the target sequel less frequently in the Treatment condition, and for some of them subjects choose the target sequel more often.[172] Nor did any meaningful patterns emerge regarding familiarity with the target movies: people who were not familiar with *Inside Llewyn Davis* and *Gone Girl* showed tarnishment while those who were familiar did not; for *Jack Reacher*, familiarity had mixed effects; and for the remaining three movies, it had no effect.[173]

Figure 6: Experiment 2 – Combined Targeted Sequel Pairings

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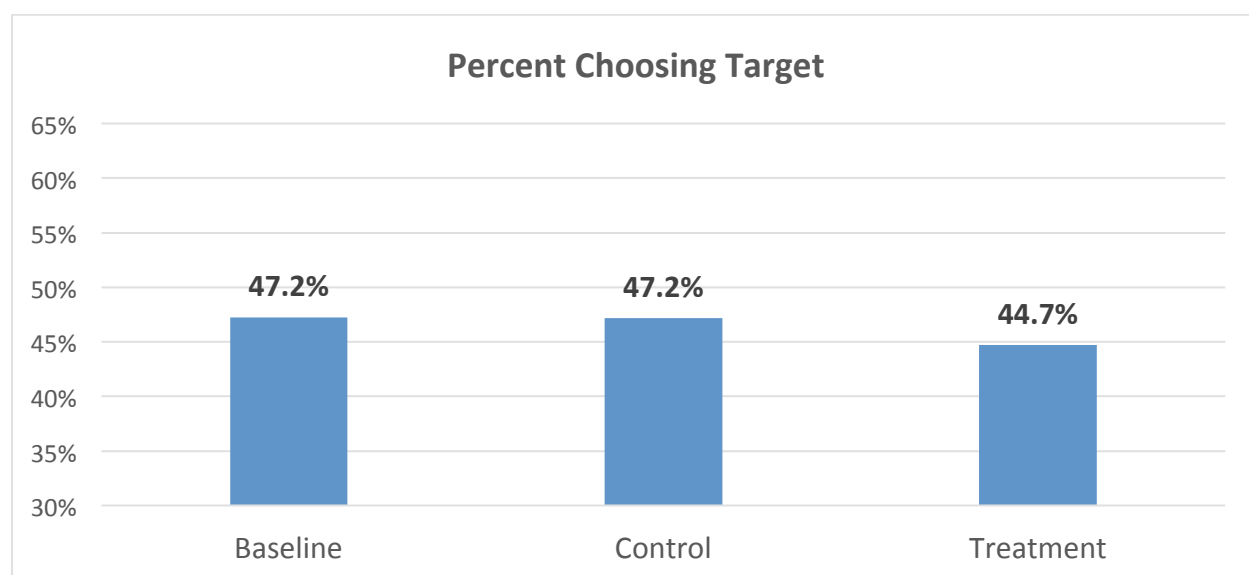
[171] For SequelsTotal = NonTreatment + b*Treatment, b = -.143, t = -1.70, p = .090. For SequelsTotal = Treatment + b1*Baseline + b2*Control, b1 = .139, t = 1.42, p = .157; b2 = .148, t = 1.52, p = .129.

[172] One individual sequel pair showed significant tarnishment (*Inside Llewyn Davis* (treatment vs. no treatment b = -.075, t = -2.51, p = .012)). The other sequel pairs showed no significant effects from the parody posters (all p's > .1), with *Interstellar* and *Her* trending toward enhancement and the others trending toward tarnishment.

[173] The only significant familiarity x condition interaction was for having heard of *Gone Girl* (b = -.211, t = -2.24, p = .025). There was a marginal heard of x condition interaction effect for *Jack Reacher* (b = .136, t = 1.78, p = .076). Despite not showing significant interactions, the tarnishment effect for *Inside Llewyn Davis* appears to be driven by those who have not watched it (B: 25.7%, C: 21.2%, T: 15.4%; B-T diff = .103, z = 2.92, p = .004; C – T diff = .058, z = 1.72, p = .085) or have not heard of it (B: 24.3%, C: 18.8%, T: 11.6%; B – T diff = .127, z = 3.38, p < .001; C – T diff = .072, z = 2.02, p = .043). *Gone Girl* only shows tarnishment for those who have not watched it (B: 40.4%, C: 40.0%, T: 30.7%; B – T diff = .097, z = 1.94, p = .052; C – T diff = .093, z = 1.84, p = .066) or have not heard of it (B: 47.9%, C: 42.9%, T: 22.0%; B – T diff = .259, z = 2.69, p = .010; C – T diff = .209, z = 2.22, p = .026). By contrast, the only significant tarnishment for *Jack Reacher* is among those who have heard of it (B: 64.3%, C: 65.2%, T: 54.8%; B – T diff = .095, z = 1.92, p = .055; C – T diff = .104, z = 2.11, p = .035), though subjects who had not watched it (but not subject who had) showed a significant drop from the control condition to the treatment condition (57.2% vs 47.1%, diff = .101, z = 1.99, p = .047).

To get a sense of whether tarnishment is more likely to affect some groups of people than others, we turn to our demographic data. Once again, we saw no significant differences between genders. Men and women were equally likely to choose the target sequel movies, and the effects of the pornographic posters did not differ across genders.[174] Age differences also seem not to have affected tarnishment.[175] And subjects who think there is too much sexuality in movies choose about the same number of target sequels movies as those who do not think so.[176]

To the extent that we did find a demographic difference, it may arise only for the most socially conservative subjects. Subjects who described themselves as "very socially conservative" were significantly less likely to choose the targeted sequel movies in the Treatment condition compared to the other conditions.[177] Those subjects chose the targeted sequel only 41% of the time in the Treatment condition compared to 53% of the time in the Baseline condition and 47% of the time in the Control condition. The other subjects demonstrated no diminution in choosing the target sequel movies, and there was no overall interaction between politics and condition in the number of target sequel movies subjects chose.

Figure 7: Experiment 2 – Very Conservative vs. All Other Subjects, Sequel Pairs

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[174] Regressing total sequel targets chosen against gender, baseline – treatment, control – treatment, and gender x condition interactions, p's for gender and gender x condition interaction coefficients > .5.

[175] P's for age and age x treatment coefficients all > .5.

[176] P's for porn tolerance and porn tolerance x condition coefficients > .5.

[177] For politics = 1, regressing number of target sequels chosen against treatment (vs. no treatment), b = -.543, t = -2.26, p = .026. Note that treatment – baseline is significant (b = -.743, t = -2.56, p = .012), but treatment – control is not (b = -.376, t = -1.36, p = .18).

Percent Choosing Sequel Target

	Baseline	Control	Treatment
Most Conservative	52.9%	47.2%	41.0%
All Others	46.7%	47.2%	45.2%

Most Conservative ■ All Others
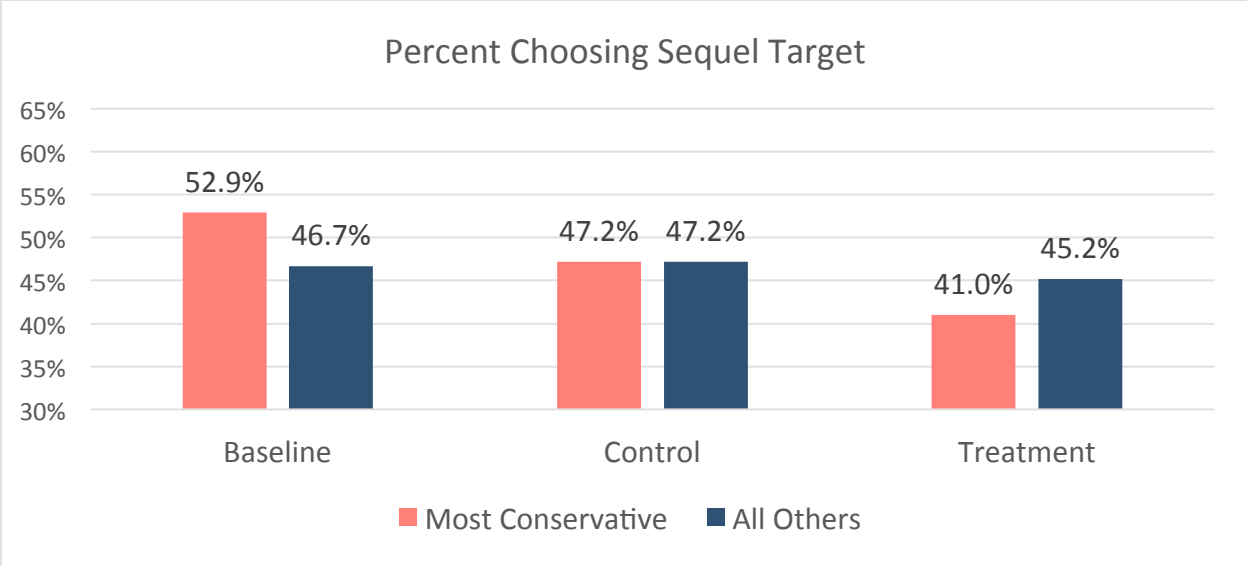
Experiment 2 provided both a replication of Experiment 1's findings and some important new data. For the four non-sequel target movies that were a replication of Experiment 1, we see a similar a pattern of results in Experiment 2. There is no evidence of tarnishment and some evidence of enhancement due to exposure to pornographic movie posters. This is the case even though Experiment 2 used a more demographically diverse subject pool that included a higher percentage of conservative subjects.

With respect to the sequels, our data demonstrate little evidence of either tarnishment or enhancement. The role of the movies as "brands" that can hold ongoing social or economic value appears largely undiminished by the existence of pornographic versions of those movies that could tarnish them. Only for the most socially conservative subjects do we detect any evidence of tarnishment, and even here the difference between the Treatment condition and the other conditions is not consistently statistically significant. Accordingly, we believe that our data provide little support for the tarnishment hypothesis.

C. Notes about Our Experiments

Our experiments represent the first systematic attempt to test the tarnishment hypothesis empirically. They are not, however, the last word on the subject, and more research is necessary. Like all experimental research, ours has limitations. We discuss some of these here.

Although we tend not to find substantial evidence of tarnishment, this does not mean that tarnishment does not exist. Our experiments each had about 1000 subjects, which should have been enough to find evidence of tarnishment if it existed.[178] More importantly, though, we do find significant results in a number of situations—just not in the direction predicted by the tarnishment hypothesis. Instead, our data often show evidence of enhancement effects, effects which are consistent with the marketing literature on the role of sexuality in advertising.[179]

Nonetheless, the experiments reported in this Article only test some aspects of the tarnishment hypothesis. In particular, our experiments test: 1) whether tarnishment affects marks or works in a way that diminishes consumers' interest in consuming those marks or works, and 2) whether tarnishment affects marks or works in a way that diminishes consumers' interest in consuming other products related to those marks or works. Tarnishment could arise in other situations not tested here. For example, consumers may attach social value to marks or works in ways that symbolize their relationship with groups and communities in society.[180] Perhaps if the marks were more publicly tarnished, their ability to function as social signals would be diminished. Our experiments do not test this aspect of mark value.[181] Our experiments also do

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[178] Treating each response to a movie pair as a data point, each condition (Baseline, Control, and Treatment) contained between 1721 (Experiment 2, Baseline, sequels only) and 4248 (Experiment 1, Control) responses. For the smallest of these samples, we should have been able to detect a 5% difference between two conditions at alpha = .05 with power > .8.

[179] See supra Part III.

[180] *See* Hughes, *supra* note 16.

[181] In an unreported pilot test, we ran a version of the experiment that attempted to examine the social value of the targeted movies. At the end of the experiment, subjects were asked which of two movies they would like to receive a movie t-shirt from, where one of the pair had been targeted with a pornographic movie poster earlier in the experiment. Subjects were not significantly less likely to choose the target t-shirt in the Treatment condition (43.9%) than in the Baseline (46.5%) or Control (45.4%) conditions. There was, however, one pair in which we do observe a

not include particularly lengthy exposure to the tarnishing works. Subjects experience the pornographic movie posters for between 5 and 30 seconds each. Perhaps if these experiences were longer or if subjects actually watched portions of the pornographic movies they would have exhibited some aversion to the targeted movies. Future research can test these questions.

In addition, we note that the advertising literature suggests that negative effects associated with incongruous sexual images fade quickly.[182] Our experiments attempted to measure tarnishment almost contemporaneously with exposure to the potential harmful stimuli. Even if we had found tarnishing effects, we would have had to conduct a follow-up study to measure whether any negative associations were persistent over time in the way feared by proponents of tarnishment theory.

Finally, we should address the subject pools that we used in these experiments. Subjects were drawn from Amazon Mechanical Turk.[183] While a number of studies have shown that AMT subjects perform similarly to other cohorts of subjects in classic behavioral experiments,[184] some researchers have questioned the value of using AMT subjects in social science research.[185] Certainly the full sample of AMT subjects is different in important ways from the general U.S. public.[186] Perhaps these demographic differences affected our results. We attempted to account

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tarnishing effect. In the *Les Miserables vs. Avengers* pair, subjects in the Treatment condition chose the *Les Mis* t-shirt less often (20.2%) than did subjects in the Baseline condition (35.4%). Interestingly, this difference is driven largely by female subjects. Given the small size of this experiment (303 subjects) we are hesitant to give it much weight. Further research is necessary to test whether social value is affected by sexual tarnishment.

[182] *See, e.g.*, Weller *et al.*, *supra* note 127 at 150.

[183] See sources cited *supra* notes 148 and 166.

[184] *See, e.g.*, Gabriele Paolacci & Jesse Chandler, *Inside the Turk: Understanding Mechanical Turk as a Participant Pool*, 23 Current Directions in Psychological Science, 184, 186 (2014); John J. Horton, David G. Rand, & Richard J. Zeckhauser, *The Online Laboratory: Conducting Experiments in a Real Labor Market*, 14 Exp. Econ. 399 (2011).

[185] *See e.g.*, Dan Kahan, *Fooled Twice, Shame on Who? Problems with Mechanical Turk Study Samples, Part 2*, The Cultural Cognition Project (July 10, 2013), available at http://www.culturalcognition.net/blog/2013/7/10/fooled-twice-shame-on-who-problems-with-mechanical-turk-stud.html.

[186] It is younger, more liberal, and more technologically savvy. *See* Paolacci & Chandler, *supra* n.165, at 185 ("Workers tend to be younger (about 30 years old), overeducated, underemployed, less religious, and more liberal than the general population."). Additionally, workers who find MTurk surveys via Internet forums are even younger than the general MTurk population and tend to be male. Jesse Chandler, Pam Mueller, & Gabriele Paolacci,

for this concern by using the Turk Prime subject pools in Experiment 2, and by doing so we produced a more representative sample of subjects. Our results in Experiment 2 were very similar to those from Experiment 1. Furthermore, although our subject pool may have differed from the general public in some ways, these differences might have been more helpful than harmful. While our sample may not have had many deeply religious grandmothers from Kentucky, those sorts of people may be the ones least likely to be exposed to tarnishing pornographic images in the first place. The sorts of people who are most likely to experience potentially tarnishing content are those who spend a lot of time online and tend to be younger and more technologically savvy—exactly the groups of people that AMT selects for. Whether our use of AMT subjects is a limitation or a benefit is, we think, an open question.

IV. LEGAL AND POLICY IMPLICATIONS

The harms predicted by tarnishment theory have been used to justify substantial expansions in intellectual property owners' rights over the last half-century. Trademark dilution law has given owners the right to eliminate even non-confusing uses of their marks when the use was alleged to tarnish the mark in consumers' eyes. In copyright law, concerns about tarnishment narrowed the application of the fair use doctrine and have been used to justify expansions in the duration of protection for already existing works. Owners have obtained these new protections despite a complete lack of evidence that tarnishment theory is empirically verifiable.

Nonnaivete among Amazon Mechanical Turk Workers: Consequences and Solutions for Behavioral Researchers, 46 Behavior Research Methods 112, 127 (2014). The creators of TurkPrime recently found that the percentage of male MTurk workers has recently overtaken the percentage of female workers. *The New Demographics on Mechanical Turk: Is There Still a Gender Gap?*, Effective Mechanical Turk: the TurkPrime Blog (Mar. 12, 2015), available at http://blog.turkprime.com/2015/03/the-new-new-demographics-on-mechanical.html#more. Our general MTurk sample was also relatively young, liberal, and male.

The data presented in these experiments cast substantial doubt on the strongest claims of tarnishment theorists. Our results indicate that even for the most threatening kinds of tarnishment—pornographic versions of protected marks or works—people experience little if any diminution in their desire to consume those marks and works. Moreover, the allegedly tarnishing versions may actually intensify the desires of some people to consume them.

At the very least, our data should put the ball back in the court of tarnishment theorists to produce empirical support for their claims. More substantially, these experiments suggest deeper challenges to the normative goals of intellectual property law to the extent that certain uses of works may harm some people while benefiting others. IP law must grapple with the tradeoffs associated with protecting some people's interests at the expense of others.

Anti-tarnishment doctrines in trademark and copyright law are intended to remedy harms that could arise from unauthorized uses of marks and works. But it is important to remember that these laws are not without costs. By preventing people from using marks and works in certain ways, trademark and copyright law impose substantial limitations on competition and speech.[187] For these costs to be justified, the concomitant benefits for owners and consumers must equal or exceed them. If our data are correct, anti-tarnishment laws may not be worth it. In order to consider fully the costs of tarnishment theory, one must understand the contexts in which it has been successfully deployed. Below we discuss particular policy implications of our results.

A. Evidentiary Rules in Trademark Law

In the trademark context, the tarnishment hypothesis is primarily deployed to prevent the use of sexual humor in advertising products. A producer cannot sell a board game called SEXOPOLY even if it is crystal clear that Parker Brothers has not approved of the product. But

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[187] Neil Netanal, *Locating Copyright in the First Amendment Skein*, 54 STAN. L. REV. 1 (2001).

what harm would done by an injunction against SEXOPOLY? Unlike the massive cost incurred by consumers in cases of copyright term extensions, the loss of a few silly names for products seems quite minor; nonetheless, potential harm could come in two forms. First, many of the unauthorized uses of famous marks are quite funny. Placing a monetary value on humorous speech is difficult, but the pleasure elicited by some of the products described in footnotes 47-51 clearly represent a form of consumer value. Some consumers seem to desire sexualized versions of brands even though they know that the products are unassociated with the original producer. Second, unauthorized uses of famous marks are often used to draw attention to product attributes in the unauthorized product in the same way that trademarks do for authorized products. A producer does not need to provide a long description to consumers about the likely content of its SEXOPOLY game. The association with MONOPOLY does that on its own. Most sexual uses of trademarks serve the same function that trademark law in general is supposed to nurture: the shorthand communication of product attributes to the public. In other words, the value of most "tarnishing" marks is the same as the value we normally attribute to trademarks. Of course, a use might be so damaging that the overall cost would outweigh the benefit, but our research suggests that trademark owners should bear the burden of proving that the alleged use is damaging. The suggestion in the *Restatement of Unfair Competition (Third)*[188] and holding of the Sixth Circuit in *V Secret Catalogue*[189] that any sexual association is per se tarnishing seems seriously under-supported.

We should admit, however, that per se rules do generally save on litigation costs. To the extent that we advocate a serious factual inquiry into actual tarnishment in trademark cases, we advocate increasing the cost of that litigation. We note, nonetheless, that trademark litigation is

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[188] Restatement of Unfair Competition (Third) s. 25 cmt. g.
[189] 605 F.3d at 388.

already highly survey-driven. Courts routinely evaluate consumer survey evidence and hear expert testimony about whether trademarks have secondary meaning,[190] whether they are generic,[191] and whether a likelihood of confusion exists.[192] Our evidentiary suggestions fit comfortably with the general deference to consumer survey evidence in trademark law.

In fact, we advocate a procedure very similar to that followed by false advertising cases, which provide a close analogy to trademark tarnishment cases. In the typical false advertising cases, the seller of a product complains about misleading and damaging statements made by a competitor, usually in the course of advertising.[193] The seller's experts will typically show the allegedly misleading advertisement to a panel of consumers and measure the magnitude of changed consumer attitudes after exposure to the ad.[194] The burden is on the alleged victim of the ad to show a negative change in consumer opinion.[195] This is precisely what we would like to see happen in trademark tarnishment cases when a trademark owner complains that an unauthorized user caused a negative change in consumer opinion about the mark.[196] Where the trademark owner can show damage through the use of survey methodology, the trademark owner should prevail.

To illustrate, in one famous trademark dilution case, John Deere sued a rival lawnmower manufacturer for running an advertisement wherein its famous Running Stag trademark was

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[190] *See* RESTATEMENT OF UNFAIR COMPETITION (THIRD) s. 13 cmt. e (discussing the use of surveys and consumer testimony to establish secondary meaning directly or indirectly and noting that "[s]urveys of prospective purchasers, if properly formulated and conducted, can be particularly persuasive.").

[191] *See id.* s. 15 cmt b ("Prior use of the term in a generic sense by other sellers and generic usage in textbooks, newspapers, and magazines are evidence that the term is generic. Consumer surveys are also relevant.").

[192] *See id.* s. 23 cmt c ("Consumer surveys can be helpful in establishing whether confusion is likely. Although no survey can duplicate perfectly the marketing circumstances of the use, a survey that reasonably reflects the state of mind of prospective purchasers as they encounter the designations in the marketplace is admissible evidence of the likelihood of confusion.").

[193] *See* MCCARTHY ON TRADEMARKS AND UNFAIR COMPETITION (4th ed.) s. 27:24 (elements of prima facie case for false misrepresentation).

[194] *See* E. Deborah Jay, *Ten Truths of False Advertising Surveys*, 103 TRADEMARK RPTR. 1116 (2013).

[195] *Id*.

[196] This sort of survey evidence is also routinely put forward in standard trademark confusion cases. *See supra* notes 48-49.

converted into a tiny scared deer running away from a product manufactured by a competitor, MTD.[197] John Deere claimed this was an attempt to change consumer attitudes about the John Deere mark by lessening the value of a strong, well-regarded mark.[198] The court found in John Deere's favor without ever demanding the sort of direct proof of harm that is essential to winning a false advertising case. According to the court, "Alterations of that sort, accomplished for the sole purpose of promoting a competing product, are properly found to be within New York's concept of dilution because they risk the possibility that consumers will come to attribute unfavorable characteristics to a mark and ultimately associate the mark with inferior goods and services."[199] Whether the MTD ad negatively changed consumer attitudes could easily have been measured using methodologies and research tools common to those used to litigating false advertising cases. The reason why tarnishment claims are generally allowed without proof of harm while false advertising claims require proof of harm is the judicial presumption of tarnishment created by unauthorized uses of a mark. Our study does not prove that consumer attitudes are never changed by unauthorized uses, but it does suggest that the strong presumption in favor of tarnishment is unsupported. Merely pleading a claim as a tarnishment cause of action instead of a false advertising cause of action should not magically result in the elimination of the need to prove harm.

B. Retroactive Copyright Term Extension

Three main arguments have been used to justify the retroactive extension of copyright terms for existing works. The first argument asserts that works need owners in order to be adequately distributed to the public. This assertion has been called into serious question by

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[197] Deere & Co. v. MTD Products, Inc., 41 F.3d 39 (2d Cir. 1996).
[198] *Id.* at 41-42.
[199] *Id.* at 45.

empirical studies demonstrating that works falling into the public domain are distributed significantly more widely than those protected by copyright. For example, a recent sample of new books for sale on Amazon.com shows that many more new editions of books from late nineteenth century are available than new editions of books from the mid-twentieth century.[200] Once books go out of print, their copyright owners keep them out of print and stymie distribution.[201] Books initially published before 1923 (all by law in the public domain) are significantly more available to the public.[202] The argument that copyright is necessary to maintain public distribution can no longer be maintained.

The second argument asserted in the last debate over term extension involved the harmonization of the U.S. copyright term (at the time life-plus-fifty) with the European term of life-plus-seventy. The harmonization in term length has now been achieved, so this justification has also fallen by the wayside.

The third justification, the tarnishment hypothesis, therefore remains as a final and last ditch argument in favor of extending copyright protection for millions of works that would otherwise fall into the public domain. Our research suggests that locking up millions of works based on the hypothetical fear of tarnishment is also unsupported. The present studies suggest that works are resistant to even pornographic tarnishment. Those who propound tarnishment theory should bear the burden of proving tarnishment is a legitimate concern—a burden they have not yet met. In prior research we found some evidence of tarnishment for audiobooks among listeners who heard a poorly read version of a novel.[203] They assigned a lower monetary value to it than listeners who heard a well-read version. Critically, however, we also found that

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[200] Paul J. Heald, *How Copyright Keeps Works Disappeared*, J. EMPIRICAL LEGAL STUDIES (2014).
[201] *Id.*
[202] *Id.*
[203] Buccafusco & Heald, *supra* note 6.

the tarnishing effect on the underlying work was unrelated to public domain status.[204] In other words, works with copyright owners were just as likely to be tarnished as works in the public domain. In neither study do we claim that tarnishment could never happen, but we emphasize the lack of evidence to support the claim that extended copyright protection is an appropriate mechanism to eliminate social harm via tarnishment.

Finally, we note term extensions are not narrowly targeted to protect only a small number of valuable works that might be subject to tarnishment. Previous term extensions have all extended protection to *everything* fixed in a tangible form over a set period of years.[205]   If another term extension is enacted, millions of photographs, paintings, maps, musical compositions, essays and other non-fiction works which were never in danger of being targeted by inappropriate uses would remain in copyright (and therefore less available to the public).

C. Fair Use

The tarnishment hypothesis is also deployed in the context of fair use determinations. The fourth factor of the fair use test requires an inquiry into the effect of the unauthorized use on the market for the work. In a case like *Air Pirates*, the court clearly thought that the scandalous nature of the comic books caused special harm to Mickey Mouse. Our research suggests that fair use arguments should not be automatically defeated by the presence of unwanted sexual associations. And the cost of overprotection is significant. A presumption that sexual uses are not fair not only restricts speech but also may deny consumers a product that they desire. For example, a market for racy, sexualized Mickey Mouse adventures existed which Disney,

---

[204] *Id.*
[205] *See* 17 U.S.C. § 301.

probably quite logically,[206] was not willing to satisfy. The consumer value created by works like *Air Pirates* is wasted when it is prohibited. At a minimum, copyright owners should be required to supply affirmative proof of a tarnishing effect to offset that lost consumer value.

In addition, American courts in fair use cases make a curious distinction between satire and parody that is implicated by our study. Parody is often viewed as protected speech, especially after *Campbell v. Acuff Rose*,[207] and it may even be that *Air Pirates*, if viewed as a parody, might be permissible today. The tolerance of parody, however, is currently based on the notion that parody is somehow more valuable than satire, not the conclusion that parodies are less harmful. Our study, and the Erickson, Kretschmer, & Mendes music parody study[208] discussed in Part II, suggest that the costs of parody have been overstated and that tolerance of parody as a fair use can be justified solely by the absence of market harm, the fourth element of the fair use test. The absence-of-harm argument applies just as strongly to satire as it does to parody. Both parodists and satirists transform works for purposes of public commentary, often over the objection of a copyright owner. If neither poses a real economic threat to the copyright owner, then neither should be subject to a presumption that a particular type of use is tarnishing. Affirmative proof should be offered by the plaintiff.

CONCLUSION

Clearly, more empirical research needs to be done to explore the tarnishment hypothesis. Our research does not prove that tarnishment is a figment of the imagination of intellectual property owners. It would be valuable to understand whether other sorts of unauthorized uses

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[206] Were Disney to satisfy the market for sexual stories about it characters, it might well suffer a reputational damage that would not be incurred when an unauthorized third party satisfies the same market.
[207] 510 U.S. 569.
[208] Erickson, Kretschmer, & Mendes, *supra* note 105.

are more or less likely to cause tarnishment than are sexualized ones. For example, future research should assess whether racist or other offensive uses of a work or mark cause greater degrees of tarnishment than pornographic uses. Nonetheless, we hope we have shifted the burden of proof to IP owners to establish the value of these otherwise costly laws. The burdens of over-protecting copyrights and trademarks are clear. Proponents of tarnishment, therefore, need to make the case that the benefits of tarnishment doctrines outweigh those costs.

I. Combined 10 Movie Pairs

Mean choosing Target movie in Baseline, Control, and Treatment.

TargetTotal the total number of target movies each participant selected out of 10 pairs.

```
. tab Condition, summarize(TargetTotal)
```

Condition	Summary of TargetTotal Mean	Std. Dev.	Freq.
B	5.492823	1.571996	418
C	5.2997658	1.6341643	427
T	5.746988	1.6611748	415
Total	5.5111111	1.6319011	1260

Total number of times target movies were chosen divided by the total number of responses.

Condition	Proportion (n_{Target})	N_{Total}
Baseline	.5515 (2296)	4163
Control	.5327 (2263)	4248
Treatment	.5762 (2385)	4139
Total	.5533 (6944)	12550

T-test of differences in these means.

Baseline vs Control, using TargetTotal: $M_B - M_C = .193$, $t_{(843)} = 1.75$, $p = .08$

```
. ttest TargetTotal, by(Condition)
```

Two-sample t test with equal variances

Group	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf. Interval]	
B	418	5.492823	.0768888	1.571996	5.341685	5.643961
C	427	5.299766	.0790828	1.634164	5.144325	5.455207
combined	845	5.395266	.0552367	1.60567	5.286849	5.503684
diff		.1930572	.1103451		-.0235262	.4096405

```
    diff = mean(B) - mean(C)                                t =    1.7496
Ho: diff = 0                               degrees of freedom =      843

   Ha: diff < 0                 Ha: diff != 0                  Ha: diff > 0
 Pr(T < t) = 0.9597      Pr(|T| > |t|) = 0.0806         Pr(T > t) = 0.0403
```

Baseline vs Treatment, using TargetTotal: $M_T - M_B = .254$, $t_{(831)} = 2.27$, $p = .02$

```
. ttest TargetTotal, by(Condition)

Two-sample t test with equal variances

─────────────────────────────────────────────────────────────────────────────
   Group │     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
─────────┼───────────────────────────────────────────────────────────────────
       B │     418    5.492823    .0768888    1.571996    5.341685    5.643961
       T │     415    5.746988    .0815439    1.661175    5.586696     5.90728
─────────┼───────────────────────────────────────────────────────────────────
combined │     833    5.619448    .0561665    1.621062    5.509203    5.729692
─────────┼───────────────────────────────────────────────────────────────────
    diff │            -.254165    .1120549               -.4741089   -.0342211
─────────────────────────────────────────────────────────────────────────────
    diff = mean(B) - mean(T)                                   t =  -2.2682
Ho: diff = 0                                   degrees of freedom =      831

    Ha: diff < 0                  Ha: diff != 0                  Ha: diff > 0
 Pr(T < t) = 0.0118        Pr(|T| > |t|) = 0.0236         Pr(T > t) = 0.9882
```

Control vs Treatment, using TargetTotal: $M_T - M_C = .447$, $t_{(840)} = 3.94$, $p < .001$

```
. ttest TargetTotal, by(Condition)

Two-sample t test with equal variances

─────────────────────────────────────────────────────────────────────────────
Variable │     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
─────────┼───────────────────────────────────────────────────────────────────
       C │     427    5.299766    .0790828    1.634164    5.144325    5.455207
       T │     415    5.746988    .0815439    1.661175    5.586696     5.90728
─────────┼───────────────────────────────────────────────────────────────────
combined │     842     5.52019    .0572653    1.661681     5.40779     5.63259
─────────┼───────────────────────────────────────────────────────────────────
    diff │           -.4472221    .1135669               -.6701304   -.2243139
─────────────────────────────────────────────────────────────────────────────
    diff = mean(C) - mean(T)                                   t =  -3.9380
Ho: diff = 0                                   degrees of freedom =      840

    Ha: diff < 0                  Ha: diff != 0                  Ha: diff > 0
 Pr(T < t) = 0.0000        Pr(|T| > |t|) = 0.0001         Pr(T > t) = 1.0000
```

Two-proportion z-tests (using pooled proportions for standard error):
   Baseline vs Control: diff = .0188, $z = 1.73$, $p = .08$
   Baseline vs Treatment: diff = .0247, $z = 2.27$, $p = .02$
   Control vs Treatment: diff = .0435, $z = 4.01$, $p < .001$

Note that with Bonferroni correction for multiple comparisons, critical $\alpha = .05/3 = .0167$, and the Baseline vs Treatment comparison would no longer be significant.

II. Specific Movie Pairs

Mean choosing Target movie in Baseline, Control, and Treatment.
Proportions:

	Baseline	Control	Treatment
Titanic vs Good Will Hunting	.8371 (347/415)	.8373 (355/424)	.8329 (344/413)
You've Got Mail vs Shakespeare in Love	.4892 (203/415)	.4437 (189/426)	.5253 (218/415)
The Da Vinci Code vs Mission: Impossible 3	.3182 (133/418)	.4242 (179/422)	.5060 (210/415)
The Bourne Identity vs Spider-man	.3165 (132/417)	.2141 (91/425)	.2916 (121/415)
Harry Potter and the Sorcerer's Stone vs Shrek	.7146 (298/417)	.6534 (279/427)	.7325 (304/415)

Raiders of the Lost Ark vs Chariots of Fire	.8990 (374/416)	.8847 (376/425)	.8811 (363/412)
Superman vs the Deer Hunter	.7778 (322/414)	.7694 (327/425)	.7554 (312/413)
Lord of the Rings vs Monsters, Inc.	.7482 (312/417)	.7073 (302/427)	.7373 (306/415)
Les Miserables vs the Avengers	.1172 (49/418)	.9150 (39/426)	.1259 (52/413)
Born on the Fourth of July vs Dead Poets Society	.3029 (126/416)	.2993 (126/421)	.3753 (155/413)

T-test of differences in these means.

	B vs C	B vs T	C vs T
Titanic vs Good Will Hunting	z = .043, n.s.	z = .163, n.s.	z = .172, n.s.
You've Got Mail vs Shakespeare in Love	z = 1.04, n.s.	z = 1.32, p = .19 (n.s.)	Diff = .0816, z = 2.37, p = .018
The Da Vinci Code vs Mission: Impossible 3	Diff = .106, z = 3.18, p = .0016	Diff = .1878, z = 5.5, p < .001	Diff = .0818, z = 2.37, p = .018
The Bourne Identity vs Spider-man	Diff = .1024, z = 3.37, p < .001	z = .781, n.s.	Diff = .0775, z = 2.59, p = .010
Harry Potter and the Sorcerer's Stone vs Shrek	z = 1.91, p = .056	z = .258, n.s.	Diff = .0791, z = 2.49, = .013
Raiders of the Lost Ark vs Chariots of Fire	z = .667, n.s.	z = .823, n.s.	z < .667, n.s.
Superman vs the Deer Hunter	z < .761, n.s.	z = .761, n.s.	z < .761, n.s.
Lord of the Rings vs Monsters, Inc.	z = 1.33, p = .18	z < 1.33, n.s.	z < 1.33, n.s.
Les Miserables vs the Avengers	z < 1.59, n.s.	z < 1.59, n.s.	z = 1.59, p = .11
Born on the Fourth of July vs Dead Poets Society	z = .113, n.s.	Diff = .0724, z = 2.20, p = .028	Diff = .076, z = 3.32, p = .020

III. Demographic Comparisons

Female vs. Male

	Female			Male		
Movie	Baseline	Control	Treatment	Baseline	Control	Treatment
Titanic vs Good Will Hunting	.8456 (126/149)	.7935 (146/184)	.8228 (130/158)	.8302 (220/265)	.8708 (209/240)	.8392 (214/255)
You've Got Mail vs Shakespeare in Love	.5302 (79/149)	.4378 (81/185)	.5633 (89/158)	.4642 (123/265)	.4481 (108/241)	.5019 (129/257)
The Da Vinci Code vs Mission: Impossible 3	.3467 (52/150)	.4022 (74/184)	.5570 (88/158)	.2996 (80/267)	.4412 (105/238)	.4747 (122/257)
The Bourne Identity vs Spider-man	.3154 (47/149)	.2162 (40/185)	.3291 (52/158)	.3184 (85/267)	.2125 (51/240)	.2685 (69/257)
Harry Potter and the Sorcerer's Stone vs Shrek	.7067 (106/150)	.6162 (114/185)	.7848 (124/158)	.7180 (191/266)	.6818 (165/242)	.7004 (180/257)

Raiders of the Lost Ark vs Chariots of Fire	.8456 (126/149)	.7880 (145/184)	.8280 (130/157)	.9286 (247/266)	.9585 (231/241)	.9137 (233/255)
Superman vs the Deer Hunter	.7383 (110/149)	.7838 (145/185)	.7532 (119/158)	.7992 (211/264)	.7583 (182/240)	.7569 (193/255)
Lord of the Rings vs Monsters, Inc.	.7114 (106/149)	.6378 (118/185)	.6962 (110/158)	.7678 (205/267)	.7603 (184/242)	.7626 (196/257)
Les Miserables vs the Avengers	.1800 (27/150)	.1087 (20/184)	.1592 (25/157)	.0824 (22/267)	.0785 (19/242)	.1055 (27/256)
Born on the Fourth of July vs Dead Poets Society	.3221 (48/149)	.2707 (49/181)	.3312 (52/157)	.2895 (77/266)	.3208 (77/240)	.4023 (103/256)
Total	.5539 (827/1493)	.5060 (932/1842)	.5828 (919/1577)	.5492 (1461/2660)	.5532 (1331/2406)	.5722 (1466/2562)

Women (gender = 1) chose the target films less in the control condition than in either of the other conditions (baseline vs. control, $z = 2.76$, $p = .006$; control vs. treatment: $z = 4.49$, $p < .001$). Men (gender = 2) chose the target films marginally more in the treatment condition than in the baseline condition ($z = 1.67$, $p = .095$), but neither the baseline nor the treatment condition differed significantly from the control condition. The proportion of men and women choosing the target films significantly differed from each other in the control condition (F = 50.6%, M = 55.32%, $z = 3.06$, $p = .002$) but not in the other two conditions.

95% confidence intervals for differences between groups:
- Female, treatment – baseline: (-.0061, .0639)
- Female, treatment – control: (.0434, .1102)
- Male, treatment – baseline: (-.0039, .0499)
- Male, treatment – control: (-.0086, .0466)

The confidence intervals for these differences all overlap, meaning there are no significant differences between men and women in the differences between the treatment condition and either of the other conditions.

Conservative = answered 1 or 2 on scale; Liberal = answered 4 or 5 on scale

	Conservative			Liberal		
Movie	Baseline	Control	Treatment	Baseline	Control	Treatment
Titanic vs Good Will Hunting	.7917 (38/48)	.9273 (51/55)	.8085 (38/47)	.8722 (232/266)	.8099 (213/263)	.8405 (216/257)
You've Got	.5833	.5636	.4681	.4774	.3878	.5331

Mail vs Shakespeare in Love	(28/48)	(31/55)	(22/47)	(127/266)	(102/263)	(137/257)
The Da Vinci Code vs Mission: Impossible 3	.3750 (18/48)	.3273 (18/55)	.4468 (21/47)	.3008 (80/266)	.4677 (123/263)	.5253 (135/257)
The Bourne Identity vs Spider-man	.3750 (18/48)	.1818 (10/55)	.3830 (18/47)	.3120 (83/266)	.2319 (61/263)	.2957 (76/257)
Harry Potter and the Sorcerer's Stone vs Shrek	.5833 (28/48)	.5818 (32/55)	.6809 (32/47)	.7406 (197/266)	.6806 (179/263)	.7626 (196/257)
Raiders of the Lost Ark vs Chariots of Fire	.8333 (40/48)	.8909 (49/55)	.8723 (41/47)	.9398 (250/266)	.8935 (235/263)	.8872 (228/257)
Superman vs the Deer Hunter	.7083 (34/48)	.8545 (47/55)	.6383 (30/47)	.7932 (211/266)	.7414 (195/263)	.7626 (196/257)
Lord of the Rings vs Monsters, Inc.	.7292 (35/48)	.6727 (37/55)	.7660 (36/47)	.7782 (207/266)	.7414 (195/263)	.7588 (195/257)
Les Miserables vs the Avengers	.0833 (4/48)	.1091 (6/55)	.1489 (7/47)	.1053 (28/266)	.0722 (19/263)	.1206 (31/257)
Born on the Fourth of July vs Dead Poets Society	.3125 (15/48)	.2727 (15/55)	.3191 (15/47)	.2895 (77/266)	.3004 (79/263)	.3852 (99/257)
Total	.5375 (258/480)	.5382 (296/550)	.5532 (260/470)	.5609 (1492/2660)	.5327 (1401/2630)	.5872 (1509/2570)

95% confidence intervals for differences between groups:
- Conservative, treatment – baseline: (-.0476, .0790)
- Conservative, treatment – control: (-.0463, .0763)
- Liberal, treatment – baseline: (-.0005, .0531)
- Liberal, treatment – control: (.0276, .0814)

All of these confidence intervals overlap, indicating that there is no significant difference between liberals and conservatives in the difference between the treatment and the other conditions. Note that the confidence interval for liberals, treatment – control does not contain 0, indicating that liberals chose the target movie significantly more in the treatment condition than in the control condition.

*Note: power is relatively low for these comparisons because there were relatively few conservatives among the participants.

IV. Regression Analyses

Dummy variables for Baseline and Control conditions, so all regressions compare the baseline condition and the control condition to the treatment condition.

Other Variables:
Gender: 1 = female; 0 = male
Politics: 1 (very conservative) – 5 (very liberal)
R-rated: binary variable 1 = watches R-rated movies; 0 = does not watch R-rated movies
Nudity: "There is too much nudity in movies these days." 1 (strongly disagree) – 10 (strongly agree)

```
. regress TargetTotal Age Gender Baseline Control

      Source |       SS       df       MS              Number of obs =    1257
-------------+------------------------------           F(  4,  1252) =    5.57
       Model | 58.3156961      4   14.578924           Prob > F      =  0.0002
    Residual |   3279.81    1252  2.61965655           R-squared     =  0.0175
-------------+------------------------------           Adj R-squared =  0.0143
       Total | 3338.1257     1256  2.65774339          Root MSE      =  1.6185
```

```
 TargetTotal |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         Age |   .0101689   .0044834     2.27   0.023     .001373    .0189648
      Gender |    .139354   .0948539     1.47   0.142    -.0467361    .325444
    Baseline |  -.2663482   .1123088    -2.37   0.018    -.4866824   -.0460139
     Control |  -.4217181   .1119229    -3.77   0.000    -.6412952   -.2021411
       _cons |    5.19375   .2400429    21.64   0.000     4.722819    5.664681
```

Controlling for age and gender, people in the baseline and control conditions both chose significantly fewer target movies than people in the treatment condition did. (Baseline vs treatment: b = -.266, t = -2.37, p = .018; Control vs treatment: b = -.422, t = -3.77, p < .001.) These differences were also significant when only controlling for age or only controlling for gender.

```
. anova TargetTotal AgeCat NumCondition AgeCat#NumCondition

                          Number of obs =     1260     R-squared     =  0.0228
                          Root MSE      = 1.61832      Adj R-squared =  0.0166

              Source |  Partial SS    df       MS            F     Prob > F
---------------------+----------------------------------------------------
               Model | 76.5226201     8  9.56532751        3.65     0.0003

              AgeCat | 27.9718609     2  13.9859305        5.34     0.0049
         NumCondit~n | 33.3352324     2  16.6676162        6.36     0.0018
  AgeCat#NumCondit~n | 7.37808474     4  1.84452118        0.70     0.5890

            Residual | 3276.32182  1251  2.61896229
---------------------+----------------------------------------------------
               Total | 3352.84444  1259  2.66310123
```

(AgeCat: 1 if <= 24, 2 if >= 35 (25th and 75th percentiles, respectively), 0 otherwise)
No age x condition interaction.

```
. regress TargetTotal Age Gender Politics Baseline Control

      Source |       SS       df       MS              Number of obs =    1257
-------------+------------------------------           F(  5,  1251) =    5.64
       Model | 73.6313085      5  14.7262617           Prob > F      =  0.0000
    Residual | 3264.49439   1251   2.6095079           R-squared     =  0.0221
-------------+------------------------------           Adj R-squared =  0.0181
       Total | 3338.1257    1256  2.65774339           Root MSE      =  1.6154


  TargetTotal |     Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        Age |  .0115904   .0045131     2.57   0.010     .0027364    .0204444
     Gender |  .1550836   .0948923     1.63   0.102    -.0310821    .3412493
   Politics |  .1081741   .0446514     2.42   0.016     .0205741    .1957741
   Baseline | -.2682552   .1120938    -2.39   0.017    -.4881679   -.0483426
    Control | -.4211029   .1117061    -3.77   0.000    -.6402549   -.2019508
      _cons |  4.718202   .3097235    15.23   0.000     4.110567    5.325837
```

Baseline vs. treatment: b = -.268, t = -2.39, p = .017
Control vs. treatment: b = -.421, t = -3.77, p < .001

```
. regress TargetTotal Age Gender Rrated Baseline Control

      Source |       SS       df       MS              Number of obs =    1257
-------------+------------------------------           F(  5,  1251) =    4.52
       Model | 59.2353272      5  11.8470654           Prob > F      =  0.0004
    Residual | 3278.89037   1251   2.62101548          R-squared     =  0.0177
-------------+------------------------------           Adj R-squared =  0.0138
       Total | 3338.1257    1256  2.65774339           Root MSE      =    1.619


  TargetTotal |     Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        Age |  .0098851   .0045101     2.19   0.029     .0010369    .0187333
     Gender |   .144235   .0952356     1.51   0.130    -.0426042    .3310742
     Rrated | -.1031544   .1741468    -0.59   0.554    -.4448064    .2384977
   Baseline | -.2733841   .1129642    -2.42   0.016    -.4950042   -.0517639
    Control | -.4224154   .1119581    -3.77   0.000    -.6420617   -.2027691
      _cons |  5.292674    .292474    18.10   0.000      4.71888    5.866468
```

Baseline vs. treatment: b = -.273, t = -2.42, p = .016
Control vs. treatment: b = -.422, t = -3.77, p < .001

```
. regress TargetTotal Age Gender Nudity Baseline Control

      Source |       SS       df       MS              Number of obs =    1252
-------------+------------------------------           F(  5,  1246) =    4.83
       Model | 63.1387447      5  12.6277489           Prob > F      =  0.0002
    Residual | 3257.68154   1246  2.61451167           R-squared     =  0.0190
-------------+------------------------------           Adj R-squared =  0.0151
       Total | 3320.82029   1251   2.6545326           Root MSE      =  1.6169


------------------------------------------------------------------------------
 TargetTotal |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         Age |     .01048   .0045344     2.31   0.021      .001584    .0193759
      Gender |   .1104762   .0972279     1.14   0.256    -.0802722    .3012246
      Nudity |  -.0597295   .0443931    -1.35   0.179    -.1468229    .0273639
    Baseline |   -.271936    .112565    -2.42   0.016    -.4927739   -.0510981
     Control |  -.4315422   .1121673    -3.85   0.000    -.6515997   -.2114846
       _cons |   5.686362   .4214203    13.49   0.000      4.85959    6.513134
------------------------------------------------------------------------------
```

Baseline vs. treatment: b = -.272, t = -2.42, p = .016
Control vs. treatment: b = -.432, t = -3.85, p < .001

```
. regress TargetTotal Age Gender Politics Rrated Nudity Baseline Control

      Source |       SS       df       MS              Number of obs =    1252
-------------+------------------------------           F(  7,  1244) =    4.11
       Model | 75.0419235      7  10.7202748           Prob > F      =  0.0002
    Residual | 3245.77836   1244  2.60914659           R-squared     =  0.0226
-------------+------------------------------           Adj R-squared =  0.0171
       Total | 3320.82029   1251   2.6545326           Root MSE      =  1.6153


------------------------------------------------------------------------------
 TargetTotal |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         Age |   .0110088   .0045655     2.41   0.016     .0020518    .0199658
      Gender |   .1404539   .0981432     1.43   0.153    -.0520905    .3329983
    Politics |   .0917431   .0468331     1.96   0.050    -.0001374    .1836237
      Rrated |  -.1667267   .1768644    -0.94   0.346    -.5137122    .1802587
      Nudity |   -.042017   .0468091    -0.90   0.370    -.1338506    .0498166
    Baseline |  -.2853699   .1130525    -2.52   0.012    -.5071645   -.0635752
     Control |  -.4314795   .1120591    -3.85   0.000    -.6513252   -.2116338
       _cons |   5.302703   .5653004     9.38   0.000     4.193656    6.411751
------------------------------------------------------------------------------
```

Baseline vs. treatment: b = -.285, t = -2.52, p = .012
Control vs. treatment: b = -.431, t = -3.85, p < .001

When controlling for each combination of variables, people chose significantly more target movies in the treatment condition than in the other conditions.

Porn tolerance:
NudityCat = 1 for responses <= 7 (25th percentile); 2 for responses > 7 (8 = 75th percentile) on the question asking to what extent participants agree that there is too much nudity in movies.

```
. anova TargetTotal NumCondition NudityCat NumCondition#NudityCat

                              Number of obs =    1260     R-squared     =  0.0159
                              Root MSE      = 1.62207     Adj R-squared =  0.0120

                  Source │  Partial SS    df      MS            F      Prob > F
          ──────────────┼─────────────────────────────────────────────────────
                   Model │  53.4475071     5  10.6895014      4.06      0.0012

             NumCondit~n │   39.658619     2  19.8293095      7.54      0.0006
               NudityCat │  7.68269781     1  7.68269781      2.92      0.0877
   NumCondit~n#NudityCat │  3.57817179     2   1.7890859      0.68      0.5068

                Residual │  3299.39694  1254  2.63109804
          ──────────────┼─────────────────────────────────────────────────────
                   Total │  3352.84444  1259  2.66310123

. regress TargetTotal Baseline Control if NudityCat == 1

       Source │       SS       df       MS              Number of obs =     674
  ────────────┼──────────────────────────────          F(  2,   671) =    8.25
        Model │  40.8736702     2  20.4368351           Prob > F      =  0.0003
     Residual │  1662.80586   671  2.47810113           R-squared     =  0.0240
  ────────────┼──────────────────────────────          Adj R-squared =  0.0211
        Total │  1703.67953   673  2.53147032           Root MSE      =  1.5742


  ────────────┬─────────────────────────────────────────────────────────────
  TargetTotal │     Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
  ────────────┼─────────────────────────────────────────────────────────────
     Baseline │ -.3682476   .1491807    -2.47   0.014    -.6611648   -.0753304
      Control │ -.5874606    .146165    -4.02   0.000    -.8744564   -.3004648
        _cons │  5.903703   .1038016    56.87   0.000     5.699888    6.107518
  ────────────┴─────────────────────────────────────────────────────────────

. regress TargetTotal Baseline Control if NudityCat == 2

       Source │       SS       df       MS              Number of obs =     586
  ────────────┼──────────────────────────────          F(  2,   583) =    1.79
        Model │  10.0297503     2  5.01487517           Prob > F      =  0.1675
     Residual │  1631.31496   583  2.79813887           R-squared     =  0.0061
  ────────────┼──────────────────────────────          Adj R-squared =  0.0027
        Total │  1641.34471   585  2.80571745           Root MSE      =  1.6728


  ────────────┬─────────────────────────────────────────────────────────────
  TargetTotal │     Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
  ────────────┼─────────────────────────────────────────────────────────────
     Baseline │ -.1265597   .1693507    -0.75   0.455    -.4591716    .2060522
      Control │ -.3211299   .1712096    -1.88   0.061    -.6573927    .015133
        _cons │   5.57754   .1223246    45.60   0.000      5.33729    5.817791
  ────────────┴─────────────────────────────────────────────────────────────
```

Specific Movie Pairs:

You've Got Mail vs Shakespeare in Love:

```
. regress Mail Age Gender Baseline Control

      Source |       SS       df       MS              Number of obs =    1257
-------------+------------------------------          F(  4,  1252) =    9.49
       Model | 9.23725745      4  2.30931436          Prob > F      =  0.0000
    Residual | 304.645002   1252  .243326679          R-squared     =  0.0294
-------------+------------------------------          Adj R-squared =  0.0263
       Total | 313.882259   1256  .249906257          Root MSE      =  .49328

------------------------------------------------------------------------------
        Mail |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         Age |   .0074968   .0013664     5.49   0.000     .0048161    .0101775
      Gender |  -.0134553   .0289086    -0.47   0.642     -.07017    .0432594
    Baseline |   -.041655   .0342284    -1.22   0.224    -.1088063   .0254964
     Control |  -.0751135   .0341108    -2.20   0.028     -.142034   -.0081929
       _cons |   .3055831    .073158     4.18   0.000     .1620574   .4491089
------------------------------------------------------------------------------
```

Significantly more participants chose the target movie in the treatment condition than in the control condition when controlling for age and gender (b = -.0751, t = -2.20, p = .028). The difference between treatment and baseline is not significant.

```
. regress Mail Age Gender Politics Rrated Nudity Baseline Control

      Source |       SS       df       MS              Number of obs =    1252
-------------+------------------------------          F(  7,  1244) =    6.01
       Model | 10.2328132      7  1.46183046          Prob > F      =  0.0000
    Residual |  302.41495   1244  .243098835          R-squared     =  0.0327
-------------+------------------------------          Adj R-squared =  0.0273
       Total | 312.647764   1251  .249918276          Root MSE      =  .49305

------------------------------------------------------------------------------
        Mail |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         Age |   .0068545   .0013936     4.92   0.000     .0041204   .0095885
      Gender |  -.0172463   .0299573    -0.58   0.565    -.0760187    .041526
    Politics |  -.0260982   .0142954    -1.83   0.068    -.0541438   .0019475
      Rrated |  -.0458218   .0539862    -0.85   0.396    -.1517358   .0600923
      Nudity |   .0019007    .014288     0.13   0.894    -.0261306    .029932
    Baseline |   -.045772   .0345082    -1.33   0.185    -.1134727   .0219287
     Control |  -.0773126    .034205    -2.26   0.024    -.1444184   -.0102068
       _cons |    .460526   .1725526     2.67   0.008     .1219997   .7990522
------------------------------------------------------------------------------
```

Difference between treatment and control remains significant when controlling for other demographic variables.

Da Vinci Code vs Mission: Impossible 3:

```
. regress DaVinci Age Gender Baseline Control
```

Source	SS	df	MS		Number of obs =	1257
					F(4, 1252) =	8.85
Model	8.38264686	4	2.09566172		Prob > F =	0.0000
Residual	296.32857	1252	.236684162		R-squared =	0.0275
					Adj R-squared =	0.0244
Total	304.711217	1256	.242604472		Root MSE =	.4865

DaVinci	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
Age	.0019802	.0013476	1.47	0.142	-.0006637	.0046241
Gender	-.0234636	.0285113	-0.82	0.411	-.0793988	.0324717
Baseline	-.1905942	.033758	-5.65	0.000	-.2568226	-.1243657
Control	-.0868593	.033642	-2.58	0.010	-.1528602	-.0208585
_cons	.4802263	.0721525	6.66	0.000	.3386731	.6217794

Significantly more participants chose target movie in the treatment condition than in either of the other conditions (vs. baseline: b = -.191, t = -5.65, p < .001; vs. control: b = -.087, t = -2.58, p = .01), when controlling for age and gender.

```
. regress DaVinci Age Gender Politics Rrated Nudity Baseline Control
```

Source	SS	df	MS		Number of obs =	1252
					F(7, 1244) =	5.43
Model	8.99068045	7	1.28438292		Prob > F =	0.0000
Residual	294.344783	1244	.236611562		R-squared =	0.0296
					Adj R-squared =	0.0242
Total	303.335463	1251	.242474391		Root MSE =	.48643

DaVinci	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
Age	.0021259	.0013749	1.55	0.122	-.0005714	.0048232
Gender	-.0165961	.0295548	-0.56	0.575	-.0745789	.0413868
Politics	.0247667	.0141033	1.76	0.079	-.0029022	.0524356
Rrated	.0154193	.053261	0.29	0.772	-.089072	.1199105
Nudity	.010302	.0140961	0.73	0.465	-.0173528	.0379567
Baseline	-.1892168	.0340447	-5.56	0.000	-.2560081	-.1224256
Control	-.0854021	.0337455	-2.53	0.012	-.1516065	-.0191977
_cons	.2788397	.1702347	1.64	0.102	-.0551391	.6128184

Both differences are still significant when controlling for other demographic variables (baseline vs. treatment: b = -.189, t = -5.56, p < .001; control vs. treatment: b = -.085, t = -2.53, p = .012).

Bourne Identity vs Spider-man:

```
. regress Bourne Age Gender Baseline Control

      Source |       SS           df       MS              Number of obs =    1257
-------------+------------------------------            F(  4,  1252) =    3.27
       Model |  2.58347744        4   .64586936          Prob > F      =  0.0112
    Residual |  247.274916     1252  .197503926          R-squared     =  0.0103
-------------+------------------------------            Adj R-squared =  0.0072
       Total |  249.858393     1256  .198931842          Root MSE      =  .44441


      Bourne |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         Age |   .0000164   .0012311     0.01   0.989    -.0023988    .0024315
      Gender |   -.020166   .0260448    -0.77   0.439    -.0712623    .0309302
    Baseline |   .0261481   .0308375     0.85   0.397    -.0343508    .0866471
     Control |  -.0789629   .0307316    -2.57   0.010    -.1392539   -.0186719
       _cons |   .3236927   .0659105     4.91   0.000     .1943855    .4529999
```

Significantly more people chose the target movie in the treatment condition than in the control condition (b = -.079, t = -2.57, p = .010).

```
. regress Bourne Age Gender Politics Rrated Nudity Baseline Control

      Source |       SS           df       MS              Number of obs =    1252
-------------+------------------------------            F(  7,  1244) =    1.89
       Model |  2.61742361        7  .373917658          Prob > F      =  0.0675
    Residual |  245.960851     1244  .197717726          R-squared     =  0.0105
-------------+------------------------------            Adj R-squared =  0.0050
       Total |  248.578275     1251  .198703657          Root MSE      =  .44465


      Bourne |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         Age |  -9.99e-06   .0012568    -0.01   0.994    -.0024757    .0024557
      Gender |  -.0226594   .0270168    -0.84   0.402    -.0756629    .0303441
    Politics |  -.0036784   .0128922    -0.29   0.775    -.0289712    .0216144
      Rrated |   .0213566   .0486871     0.44   0.661    -.0741613    .1168746
      Nudity |  -.0027986   .0128856    -0.22   0.828    -.0280785    .0224813
    Baseline |   .0290973    .031121     0.93   0.350    -.0319582    .0901527
     Control |  -.0776456   .0308475    -2.52   0.012    -.1381645   -.0171266
       _cons |   .3417635   .1556155     2.20   0.028     .0364657    .6470613
```

Difference between treatment and control remains significant when controlling for other demographic variables (b = -.078, t = -2.52, p = .012).

Harry Potter vs Shrek:

```
. regress HP Age Gender Baseline Control

      Source |       SS       df       MS              Number of obs =    1257
-------------+------------------------------           F(  4,  1252) =    5.76
       Model |  4.77658717     4  1.19414679           Prob > F      =  0.0001
    Residual |  259.552768  1252  .207310518           R-squared     =  0.0181
-------------+------------------------------           Adj R-squared =  0.0149
       Total |  264.329356  1256  .210453309           Root MSE      =  .45531


          HP |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         Age |  -.0051181   .0012612    -4.06   0.000    -.0075925   -.0026437
      Gender |   -.020161   .0266835    -0.76   0.450    -.0725104    .0321884
    Baseline |  -.0207235   .0315938    -0.66   0.512    -.0827062    .0412592
     Control |  -.0851609   .0314853    -2.70   0.007    -.1469306   -.0233912
       _cons |   .9300537    .067527    13.77   0.000     .7975751    1.062532
```

Controlling for age and gender, significantly more people chose the target movie in the treatment condition than in the control condition (b = -.085, t = -2.70, p = .007).

```
. regress HP Age Gender Politics Rrated Nudity Baseline Control

      Source |       SS       df       MS              Number of obs =    1252
-------------+------------------------------           F(  7,  1244) =    5.18
       Model |  7.46270611     7  1.06610087           Prob > F      =  0.0000
    Residual |  256.015728  1244  .205800425           R-squared     =  0.0283
-------------+------------------------------           Adj R-squared =  0.0229
       Total |  263.478435  1251  .210614256           Root MSE      =  .45365


          HP |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         Age |  -.0046644   .0012822    -3.64   0.000      -.00718   -.0021489
      Gender |  -.0130693   .0275635    -0.47   0.635    -.0671454    .0410067
    Politics |   .0420452   .0131531     3.20   0.001     .0162406    .0678498
      Rrated |  -.0638073   .0496723    -1.28   0.199     -.161258    .0336435
      Nudity |  -.0068835   .0131463    -0.52   0.601     -.032675    .0189079
    Baseline |  -.0245778   .0317508    -0.77   0.439    -.0868687    .0377132
     Control |  -.0844594   .0314718    -2.68   0.007     -.146203   -.0227158
       _cons |   .8578717   .1587644     5.40   0.000     .5463961    1.169347
```

Difference remains significant when controlling for other variables (b = -.084, t = -2.68, p = .007).

Born on the 4th of July vs Dead Poets Society:

```
. regress July Age Gender Baseline Control

      Source |       SS       df       MS              Number of obs =    1257
-------------+------------------------------          F(  4,  1252) =    9.71
       Model |  8.27127336      4  2.06781834          Prob > F      =  0.0000
    Residual |   266.59428   1252  .212934728          R-squared     =  0.0301
-------------+------------------------------          Adj R-squared =  0.0270
       Total |  274.865553   1256  .218842001          Root MSE      =  .46145

-------------+----------------------------------------------------------------
        July |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         Age |   .0069987   .0012782     5.48   0.000     .004491    .0095064
      Gender |   .0547529   .0270431     2.02   0.043    .0016981    .1078077
    Baseline |  -.0739276   .0320195    -2.31   0.021   -.1367454   -.0111097
     Control |  -.0659891   .0319095    -2.07   0.039   -.1285911   -.0033871
       _cons |   .0593747   .0684369     0.87   0.386   -.0748889    .1936382
```

Controlling for age and gender, significantly more people chose the target movie in the treatment condition than in either of the other conditions (baseline vs. treatment: b = -.074, t = -2.31, p = .021; control vs. treatment: b = -.066, t = -2.07, p = .039).

```
. regress July Age Gender Politics Rrated Nudity Baseline Control

      Source |       SS       df       MS              Number of obs =    1252
-------------+------------------------------          F(  7,  1244) =    5.68
       Model |  8.48015217      7  1.21145031          Prob > F      =  0.0000
    Residual |  265.509464   1244  .213432045          R-squared     =  0.0310
-------------+------------------------------          Adj R-squared =  0.0255
       Total |  273.989617   1251   .21901648          Root MSE      =  .46199

-------------+----------------------------------------------------------------
        July |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         Age |   .0069832   .0013058     5.35   0.000    .0044214     .009545
      Gender |   .0511786   .0280699     1.82   0.069    -.003891    .1062481
    Politics |    .007393   .0133947     0.55   0.581   -.0188857    .0336717
      Rrated |  -.0505723   .0505849    -1.00   0.318   -.1498135    .0486689
      Nudity |  -.0122393   .0133879    -0.91   0.361   -.0385046     .014026
    Baseline |  -.0786676   .0323341    -2.43   0.015    -.142103   -.0152322
     Control |   -.068444    .03205     -2.14   0.033    -.131322    -.005566
       _cons |   .1793739   .1616813     1.11   0.267   -.1378243    .4965721
```

Differences remain significant when controlling for other variables (treatment vs baseline: b = -.079, t = -2.43, p = .015; treatment vs control: b = -.068, t = -2.14, p = .033).

The other five movie pairs did not show significant differences between the treatment condition and either of the other conditions when controlling for age, gender, politics, R-rated movie-watching, or nudity preferences.

Appendix B: Experiment 2

Percentages choosing target

	Baseline	Control	Treatment
Titanic	94/288 = 32.6%	90/298 = 30.2%	112/292 = 38.4%*
You've Got Mail	159/288 = 55.2%	143/296 = 48.3%	146/291 = 50.2%
Da Vinci Code	148/288 = 51.4%	123/295 = 41.7%	151/288 = 52.4%**
Bourne	162/289 = 56.1%	145/292 = 49.7%	157/291 = 54.0%
Wreck-it Ralph	188/288 = 65.3%	191/292 = 65.4%	187/290 = 64.5%
Jack Reacher	168/288 = 58.3%	180/291 = 61.9%	157/289 = 54.3%
Interstellar	161/287 = 56.1%	162/291 = 55.7%	168/288 = 58.3%
Inside Llewyn Davis	77/286 = 26.9%	66/292 = 22.6%	50/290 = 17.2%***
Her	94/285 = 33.0%	105/291 = 36.1%	105/288 = 36.5%
Gone Girl	125/287 = 43.6%	121/291 = 41.6%	108/290 = 37.2%
Non-sequels total	**563/1153 = 48.83%**	**501/1181 = 42.42%******	**566/1162 = 48.71%**
Sequels total	**813/1721 = 47.24%**	**825/1748 = 47.20%**	**775/1735 = 44.67%**
Grand total	**1376/2874 = 47.88%**	**1326/2929 = 45.27%**	**1341/2897 = 46.29%**

*$Titanic$: Treatment significantly different from non-treatment in regressions: n = 878, b = .0696, t = 2.06, p = .040.

**$Da\ Vinci\ Code$: Treatment marginally different from non-treatment in regressions: n = 871, b = .0595, t = 1.65, p = .099.

***$Inside\ Llewyn\ Davis$: Treatment significantly different from non-treatment in regressions: n = 868, b = -.0750, t = -2.51, p = .012

****For non-sequels, Treatment – Control = .0629, z = 3.06, p = .002; using regression for 864 participants, b = .254, t = 2.96, p = .003.

Across all movie pairs:

   Baseline – Treatment: diff = .0159, p(pooled) = .4708, z = 1.21, p = .226.
   Treatment – Control: diff = .0102, p(pooled) = .4578, z = .78, p = .435.

Non-sequels:

   Treatment – Control: diff = .0629, p(pooled) = .4554, z = 3.06, p = .002
   But no difference between Treatment and Baseline.

```
. tab Condition, summarize(NonSequelsTotal)

                  Summary of NonSequelsTotal
    Condition        Mean    Std. Dev.       Freq.

     Baseline    1.9475524    1.026343         286
      Control    1.7010309   1.0421954         291
    Treatment    1.9547038   1.0214674         287

        Total    1.8668981   1.0356861         864
```

```
. regress NonSequelsTotal Baseline Control

      Source |       SS       df       MS              Number of obs =      864
-------------+------------------------------           F(  2,   861) =     5.69
       Model | 12.0791598      2  6.03957989           Prob > F      =   0.0035
    Residual | 913.614127    861  1.06110816           R-squared     =   0.0130
-------------+------------------------------           Adj R-squared =   0.0108
       Total | 925.693287    863  1.07264576           Root MSE      =   1.0301


NonSequels~l |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    Baseline |  -.0071514   .0860663    -0.08   0.934    -.1760757    .1617729
     Control |  -.2536729   .0856952    -2.96   0.003    -.4218688    -.085477
       _cons |   1.954704   .0608049    32.15   0.000     1.835361    2.074047
```

Sequels:
Baseline – Treatment: diff = .0257, p(pooled) = .4595, z = 1.52, p = .129
Control – Treatment: diff = .0253, p(pooled) = .4594, z = 1.50, p = .134
But if the difference really is 47% vs. 44% or 45%, power is less than .5 with this sample size.

```
. tab Condition, summarize(SequelsTotal)

             |    Summary of SequelsTotal
   Condition |        Mean   Std. Dev.       Freq.
-------------+------------------------------------
    Baseline |   2.8243728   1.2297193         279
     Control |   2.8333333   1.1506702         288
   Treatment |   2.6855124   1.1028824         283
-------------+------------------------------------
       Total |   2.7811765   1.1624772         850

. regress SequelsTotal Treatment

      Source |       SS       df       MS              Number of obs =      850
-------------+------------------------------           F(  1,   848) =     2.88
       Model | 3.88257908      1  3.88257908           Prob > F      =   0.0901
    Residual | 1143.41624    848  1.34836821           R-squared     =   0.0034
-------------+------------------------------           Adj R-squared =   0.0022
       Total | 1147.29882    849  1.35135315           Root MSE      =   1.1612


SequelsTotal |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
   Treatment |  -.1434118   .0845141    -1.70   0.090    -.3092931    .0224695
       _cons |   2.828924   .0487655    58.01   0.000     2.733209    2.924639
```

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```
. regress SequelsTotal Baseline Control

      Source |       SS           df       MS              Number of obs =      850
-------------+------------------------------            F(  2,   847) =     1.44
       Model |  3.89395759         2  1.94697879          Prob > F      =   0.2370
    Residual |  1143.40487       847  1.34994671          R-squared     =   0.0034
-------------+------------------------------            Adj R-squared =   0.0010
       Total |  1147.29882       849  1.35135315          Root MSE      =   1.1619

------------------------------------------------------------------------------
 SequelsTotal |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    Baseline |   .1388604   .0980237     1.42   0.157    -.0535375    .3312583
     Control |    .147821   .0972494     1.52   0.129    -.0430571     .338699
       _cons |   2.685512   .0690661    38.88   0.000     2.549952    2.821073
------------------------------------------------------------------------------
```

By demographics, using SequelsTotal variable

```
. regress SequelsTotal Age Baseline Control

      Source |       SS           df       MS              Number of obs =      843
-------------+------------------------------            F(  3,   839) =     0.97
       Model |  3.90234706         3  1.30078235          Prob > F      =   0.4075
    Residual |   1128.1712       839  1.34466174          R-squared     =   0.0034
-------------+------------------------------            Adj R-squared =  -0.0001
       Total |  1132.07355       842   1.3445054          Root MSE      =   1.1596

------------------------------------------------------------------------------
 SequelsTotal |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         Age |  -.0021832   .0033181    -0.66   0.511    -.0086959    .0043296
    Baseline |   .1161071   .0984896     1.18   0.239    -.0772079    .3094221
     Control |   .1447669   .0973269     1.49   0.137    -.0462659    .3357997
       _cons |   2.769275   .1399362    19.79   0.000     2.494609    3.043941
------------------------------------------------------------------------------
```

```
. regress SequelsTotal Treatment if Age <= 27

      Source |       SS       df       MS              Number of obs =     226
-------------+------------------------------           F(  1,   224) =    1.36
       Model |  1.8635683      1   1.8635683           Prob > F      =  0.2446
    Residual |  306.667405    224  1.36905092          R-squared     =  0.0060
-------------+------------------------------           Adj R-squared =  0.0016
       Total |  308.530973    225  1.37124877          Root MSE      =  1.1701


 SequelsTotal |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
   Treatment |  -.1971753   .1690011     -1.17   0.245    -.5302108    .1358602
       _cons |   2.936306   .0933813     31.44   0.000     2.752287    3.120324


. regress SequelsTotal Treatment if Age >= 43

      Source |       SS       df       MS              Number of obs =     234
-------------+------------------------------           F(  1,   232) =    0.38
       Model |  .488421578     1   .488421578         Prob > F      =  0.5397
    Residual |  300.456023    232  1.29506906          R-squared     =  0.0016
-------------+------------------------------           Adj R-squared = -0.0027
       Total |  300.944444    233  1.29160706          Root MSE      =   1.138


 SequelsTotal |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
   Treatment |  -.0966109   .1573168     -0.61   0.540    -.4065629    .2133412
       _cons |   2.754839   .0914072     30.14   0.000     2.574744    2.934933
```

By Gender (percentages = SequelsTotal score / 6. These percentages are essentially the average percentage of target sequels chosen in each condition.)

	Baseline	Control	Treatment	Total
Gender 1	2.83/6 = 47.2%	2.89/6 = 48.2%	2.70/6 = 44.9%	2.81/6 = 46.8%
Gender 2	2.82/6 = 47.0%	2.78/6 = 46.3%	2.67/6 = 44.6%	2.76/6 = 45.9%
Total	2.83/6 = 47.1%	2.83/6 = 47.2%	2.68/6 = 44.7%	2.78/6 = 46.4%

Neither gender shows significant treatment effects. No main effects or interaction effects involving gender.

```
. regress SequelsTotal Gender Baseline Control GenderXBaseline GenderXControl

      Source |       SS           df       MS                  Number of obs =      848
-------------+----------------------------------              F(  5,   842) =     0.74
       Model |  5.03462665         5  1.00692533              Prob > F      =   0.5916
    Residual |   1141.6057       842  1.35582625              R-squared     =   0.0044
-------------+----------------------------------              Adj R-squared =  -0.0015
       Total |  1146.64033       847  1.35376662              Root MSE      =   1.1644


 SequelsTotal |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
--------------+----------------------------------------------------------------
       Gender |  -.0236364   .1389613    -0.17   0.865    -.2963876    .2491149
     Baseline |   .1278772   .3166256     0.40   0.686    -.4935908    .7493452
      Control |   .2880812   .3130868     0.92   0.358    -.3264411    .9026035
GenderXBase~e |   .0097396   .1971166     0.05   0.961    -.3771581    .3966372
GenderXCont~l |  -.0921938   .1953349    -0.47   0.637    -.4755942    .2912067
        _cons |   2.720606    .223885    12.15   0.000     2.281168    3.160044


. regress SequelsTotal Baseline Control if Gender == 1

      Source |       SS           df       MS                  Number of obs =      405
-------------+----------------------------------              F(  2,   402) =     0.94
       Model |  2.72794655         2  1.36397327              Prob > F      =   0.3917
    Residual |  583.632547       402  1.45182226              R-squared     =   0.0047
-------------+----------------------------------              Adj R-squared =  -0.0003
       Total |  586.360494       404  1.45138736              Root MSE      =   1.2049


 SequelsTotal |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
--------------+----------------------------------------------------------------
     Baseline |   .1376168   .1480358     0.93   0.353    -.1534043    .4286379
      Control |   .1958874   .1461808     1.34   0.181    -.0914868    .4832617
        _cons |    2.69697   .1048745    25.72   0.000     2.490799    2.903141


. regress SequelsTotal Baseline Control if Gender == 2

      Source |       SS           df       MS                  Number of obs =      443
-------------+----------------------------------              F(  2,   440) =     0.67
       Model |  1.69727263         2   .848636317             Prob > F      =   0.5126
    Residual |  557.973156       440  1.26812081              R-squared     =   0.0030
-------------+----------------------------------              Adj R-squared =  -0.0015
       Total |  559.670429       442  1.26622269              Root MSE      =   1.1261


 SequelsTotal |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
--------------+----------------------------------------------------------------
     Baseline |   .1473563    .131148     1.12   0.262    -.1103981    .4051107
      Control |   .1036937   .1304704     0.79   0.427    -.1527289    .3601163
        _cons |   2.673333   .0919464    29.07   0.000     2.492625    2.854042
```

By Politics

	Baseline	Control	Treatment	Total
1 (very conservative)	3.2/6 = 53.3%	2.83/6 = 47.2%	2.46/6 = 41.0%*	2.79/6 = 46.5%
2	2.43/6 = 40.6%	2.59/6 = 43.2%	2.65/6 = 44.1%	2.56/6 = 42.7%
3 (moderate)	2.69/6 = 44.8%	2.8/6 = 46.7%	2.57/6 = 42.8%	2.70/6 = 45.0%
4	2.97/6 = 49.5%	2.99/6 = 49.8%	2.80/6 = 46.6%	2.91/6 = 48.5%
5 (very liberal)	3.09/6 = 51.5%	3.02/6 = 50.4%	2.87/6 = 47.8%	3.01/6 = 50.1%
Total	2.82/6 = 47.1%	2.83/6 = 47.2%	2.69/6 = 44.8%	2.78/6 = 46.4%

*Significant tarnishment for most conservative participants: n = 90, b = -.543, t = -2.26, p = .026. No significant parody effects for any other group.

```
. regress SequelsTotal Politics Baseline Control

      Source |       SS       df       MS              Number of obs =     850
-------------+------------------------------           F(  3,   846) =    4.35
       Model | 17.4426091      3  5.81420302           Prob > F      =  0.0047
    Residual | 1129.85621    846  1.33552744           R-squared     =  0.0152
-------------+------------------------------           Adj R-squared =  0.0117
       Total | 1147.29882    849  1.35135315           Root MSE      =  1.1557


 SequelsTotal |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    Politics |   .1008919   .0316763     3.19   0.002     .0387185    .1630653
    Baseline |   .1246397    .097601     1.28   0.202    -.0669288    .3162081
     Control |   .1451608   .0967322     1.50   0.134    -.0447025    .3350241
       _cons |   2.374637   .1193549    19.90   0.000      2.14037    2.608903
```

Liberals tend to choose more targets. No effect of condition.

```
. regress SequelsTotal Politics Baseline Control PoliticsXBaseline PoliticsXCont
> rol

      Source |       SS       df       MS              Number of obs =     850
-------------+------------------------------           F(  5,   844) =    2.61
       Model | 17.4849601      5  3.49699201           Prob > F      =  0.0235
    Residual | 1129.81386    844  1.33864202           R-squared     =  0.0152
-------------+------------------------------           Adj R-squared =  0.0094
       Total | 1147.29882    849  1.35135315           Root MSE      =   1.157


 SequelsTotal |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    Politics |   .0940332   .0545941     1.72   0.085    -.0131229    .2011894
    Baseline |   .0812342   .2628949     0.31   0.757    -.4347703    .5972388
     Control |   .1239564   .2592572     0.48   0.633    -.3849081    .6328209
PoliticsXBa~e |  .0137707   .0774207     0.18   0.859    -.1381891    .1657304
PoliticsXCo~l |  .0068815   .0777118     0.09   0.929    -.1456496    .1594126
       _cons |    2.39577   .1817359    13.18   0.000     2.039063    2.752478
```

No interaction.

BUT

80

```
. regress SequelsTotal Treatment if Politics == 1

      Source |       SS       df       MS              Number of obs =      90
-------------+------------------------------           F(  1,    88) =    5.10
       Model |  6.3031746      1  6.3031746            Prob > F      =  0.0263
    Residual |  108.685714     88  1.23506494          R-squared     =  0.0548
-------------+------------------------------           Adj R-squared =  0.0441
       Total |  114.988889     89  1.29200999          Root MSE      =  1.1113


 SequelsTotal |     Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
   Treatment |  -.5428571   .2402983    -2.26   0.026    -1.0204   -.0653147
       _cons |          3   .1498523    20.02   0.000     2.7022     3.2978


. regress SequelsTotal Baseline Control if Politics == 1

      Source |       SS       df       MS              Number of obs =      90
-------------+------------------------------           F(  2,    87) =    3.31
       Model |  8.13650794      2  4.06825397          Prob > F      =  0.0411
    Residual |  106.852381     87  1.22818829          R-squared     =  0.0708
-------------+------------------------------           Adj R-squared =  0.0494
       Total |  114.988889     89  1.29200999          Root MSE      =  1.1082


 SequelsTotal |     Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    Baseline |  .7428571   .2902045     2.56   0.012    .1660444    1.31967
     Control |  .3761905   .2757367     1.36   0.176    -.171866    .9242469
       _cons |  2.457143   .1873262    13.12   0.000    2.084812   2.829474
```

Significant difference between treatment and no treatment. Baseline – treatment is significant; control – treatment is not significant.

No other group shows significant effects.

By Porn tolerance (median = 7, 25% = 7, 75% = 9)

	Baseline	Control	Treatment
More tolerant (score <= 7)	2.89/6 = 48.1%	2.81/6 = 46.9%	2.67/6 = 44.6%
Less tolerant (score > 7)	2.75/6 = 45.9%	2.86/6 = 47.7%	2.7/6 = 45.0%

No significant treatment effects for either group.

```
. regress SequelsTotal Nudity Baseline Control NudityXBaseline NudityXControl

      Source |       SS          df       MS              Number of obs =      846
-------------+------------------------------             F(  5,    840) =     0.60
       Model |  4.07969602        5  .815939205           Prob > F       =   0.6996
    Residual |   1141.3352      840  1.35873238           R-squared      =   0.0036
-------------+------------------------------             Adj R-squared  =  -0.0024
       Total |  1145.41489      845  1.35552058           Root MSE       =   1.1656

------------------------------------------------------------------------------
 SequelsTotal |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       Nudity |   .0116841   .0520575     0.22   0.822    -.0904941    .1138622
     Baseline |    .248602   .5762512     0.43   0.666    -.8824593    1.379663
      Control |   .1137531   .5641403     0.20   0.840    -.9935369    1.221043
 NudityXBase~e |  -.0138938   .0740417    -0.19   0.851    -.1592223    .1314347
 NudityXCont~l |   .0040762   .0727928     0.06   0.955    -.1388009    .1469533
        _cons |   2.598738   .4034624     6.44   0.000     1.806825    3.390651
------------------------------------------------------------------------------

. regress SequelsTotal Baseline Control if Nudity <= 7

      Source |       SS          df       MS              Number of obs =      472
-------------+------------------------------             F(  2,    469) =     1.33
       Model |  3.61128547        2  1.80564274           Prob > F       =   0.2646
    Residual |  635.202274      469  1.35437585           R-squared      =   0.0057
-------------+------------------------------             Adj R-squared  =   0.0014
       Total |  638.813559      471  1.35629206           Root MSE       =   1.1638

------------------------------------------------------------------------------
 SequelsTotal |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
     Baseline |   .2110594   .1319046     1.60   0.110    -.0481378    .4702566
      Control |   .1376534   .1295141     1.06   0.288    -.1168464    .3921531
        _cons |   2.674847    .091154    29.34   0.000     2.495726    2.853967
------------------------------------------------------------------------------

. regress SequelsTotal Baseline Control if Nudity >= 9

      Source |       SS          df       MS              Number of obs =      265
-------------+------------------------------             F(  2,    262) =     0.30
       Model |   .80451875        2  .402259375           Prob > F       =   0.7425
    Residual |  353.633217      262   1.3497451           R-squared      =   0.0023
-------------+------------------------------             Adj R-squared  =  -0.0053
       Total |  354.437736      264  1.34256718           Root MSE       =   1.1618

------------------------------------------------------------------------------
 SequelsTotal |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
     Baseline |   .0337079    .174159     0.19   0.847    -.3092216    .3766373
      Control |   .1304404    .175157     0.74   0.457    -.2144543    .4753351
        _cons |   2.674157    .123149    21.71   0.000      2.43167    2.916645
------------------------------------------------------------------------------
```

No effect of condition for either the 25th percentile (most porn tolerant) or the 75th percentile (least porn tolerant).