

CAUSING INFRINGEMENT

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ABSTRACT

Recent appellate decisions reveal a chaotic contributory infringement doctrine that offers little direction to entrepreneurs trying to balance digital innovation with legal strictures. Aware of the problem, both the Supreme Court and legal scholars urge a modeling of contributory infringement on common law tort rules. But common law tort is an enormous subject. Without further instruction, the subject area is too vast and contradictory to offer a realistic template for reform. Even when the narrower body of tort law for secondary actors is consulted, there is still too much variation in the existing precedent to provide the necessary guidance.

Instead of simply instructing the courts to consult tort law, we stress two specific reforms to make contributory infringement decisions more logical and predictable. First, tort law's rules for causal analysis provide a significant resource for contributory infringement doctrine. The intuitive appeal of causal reasoning as well as its frequent presence in other legal subjects makes it a natural fit for contributory infringement doctrine. In particular, we urge courts wrestling with contributory infringement to adopt tort law's bifurcation of factual causation and the separate public policy questions of proximate cause. An unfortunate trend in the recent contributory infringement decisions has been a blending of these two legal issues, resulting in normative decisionmaking cloaked in empirical language. Observing a strict line between factual and proximate cause would cure this problem and produce precedents less threatening to nascent technologies.

Second, courts can profit from the refinements in causal analysis already developed in the field of epidemiology. By modeling the complex interaction between causal agents, epidemiologists gain a better sense of where resources should be deployed in combating diseases that adversely affect public health. We advocate similar moves in intellectual property law to help determine which intermediaries should face liability for others' infringing conduct. Epidemiologists sort out causal effects by explicitly defining minimally sufficient multiple component mechanisms, distinguishing between general and specific causation, and identifying suitable referents for each identified link on a causal chain. By borrowing from the epidemiologist's playbook, judges evaluating contributory infringement disputes can separate the causal from the non-causal and the actionable from the non-actionable instead of relying on hazy intuition to determine the viability of online business models.

INTRODUCTION

Last year, the outbreak of a mysterious virus captivated the world. First detected in the state of Veracruz, Mexico in April 2009, the virus hopped from country to country leaving a trail of death and panicked citizens.¹ Concerned that the virus would continue to spread, world governments banned travel to affected nations and urged citizens to take precautionary measures. Vice-president Biden told citizens not to take mass transit.² Airports installed thermal scanners to detect and quarantine infected travelers.³ Thousands donned surgical masks.⁴ Despite these precautions, two months after the virus's discovery, public health authorities diagnosed a full-fledged world pandemic. The Center for Disease Control predicted infection in half the United States population and up to 90,000 deaths.⁵

In order to limit the virus's reach, scientists tried to figure out what caused the virus in the first place and which measures would halt its progress. A research team developed a detailed family tree for the virus, tracing its origin to birds, then pigs, and then humans.⁶ Their research showed that the virus had eight genetic segments, six from swine flu viruses and two from Eurasian bird flu viruses. Once they understood the virus's story of origin, scientists concluded that it represented an entirely new strain of H1N1 influenza, one that current seasonal vaccines would not protect against.⁷ A new vaccine was developed that successfully warded off the virus. Other scientists studied the early course of the disease, determining that it was commonly transmitted through contact at schools. As a result, many schools temporarily closed, thereby reducing its spread through the population.⁸ By February 2010, flu activity in the United States had fallen below average annual totals and most Americans believed that the threat from the virus had ended.⁹

Two years earlier, a panel of judges had to decide the law's role in combating an outbreak of intellectual property infringement. According to plaintiff Perfect 10, which published copyrighted photographs of nude models, rogue websites were copying and republishing its trademarks and thousands of its images without permission.¹⁰ Directly prosecuting the websites was an "impractical" and "impossible" task, according to Perfect 10.¹¹ Given the sheer number of these websites, their location in foreign jurisdictions, and the anonymizing capabilities of the internet, the only realistic way to stop the outbreak was through

¹ Gabriele Neumann et al., *Emergence and Pandemic Potential of Swine-Origin H1N1 Influenza Virus*, 459 NATURE 951, 953 (2009).

² Mark Silva & Christi Parsons, *White House Adjusts Biden's Swine Flu Advice*, L.A. TIMES, May 1, 2009, available at <http://articles.latimes.com/2009/may/01/nation/na-biden1>.

³ William Saletan, *Heat Check*, SLATE, Apr. 28, 2009, available at <http://www.slate.com/id/2217148/>.

⁴ *Swine Flu: Do Surgical Masks Really Work?*, TELEGRAPH, Apr. 29, 2009, available at <http://www.telegraph.co.uk/health/swine-flu/5239580/Swine-flu-do-surgical-masks-really-work.html>.

⁵ Tom Randall & Alex Nussbaum, *Hospitals May Face Severe Disruption From Swine Flu*, BLOOMBERG NEWS, Aug. 25, 2009, available at http://www.bloomberg.com/apps/news?pid=20601087&sid=a8_2nrwYD1kM.

⁶ Steve Sternberg, *Feds to Set Aside \$1B for Swine Flu Vaccine Development*, USA TODAY, May 22, 2009.

⁷ *See id.*

⁸ Swine flu: Early Epidemiology available at <http://www.nhs.uk/news/2009/07July/Pages/Swinefluearlyepidemiology.aspx>.

⁹ Donald G. McNeil, Jr., *Most Americans Think Swine Flu Pandemic is Over, Harvard Poll Finds*, N.Y. TIMES, Feb. 5, 2010, available at <http://www.nytimes.com/2010/02/06/health/06flu.html>.

¹⁰ Plaintiff and Appellant Perfect 10's Opening Brief at 1, *Perfect 10, Inc. v. Visa Int'l Serv. Ass'n*, No. 05-15170, 494 F.3d 788 (9th Cir. Jul. 20, 2005), 2005 WL 6252023.

¹¹ *Id.* at 2.

the websites' intermediary: credit card companies. Consumers used their credit cards to pay for the privilege of viewing the copyrighted photos. Perfect 10 claimed that forcing the credit card companies to stop processing these payments would stop the infringement.¹² The credit card companies argued otherwise.¹³

To find an answer, the panel applied the law of contributory infringement. This doctrine allows intellectual property rights holders to seek relief from not just direct infringers but those who somehow knew of and "materially contributed" to infringing behavior.¹⁴ Even though the doctrine has existed for over a century in American law,¹⁵ the judges were bitterly divided over the material contribution requirement. A majority found in favor of the credit card companies, speculating that their contribution was not "material" because even without the functionality of credit card transfers, consumers would find other ways to pay the illegal websites to view the copyrighted photos.¹⁶ A stinging dissent urged liability, contending that the credit card companies played an "essential" role in the infringement.¹⁷

At first blush, these two incidents have little in common. Epidemiologists looking for ways to halt the spread of a deadly virus seem to be engaging in a very different enterprise than judges determining the liability of a business accused of aiding infringement of intellectual property. But a closer look reveals common ground. In both situations, professionals try to assess the effects of particular acts. In performing these assessments, they envision the likely outcome if a particular act had not occurred. And in both situations, they must perform their analysis with only imperfect evidence.¹⁸

In some ways, the judges' task may have been harder than the epidemiologists' because they were stuck applying a doctrine that has fallen into analytic disrepair. Recent appellate decisions reveal a chaotic contributory infringement doctrine that scholars describe as "uncertain,"¹⁹ "contradictory"²⁰ and "incoherent."²¹ Until recently, this body of law was invoked only sporadically. Then, suddenly, digital technologies made infringement possible to such a degree that it became impossible to prosecute the majority of individual infringers.²² In turn, litigants seized on the doctrine of contributory infringement to target intermediaries that could

¹² *Id.* at 2.

¹³ See Consolidated Answering Brief of All Defendants-Appellees, *Perfect 10, Inc. v. Visa Int'l Serv. Ass'n*, No. 05-15170, 494 F.3d 788 (9th Cir. Oct. 17, 2005), 2005 WL 4155300.

¹⁴ *Gershwin Publ'g Corp. v. Columbia Artists Mgmt., Inc.*, 443 F.2d 1159, 1162 (2d Cir. 1971).

¹⁵ See *infra* Part I.

¹⁶ *Perfect 10, Inc. v. Visa Int'l Serv. Ass'n*, 494 F.3d 788, 797-98 (9th Cir. 2007).

¹⁷ *Id.* at 812-13 (Kozinski, J., dissenting).

¹⁸ See Richard A. Goodman, *Epidemiology 101: An Overview of Epidemiology and its Relevance to U.S. Law*, 10 J. HEALTH CARE L. & POL'Y 153, 159 (2007) (contending that, by its nature, epidemiology relies on imperfect causal information).

¹⁹ Jessica Litman, *The Sony Paradox*, 55 CASE W. RES. L. REV. 917, 957 (2005) ("[A] muddier standard could hardly threaten [emerging technologies] with more uncertainty than they face today.").

²⁰ Rebecca Giblin, *A Bit Liable? A Guide to Navigating the U.S. Secondary Liability Patchwork*, 25 SANTA CLARA COMPUTER & HIGH TECH. L.J. 7, 48-49 (2008) (maintaining that secondary infringement doctrine, including contributory infringement, is a "ragged patchwork" where "ample authority exists to support a number of competing and contradictory outcomes").

²¹ Note, *Central Bank and Intellectual Property*, 123 HARV. L. REV. 730, 740 (2010) (describing "current doctrines of contributory copyright and trademark liability" as "confusing" and "incoherent").

²² Lynda J. Oswald, *International Issues in Secondary Liability for Intellectual Property Rights Infringement*, 45 AM. BUS. L.J. 247, 248 (2008).

stem the flow of infringing conduct.²³ Rather than achieving small victories against isolated individuals, contributory infringement claims could be used to force online service providers to help police the web for infringing content. In a series of opinions, courts responded favorably, softening the definition of material contribution to encompass more and more entities.²⁴ But this expansion came with a cost. The changes in the material contribution requirement have produced great uncertainty in what was once a fairly straightforward area of the law. Precedents used in the brick and mortar world to define “material contribution” no longer apply.²⁵ Deprived of a clear roadmap for what makes a material contribution, courts, even within the same circuit, issued contradictory opinions.²⁶ Contributory infringement once only implicated suppliers of infringing goods.²⁷ Now, with liability wide open to anyone who facilitates or even just fails to take precautionary measures against infringement, the courts had to find another source of legal content to anchor their decisions.²⁸

The courts have turned to two main sources to impose some logic on their expansion of contributory infringement law. One of these sources is criminal law, with a number of recent decisions citing to cases and situations involving criminal liability for accomplices.²⁹ In a companion article, one of us explains why accomplice liability’s evidentiary requirements and focus on retributive punishment make it a poor analogy for contributory infringement.³⁰

The other source is tort law. In its most recent contributory infringement pronouncement, the Supreme Court advised courts wrestling with these issues to consult tort law’s own contributory liability framework, which it described as “well established.”³¹ The conventional wisdom among legal scholars agrees with the Court. Most scholarship in this area contends that obeisance to traditional tort law principles of contributory liability will fill the void in infringement law with answers that are adequately calibrated to the balance between incentivizing creation and permitting downstream use.³²

This Article challenges that conventional wisdom. Although we agree that tort law can shed some much needed light on contributory infringement, we think that both the Court and most commentators have dramatically overstated tort law’s precedential value in this context. The law of tortious contributory liability is much more ambiguous and complex than indicated by recent judicial opinions and legal commentary. A judge deciding an infringement case via tort law faces a bewildering array of conflicting legal principles. Moreover, some of these principles, if employed in the intellectual property context, would threaten intellectual property

²³ See Peter Menell, *Indirect Copyright Liability and Technological Innovation*, 32 COLUM. J. L. & ARTS 375, 386 (2009); Julie E. Cohen, *Pervasively Distributed Copyright Enforcement*, 95 GEO. L.J. 1, 9-11 (2006).

²⁴ See, e.g., *Perfect 10, Inc. v. Amazon.com*, 508 F.3d 1146, 1172 (9th Cir. 2007); *Lockheed Martin Corp. v. Network Solutions, Inc.*, 194 F.3d 980, 981 (9th Cir. 1999); *Religious Technology Center v. Netcom On-Line Communication Services*, 907 F. Supp. 1361, 1375 (N.D. Cal. 1995); see also 5 WILLIAM F. PATRY, PATRY ON COPYRIGHT § 21:55 (2009).

²⁵ *Perfect 10, Inc. v. Visa Int’l Serv. Ass’n*, 494 F.3d 788, 798 n.9 (9th Cir. 2007).

²⁶ See *infra* Part I.

²⁷ See *infra* Part I.

²⁸ See *Amazon.com*, 508 F.3d at 1172 (holding that “a computer system operator can be held contributorily liable” if has actual knowledge of infringement and “can take simple measures to prevent further damage to copyrighted works yet continues to provide access to infringing works”) (internal citations omitted).

²⁹ See Mark Bartholomew, *Cops, Robbers, and Search Engines: The Questionable Role of Criminal Law in Contributory Infringement Doctrine*, 2009 BYU LAW REV. 783, 798.

³⁰ *Id.* at 814-26.

³¹ *Metro-Goldwyn-Mayer Studios Inc. v. Grokster, Ltd.*, 545 U.S. 913, 930-31 (2005).

³² See *infra* Part I.D.

law's goal of spurring technological innovation.³³ Hence, it is not enough to urge the courts to apply traditional tort law doctrine in the context of intellectual property.

Instead, we suggest that courts begin adding some clarity to the confusing mishmash of contributory infringement decisions by adopting the analytical principles of a non-legal field. Epidemiologists try to determine whether particular agents cause disease.³⁴ Unlike other biomedical researchers that can rely on randomized experiments, epidemiologists typically utilize observational studies of human behavior in a non-clinical environment.³⁵ As a result, epidemiologists have developed a particularly robust model of causation that tracks multiple variables at once and requires identification of all relevant features to a causal scenario.³⁶ Although detailed causal analysis has been neglected in the latest burst of contributory infringement case law, it would provide valuable guidance for judges wrestling with indirect infringement issues. Given their intuitive appeal, alignment with the guiding principles of intellectual property protection, and widespread use in other areas of the law, causal principles could serve as a valuable template for contributory infringement liability.

Part I of this Article describes the current state of contributory infringement law and documents the uncertainty that plagues this area of jurisprudence. A contributory infringer must be shown to have “knowledge” of infringement and to “materially contribute” to the infringement. The content of these two requirements remains open to question, particularly in the area of material contribution. Courts are so baffled by the material contribution requirement that they end up adopting inconsistent definitions or straining to fit their analysis under the knowledge requirement, with which they have more familiarity. The result is a regime that offers little predictive content to rights holders and technologists.

Part II explains why, for courts wrestling with questions of contributory infringement, it is no answer to advocate general application of tort law standards. Contributory liability doctrine in common law tort is referred to as “aiding and abetting.” The law of aiding and abetting liability is extremely varied, employing different doctrinal requirements depending on the property interest at stake. Great uncertainty surrounds this doctrine, making it a generally inapt choice for content in the expanding field of contributory infringement.

Because of these problems, a call to apply common law aiding and abetting principles to contributory infringement cases is too simplistic. Instead, we focus on a single aspect of contributory tort liability: the analysis of causation. Tort law's concept of causation, reflected in its “but for” and “substantial factor” tests for causation, offers useful guidance in determining what is and is not a material contribution for purposes of contributory infringement. Most valuable would be the adoption of tort law's strict demarcation between analysis of factual causation and questions of legal scope, public policy and social justice that are packed into the concept of proximate cause. Since the 1920s, legal scholars have urged judges to separately consider actual causation and policy concerns in their tort law decisions. Eventually, these urgings led to a formal bifurcation of the two analyses in most jurisdictions.³⁷

³³ See *infra* Part III. Although not discussed in detail here, principles of generalized third-party liability under tort law may not adequately address the free expression concerns often relevant in contributory infringement cases. See Alfred C. Yen, *A First Amendment Perspective on the Construction of Third-Party Copyright Liability*, 50 B.C. L. REV. 1481, 1483-84 (2009).

³⁴ Douglas L. Weed, *Truth, Epidemiology, and General Causation*, 73 BROOK. L. REV. 943, 943 & 945 n.6 (2008).

³⁵ Richard Scheines, *Causation, Truth, and the Law*, 73 BROOK. L. REV. 959, 972-73 (2008).

³⁶ See *infra* Part III.

³⁷ See *infra* Part II.B.1.

Somehow the judges evaluating contributory liability for intellectual property violations did not get the memo. In recent crucial contributory infringement decisions, the courts have wrapped their causal analysis with public policy arguments, making it difficult to determine the limits of their reasoning. The result is a number of vague precedents cloaked in scientific language that threaten sweeping liability rules for technologists. These precedents are also plagued by inconsistencies as to the causal effects of creating of an environment where infringement can occur. We advocate greater attention to the causal reasoning used in tort law in general, and aiding and abetting law in particular, to avoid these problems.

Yet even if courts transplanted every rule from tort law's causal framework to today's contributory infringement cases, the results would still be suboptimal. As contributory infringement doctrine has expanded to include new types of commercial enterprises, causation questions have become increasingly complex. Meanwhile, despite decades of use, causal analysis in American tort law, particularly with regard to secondary actors, remains underdeveloped. As we explain in Part III, the "but for" and "substantial factor" causation tests are rooted in the past and ill-equipped to deal with the nuances of the information economy. The "but for" test neglects certain actors that courts have routinely penalized for their involvement in tortious activity and the "substantial factor" test is devoid of any real content to guide a court's decision.

Instead, we turn to a non-legal discipline. The field of epidemiology studies factors influencing the health of populations to find better routes for the treatment and prevention of disease. In their effort to isolate disease-producing events, epidemiologists are continually refining the study of causation. By modeling the complex interaction between causal agents, epidemiologists gain a better sense of where resources should be deployed in combating diseases that adversely affect public health.

We advocate similar moves in intellectual property law to help determine which intermediaries should face liability for others' infringing conduct. Epidemiologists employ a causation model that takes a global look at various causal components. Such a model better tracks how the online business world really works and defines causation in a way that permits liability in the face of duplicative causal acts. The epidemiologists' model also distinguishes between general and specific causation, something the courts hearing contributory infringement cases have failed to do altogether. Finally, a central tenet of the epidemiological model is the specification of a reasonable referent for each link on the proposed causal chain. An epidemiologist is trained to consider causal factors only with respect to some alternative. By borrowing from the epidemiologist's playbook, judges evaluating contributory infringement disputes can separate the causal from the non-causal and the actionable from the non-actionable instead of relying on hazy intuition and words like "material contribution" that are empty of real content.

I. EVOLUTION OF THE CONTRIBUTORY INFRINGEMENT STANDARD

Whether the intellectual property right at issue is a patent, copyright, or a trademark, the same two criteria must be satisfied to demonstrate contributory infringement. First, it must be shown that the defendant had knowledge of infringement of the right by another. Second, the defendant must "materially contribute" to the infringement. The contours of these two categories have changed over time and continue to evolve. Yet they still remain confusingly opaque to businesses that must assess their own potential for contributory liability. This Part describes how

courts evaluate these criteria and highlights the questions regarding contributory infringement that remain unanswered.

A. Knowledge

Judicial recognition of actions for contributory infringement began in the late nineteenth century.³⁸ The courts initially only recognized liability for *intentional* acts of direct infringement.³⁹ Thus, in 1912, the Supreme Court defined contributory patent infringement as “the intentional aiding of one person or another in the unlawful making or selling or using of the patented invention.”⁴⁰ Similarly, in the case of *Kalem Co. v. Harper Bros.*, the Court explained that the defendant was liable for contributory infringement of the copyright in a novel because it “not only expected but invoked by advertisement” the use of its film version of the novel in a manner that would violate the novelist’s reproduction right.⁴¹ Subsequent courts interpreted the *Kalem* decision as imposing liability for selling a work with the intention that it would be used by others in an infringing manner.⁴²

Pressure grew to expand the scope of contributory liability, however. New technologies permitted others to utilize and manipulate intellectual property in new ways.⁴³ Courts, prodded by a strategic litigation campaign coordinated by leaders in the entertainment industry,⁴⁴ came to fear that this technology would unjustly enrich secondary actors at the expense of originators and destroy the latter’s creative incentives.⁴⁵ Recently, digital distribution has made end users a threat to the copyright holders’ bottom line as one person with an internet connection can provide a copyrighted work to millions. As a result, content industries have aggressively shifted their litigation strategy to intermediaries in the hope of choking off access to individual end users.⁴⁶

The most obvious place to start expanding the circle of contributory infringement liability was the mental state requirement. While someone is generally viewed as more culpable if they

³⁸ See Charles W. Adams, *Indirect Infringement From a Tort Law Perspective*, 42 U. RICH. L. REV. 635, 650 (2007) (tracing the origination of indirect infringement in patent law to 1871 and the case of *Wallace v. Holmes*, 29 F. Cas. 74 (C.C.D. Conn. 1871)); see also *id.* at 664 (crediting *Kalem Co. v. Harper Bros.*, 222 U.S. 55 (1911), with originating the doctrine of contributory copyright infringement); *id.* at 674-75 (tracing contributory trademark infringement to two cases from 1890 and 1891).

³⁹ *Id.* at 652-53.

⁴⁰ *Henry v. A.B. Dick Co.*, 224 U.S. 1, 33-34 (1912) (quoting *Thomson-Houston Elec. Co. v. Kelsey Elec. Ry. Specialty Co.*, 72 F. 1016, 1017 (C.C.D. Conn. 1896)).

⁴¹ 222 U.S. 55, 60-61 (1911).

⁴² See *Underhill v. Schenck*, 143 N.E. 773, 776 (N.Y. 1924) (Cardozo, J.).

⁴³ Craig A. Grossman, *The Evolutionary Drift of Vicarious Liability and Contributory Infringement: From Interstitial Gap Filler to Arbiter of the Content Wars*, 58 SMU L. REV. 357, 371 (2005).

⁴⁴ *Id.* at 371-74; see also 5 PATRY, *supra* note 24, at § 21:55 (describing surge in contributory infringement lawsuits that has paralleled growth of the World Wide Web).

⁴⁵ See Stacey L. Dogan & Mark A. Lemley, *Trademarks and Consumer Search Costs on the Internet*, 41 HOUS. L. REV. 777, 783 (2004).

⁴⁶ See Mark Lemley & R. Anthony Reese, *Reducing Digital Copyright Infringement Without Restricting Innovation*, 56 STAN. L. REV. 1345, 1368 (2004); see also John B. Meisel, *Economic and Legal Issues Facing YouTube and Similar Internet Hosting Web Sites*, 12 J. INTERNET L. 1, 1 (2009); Seth A. Miller, Note, *Peer-to-Peer File Distribution: An Analysis of Design Liability, Litigation, and Potential Solutions*, 25 REV. LITIG. 181, 193-94 (2006).

intend for a wrongful act to be committed,⁴⁷ it also seems fair to hold responsible those who know of wrongful conduct and not only fail to prevent that conduct but also do something to facilitate it.⁴⁸ In time, for all three of the intellectual property doctrines, evidence of mere knowledge of infringement came to be accepted as sufficient for contributory infringement.⁴⁹ Parties indifferent to infringement could now be held liable if they knew about the infringement and somehow contributed to it.⁵⁰ Subsequent cases weakened the knowledge requirement even further, permitting a finding of contributory infringement on the basis of constructive knowledge, i.e., knowledge based on a reasonable person standard rather than on the subjective mindset of the contributory defendant.⁵¹ Although a generalized suspicion of infringement usually will not be enough to satisfy the knowledge standard,⁵² if it was reasonable for the defendant to think that infringement was taking place, the knowledge standard is satisfied.⁵³ Moreover, a defendant that suspects wrongdoing and fails to investigate will also be deemed to satisfy the knowledge standard.⁵⁴

Courts are unlikely to water down the mental state requirement much further. Although liability for direct infringement has historically been a strict liability offense, contributory infringement has traditionally been viewed as an inappropriate candidate for strict liability, i.e., liability without evidence of a culpable mental state.⁵⁵ Rather, the cases show a repeated emphasis on scienter requirements when courts are presented with new scenarios involving contributory infringement.⁵⁶

⁴⁷ See Grace E. Mueller, Note, *The Mens Rea of Accomplice Liability*, 61 S. CAL. L. REV. 2169, 2173 (1988) (“Desert is calculated by the level of culpability involved in the crime, and culpability is tied to the criminal’s mental state.”); see also Michael S. Moore, *Prima Facie Moral Culpability*, 76 B.U. L. REV. 319, 320 (1996) (contending that culpability occurs when one “choose[s] to do a wrong in circumstances when that choice is freely made”).

⁴⁸ See Grossman, *supra* note 43, at 365-66; cf. *United States v. International Minerals & Chemical Corp.*, 402 U.S. 558, 656 (1971) (Stewart, J., dissenting) (“Whether postulated as a problem of ‘mens rea,’ of ‘willfulness,’ of ‘criminal responsibility,’ or of ‘scienter,’ the infliction of criminal punishment upon the unaware has long troubled the fair administration of justice.”); Paul H. Robinson, *Fair Notice and Fair Adjudication: Two Kinds of Legality*, 154 U. PA. L. REV. 335, 358 (2005) (noting that the Supreme Court often cites the “fair warning” provided by a law’s scienter requirement to refute challenges to statutes based on vagueness).

⁴⁹ Adams, *supra* note 38, at 657.

⁵⁰ See, e.g., *W.R. Grace & Co.-Conn. v. Intercat, Inc.*, 7 F. Supp. 2d 425, 455 (D. Del. 1997).

⁵¹ See *Ellison v. Robertson*, 357 F.3d 1072, 1076 (9th Cir. 2004); *Casella v. Morris*, 820 F.2d 362, 365 (11th Cir. 1987).

⁵² *Inwood Labs., Inc. v. Ives Labs, Inc.*, 456 U.S. 844, 861 (1982) (White, J., concurring); *Tiffany, Inc. v. eBay, Inc.*, 600 F.3d 93, 108-09 (2d Cir. 2010); *Monsanto Co. v. Campuzano*, 206 F. Supp. 2d 1271, 1278-79 (S.D. Fla. 2002); see also *Viacom Int’l, Inc. v. YouTube, Inc.*, ___ F. Supp. 2d ___, 2010 WL 2532404 (S.D.N.Y. June 23, 2010) (holding that “knowledge of a generalized practice of infringement in the industry” does not satisfy the knowledge standard under the Digital Millennium Copyright Act).

⁵³ *Cable/Home Comm’n Corp. v. Network Prods., Inc.*, 902 F.2d 829, 845 (11th Cir. 1990).

⁵⁴ *In re Aimster Copyright Litig.*, 334 F.3d 643, 650 (7th Cir. 2003); *Hard Rock Café Licensing Corp. v. Concession Servs., Inc.*, 955 F.2d 1143, 1149 (7th Cir. 1992).

⁵⁵ See Stacey L. Dogan & Mark A. Lemley, *Grounding Trademark Law Through Trademark Use*, 92 IOWA L. REV. 1690-92 (2008); cf. RESTATEMENT (SECOND) OF TORTS § 876 caveat (1977) (cautioning against any assumption that the Restatement’s formulation of aiding and abetting liability is applicable “when the conduct of either the actor or the other is free from intent to do harm or negligence but involves strict liability for the resulting harm”).

⁵⁶ See JAY DRATLER, JR., *CYBERLAW: INTELLECTUAL PROPERTY IN THE DIGITAL MILLENNIUM* § 5A.03[1], [2] (2000).

B. Material Contribution

Like the knowledge standard, the material contribution standard has evolved over time to encompass an increasingly wide array of behavior. To make a material contribution, the defendant must act. Merely benefitting from the directly infringing activity is not enough.⁵⁷ But not every sort of action is enough for contributory liability. The real issue in evaluating the material contribution standard is determining which activities are sufficient to justify liability.

Initially, the courts deemed only suppliers of infringing items, or components of infringing items, to be capable of providing a material contribution. In the arena of trademark law, for many years, only manufacturers and distributors of the infringing goods could provide a material contribution.⁵⁸ Patent law limited contributory liability to sellers of components or materials used to infringe.⁵⁹ Copyright law took a somewhat broader view of contributory liability, but there were very few cases invoking the doctrine before 1976,⁶⁰ and those that did typically involved supplying the materials for infringement.⁶¹

As pressure built to enlarge the scope of contributory infringement, courts had to adopt a broader, more flexible definition of material contribution but still retain some limits on liability. Courts have attacked this problem in a variety of different ways,⁶² but their doctrinal innovations can be grouped under two approaches. One approach has been to examine the relationship between the contributory defendant and the direct infringer.⁶³ A related but different tactic is to examine the relationship between the contributory defendant and the actual act of infringement.⁶⁴

Under either approach the result is that instead of only holding suppliers of infringing items liable, courts have come to recognize the culpability of all sorts of commercial actors excluded from responsibility under the old regime. Rather than limiting liability to suppliers of infringing goods and the raw materials to construct those goods, courts now recognize the

⁵⁷ A separate legal doctrine, the doctrine of vicarious infringement, imposes liability for the infringing conduct of another when the defendant receives a financial benefit from the infringement and enjoys a particular relationship with the direct infringer. *See* AT&T v. Winback & Conserve Program, Inc., 42 F.3d 1421, 1440-41 (3d Cir. 1994); *Gershwin Publ'g Corp. v. Columbia Artists Mgmt., Inc.*, 443 F.2d 1159, 1162 (2d Cir. 1971). While both vicarious and contributory infringement permit liability for infringement against parties other than direct infringers, they are separate doctrines with differing theoretical justifications and should be kept analytically distinct. 5 PATRY, *supra* note 24, at § 21:41; *see also* John Gardner, *Complicity and Causality*, 1 CRIM. L. & PHIL. 127, 130 n.2 (2007) (explaining that vicarious liability means responsibility for another's wrongful acts "irrespective of one's own participation in them"). Nevertheless, courts import irrelevant evidence of financial benefit into the material contribution analysis, further testifying to the confused state of contributory infringement jurisprudence. *E.g.*, *Tiffany, Inc. v. eBay, Inc.*, 576 F. Supp. 2d 463, 506 (S.D.N.Y. 2008); *Microsoft Corp. v. Black Cat Computer Wholesale, Inc.*, 269 F. Supp. 2d 118, 123 (W.D.N.Y. 2002); *but see* *Louis Vuitton Malletier, S.A. v. Akanoc Solutions, inc.*, 591 F. Supp. 2d 1098, 1103 n.6 (N.D. Cal. 2008).

⁵⁸ *See* *Acad. of Motion Picture Arts & Scis. v. Network Solutions, Inc.*, 989 F. Supp. 1276, 1279-80 (C.D. Cal. 1997).

⁵⁹ 35 U.S.C. § 271(c).

⁶⁰ 5 PATRY, *supra* note 24, at § 21:45, at 21-70.

⁶¹ *Id.* at § 21:45, at 21-73.

⁶² *Id.* at § 21:46, at 21-76 to 21-79 (describing various formulations and uncertainties regarding the material contribution standard).

⁶³ *See, e.g.*, *Lockheed Martin Corp. v. Network Solutions, Inc.*, 194 F.3d 980, 984 (9th Cir. 1999); *Religious Tech. Ctr. v. Netcom On-line Commc'n Servs., Inc.*, 907 F. Supp. 1361, 1375 (N.D. Cal. 1995).

⁶⁴ *See, e.g.*, *Matthew Bender & Co. v. West Pub. Co.*, 158 F.3d 693, 706 (2d Cir. 1998); *Fonovisa, Inc. v. Cherry Auction, Inc.*, 76 F.3d 259, 264 (9th Cir. 1996); *see also* 3 MELVILLE B. NIMMER & DAVID NIMMER, NIMMER ON COPYRIGHT § 12.04, at 12-85 (2008) ("[I]n order to be deemed a contributory infringer, the authorization or assistance must bear some direct relationship to the infringing acts . . .").

culpability of advertising agencies,⁶⁵ internet service providers,⁶⁶ art galleries,⁶⁷ flea markets,⁶⁸ and online auction houses.⁶⁹ Recently, the Ninth Circuit expanded the number of relationships sufficient to satisfy the material contribution standard further, imposing liability when a defendant that operates online can take “simple measures” to stop infringement, but fails to do so.⁷⁰

C. Safe Harbors

Not all of the changes to contributory infringement law resulted in greater liability. As the knowledge and material contribution standards have been weakened, two safe harbors from liability have been carved out of the doctrine. For both patent and copyright law, contributory infringement doctrine evolved to create a safe harbor for suppliers of goods that can facilitate infringement. Now, even when a supplier is aware of the infringing activity, the law exempts the supplier from liability if its goods are capable of noninfringing uses. Section 271(c) of the Patent Act, enacted by Congress in 1952, exempts the supplier of “a staple article or commodity of commerce” from liability even when the article is subsequently used, with the supplier’s knowledge, for infringement of a patent.⁷¹ Similarly, in copyright law, manufacturers of technologies having “substantial noninfringing uses” are exempt from liability even if they are aware of the infringing activity.⁷² No such safe harbor exists for accused secondary trademark infringers, although the Lanham Act does provide certain limitations on the type of relief granted against publishers and printers.⁷³

Recent cases, however, have limited the availability of these safe harbors. With its 2005 *Grokster* decision, the Supreme Court suggested one type of contributory infringement—inducement liability—that is ineligible for the exemption for substantially non-infringing suppliers. In *Grokster*, the Court held that a distributor of peer-to-peer software used to share both copyrighted and uncopyrighted music and motion picture files could not take advantage of the “substantial noninfringing uses” safe harbor.⁷⁴ Because, in the Court’s view, there was “clear expression” of the distributor’s intent to induce copyright infringement, the distributor forfeited its eligibility for the safe harbor.⁷⁵ Thus, proof of intent to cause infringement, rather than mere

⁶⁵ *Gillette v. Wilkinson Sword, Inc.*, 795 F. Supp. 662 (S.D.N.Y. 1992).

⁶⁶ *Ellison v. Robertson*, 357 F.3d 1072 (9th Cir. 2004) (holding that material issue of fact existed as to whether ISP knew of and contributed to copyright infringement).

⁶⁷ *Rogers v. Koons*, 751 F. Supp. 474 (S.D.N.Y. 1990). The art gallery ultimately avoided liability because the court concluded that it did not possess the requisite mental state. *Id.* at 481.

⁶⁸ *UMG Recordings, Inc. v. Sinnott*, 300 F. Supp. 2d 993 (E.D. Cal. 2004).

⁶⁹ *Tiffany, Inc. v. eBay, Inc.*, 576 F. Supp. 2d 463 (S.D.N.Y. 2008). Although the court ultimately held that the eBay online auction website was not contributorily liable, it did hold that eBay provided a material contribution to infringement. *Id.* at 503-07.

⁷⁰ *Perfect 10, Inc. v. Amazon.com, Inc.*, 508 F.3d 1146, 1172 (9th Cir. 2007).

⁷¹ 35 U.S.C. § 271(c); *see also Veritas Operating Corp. v. Microsoft Corp.*, 562 F. Supp. 2d 1141, 1156 (W.D. Wash. 2008) (“[Supreme Court precedent] suggests that if the device [provided by the defendant] has an unrelated use beyond the scope of patent-protection . . . , an inevitable possible use which directly infringes does not cause the seller of the device to contributorily infringe.”).

⁷² *Sony Corp. v. Universal City Studios, Inc.*, 464 U.S. 417, 442 (1984).

⁷³ 15 U.S.C. § 1114(2). Mark Lemley suggests that this limitation contained in the Lanham Act serve as a model for the other intellectual property regimes and, in general, be invoked with greater frequency. Mark A. Lemley, *Rationalizing Internet Safe Harbors*, 6 J. TELECOMM. & HIGH TECH. L. 101 (2007).

⁷⁴ *Metro-Goldwyn-Mayer Studios Inc. v. Grokster, Ltd.*, 545 U.S. 913 (2005).

⁷⁵ *Id.* at 936-37.

knowledge, trumps the substantial noninfringing uses defense. The Patent Act recognizes a similar sort of liability for manufacturers and distributors that intentionally cause others to infringe,⁷⁶ and courts evaluating contributory trademark disputes appear to be moving in the same direction.⁷⁷ Moreover, a recent appellate opinion shrinks the substantial noninfringing uses defense even further. According to the Federal Circuit, if a product provided by the contributory defendant contains separable components, one of which provides a substantial noninfringing use and the other of which infringes, the safe harbor does not apply.⁷⁸

D. Unresolved Questions of Contributory Infringement Liability

As suggested earlier, many issues remain unresolved in the law of contributory infringement.⁷⁹ There is some disagreement among the courts in how to evaluate the knowledge requirement.⁸⁰ Copyright case law is particularly plagued with inconsistency in how this requirement should be evaluated with some courts requiring more detailed knowledge of infringement than others.⁸¹ Similarly, with regard to the inducement type of contributory infringement, it remains undetermined whether a defendant's subjective yet erroneous belief that the direct infringer's conduct is not infringing or constitutes fair use should exempt the defendant from liability.⁸²

Even more unsettled is the current state of the material contribution requirement, which is the focus of this paper.⁸³ The problem is not so much that different courts have developed different tests for evaluating material contribution. Rather, the doctrine remains so amorphous that courts are unclear as to how to apply their own tests. In 2007, the Ninth Circuit Court of Appeals held that Google could potentially be liable for the infringing acts of websites that used copyrighted images without authorization, resting its analysis on the search engine's role in

⁷⁶ See *DSU Medical Corp. v. JMS Co.*, 471 F.3d 1293, 1305-06 (Fed. Cir. 2007).

⁷⁷ See *Perfect 10, Inc. v. Visa Int'l Serv. Ass'n*, 494 F.3d 788, 807 (9th Cir. 2007).

⁷⁸ See *Ricoh Co. v. Quanta Computer Inc.*, 550 F.3d 1325, 1336-40 (Fed. Cir. 2008).

⁷⁹ See *supra* notes 19-21 and accompanying text.

⁸⁰ Mark Bartholomew, *Copyright, Trademark and Secondary Liability After Grokster*, 32 COLUM. J.L. & ARTS 445, 455 (2009) (describing how some copyright decisions seem to require proof of knowledge of specific instances of infringement while other copyright decisions require only "reasonable knowledge" of infringement); see also Mitchell N. Berman et al., *State Accountability for Violations of Intellectual Property Rights: How to "Fix" Florida Prepaid (and How Not To)*, 79 TEX. L. REV. 1037, 1064 (2001) (maintaining that "concepts of mens rea have not been fleshed out" in intellectual property law).

⁸¹ See Bartholomew, *supra* note 80, at 454-58.

⁸² See 5 PATRY, *supra* note 24, at § 21:41; Adams, *supra* note 38, at 635; Bartholomew, *supra* note 80, at 446 n.4.

⁸³ Although the uncertainty surrounding the required mental state for contributory infringement is problematic, we are more concerned with the material contribution requirement for a couple of reasons. First, there is a tradition in the common law of requiring judges and juries to engage in rigorous scrutiny of defendant's mental state, often forcing them to identify one mental state among many. See Kevin John Heller, *The Cognitive Psychology of Mens Rea*, 99 J. CRIM. L. & CRIMINOLOGY 317, 318 (2009); see also Paul M. Janicke, *Do We Really Need So Many Mental and Emotional States in United States Patent Law?*, 8 TEX. INTELL. PROP. L.J. 279 (2000) (discussing the variety of mental and emotional states that courts are required to assess in determining various aspects of patent law). Hence, courts routinely face tough decisions as to the defendant's knowledge of wrongdoing in many areas of the law and there does not appear to be an outcry over this state of affairs. Second, to the extent the law has not done a good job of figuring out exactly what mental state should be required for contributory infringement, we contend that the variation in the cases will begin to narrow because courts seem to agree that a strict liability rule is inappropriate for contributory liability. See *supra* notes 55-56 and accompanying text.

facilitating consumer efforts to find the infringing content.⁸⁴ But “facilitat[ing] access” was not enough just a few weeks later when the same plaintiff charged Visa with contributory infringement for processing credit card payments made by customers to obtain access to the images on the infringing websites.⁸⁵ In that case, the Ninth Circuit concluded that the material contribution requirement had not been satisfied, but offered little justification for the different result.⁸⁶

As mentioned earlier, courts have recently shifted the analysis from supply of infringing items to either the relationship between defendant and direct infringer or the relationship between defendant and the act of infringement. In doing so, the courts replaced a bright-line rule with a hazy standard. Of course, not any relationship with the direct infringer will do. Courts have tried to give content to the relationship requirement by emphasizing that the relationship needs to be one of “control.” Thus, liability is reserved for those defendants demonstrating an ability to direct the infringer.⁸⁷ Following this trend, the Supreme Court explained that a contributory copyright infringer must be “in a position to control the use of copyrighted works by others.”⁸⁸ Similarly, in expanding liability past manufacturers and distributors, in recent years contributory trademark infringement doctrine recognized that a material contribution could also be made when there was “direct control” of the instrumentality used by a third party to infringe.⁸⁹ “Control” is an inherently vague term so it is not surprising that no coherent definition of control has been established. We can say, however, that courts have construed the term broadly.⁹⁰ The relationship of control need not be formalized.⁹¹ Nor need it even be actually exercised. Rather, just the potential to regulate the behavior of the direct infringer can constitute a relationship of control.⁹²

The other modern approach to the material contribution requirement examines the relationship between the contributory defendant and the actual act of infringement. If the former is too “attenuated” from the latter, then there is no material contribution.⁹³ Of course, this begs the question as to when a contributory defendant should be deemed so far removed from the infringing activity to be exempt from liability. According to some courts, providing “the means”

⁸⁴ Perfect 10, Inc. v. Amazon.com, Inc., 487 F.3d 701 (9th Cir. 2007). Months later, the Ninth Circuit amended its opinion, but did not alter its analysis of contributory liability. Perfect 10, Inc. v. Amazon.com, Inc., 508 F.3d 1146 (9th Cir. 2007).

⁸⁵ Perfect 10, Inc. v. Visa, 494 F.3d 788 (9th Cir. 2007).

⁸⁶ The *Visa* court suggested that “location services” are somehow different from “payment services” but offered no real explanation why one is more material than the other. *Visa*, 494 F.3d at 797 n.8.

⁸⁷ See Sony Corp. v. Universal City Studios, Inc., 464 U.S. 417, 437 (1984).

⁸⁸ *Id.*

⁸⁹ Lockheed Martin Corp. v. Network Solutions, Inc., 194 F.3d 980, 984 (9th Cir. 1999). Also related to analysis of the dynamic between the defendant and the direct infringer, courts have looked to whether the defendant engages in active monitoring of the direct infringer. See *id.* For example, a flea market owner that patrols its market, scrutinizing the behavior of its vendors, is deemed to have a sufficiently dominant relationship over those vendors to satisfy the material contribution standard. See Hard Rock Café Licensing Corp. v. Concession Servs., Inc., 955 F.2d 1143, 1148-49 (7th Cir. 1992).

⁹⁰ Lauren Katzenellenbogen et al., *Alternative Software Protection in View of In re Bilski*, 7 NW. J. TECH. & INTELL. PROP. 332, 334 (2009).

⁹¹ Gershwin Publ’g Corp. v. Columbia Artists Mgmt., Inc., 443 F.2d 1159, 1163 (2d Cir. 1971).

⁹² See, e.g., Religious Tech. Ctr. v. Netcom On-line Commc’n Servs., Inc., 907 F. Supp. 1361, 1375 (N.D. Cal. 1995).

⁹³ Demetriades v. Kaufmann, 690 F. Supp. 289, 294 (S.D.N.Y. 1988).

for direct infringement is sufficiently proximate to be a material contribution,⁹⁴ but others disagree.⁹⁵

Neither approach has lent much clarity to the material contribution analysis.⁹⁶ It remains unclear which relationships and activities satisfy the material contribution requirement. Judicial determinations in this area now have less predictive force as concepts like control and attenuation are vague and their relevance changes depending on the context.⁹⁷

In addition, it remains unclear after *Grokster* how a court should apply the material contribution requirement in cases where the defendant has been found to have intentionally induced infringement.⁹⁸ On the one hand, the *Grokster* decision says nothing about a change in how the materiality of the defendant's contribution should be evaluated when there is proof of intent. On the other hand, it makes little sense to burden the plaintiff with the extra difficulty of proving intent rather than knowledge unless there is some corresponding reduction in the evidence of contribution required for liability.⁹⁹

Other legal scholars have documented the confused state of contributory infringement jurisprudence.¹⁰⁰ The common prescription for this confusion is closer adherence to the common law moorings of contributory infringement.¹⁰¹ Jay Dratler explains that infringement is “just a

⁹⁴ *Matthew Bender & Co. v. West Pub. Co.*, 158 F.3d 693, 706 (2d Cir. 1998); *Fonovisa, Inc. v. Cherry Auction, Inc.*, 76 F.3d 259, 264 (9th Cir. 1996); *A & M Records, Inc. v. Abdallah*, 948 F. Supp. 1449, 1456 (C.D. Cal. 1996).

⁹⁵ *Perfect 10, Inc. v. Visa Int'l Serv. Ass'n*, 494 F.3d 788, 807 (9th Cir. 2007); *Livnat v. Lavi*, No. 96 CIV. 4967(RWS), 1998 WL 43221, at *3 (S.D.N.Y. Feb. 2, 1998) (stating that providing the “means to accomplish an infringing activity” is not enough to satisfy the material contribution standard).

⁹⁶ *See* Giles S. Rich, *Contributory Infringement*, 14 FED. CIR. B.J. 99, 100 (2005); Lemley, *supra* note 73, at 102 (describing confusing nature of contributory infringement safe harbors).

⁹⁷ *See, e.g.*, Bartholomew, *supra* note 80, at 457-58 (describing split among courts evaluating contributory copyright infringement claims with some considering the degree of separation between the defendant and direct infringer and others deeming this irrelevant).

⁹⁸ *See* *Perfect 10, Inc. v. Visa Int'l Serv. Ass'n*, 494 F.3d 788, 800-02 (9th Cir. 2007) (indicating that the two types of contributory liability could be described as “material contribution liability” and “inducement liability”); *Arista Records LLC v. Usenet.com, Inc.*, 633 F. Supp. 2d 124, 150 n.17 (S.D.N.Y. 2009) (describing “doubt” among some courts as to whether *Grokster*-style inducement states a separate claim for relief or whether it is a species of contributory infringement).

⁹⁹ In assessing contributory liability for criminal actions, the law holds the prosecution to a high burden of proof in demonstrating the requisite mental state, but a very low threshold for demonstrating a sufficient contribution to the criminal act. *See* Bartholomew, *supra* note 29, at 797-807; *see also infra* notes 121-122 (noting that aiding and abetting tort law operates on a sliding scale with proof of greater knowledge resulting in less need for proof of material contribution).

¹⁰⁰ *See, e.g.*, Jay Dratler, Jr., *Common-Sense (Federal) Common Law Adrift in a Statutory Sea, or Why Grokster Was a Unanimous Decision*, 22 SANTA CLARA COMPUTER & HIGH TECH. L.J. 413, 436 (2006); Grossman, *supra* note 43, at 363; Peter S. Menell & David Nimmer, *Legal Realism in Action: Indirect Copyright Liability's Continuing Tort Framework and Sony's De Facto Demise*, 55 UCLA L. REV. 143, 186 (2007); Alfred C. Yen, *Sony, Tort Doctrines, and the Puzzle of Peer-to-Peer*, 55 CASE W. RES. L. REV. 815, 842-43 (2005); Alfred C. Yen, *Third-Party Copyright Liability After Grokster*, 91 MINN. L. REV. 184, 212 (2006).

¹⁰¹ Jay Dratler, Jr., *Palsgraf, Principles of Tort Law, and Persistent Need for Common-Law Judgment in IP Infringement Cases*, 3 AKRON INTELL. PROP. J. 23, 33 (2009) (contending that “good things might follow” if secondary infringement law was “returned to the ‘fundamental things’ of tort law like proximate cause”); Menell & Nimmer, *supra* note 100, at 149 (“[T]he tort principles that have guided copyright law since its inception should continue to guide copyright’s further evolution.”); Peter S. Menell & David Nimmer, *Unwinding Sony*, 95 CAL. L. REV. 941, 1022 (2007) (faulting the *Sony* decision for failing to apply tort principles of secondary liability); Cynthia Miller, Comment, *Do You Grok? Substantial Certainty in Contributory Copyright Infringement*, 2 SETON HALL CIRC. REV. 591, 592 (2006) (“Contributory copyright infringement is a tort; thus, tort law principles should apply.”); Yen, *Sony, Tort Doctrines, and the Puzzle of Peer-to-Peer*, *supra* note 100, at 852 (“[C]ourts have borrowed too

kind of tort” that involves the same questions of duty, proximate cause, and culpability characteristic of tort law in general.¹⁰² Fred Yen applauds importing fault-based doctrines from tort law to assess the liability of contributory infringers.¹⁰³ Peter Menell and David Nimmer argue that tort law’s products liability precedents provide the strongest metric for evaluating secondary infringement claims.¹⁰⁴

At first blush, importing tort law standards to contributory infringement makes a lot of sense. Contributory infringement doctrine originates in tort law.¹⁰⁵ Common law tort has long provided for the liability of defendants that do not directly commit the violation at issue.¹⁰⁶ In its most recent pronouncement on contributory infringement, the Supreme Court directed lower courts to evaluate contributory liability in light of “rules of fault-based liability derived from the common law.”¹⁰⁷ Nevertheless, there are some serious shortcomings in the relevant tort secondary liability jurisprudence that make its use in contributory infringement questionable. In Parts II & III, we evaluate whether tort law can cure what ails contributory infringement doctrine.

little from tort law in the existing construction of third party copyright liability.”); Yen, *Third-Party Copyright Liability After Grokster*, *supra* note 100, at 190 (“[T]he most important theories of tort . . . shed considerable light on the construction of third-party copyright liability.”); Jason Kessler, Note, *Correcting the Standard for Contributory Trademark Liability Over the Internet*, 39 COLUM. J.L. & SOC. PROBS. 375, 411 (2006) (calling for “preserving traditional standards” of contributory liability in dealing with the new context of trademark infringement via the Internet).

¹⁰² Dratler, *supra* note 101, at 25. Dratler maintains that tort law’s “notion of proximate cause” and “the principle of culpability” will allow the courts to build “a rational jurisprudence of secondary liability.” *Id.* at 26-27. We think that courts are currently applying their own notions of proximate cause and culpability yet are still unable to sort out the contradictions in contributory infringement law. Proximate cause presents a particular difficulty. While we do not advocate removing proximate cause completely from the contributory infringement analysis, courts need to stop conflating proximate cause with cause in fact. *See infra* Part II. A clearer separation between the two would give courts a greater opportunity to make the decisions based on the facts of the marketplace that Dratler advocates. *See* Dratler, *supra* note 100, at 453-54.

¹⁰³ Yen, *Third-Party Copyright Liability After Grokster*, *supra* note 100, at 190, 212. Yen contends that contributory copyright infringement’s origin in tort law supports a greater focus on mental state and a lesser emphasis on aggregate social welfare in determining liability. *See id.* at 189-90 & n.23. Although we agree with Yen’s point that modern tort law stresses knowledge, we think that an examination of aiding and abetting liability, the closest tort law analog to contributory infringement, demonstrates an even greater emphasis on the effects of the defendant’s contribution to the victim’s injury. *See infra* notes 132-135 and accompanying text.

¹⁰⁴ Menell & Nimmer, *supra* note 100, at 149; Menell & Nimmer, *Unwinding Sony*, *supra* note 101, at 996. Menell and Nimmer contend that contributory infringement stems from a “tort wellspring” that mandates use of the cost-benefit analysis employed by some common law courts when deciding whether a “reasonable alternative design” was available to a products liability defendant. Menell & Nimmer, *Unwinding Sony*, *supra*, at 1017-19. Contributory infringement’s tort law heritage is undeniable, but we are not sure that products liability standards are the best fit for the doctrine’s current problems. As Ed Lee points out, products liability and secondary liability are different legal regimes with the latter arguably meant to be more sensitive to net social benefits and less sensitive to making the victim whole than the former. Edward Lee, *Freedom of the Press 2.0*, 42 GA. L. REV. 309, 389 (2008). Moreover, products liability doctrine remains unsettled, making it unclear just how beneficial its importation would be for courts trying to develop content for the material contribution requirement. *See generally* Douglas A. Kysar, *The Expectations of Consumers*, 103 COLUM. L. REV. 1700 (2003).

¹⁰⁵ *See* Fonovisa, Inc. v. Cherry Auction, Inc., 76 F.3d 259, 264 (9th Cir. 1996); 4 J. THOMAS MCCARTHY, MCCARTHY ON TRADEMARKS AND UNFAIR COMPETITION § 25:23 (4th ed. 2005); 3 NIMMER & NIMMER, *supra* note 64, at § 12.04[A][2]; Sverker K. Hogberg, Note, *The Search for Intent-Based Doctrines of Secondary Liability in Copyright Law*, 106 COLUM. L. REV. 909, 914 (2006).

¹⁰⁶ W. PAGE KEETON ET AL., PROSSER AND KEETON ON THE LAW OF TORTS § 69 (5th ed. 1984).

¹⁰⁷ *Metro-Goldwyn-Mayer Studios Inc. v. Grokster, Ltd.*, 545 U.S. 913, 934-35 (2005).

II. COMPARING INTELLECTUAL PROPERTY CONTRIBUTORY LIABILITY DOCTRINE WITH CONTRIBUTORY LIABILITY DOCTRINE IN TORT LAW

The Supreme Court has explained that intellectual property indirect liability doctrines are based “on principles recognized in every part of the law.”¹⁰⁸ Yet application of these principles to intellectual property disputes is less than certain. Contributory liability rules for tort are most commonly referred to as the law of “aiding and abetting.”¹⁰⁹ The law of civil aiding and abetting remains unsettled, leaving intellectual property courts with plenty of precedent but little concrete guidance in adjudicating contributory infringement claims. This makes civil aiding and abetting law, by itself, a poor candidate for solving the unresolved questions of contributory infringement liability.

There is however one strand of aiding and abetting case law that can be very useful to courts grappling with questions of contributory infringement. In determining the civil liability of indirect actors, courts often focus their attention on the substantiality of the defendant’s contribution to the illegal act at issue. This resembles contributory infringement doctrine’s material contribution requirement. Yet unlike the courts investigating contributory infringement, judges weighing the liability of an accused aider and abettor often explicitly consider the causal relationship between the defendant’s actions and the illegal act. A defendant should not be liable for aiding and abetting until it can be shown that its actions are a “substantial factor in causing the resulting tort.”¹¹⁰ This emphasis on causation should prove helpful in contributory infringement cases, although, as we argue in Part III, tort law’s current analysis of causation is not sophisticated enough in its current state and needs bolstering from an additional source.

¹⁰⁸ *Kalem Co. v. Harper Bros.*, 225 U.S. 55, 63 (1911); *see also* John C.P. Goldberg & Benjamin C. Zipursky, *Torts as Wrongs*, 88 TEXAS L. REV. 917, 919 (describing intellectual property infringement doctrine as a “contemporary extension” of tort law).

¹⁰⁹ For the purposes of this Article, we are only evaluating the tort doctrine of aiding and abetting. Two other potential tort law secondary liability causes of action deserve brief mention. Although “closely allied” with aiding and abetting liability, *Neilson v. Union Bank of Cal.*, 290 F. Supp. 2d 1101, 1133 (C.D. Cal. 2003), the tort doctrine of conspiracy is somewhat different and less analogous to contributory infringement doctrine. A conspiracy requires an agreement as well as an act causing harm while aiding and abetting requires assistance to the direct tortfeasor but no agreement. Richard C. Mason, *Civil Liability for Aiding and Abetting*, 61 BUS. LAW 1135, 1138 (2006); *see also* *Halberstam v. Welch*, 705 F.2d 472, 477 (D.C. Cir. 1983). The two doctrines also differ in that the only assistance necessary for civil conspiracy liability is the assistance inherent in the agreement itself whereas liability for aiding and abetting requires additional facilitation of the wrongful act. Nathan Isaac Combs, Note, *Civil Aiding and Abetting Liability*, 58 VAND. L. REV. 241, 257-58 (2005). Also excluded from our analysis is liability under section 876(c) of the Restatement (Second) of Torts. Under 876(c), one is subject to liability if one gives “substantial assistance to the other in accomplishing a tortious result and his own conduct, separately considered, constitutes a breach of duty to the third person.” It is rare that such a separate duty will be found in the case of intermediaries in intellectual property cases. *See, e.g., Lockheed Martin Corp. v. Network Solutions, Inc.*, 985 F. Supp. 949, 967 (C.D. Cal. 1997) (finding that no independent duty existed for domain name registrar to prevent Internet usages that infringed on plaintiff’s trademark); *MDT Corp. v. New York Stock Exchange, Inc.*, 858 F. Supp. 1028, 1033-34 (C.D. Cal. 1994) (“Instead, MDT Corp. appears to interpret Inwood Laboratories to impose an affirmative duty on innocent third party users of a mark to police the mark for its owner. No such duty exists.”). Unlike aiding and abetting liability, liability under 876(c) of the Restatement does not require any knowledge on the part of the defendant. *See* Combs, *supra*, at 262.

¹¹⁰ The requirements for aiding and abetting liability are set out in section 876(b) of the Restatement (Second) of Torts. *See* RESTATEMENT (SECOND) OF TORTS § 876(b) cmt. (1979) (“If the encouragement or assistance is a substantial factor in causing the resulting tort, the one giving it is himself a tortfeasor, and is responsible for the consequences of the other’s act.”).

A. Uncertainty Surrounding Aiding and Abetting Doctrine

On the surface, aiding and abetting law applies the same basic requirements as contributory infringement law. Some proof of knowledge of the underlying tortious act is mandatory to find a defendant liable for aiding and abetting.¹¹¹ It also must be shown that the defendant's conduct "substantially" assisted the wrongful act.¹¹² These requirements bear a close resemblance to the knowledge and material contribution elements of contributory infringement.

Yet despite this rough parallel and the suggestions of some courts and commentators, applying aiding and abetting precedent to contributory infringement disputes is no easy task. Although civil liability for the actions of others has been a feature of the American legal system from its beginnings, the courts have not yet come to agreement on aiding and abetting law's exact features.¹¹³ The doctrine of aiding and abetting can euphemistically be described as "underdeveloped."¹¹⁴ "General confusion has surrounded the question of what exact test courts should use to determine liability."¹¹⁵ Judges have noted their own frustration at the doctrine's unsettled state despite the availability of numerous opinions wrestling with the knowledge and substantial assistance requirements.¹¹⁶

Just as with the contributory infringement jurisprudence, uncertainty exists as to the precise boundaries of the knowledge inquiry.¹¹⁷ Likewise, confusion remains as to how to define "substantial" assistance.¹¹⁸ Courts typically assess an abetting defendant's participation under a

¹¹¹ 1 STUART M. SPEISER ET AL., THE AMERICAN LAW OF TORTS § 3:4, at 401 (1983) (stating that a contributory tortfeasor must recognize that the direct tortfeasor's conduct constituted a breach of duty in order to be held liable). Moreover, most common law civil courts require *actual* knowledge before holding a defendant liable for aiding and abetting. See, e.g., *Moss v. Morgan Stanley*, 553 F. Supp. 1347, 1358 (D. Utah. 1984) (stating that there can be no liability for aiding and abetting "without a higher degree of scienter than recklessness"); *AA Tube Testing Co. v. Sohne*, 246 N.Y.S.2d 247, 248 (1964) (actual knowledge required for inducing breach of contract); *In re Consolidated Welfare Fund ERISA Litig.*, 856 F. Supp. 837, 842 (S.D.N.Y. 1994) (under California law, "[i]t is clear that liability for aiding and abetting a tort cannot attach absent actual knowledge of the underlying tort."). This is particularly true when the defendant is accused of aiding a tort related to a financial transaction. See, e.g., *Kolbeck v. LIT America, Inc.*, 939 F. Supp. 240, 246 (S.D.N.Y. 1996) (actual knowledge required for aiding and abetting breach of fiduciary duty); see also *Camp v. Dema*, 948 F.2d 455, 459 (8th Cir. 1991) (concluding that neither negligence, nor recklessness, nor "a bare inference that the defendant must have had knowledge" of the primary violation is sufficient to satisfy the mental state requirement); *Woodward v. Metro Bank of Dallas*, 522 F.2d 84, 95 (5th Cir. 1975) ("A remote party must not only be aware of his role, but he should also know when and to what degree he is furthering the fraud."); *Combs*, *supra* note 109, at 284 (stating that "several courts and commentators advocate nothing less than actual knowledge in the securities law context").

¹¹² RESTATEMENT (SECOND) OF TORTS § 876 cmt. d (1965); *Combs*, *supra* note 109, at 275 ("The fundamental basis for aiding and abetting liability is that the defendant both (1) knows of the primary actor's wrongful conduct; and (2) substantially assists or encourages the primary wrongdoer to so act."); see also *In re Enron Corp. Securities, Derivative & "ERISA" Litigation*, 511 F. Supp. 2d 742, 802 (S.D. Tex. 2005).

¹¹³ *Cent. Bank of Denver, N.A. v. First Interstate Bank of Denver, N.A.*, 511 U.S. 164, 188-89 (1994) (noting that "the rules for determining aiding and abetting liability are unclear"); Note, *Central Bank and Intellectual Property*, *supra* note 21, at 737 ("Civil aiding and abetting liability is applied with notorious inconsistency.").

¹¹⁴ *Combs*, *supra* note 109, at 249; see also *AT&T v. Winback*, 42 F.2d 1421, 1430 (3d Cir. 1994) ("And in fact, aiding and abetting liability is not a well-settled mechanism for imposing civil liability.").

¹¹⁵ *Combs*, *supra* note 109, at 255.

¹¹⁶ E.g., *IIT v. Cornfield*, 619 F.2d 909, 922 & n.15 (2d Cir. 1980).

¹¹⁷ *Combs*, *supra* note 109, at 265-67, 283

¹¹⁸ *Id.* at 293 ("the confusion begins when one attempts to apply the principles of the substantial factor test to the theory of civil aiding and abetting").

six factor test.¹¹⁹ Some of these factors, like “the defendant’s relation to the primary tortfeasor” are fairly imprecise, resulting in the same sort of uncertainty already faced by contributory infringement defendants.¹²⁰

Other inconsistencies make it hard to get a handle on aiding and abetting law. While some courts treat the knowledge and substantial assistance requirements as independent variables that both must be fully satisfied,¹²¹ others apply a sliding scale analysis that reduces the quantum of evidence necessary to satisfy the knowledge requirement when there is particularly strong proof of substantial assistance and vice-versa.¹²² Commentators diagnose a conflict between the rules for aiding and abetting liability as articulated in the Restatement of Torts and as applied by the courts,¹²³ even though the published decisions maintain fealty to the language of the Restatement.¹²⁴ In addition, the rules of aiding and abetting liability can change depending on jurisdiction,¹²⁵ the type of party involved,¹²⁶ and the underlying tort at issue.¹²⁷

Given all of these uncertainties, the Supreme Court’s directive to apply “rules of fault-based liability derived from the common law” is ambiguous at best.¹²⁸ In actuality, aiding and abetting liability is not a “well-established” precept that can adequately guide judges in determining the outer limits of indirect liability.¹²⁹ Instead, it is a somewhat amorphous doctrine that leaves tremendous discretion in the hands of judges establishing binding precedent for future contributory infringement cases. Given the uncertainty surrounding aiding and abetting law, its application to contributory infringement would tax even the efforts of intermediaries that lawfully interact with intellectual property. Without more clarity as to the metes and bounds of liability, technologists must plan for the worst, perhaps shelving innovative products and services for fear of litigation.¹³⁰ The unsettled nature of aiding and abetting doctrine is one reason that we

¹¹⁹ See *Halberstam v. Welch*, 705 F.2d 472, 483 (D.C. Cir. 1983).

¹²⁰ See Note, *Central Bank and Intellectual Property*, supra note 21, at 737, 740 (discussing uncertain state of both general aiding and abetting law and contributory infringement doctrine).

¹²¹ Mason, supra note 109, at 1157-58 (stating that only some courts recognize the sliding scale approach).

¹²² E.g., *In re Temporomandibular Joint Implants Prod. Liab. Litig.*, 113 F.3d 1484, 1495 (8th Cir. 1997); *Abbott v. Equity Group, Inc.*, 2 F.3d 613, 621 (5th Cir.1993); *In re Enron Corp. Securities, Derivative & “ERISA” Litigation*, 511 F. Supp. 2d 742, 802 (S.D. Tex. 2005); *Witzman v. Lehrman, Lehrman & Flom*, 601 N.W.2d 179, 188 (Minn. 1999).

¹²³ Combs, supra note 109, at 277-78.

¹²⁴ E.g., *Tarr v. Ciasulli*, 853 A.2d 921, 929 (N.J. 2004).

¹²⁵ See *Woodward v. Metro Bank of Dallas*, 522 F.2d 84, 96-97 (5th Cir. 1975) (reviewing cases from different jurisdictions that do and do not accept silence and inaction as a basis for aiding and abetting liability).

¹²⁶ E.g., *Reynolds v. Schrock*, 142 P.3d 1062, 1071-72 (Or. 2006) (en banc) (recognizing qualified privilege for lawyers assisting in a client’s breach of fiduciary duty to a third party).

¹²⁷ For example, courts in Georgia, Maine, Montana, and Virginia refuse to recognize a cause of action for aiding and abetting fraud. Mason, supra note 109, at 1140.

¹²⁸ *Metro-Goldwyn-Mayer Studios Inc. v. Grokster, Ltd.*, 545 U.S. 913, 934-35 (2005).

¹²⁹ *Id.* at 930 (stating that the doctrines of contributory and vicarious infringement as “emerged from common law principles and are well established in the law”).

¹³⁰ See Brief of Amici Curiae Innovation Scholars & Economists at 15-20, *Metro-Goldwyn-Mayer Studios Inc. v. Grokster, Ltd.*, 125 S. Ct. 2764 (2005) (No. 04-480) (noting chilling effects of current state of secondary liability doctrine); Julie Zankel, Note, *A Little Help with Sharing: A Mandatory Licensing Proposal to Resolve the Unanswered Questions Surrounding Peer-to-Peer Liability for Contributory Copyright Infringement in the Wake of Grokster*, 80 S. CAL. L. REV. 189, 198 (2006) (“Any uncertainty surrounding liability for contributory infringement that puts technology distributors and innovators at risk certainly will chill innovation.”).

should be cautious in advocating the use of tort law principles to solve indirect infringement claims.¹³¹

B. Aiding and Abetting and Causation

There is one relatively constant component of aiding and abetting law that deserves further discussion. Civil aiding and abetting law takes the assistance requirement quite seriously.¹³² “In practice, liability for aiding and abetting turns on how much encouragement or assistance is substantial enough.”¹³³ For the substantial assistance analysis, tort law principles require, among other things, a determination as to whether the defendant’s action caused the ultimate tort at issue.¹³⁴ The court must decide whether the defendant helped bring about the eventual tortious event. Without evidence of a causal link between the defendant and the wrongful activity, there can be no liability for aiding and abetting.¹³⁵ This explicit analysis of causation is lacking in most of the contributory infringement cases.

We think that it makes sense for courts adjudicating contributory infringement disputes to undertake a more strenuous causation analysis for a number of reasons. First, even if the specific concepts involved are sometimes difficult to apply, causation, to a certain extent, is intuitive.¹³⁶ Many theorists have tried to locate their explanation of causation in “common sense.”¹³⁷ A law loses its effectiveness when its subjects cannot appreciate or understand its rational force.¹³⁸ By tethering liability for the infringing acts of another to causation, courts can offer an explanation of contributory infringement liability that maps onto social expectations of fairness and blame.

Second, a factual causation requirement trains the trier of fact’s attention in one area. The modern material contribution requirement’s ambiguity and breadth means that it serves as a grab bag for all sort of potential mechanisms for determining responsibility. A narrower focus would promote greater consistency and predictability. We acknowledge that causation should

¹³¹ Aside from the unsettled status of aiding and abetting doctrine, another reason to be nervous about a wholesale importation of tort law standards to contributory infringement is intellectual property’s particular focus on innovation. See *infra* Part III.

¹³² See Combs, *supra* note 109, at 288 (“Typically, the primary issue in a case of civil aiding and abetting is whether the assistance or encouragement was substantial.”).

¹³³ Halberstam v. Welch, 705 F.2d 472, 478 (D.C. Cir. 1983).

¹³⁴ Combs, *supra* note 109, at 292. In the criminal context, the accomplice’s contribution is not scrutinized in this manner. See Bartholomew, *supra* note 29, at 830-31.

¹³⁵ Boim v. Holy Land Foundation for Release and Development, 511 F.3d 707, 736 (7th Cir. 2007); Metge v. Bachler, 762 F.2d 621, 624 (8th Cir. 1985) (holding that there must be a “substantial causal connection between the culpable conduct of the alleged aider and abettor and the harm to the plaintiff”); see also Combs, *supra* note 109, at 292.

¹³⁶ Sanford H. Kadish, *Complicity, Cause, and Blame: A Study in the Interpretation of Doctrine*, 73 CAL. L. REV. 323, 332 (1985); see also Jon Hanson & Ana Reyes, *Attributional Positivism: The Naïve Psychology Behind Our Laws* (2004) (unpublished manuscript, on file with author) (describing the widespread urge among human beings to make causal attributions and, at times, attributions of responsibility and blame).

¹³⁷ E.g., Osborn v. Irwin Memorial Blood Bank, 7 Cal. Rptr. 2d 101, 108 (Cal. Ct. App. 1992); David W. Robertson, *The Common Sense of Cause in Fact*, 75 TEX. L. REV. 1765, 1767 (1997); John Sherman Myers, *Causation and Common Sense*, 5 U. MIAMI L.Q. 238, 238-39 (1951).

¹³⁸ As of late, intellectual property law has been particularly criticized for being out of step with public sentiment. See, e.g., John Tehranian, *Infringement Nation: Copyright Reform and the Law/Norm Gap*, 2007 UTAH L. REV. 537 (2007); Geraldine Szott Moohr, *The Crime of Copyright Infringement: An Inquiry Based on Morality, Harm, and Criminal Theory*, 83 B.U. L. REV. 731, 773-74 (2003).

not become the be all and end all of contributory infringement doctrine.¹³⁹ Yet while allowing for continued attention to issues of public policy and contributory infringement's knowledge requirement, an explicit factual causation requirement would promote greater attention to the complex factual settings of intellectual property disputes. As one tort law authority notes, causal analysis is difficult enough without judges being simultaneously sidetracked by other concerns.¹⁴⁰

Third, judges should have a certain amount of comfort in investigating causation in intellectual property cases because of its prevalence in so many areas of the law.¹⁴¹ By reemphasizing the need for causal analysis in contributory infringement, judges can utilize reasoning that has been developed in toxic tort,¹⁴² employment discrimination,¹⁴³ refugee law,¹⁴⁴ criminal procedure,¹⁴⁵ and a host of other legal subject matters. Below, we describe in more detail exactly what is involved in the causal analysis of aiding and abetting liability. This analysis can be split into two categories: cause in fact and proximate cause.

1. Cause in Fact

Causal analysis in tort underwent a significant change beginning in the 1920s. At that time, scholars began to criticize many areas of judicial doctrine as irrational abstractions that could be manipulated by judges.¹⁴⁶ These scholars, latter dubbed Legal Realists, were upset that the abstractions often obscured the true reasons behind judicial outcomes.¹⁴⁷ A better legal paradigm would force judges to affirmatively state the ideological beliefs motivating their decisions.¹⁴⁸

One target of the Realist attack was the doctrine of causation. The Realists contended that judges used the term "causation" in an inconsistent manner, sometimes referring to the actual effects of the defendant's conduct on the plaintiff and sometimes referring to whether the scope of the law encompassed or should encompass the defendant's conduct.¹⁴⁹ The problem was that this inconsistency obscured the judge's normative decisions about the law's reach under scientific sounding language.¹⁵⁰ Instead of explicitly limiting the scope of liability on public policy grounds, an appeal to "causation" made it sound as if the decision against liability was based on ineluctable physical principles.

¹³⁹ See *infra* Part III.

¹⁴⁰ DAN B. DOBBS, *THE LAW OF TORTS* 409 (2000).

¹⁴¹ See H.L.A. HART & TONY HONORE, *CAUSATION IN THE LAW* 307 (2d ed. 1985); see also RICHARD A. EPSTEIN, *CASES AND MATERIALS ON TORTS* 467 (6th ed. 1995) ("These issues of causation, moreover, form an indispensable element of every tort case, regardless of its underlying theory of liability.").

¹⁴² E.g., *Robertson v. Allied Signal, Inc.*, 914 F.2d 360, 366-67 (3d Cir. 1990).

¹⁴³ Martin J. Katz, *The Fundamental Incoherence of Title VII: Making Sense of Causation in Disparate Treatment Law*, 94 GEO. L.J. 489 (2006). For an innovative call for the adoption of a new causal framework for evaluating civil rights litigation, see D. James Greiner, *Causal Inference in Civil Rights Litigation*, 122 HARV. L. REV. 533 (2008).

¹⁴⁴ Michelle Foster, *Causation in Context: Interpreting the Nexus Clause in the Refugee Convention*, 23 MICH. J. INT'L L. 265 (2002).

¹⁴⁵ Eric A. Johnson, *Causal Relevance in the Law of Search and Seizure*, 88 B.U. L. REV. 113 (2008).

¹⁴⁶ Mark G. Yudof, *School Desegregation: Legal Realism, Reasoned Elaboration, and Social Science Research in the Supreme Court*, 42 LAW & CONTEMP. PROBS. 57, 64 (1978).

¹⁴⁷ Joseph William Singer, *Legal Realism Now*, 76 CAL. L. REV. 467, 470-71 (1988).

¹⁴⁸ Jane Stapleton, *Choosing What We Mean by "Causation" in the Law*, 73 MO. L. REV. 433, 456 (2008).

¹⁴⁹ Leon Green, *Causal Relation in Legal Liability—In Tort*, 36 YALE L.J. 513, 534 (1927).

¹⁵⁰ Stapleton, *supra* note 148, at 457.

The solution, according to legal scholar Leon Green, was a separation of the causation inquiry into two parts. Judges should evaluate both “factual” causation and “proximate” causation—the former referring to the examination of the effects of the defendant’s conduct on the tortious event and the latter referring to the normative considerations that had been camouflaged under the previous regime—but keep these two evaluations separate.¹⁵¹ Green wanted public policy concerns to be brought out into the open, and his solution became the accepted position in American tort law.¹⁵² Today, the division between factual cause and proximate cause applies across the whole of tort law, including aiding and abetting doctrine.¹⁵³

Factual causation addresses empirical questions of causal connection. Did the failure to equip a boat with life preservers lead to the victim’s death by drowning?¹⁵⁴ Did the pharmaceutical marketed by the defendant to pregnant mothers produce congenital deformities?¹⁵⁵ Did a defectively manufactured seat belt result in the plaintiff’s death from a car crash?¹⁵⁶ To arrive at answers to these and related questions, courts use a few different tests, which we will describe in more detail in Part III. But at the heart of the analysis, regardless of the test used, is the use of counterfactuals. The trier of fact must compare what did occur with what would have occurred if a hypothetical, counterfactual situation had existed.¹⁵⁷ In other words, the judge or jury must imagine a world where the boat had life preservers, the mothers did not ingest the pharmaceutical, and the seat belt was manufactured in a different way. This evaluation of cause applies not only to positive acts undertaken by the defendant, but also to passive conduct that may have played a necessary role in the plaintiff’s injury.¹⁵⁸

In the context of aiding and abetting’s substantiality requirement, courts look to the causal effects of the defendant’s behavior.¹⁵⁹ Some courts even equate the substantiality test with causation¹⁶⁰ and require that the plaintiff plead facts demonstrating that the aider-abettor “caused the harm on which the primary liability is predicated.”¹⁶¹ The six-factor test for aiding and abetting liability probes both the knowledge requirement and the causality of the defendant’s actions. For example, in determining whether the live-in girlfriend of a burglar should be contributorily liable for a killing that occurred during one of her boyfriend’s burglaries, the D.C. Circuit evaluated “the amount and kind of assistance given” and “the duration of the assistance provided.”¹⁶² Both of these factors are meant to scrutinize the effect of the defendant’s actions on the primary wrongdoer. In other words, courts investigate the interaction between the defendant and the primary wrongdoer to figure out whether the defendant actually caused the wrongdoer to commit the wrongful act. Looking at these factors, the court concluded that the girlfriend’s actions were an “essential part” of the activity that resulted in a wrongful death.¹⁶³

¹⁵¹ Green, *supra* note 149, at 534.

¹⁵² DOBBS, *supra* note 140, at 409.

¹⁵³ See *Cummins v. Firestone Tire & Rubber Co.*, 495 A.2d 963, 969 (Pa. Super. 1985) (quoting Restatement (Second) of Torts § 876 for the proposition that the same analysis of “legal causation” applies for both aiding and abetting claims and general negligence claims).

¹⁵⁴ *New York Central R.R. v. Grimstad*, 264 F. 334 (2d Cir. 1920).

¹⁵⁵ *Richardson v. Richardson-Merrell*, 649 F. Supp. 799 (D.D.C. 1986).

¹⁵⁶ *Engberg v. Ford Motor Co.*, 205 N.W.2d 104, 106 (S.D. 1973).

¹⁵⁷ *KEETON ET AL.*, *supra* note 106, at § 41.

¹⁵⁸ *Id.*

¹⁵⁹ See *Mason*, *supra* note 109, at 1158 (“Causation is an essential element of an aiding and abetting claim.”).

¹⁶⁰ *E.g.*, *City of St. Louis v. Benjamin Moore & Co.*, 226 S.W.3d 110, 114 (Mo. 2007) (en banc).

¹⁶¹ *Cromer Finance Ltd. v. Berger*, 137 F. Supp. 2d 452, 470 (S.D.N.Y. 2001).

¹⁶² *Halberstam v. Welch*, 705 F.2d 472, 483-84 (D.C. Cir. 1983).

¹⁶³ *Id.* at 488.

We note that this is a more complicated determination of cause than in the typical tort context. Instead of examining the direct effects of the defendant's behavior on the victim, the trier of fact assesses the aiding and abetting defendant's role in the victim's injury through the activities of another human being.

2. Proximate Cause

Separate from the analysis of factual causation is the question of proximate cause.¹⁶⁴ Proximate cause provides a court with some leeway even after determining that the defendant's conduct factually caused the plaintiff's injury.¹⁶⁵ It is regularly invoked in aiding and abetting cases.¹⁶⁶ Determining what exactly is involved in an assessment of proximate cause is tricky, however. Proximate cause is sometimes described as an analysis of foreseeability.¹⁶⁷ But it incorporates a host of other considerations. For example, courts have examined the temporality of the defendant's act under proximate cause, suggesting that acts immediately preceding the plaintiff's injury are proximate but ones further back in time are not.¹⁶⁸ Others argue that social justice principles are embedded within proximate cause, ameliorating the unforgiving logic of factual causation.¹⁶⁹ At its heart, the proximate cause analysis asks a court to make a normative decision as to the proper scope of liability.¹⁷⁰ The preeminent scholar of American tort law¹⁷¹ defines proximate cause as "our more or less inadequately expressed ideas of what justice demands."¹⁷²

Courts evaluating aiding and abetting claims often must assess whether imposing liability would endanger an important type of relationship. Despite sufficient evidence of substantial assistance, judge-made exceptions exist for special relationships that need legal protection. Thus, courts tend to be more exacting in evaluating the substantial assistance requirement when a liability rule risks damaging an important social or familial relationship, like the relationship between husband and wife,¹⁷³ parent and child,¹⁷⁴ or even the relationship between a subsidiary and parent corporation.¹⁷⁵ Similarly, aiding and abetting rules have been bent when evaluating

¹⁶⁴ Wex S. Malone, *Ruminations on Cause-in-Fact*, 9 STAN. L. REV. 60, 60 (1956).

¹⁶⁵ KEETON ET AL., *supra* note 106, § 42 at 272-73.

¹⁶⁶ *E.g.*, In re: Temporomandibular Joint (TMJ) Implants Products Liab. Litig., 113 F.3d 1484, 1496 (8th Cir. 1997); In re Welding Fume Products Liability Litig., 526 F. Supp. 2d 775, 807 (N.D. Ohio 2007).

¹⁶⁷ Missouri Pac. R.R. Co. v. American Statesman, 552 S.W.2d 99, 103 (Tex. 1977); *see also* Boim v. Quranic Literacy Inst. and Holy Land Foundation For Relief And Development, 291 F.3d 1000, 1012 (7th Cir. 2002) ("Foreseeability is the cornerstone of proximate cause . . .").

¹⁶⁸ *See* Joseph Lavitt, *The Doctrine of Efficient Proximate Cause, The Katrina Disaster, Prosser's Folly, and the Third Restatement of Torts: Cracking the Conundrum*, 54 LOYOLA L. REV. 1, 12-18 (2008).

¹⁶⁹ *See* Danielle Conway-Jones, *Factual Causation in Toxic Tort Litigation: A Philosophical View of Proof and Certainty in Uncertain Disciplines*, 35 U. RICH. L. REV. 875, 888 (2002).

¹⁷⁰ Malone, *supra* note 164, at 97-98.

¹⁷¹ Stephen M. Feldman, Book Review, 46 AM. J. LEGAL HIST. 84, 85 (2004).

¹⁷² KEETON ET AL., *supra* note 106, at 264.

¹⁷³ *E.g.*, Halberstam v. Welch, 705 F.2d 472, 488 (D.C. Cir. 1983); Duke v. Feldman, 226 A.2d 345, 348 (Md. 1967).

¹⁷⁴ *E.g.*, Kilgus v. Kilgus, 495 So. 2d 1230, 1231 (Fla. Dist. Ct. App. 1986) (holding that father's suggestion to son that he douse cook-out fire with lighter fluid, which resulted in serious burns to his wife, was not substantial assistance).

¹⁷⁵ *E.g.*, In re Temporomandibular Joint (TMJ) Implants Products Liab. Litig., 880 F. Supp. 1311, 1319-20 (D. Minn. 1995).

the conduct of particular social groups likely to evoke judicial sympathies.¹⁷⁶ Thus, an attorney's aiding and abetting liability for breach of a fiduciary duty involves its own complex framework that is generally more amenable to a defendant than standard aiding and abetting law.¹⁷⁷ When recognizing that the defendant has a particular relationship with the direct tortfeasor that calls for an adjusted liability standard, courts typically address this up front, stating their reasoning on public policy grounds rather than folding the analysis into their discussion of factual causation.¹⁷⁸

C. Causal Analysis in Contributory Infringement Doctrine

As it currently stands, unlike the law of aiding and abetting, the law of contributory infringement does not have an explicit causation requirement. Sometimes, in construing the material contribution standard, courts do reference causal language.¹⁷⁹ Words and phrases like “causes,”¹⁸⁰ “causal chain,”¹⁸¹ “furthered the tortious conduct,”¹⁸² and “supplied the ammunition that allowed . . . the infringement”¹⁸³ are all found in the contributory infringement jurisprudence. Yet, in setting out the definition of material contribution, courts simultaneously invoke both causation and other liability standards. For example, courts frequently quote the “classic statement” of contributory infringement liability from a 1971 case, which instructs that “one who, with knowledge of the infringing activity, induces, *causes*, or materially contributes to the infringing conduct of another” is contributorily liable.¹⁸⁴ It is impossible to tell from this statement whether the court should base liability on the defendant's mental state, complicity, or causal relationship with the act of infringement. The result is a particular type of judicial decisionmaking that makes causation an optional trump card to be invoked or ignored as the judge sees fit.

Overall, judges give causation relatively little attention in deciding these cases. Although “[i]t is ‘black letter’ law that tort liability requires proof of causation,”¹⁸⁵ many contributory infringement cases are decided without any causal analysis at all.¹⁸⁶ Even if the court does

¹⁷⁶ See Mark Bartholomew, *Contributory Infringers and Good Samaritans*, 3 AKRON INTELL. PROP. J. 1, 11-12 (2009) (describing the courts' special solicitude for pregnant women, psychiatrists, and military personnel).

¹⁷⁷ See Kevin Bennardo, *The Tort of Aiding and Advising?: The Attorney Exception to Aiding and Abetting a Breach of Fiduciary Duty*, 84 N.D. L. REV. 88-90 (2008); see also, e.g., Reynolds v. Schrock, 142 P.3d 1062, 1069-72 (Or. 2006); Alpert v. Crain, Caton & James, P.C., 178 S.W.3d 398, 405-06 (Tex. App. 2005).

¹⁷⁸ See, e.g., Jupin v. Kask, 849 N.E.2d 829, 838 (Mass. 2006); Hallett v. U.S. Dept. of Navy, 850 F. Supp. 874, 879 (D. Nev. 1994); Boynton v. Burglass, 590 So.2d 446, 448 (Fla. App. 1991).

¹⁷⁹ For example, in evaluating the liability of a generic drug maker for contributory patent infringement, the court noted that it had to evaluate whether the titration instructions posted on the generic drug “will cause infringement,” i.e., result in the generic drug patient replicating a patented method for administering anti-asthma drugs. AstraZeneca LP v. Apotex, Inc., 623 F. Supp. 2d 579, 599-601 (D.N.J. 2009).

¹⁸⁰ Alcatel USA, Inc. v. DGI Technologies, Inc., 166 F.3d 772, 791 (5th Cir. 1999).

¹⁸¹ Perfect 10, Inc. v. Visa Int'l Serv. Ass'n, 494 F.3d 788, 796-97 (9th Cir. 2007).

¹⁸² Screen Gems-Columbia Music, Inc. v. Mark-Fi Records, Inc., 256 F. Supp. 399, 404 (S.D.N.Y. 1966).

¹⁸³ Sly Magazine, LLC v. Weider Pubs LCC, 241 F.R.D. 527, 530-31 (S.D.N.Y. 2007).

¹⁸⁴ E.g., UMG Recordings, Inc. v. Sinnott, 300 F. Supp. 2d 993, 998 (E.D. Ca. 2004) (quoting Gershwin Publishing Corp. v. Columbia Artists Mgmt., Inc., 443 F.2d 1159, 1162 (2d Cir. 1971)) (emphasis added); see also e.g., Universal Studios, Inc. v. Sony Corp. of America, 659 F.2d 963, 975 (9th Cir. 1981); Microsoft Corp. v. Grey Computer, 910 F. Supp. 1077, 1089 (D. Md. 1995); Construction Prods. Corp. v. Hahn Builders, Inc., 573 F. Supp. 639, 640 (D. Wisc. 1983).

¹⁸⁵ Boim v. Holy Land Foundation for Relief and Development, 549 F.3d 685, 695 (7th Cir. 2008).

¹⁸⁶ See, e.g., Symantec Corp. v. CD Micro, Inc., 286 F. Supp. 2d 1278, 1283 (D. Or. 2003); Sony Computer Entertainment America, Inc. v. Gamemasters, 87 F. Supp. 2d 976, 986 (N.D. Cal. 1999). At other times, causal

mention causation, the causal analysis usually becomes confused with other issues of responsibility so that it is often impossible to determine what causal tests were actually used. For example, in one case, the court held that the defendant operators of an online bulletin board “clearly induced, caused, and materially contributed” to the infringement.¹⁸⁷ But the court’s analysis of causation was unclear. Apparently the operators’ conduct caused the posting of infringing content owned by Playboy magazine because the operators encouraged users of the bulletin board to upload information, including adult files.¹⁸⁸ But the court did not explain why it thought that the operators’ generalized encouragement resulted in the posting of specific copyrighted images.¹⁸⁹ While encouragement may sometimes result in a particular behavior, it often times does not. In fact, as our experience with small children reveals time and again, mere encouragement often falls on deaf ears.¹⁹⁰ Moreover, the bulletin board operators only encouraged generalized posting of information by subscribers, not the posting of adult-themed content, and certainly not the specific posting of images from Playboy magazine.¹⁹¹

To the extent courts evaluating contributory infringement do engage in a more rigorous analysis of causation, they are struggling in a number of areas and could use further guidance. When contributory infringement cases only involved manufacturers and distributors of infringing items or supplies for infringing items, the courts’ task was not so difficult. Undisputed evidence that the defendant provided the essential ingredient for infringement, i.e., the infringing good itself, made it unnecessary to engage in a lengthy causal analysis. But once judicial tinkering over the last two decades unleashed the contributory infringement doctrine beyond manufacturers and distributors, questions of causation became more complex. Now contributory defendants may assist the infringer without supplying the infringing item itself. Online entrepreneurs generate new commercial arenas where infringement can take place. As illustrated below, this change has left the courts confused on a number of issues. First, counter to the teachings of tort law, recent contributory infringement decisions conflate factual causation and proximate cause, making for imprecise analysis and a potential cover for judicial biases. Second, the recent cases inconsistently evaluate the causal effect of the defendant’s provision of an environment where infringement can occur.

1. Failure to Separate Factual From Proximate Causation

A big problem with current assessment of the material contribution requirement comes when courts conflate factual with proximate causation. One could argue that proximate cause should have no role in establishing the materiality of the defendant’s conduct. Some scholars of tort law contend that reliance on proximate cause principles is really a doctrinal smokescreen for using ad hoc public policy justifications to determine whether the substantial contribution standard has been satisfied.¹⁹² Foreseeability, often a part of the proximate cause analysis, is an

references are made but the analysis is rudimentary. *E.g.*, *Microsoft Corp. v. Ram Distribution, LLC*, 625 F. Supp. 2d 674, 684 (E.D. Wisc. 2008); *Rogers v. Koons*, 751 F. Supp. 474, 481 (S.D.N.Y. 1990).

¹⁸⁷ *Playboy Enterprises, Inc. v. Russ Hardenburgh, Inc.*, 982 F. Supp. 503, 514 (N.D. Ohio 1997).

¹⁸⁸ *Id.*

¹⁸⁹ *Id.*

¹⁹⁰ <http://hankandclara.blogspot.com/2009/10/tantrums-times-two.html>.

¹⁹¹ *Russ Hardenburgh*, 982 F. Supp. at 514.

¹⁹² *See* G. EDWARD WHITE, *TORT LAW IN AMERICA: AN INTELLECTUAL HISTORY* 101-02 (expanded ed. 2003).

amorphous concept, subject to manipulation by the trier of fact.¹⁹³ And the principles of “social justice” embedded in proximate cause offer judges little guidance in determining the liability of contributory infringers.¹⁹⁴ Many would contend that Congress can handle evaluation of policy issues better than the courts.¹⁹⁵ This may be particularly true for assessments of indirect liability, which involve an added layer of complexity when compared to the standard liability scenario involving only a single perpetrator and a single victim.¹⁹⁶ Thus, it may be argued that to the extent that tort law’s proximate cause principles are being imported into contributory infringement law, they offer little aid to courts and litigants seeking predictability.

On the other hand, courts evaluating infringement liability probably need to take into account the various interests that are encompassed within proximate cause. There is a role for the courts in evaluating the larger consequences of particular behavior in particular industries and then tailoring their decisions accordingly. Without employing some non-causal theories as to proper limits on the scope of liability, legal responsibility would extend almost indefinitely as grandparents would be liable for giving birth to the parents of murderers.¹⁹⁷ Moreover, even seemingly factual inquiries often invoke normative themes.¹⁹⁸ Most would agree that judges frequently apply their own conceptions of good policy when rendering decisions regardless of the subject matter.¹⁹⁹ Some use of public policy to set limits on the scope of liability is unavoidable in the context of contributory infringement, just as it is in other areas of the law.²⁰⁰

Yet even if proximate cause does have its place in contributory infringement law, tort law’s explicit recognition of the difference between proximate and factual causation would benefit contributory infringement doctrine.²⁰¹ An unrecognized blending of public policy arguments with causal analysis produces unclear decisions with dangerous implications. As Leon Green demonstrated, early twentieth century judges used vague references to causal language to evaluate both the defendant’s involvement with the tortious event at issue as well as

¹⁹³ In commenting on the precedent interpreting the substantial contribution requirement, the D.C. Circuit Court of Appeals remarked that foreseeability is an “elusive” doctrine. *Halberstam v. Welch*, 705 F.2d 472, 484-85 (D.C. Cir. 1983); see also IZHAK ENGLARD, *THE PHILOSOPHY OF TORT LAW* 175 (1993) (describing foreseeability as a normative analysis of the proper scope of liability, not an objective test).

¹⁹⁴ See William L. Prosser, *Proximate Cause in California*, 38 CAL. L. REV. 369, 375 (1950) (describing proximate cause as “a tangle and a jungle, a palace of mirrors and a maze . . . that covers a multitude of sins [and] is a complex term of highly uncertain meaning under which other rules, doctrines and reasons lie buried”).

¹⁹⁵ See Leo M. Romero, *Punitive Damages, Criminal Punishment, and Proportionality: The Importance of Legislative Limits*, 41 CONN. L. REV. 109, 115 (2008).

¹⁹⁶ Note, *Central Bank and Intellectual Property*, supra note 21, at 739.

¹⁹⁷ See HART & HONORE, supra note 141, at 7. Some have tried to articulate a distinction between but for causes and “historical” but for causes but this distinction is difficult to draw and would offer little guidance to potential contributory infringers. See Linda Sandstrom Simard, *Meeting Expectations: Two Profiles of Specific Jurisdiction*, 38 IND. L. REV. 343, 357-60 (2005).

¹⁹⁸ Malone, supra note 164, at 97.

¹⁹⁹ See LAWRENCE BAUM, *THE PUZZLE OF JUDICIAL BEHAVIOR* 57 (1997).

²⁰⁰ In another article, one of us traces out several rules of thumb from tort law’s proximate cause analysis in cases involving judicial recognition of a duty to control the actions of third parties and describes how those rules could be translated to contributory infringement. See Bartholomew, supra note 176.

²⁰¹ We do not wish to overstate the degree of success Green and the Legal Realists had in convincing courts to bifurcate their analysis of factual and proximate cause. Even though these two labels are routinely used, there is still a tendency confuse causal reasoning with other reasoning. See Jane Stapleton, *Legal Cause: Cause-in-Fact and the Scope of Liability for Consequences*, 54 VAND. L. REV. 941, 945 (2001) (discussing conflation of proximate and factual cause in the Restatement of Torts). Nevertheless, tort law’s attempt to compartmentalize factual and proximate cause represents a great improvement over the intermixing typical of recent contributory infringement decisions.

to set boundaries on the scope of liability for reasons that had nothing to do with the actual real world effects of the defendant's conduct.²⁰² By contending that there had been a break in the "chain of causation" or that the injury was not a "natural consequence" or "proximate cause" of the defendant's action, these judges obscured the normative and policy-based reasoning that motivated their decisions behind a screen of causal language.²⁰³ For Green, these faux-scientific rationales for liability decisions were just "word magic whereby unprincipled limitation-of-liability decisions could be achieved at will or whim by untrammelled judges."²⁰⁴ Green's solution was to bifurcate study of the defendant's involvement with the tortious conduct from the policy-based reasons for cabining liability.²⁰⁵ The value of Green's proposal was that by separating the factual question of the defendant's involvement from the policy arguments regarding liability, the policy arguments "could be identified and evaluated for their normative soundness."²⁰⁶ Most courts came to agree with Green, specifically dividing their analyses into "factual causation" and "proximate cause."²⁰⁷

Yet courts evaluating the materiality of a contributory infringement defendant's actions do not employ Green's two-part framework, in effect lumping normative concerns with analyses of factual causation. As an example of the way that policy-oriented concerns creep into the currently ambiguous material contribution requirement, consider how the Ninth Circuit decided to create a special gloss on the requirement for online actors. In determining whether search engines should be responsible for the infringing conduct of websites that post infringing images, the Ninth Circuit emphasized the need to protect copyright holders from the communicative potential of the Internet.²⁰⁸ According to the Ninth Circuit in *Perfect 10 v. Amazon.com*, material contribution must be analyzed more generously when online services are at issue given the Internet's ability to "significantly magnify the effects of otherwise immaterial infringing activities."²⁰⁹ Because posting an infringing item online allows for that item to be distributed on a massive scale, the court explained that it needed to find contributory liability in order for copyright holders "to protect their rights in a meaningful way."²¹⁰ As a result, any contributory defendant operating online will automatically be deemed to have made a material contribution to infringement if it has failed to take "simple measures" to prevent infringement.²¹¹

²⁰² Leon Green, *Are There Dependable Rules of Causation?*, 77 U. PA. L. REV. 601, 607 (1929); Stapleton, *supra* note 148, at 456.

²⁰³ Green, *supra* note 149, at 519, 533; Green, *supra* note 202, at 626; *see also* Stapleton, *supra* note 148, at 456-57.

²⁰⁴ David W. Robertson, *Allocating Authority Among Institutional Decision Makers in Louisiana State-Court Negligence and Strict Liability Cases*, 57 LA. L. REV. 1079, 1114 (1997).

²⁰⁵ Green, *supra* note 149, at 534

²⁰⁶ Stapleton, *supra* note 148, at 457.

²⁰⁷ DOBBS, *supra* note 140, at 409. Admittedly, the term "proximate cause" is a confusing one for an analysis that is meant to avoid considerations of factual causation. *See* Stapleton, *supra* note 201, at 945 (proposing a renaming of "proximate cause" as the "scope of liability" determination); *see also* Richard W. Wright, *Once More into the Bramble Bush: Duty, Causal Contribution, and the Extent of Legal Responsibility*, 54 VAND. L. REV. 1071, 1073-74 (2001) (criticizing the Restatement for using terminology that does not adequately separate "the empirical issue of causal contribution" from "the normative issue of the extent of legal responsibility for tortiously caused consequences."). Since Stapleton's article, the American Law Institute has retitled the proximate cause determination as the "scope of liability for consequences of breach." RESTATEMENT (THIRD) OF TORTS: LIAB. FOR PHYSICAL HARM 574-75 (Proposed Final Draft, April, 6, 2005).

²⁰⁸ *Perfect 10, Inc. v. Amazon.com, Inc.*, 508 F.3d 1146, 1171-72 (9th Cir. 2007).

²⁰⁹ *Id.* at 1172.

²¹⁰ *Id.*

²¹¹ *Id.* at 1171-72.

Even if the *Amazon.com* court is correct about the ramifications of online infringement, it does not make sense to couch policy-based argument in terms of causation and materiality. The court contended that it had to permit liability against Google because the search engine's conduct was "material," and it emphasized the need for materiality and "substantial" assistance to satisfy the material contribution requirement.²¹² It claimed that its new "simple measures" standard for material contribution in the "context of cyberspace" reflected the traditional analysis of whether the defendant "induces, causes, or materially contributes to the infringing conduct."²¹³ It also claimed that it was faithfully evaluating whether the defendant "takes steps that are substantially certain" to result in infringement, per the analysis of the Supreme Court in *Grokster*.²¹⁴ This is precisely the sort of conflation of policy and causal analysis that Green protested and that tort law has worked to curb. By asserting that any online service provider makes a material contribution to infringement when it knows of infringing content on its system and does not try to prevent it, the *Amazon.com* decision handcuffed the Ninth Circuit when it came across an online business that it did not wish to find liable: credit card providers.²¹⁵ The result was a tortured majority opinion that tried to explain why online "location services" are somehow material to infringement but online "payment services" are not.²¹⁶ A better approach would have been to acknowledge that the *Amazon.com* decision relied on public policy, not the "materiality" of the search engine's conduct, and then explain, again on public policy grounds, why online credit card services should not be part of the "simple measures" rule for online contributory infringement.

The recent *Tiffany v. eBay* decision offers another example of the blending of factual and proximate cause. In that case, the court determined that eBay did materially contribute to the trademark infringement of counterfeiters who posted their wares on the online auction site.²¹⁷ The court ultimately found that eBay was not contributorily liable because it did not have sufficient knowledge of the infringing activity occurring on its site.²¹⁸ Yet in assessing eBay's knowledge, the court performed some analysis that would be more relevant to material contribution. The court inquired as to whether eBay's efforts to detect and remediate trademark infringement on its site were adequate.²¹⁹ The court appeared impressed by the various steps eBay took to uncover fraud, including its program to remove infringing listings once notified by the trademark owner and its own internal fraud detection measures.²²⁰ At the same time, the court assessed the *plaintiff* trademark holder's efforts to prevent counterfeiting throughout the opinion, spending numerous pages discussing Tiffany's own strategies for rooting out infringement.²²¹ In effect, the court tried to determine whether the plaintiff or eBay is the "cheapest cost avoider," i.e., the party that could most efficiently police the auction site for infringing content.²²² Such evidence really has nothing to do with the contributory defendant's

²¹² *Id.* at 1172.

²¹³ *Id.* at 1171.

²¹⁴ *Id.*

²¹⁵ *Perfect 10, Inc. v. Visa*, 494 F.3d 788 (9th Cir. 2007).

²¹⁶ *Id.* at 797 n.8. For a case following *Amazon.com* to impose liability on a provider of internet protocol addresses, see *Louis Vuitton Malletier, S.A. v. Akanoc Solutions, Inc.*, 591 F. Supp. 2d 1098, 1108 (N.D. Cal. 2008).

²¹⁷ *Tiffany, Inc. v. eBay, Inc.*, 576 F. Supp. 2d 463, 503-07 (S.D.N.Y. 2008).

²¹⁸ *Id.* at 518.

²¹⁹ *eBay*, 576 F. Supp. 2d at 476-79.

²²⁰ *See id.*

²²¹ *Id.* at 472-74, 481-85.

²²² *Id.* at 518 ("Certainly, the evidence adduced at trial failed to prove that eBay was a cheaper cost avoider than Tiffany with respect to policing its marks.").

knowledge or material contribution, but with the sort of public policy assessment that is often undertaken under proximate cause.²²³ A determination of which litigant is best positioned to absorb the costs of protecting the plaintiff is a pure example of using public policy arguments to determine the proper scope of liability for a particular cause of action.²²⁴ By not explicitly indicating that it engaged in such a public policy analysis, the *eBay* decision has the potential to import a new policy-oriented variable into the material contribution evaluation that is irrelevant to factual causation.²²⁵

Finally, we note that the courts are in open disagreement as to whether the presence of intervening actors between the contributory defendant and the direct infringer should prevent a finding of material contribution. Multiple courts have explained that facilitation of infringement by other entities that are more temporally related to the infringement does not prevent finding that the defendant materially contributed as well.²²⁶ Several cases hold that corporate officers can materially contribute to infringement despite channeling all of their actions through an intermediary organization that interfaces with the direct infringer.²²⁷ Yet in *Visa*, the court relied on “an additional step in the causal chain” to find for the defendant credit card company, explaining that there was no causation because even though the credit card company made infringing websites profitable, there still had to be a decision by the websites and their users to engage in the infringing conduct in the first place.²²⁸ Similarly, other cases emphasize that a sufficient degree of separation between the defendant and the direct infringer immunizes the defendant from causal responsibility.²²⁹

Again, this is an example of a policy-based argument masquerading as an even-handed assessment of factual causation. By itself, the mediation of a defendant’s action through several other actors should not influence the causal analysis. The presence of intervening steps is implicit in any causal model.²³⁰ One would not argue that smoking is not a cause of lung cancer because there is the “additional step” of tar building up on the lungs before lung cancer occurs. Similarly, one should not contend that credit card companies do not cause infringement just because there is the intervening step of a website patron electing to use his credit card. The *Visa*

²²³ See Guido Calabresi, *Concerning Cause and the Law of Torts: An Essay for Harry Kalven, Jr.*, 43 U. CHI. L. REV. 69, 103-04 (1975).

²²⁴ See Dratler, *supra* note 101, at 33-36 (discussing use of cheapest cost avoider determination in indirect infringement cases).

²²⁵ In an older example, a court found a material contribution because it was “foreseeable” that advertising materials the defendant distributed to retailers would be used to infringe another business’s trademark. *Stix Products, Inc. v. United Merchants & Mfgs., Inc.*, 295 F. Supp. 479, 496 (S.D.N.Y. 1968). While foreseeability may have some bearing on whether the knowledge standard has been satisfied, it does not have anything to do with factual causation. Antony Honore, *Causation in the Law*, STANFORD ENCYCLOPEDIA OF PHILOSOPHY (Edward N. Zalta ed., 2008), <http://plato.stanford.edu/archives/fall2008/entries/causation-law/> (last visited Feb. 12, 2010). By not segregating the analysis of foreseeability from actual causation, the court offers a confusing blend that distracts from the task of evaluating the real world impact of the defendant’s behavior.

²²⁶ *E.g.*, *AstraZeneca LP v. Apotex, Inc.*, 623 F. Supp. 2d 579, 604 (D.N.J. 2009); *Corning Glass Works v. Jeanette Glass Co.*, 308 F. Supp. 1321, 1326-27 (S.D.N.Y. 1970).

²²⁷ *E.g.*, *Fuji Photo Film Co. v. Jazz Photo Corp.*, 394 F.3d 1368, 1378 (Fed. Cir. 2005); *Applera Corp. v. MJ Research, Inc.*, 297 F. Supp. 2d 459, 461-63 (D. Conn. 2004).

²²⁸ *Perfect 10, Inc. v. Visa Int’l Serv. Assn.*, 494 F.3d 788, 796-97 (9th Cir. 2007).

²²⁹ See, *e.g.*, *Baden Sports, Inc. v. Kabushiki Kaisha Molten*, No. C06-210MJP, 2007 U.S. Dist. LEXIS 51252, at *23-*24 (W.D. Wash. July 16, 2007); *Demetriades v. Kaufmann*, 690 F. Supp. 289, 294 (S.D.N.Y. 1988) (refusing to impose contributory liability because the contributory defendant was too “attenuated” from the act of copyright infringement).

²³⁰ JUDEA PEARL, CAUSALITY 132 (2d ed. 2009).

dissent had it right in contending that “materiality turns on how significantly the activity helps infringement, not on whether it is characterized as one step or two steps removed from it.”²³¹

We acknowledge that at times it may seem as if an entity is so far removed from the ultimate wrongful activity that the entity should not be held accountable even if it did factually cause the wrongful activity to occur. But that is a decision that is made under a proximate cause analysis.²³² Not every entity that causes a harm is responsible for that harm. As every first-year law student knows after reading the *Palsgraf* case, despite a demonstrated causal link with the plaintiff’s injury, a defendant may still avoid liability if the injury was unforeseeable or did not fall under the defendant’s duty of care.²³³ The *Palsgraf* railroad employee’s push of a passenger onto a train, dislodging her package of fireworks which exploded and brought down a structure that injured the plaintiff, clearly caused the plaintiff’s injury.²³⁴ It did not matter that other events—the movement of the train, the passenger’s movement, the passenger’s decision to acquire fireworks, the movement of the plaintiff, the explosion, the placement of the structure—all intervened before the injury occurred.²³⁵ In fact, the railroad employee’s action was so obviously causal that the *Palsgraf* court skipped ahead to questions of duty and foreseeability that can only be resolved on policy-based grounds.²³⁶ Deciding cases on these grounds is not objectionable in itself; determining the scope of legal responsibility, apart from factual causation, can be described as “the fundamental policy of the law.”²³⁷ What is objectionable since the reforms of the Legal Realists is failing to demark such reasoning from causal analysis. The decisions described in this section are flawed because they employ the language of factual causation to make policy-based judgments to exempt select businesses from contributory liability for online infringement.

It is debatable whether or not it makes sense to hold defendants involved with e-commerce to a higher standard than other contributory defendants. While the Internet has increased the ability of infringers to copy and distribute illegal content, the impact of liability rules on entities like eBay and Google that help the web run efficiently also needs to be taken into account. But more striking to us is the way in which public policy based arguments become intertwined with the causal analysis that is also part of the material contribution requirement. A better approach would be to segregate the analysis into three components: knowledge, causal contribution, and public policy. A regime that forces judges to spell out when they are speaking under the guise of factual causation versus reasons of public policy will help keep this decisionmaking process honest. It will also avoid the natural tendency over time for public policy justifications, which subsequent experience may disprove, to become blurred with decisions based on irrefutable causative principles.

2. Causal Analysis for Failures to Act

In addition to separating factual from proximate cause, contributory infringement would profit from another causal rule developed in tort law’s scrutiny of aiding and abetting liability. Currently, courts disagree as to whether merely creating an opportunity to infringe satisfies the

²³¹ Visa, 494 F.3d at 812 (Kozinski, J., dissenting).

²³² Honoré, *supra* note 225, at 9.

²³³ *Palsgraf v. Long Island R.R.*, 162 N.E. 99 (N.Y. 1928).

²³⁴ *Id.* at 99.

²³⁵ *See id.*

²³⁶ KEETON ET AL., *supra* note 106, at 281; WHITE, *supra* note 192, at 101.

²³⁷ KEETON ET AL., *supra* note 106, at 281.

material contribution requirement. In at least some of the cases, one can sense judicial unease at the prospect of finding a material contribution without a specific act that propels the infringement forward. Of course, creating an online environment that permits infringement to take place might be viewed as such an act, but these cases reveal a judgment that such behavior is too passive to be material. One court recently explained that “merely providing the opportunity to infringe is not a material contribution.”²³⁸ Similarly, a court wrestling with the secondary liability of a website for content posted by others concluded that the website did not materially contribute.²³⁹ Even though the defendant placed a notice on its website that the infringing content was available online and provided specific instructions on how to find that content, the court concluded that more affirmative conduct was needed.²⁴⁰

Yet the trend has been to deem those who create an online environment where infringement can occur as causally responsible.²⁴¹ It is now accepted doctrine in many courts that providing the “site and facilities” or “environment and market” for infringing activity satisfies the material contribution requirement.²⁴² While this may be somewhat uncontroversial in the case of online file distribution services that facilitate the sharing of copyrighted content, this reasoning has been extended to other actors, including a search engine,²⁴³ online auction house,²⁴⁴ the proprietor of a computer fair,²⁴⁵ an internet age verification service,²⁴⁶ and someone who registered various screen names for use by another in an online forum, but never posted any messages himself.²⁴⁷ In many of these cases, an online actor simply created a forum in which all manner of conduct could take place and then passively allowed all those different types of conduct to occur.

Aiding and abetting’s causation doctrine offers a solution to this schism in the contributory infringement cases. One interesting difference between causal analysis in most tort actions and causal analysis in the specific context of aiding and abetting is that courts are more reluctant in the latter situation to infer causation from passive conduct.²⁴⁸ Liability for passive behavior was slow to receive any recognition in tort law.²⁴⁹ It first was extended only to those who were regarded to have undertaken a duty to give service to the public.²⁵⁰ Then such liability

²³⁸ R.F.M.A.S., Inc. v. Mimi So., 619 F. Supp. 2d 39, 74 (S.D.N.Y. 2009); see also *Livnat v. Lavi*, No. 96 CIV. 4967(RWS), 1998 WL 43221, at *3 (S.D.N.Y. Feb. 2, 1998) (“Participation sufficient to establish a claim of contributory infringement may not consist of merely providing the means to accomplish an infringing activity.”).

²³⁹ *Intellectual Reserve, Inc. v. Utah Lighthouse Ministry, Inc.*, 75 F. Supp. 2d 1290 (D. Utah 1999).

²⁴⁰ *Id.* at 1292-93. The court did find, however, that the defendant was contributorily liable for the directly infringing activity of those who browsed the infringing content on the other websites. *Id.* at 1294-95.

²⁴¹ E.g., *Fonovisa, Inc. v. Cherry Auction, Inc.*, 76 F.3d 259, 264 (9th Cir. 1996); *UMG Recordings, Inc. v. Sinnott*, 300 F. Supp. 2d 993, 1001 (E.D. Cal. 2004).

²⁴² See *Fonovisa v. Cherry Auction, Inc.*, 76 F.3d 259, 264 (9th Cir. 1996); *Arista Records, LLC v. Usenet.com, Inc.*, 633 F. Supp. 2d 124, 155 (S.D.N.Y. 2009); *Jalbert v. Gratuski*, 554 F. Supp. 2d 57, 72 (D. Mass. 2008); *Artista Records, Inc. v. Flea World, Inc.*, No. 03-2670(JBS), 2006 WL 842883, at *15 (D.N.J. Mar. 31, 2006).

²⁴³ *Perfect 10, Inc. v. Amazon.com, Inc.*, 508 F.3d 1146, 1171-72 (9th Cir. 2007).

²⁴⁴ *Tiffany, Inc. v. eBay, Inc.*, 576 F. Supp. 2d 463 (S.D.N.Y. 2008).

²⁴⁵ *Adobe Sys. v. Canus Prods., Inc.*, 173 F. Supp. 2d 1044, 1055-56 (C.D. Cal. 2001).

²⁴⁶ *Perfect 10, Inc. v. Cybernet Ventures, Inc.*, 213 F. Supp. 2d 1146, 1170-71 (C.D. Cal. 2002).

²⁴⁷ *New York Stock Exchange, Inc. v. Gahary*, 196 F. Supp. 2d 401, 404, 414 (S.D.N.Y. 2002).

²⁴⁸ See, e.g., *Halberstam v. Welch*, 705 F.2d 472, 485 n.14 (D.C. Cir. 1983); *Glidden Co. v. Jandernoa*, 5 F. Supp. 2d 541, 556 (W.D. Mich. 1998); *Mason*, *supra* note 109, at 1157

²⁴⁹ *KEETON ET AL.*, *supra* note 106, at 373.

²⁵⁰ *Francis H. Bohlen, The Moral Duty to Aid Others as a Basis of Tort Liability*, 56 U. PA. L. REV. 217, 218-20 (1908).

came to be imposed on anyone who had undertaken to perform a contract and failed to do so.²⁵¹ “During the last century, liability for ‘nonfeasance’ has been extended still further to a limited group of relations in which custom, public sentiment and views of social policy have led the courts to find a duty of affirmative action.”²⁵²

Despite this expansion, courts continue to be hesitant to impose liability in the absence of any affirmative conduct by an aiding and abetting defendant. Although liability for omissions does exist in the aiding and abetting jurisprudence, courts impose such liability reluctantly. Merely having the ability to stop tortious conduct and failing to act is usually not enough to satisfy the substantial assistance requirement.²⁵³ Hence, no liability was found for the failure of a manufacturer of welding rods to warn the plaintiff about the health consequences of exposure to fumes during the welding process. The court emphasized that the substantial assistance requirement demands some “*positive* tortious activity” such as specifically communicating that the rods would not cause harm.²⁵⁴ In most cases, the actions of the defendant, in and of themselves, must be wrongful before liability is triggered.²⁵⁵ For example, a brokerage firm was not held responsible for the fraudulent actions of one its account holders.²⁵⁶ By registering with the brokerage firm, the defendant account holder was able to invest in American commodities and futures markets. Although customers of the account holder complained to the brokerage firm and asked that the defendant be stopped by liquidating their accounts, the brokerage firm took no action. Such a failure to act, the court concluded, was not enough to constitute substantial assistance in the account holder’s breach of fiduciary duty.²⁵⁷

Thus, aiding and abetting law suggests that merely creating an environment where infringement takes place should not be enough, by itself, to result in liability.²⁵⁸ For some reason, this principle has been ignored in recent decisions expanding infringement liability for online businesses.²⁵⁹ Yet there is no reason why a presumption against liability should not formally apply for contributory infringement defendants just as it does for accused aiders and abettors. Even if there may be situations where glaring omissions in the face of specific knowledge of infringement should satisfy the material contribution standard, an explicitly stated

²⁵¹ KEETON ET AL., *supra* note 106, at 373-74.

²⁵² *Id.* at 373-74. Nevertheless, courts continue to rely on the distinction between misfeasance and nonfeasance in some situations. See Michael D. Green, *Not So Fast—Appreciating the Role of Traditional Tort Law in Mass and Toxic Torts*, 78 U.S.L.W. 2359 (Dec. 22, 2009).

²⁵³ Combs, *supra* note 109, at 289 (“The possibility of silence or inaction giving rise to aiding and abetting liability, however, makes courts and commentators queasy.”); see also Patrick J. McNulty & Daniel J. Hanson, *Liability for Aiding and Abetting by Silence or Inaction: An Unfounded Doctrine*, 29 TORT & INS. L.J. 14 (1993).

²⁵⁴ Tamraz v. Lincoln Elec. Co., No. 1:04-CV-18948, 2007 WL 3399721, *7 (N.D. Ohio Nov. 13, 2007).

²⁵⁵ See *In re Machinery, Inc.*, 342 B.R. 790, 799 (Bankr. E.D. Mo. 2006).

²⁵⁶ Kolbeck v. LIT America, Inc., 939 F. Supp. 240 (S.D.N.Y. 1996).

²⁵⁷ *Id.* at 247 (“[I]naction, or a failure to investigate, constitutes actionable participation only when a defendant owes a fiduciary duty directly to the plaintiff.”).

²⁵⁸ Although the reasoning behind this limitation on the substantial assistance requirement is rarely discussed or even acknowledged in the case law, it appears that the underlying rationale is based on the value placed on individual freedom. The law distrusts rules that force people to curb their behavior based on potential harms committed by others. See DOBBS, *supra* note 140, at 853-55; see also Sanford H. Kadish, *Reckless Complicity*, 87 J. CRIM. L. & CRIMINOLOGY 369, 391 (1997) (discussing limitations on criminal liability for omissions).

²⁵⁹ Admittedly, the line between misfeasance and nonfeasance may be difficult to draw. See Vincent R. Johnson & Claire G. Hargrove, *The Tort Duty of Parents to Protect Minor Children*, 51 VILL. L. REV. 311 n.1 (2006). Nevertheless, courts continue to employ the distinction in determining tortious liability. See David Gilo & Ehud Guttel, *Negligence and Insufficient Activity: The Missing Paradigm in Torts*, 108 MICH. L. REV. 277, 308 (2009).

presumption would help harmonize the cases and force courts to offer cogent reasoning why the presumption is being discarded for a particular defendant.²⁶⁰

In sum, the way courts currently address causation in material contribution analysis is problematic. First, causation garners little consideration in contributory infringement cases. We believe it deserves more attention. Second, to the extent it is considered, courts do not do enough to segregate policy considerations from causality. Instead, personal conceptions of which party can best police the marketplace and the resilience of incentives for intellectual property creation are surreptitiously integrated into the analysis of the materiality of the contributory defendant's conduct. Tort law instructs that analyses of factual causation and proximate causation should be kept separate. Third, causal events are treated inconsistently with courts disagreeing as to the effect of the defendant's provision of an opportunity for infringement. The good news is that these are exactly the kinds of issues that tort law's causation rules already address. Use of causal principles already employed in many other areas of the law should help judges come up with reasoned answers for deciding for or against a contributory infringement defendant.

III. EPIDEMIOLOGY AND A MORE PRECISE ANALYSIS OF CONTRIBUTORY INFRINGEMENT CAUSATION

For the reasons outlined in Part II, contributory infringement doctrine can profit from closer attention to traditional rules in tort law for evaluating the causal responsibility of aiders and abettors. Greater awareness of these methods of causal analysis would improve the quality and predictability of contributory infringement decisions. Yet simply transplanting the traditional models of causation developed in tort law to contributory infringement does not go far enough. Instead, contributory infringement law can benefit from the more developed causal modeling employed in the field of epidemiology.

Epidemiological methods may seem like an odd choice for solving the problems of contributory infringement. Normally, there is little synergy between medical and legal analytical models.²⁶¹ The Supreme Court has commented on the differences between the "quest for truth in the courtroom and the quest for truth in the laboratory."²⁶² Nevertheless, law can learn a great deal from the development of causal theory within epidemiology even when health related issues are not primary. Both medicine and law concern themselves with recreating events in an analytically rigorous manner to gain a deeper understanding of phenomena.²⁶³ Epidemiology's reliance on observational data and limited use of experimental evidence as compared to other traditional sciences has forced the field to deal head on with frameworks for causal analysis.²⁶⁴

²⁶⁰ In another article, one of us describes how, after causation has been determined, tort law precedents regarding the creation of an environment where a tort can occur could be used to assess the proper scope of liability for contributory infringement defendants. See Bartholomew, *supra* note 176, at 13, 19-20. We emphasize that such precedents involve an analysis of proximate cause, not cause in fact.

²⁶¹ Margaret A. Berger & Lawrence M. Solan, *The Uneasy Relationship Between Science and Law: An Essay and Introduction*, 73 BROOK. L. REV. 847, 848 (2008).

²⁶² *Daubert v. Merrell Dow Pharms., Inc.*, 509 U.S. 579, 596-97 (1993).

²⁶³ Honoré, *supra* note 225, at 13; *see also* Mark Parascandola & Douglas L. Weed, *Causation in Epidemiology*, 55 J. EPIDEMIOLOGY & COMM. HEALTH 905, 905 (2001) (discussing centrality of causation to practice of epidemiology).

²⁶⁴ Clinical trials do play an important role in epidemiology that we do not mean to minimize. See STEVEN PIANTADOSI, *CLINICAL TRIALS: A METHODOLOGICAL PERSPECTIVE* (1997). Rather, this Article highlights the

Just as medical researchers examine the interplay between genetic factors, environmental triggers, and personal choices on disease, judges and juries must sort out the interplay of the different parties and circumstances involved in a tortious act.

To understand why importing traditional legal causation rules will not solve contributory infringement's problems, one must be familiar with the specific mechanisms used to assess causation in American tort law. Tort law has come up with two basic ways to assess causation: the but for test and the substantial factor test. In this Part, we describe both of these tests, show how they have been used in contributory infringement law, and trace out their deficiencies. We also describe epidemiology's framework for determining causation, presenting actual investigations of public health initiatives that incorporate this framework. Modern epidemiology offers three prescriptions for improving contributory infringement's causal analysis. First, the trier of fact must evaluate entire causal mechanisms rather than individual actions. Second, questions of general causation must be segregated from questions of specific causation. Finally, for any action potentially identified as causal, a proper referent must be explicitly assigned. As we illustrate below, attention to these three nuances in causal theory could go a long way to improving the quality of contributory infringement decisions.

A. Problems of Overdetermination and Multi-factor Causation

As the H1N1 pandemic swept from country to country, health officials began devising plans to combat its spread. It quickly became apparent that no single measure would be adequate. To prevent deaths from the disease, officials developed a two-prong strategy, seeking to both cordon off existing outbreaks and to mitigate their severity.²⁶⁵ To fulfill that strategy, a number of new practices needed to be introduced simultaneously to reduce infection rates. For example, hospitals implemented new practices, acting more quickly to relieve sick health care workers, formally monitoring workers for compliance with hand-washing and cough etiquette protocols, and rapidly testing and isolating those patients suspected of carrying the virus.²⁶⁶ Vaccination represented another critical step in limiting H1N1.²⁶⁷ None of these measures in themselves ended the pandemic, but, together, they helped staunch the outbreak.

The variety of measures used to contain the H1N1 virus reveals an important truth about causation: multiple events can produce the same outcome. Tort law has largely failed to incorporate this truth into its tests for causation. In this section, we describe the two main tests for factual causation developed in American law—the “but for” test and the “substantial factor” test—and describe their shortcomings. The but for test immunizes defendants who can successfully maintain that the plaintiff's injury would have occurred even if they had not acted. The substantial factor test potentially corrects this problem but at the cost of introducing a legal test devoid of predictive content. We then describe how the epidemiologist determines causal effect, not by scrutinizing isolated events but by studying entire causal mechanisms. This

methods for making non-experimental casual inferences contributed by observational epidemiology and their relevance to legal tests of causality.

²⁶⁵ Carlos Franco-Paredes et al., *The First Influenza Pandemic in the New Millennium: Lessons Learned Hitherto for Current Control Efforts and Overall Pandemic Preparedness*, 7 *J. IMMUNE BASED THERAPIES & VACCINES* 1, 1-6 (2009).

²⁶⁶ V.C.C. Cheng et al., *Prevention of Nosocomial Transmission of Swine-origin Pandemic Influenza Virus A/H1N1 by Infection Control Bundle*, 74 *J. HOSPITAL INFECTION* 271, 271-77 (2010).

²⁶⁷ Helena C. Maltezou, *Novel (Pandemic) Influenza A H1N1 in Healthcare Facilities: Implications for Prevention and Control*, 42 *SCANDINAVIAN J. INFECTIOUS DISEASES* 412, 415 (2010).

approach, known as the Sufficient Component Cause framework, permits causation for a particular act to be found even when the act's removal does not prevent the studied outcome from occurring. It also offers the scientist a more rigorous framework for determining causation than a subjective assessment of whether the act was "substantial." Using the case of *Perfect 10 v. Visa* as an example, we demonstrate how the epidemiological template can be applied to resolve contributory infringement disputes. The section closes with a discussion why use of the Sufficient Component Cause framework makes particular sense in the field of intellectual property.

1. The "But For" Test

Factual causation is typically evaluated under one of two tests: the "but for" test and the "substantial factor test."²⁶⁸ Under the first test, "[c]onduct is a cause of the event if the event would not have occurred but for that conduct."²⁶⁹ For example, in attempting to hold a bank liable for a murder committed by a terrorist organization, the plaintiff must demonstrate not only financial support from the bank to the defendant, but that that support helped to produce the murder.²⁷⁰ Without evidence of a "causal link" between the bank's financial assistance to the terrorist group and the murder, the bank could not be held liable for aiding and abetting.²⁷¹

The but for test explains "the greater number" of tort cases,²⁷² and can even be observed in some recent contributory infringement decisions. For example, in the *Visa* case, the majority explained its holding in terms of but for causation:

because infringement of Perfect 10's copyrights can occur without using Defendants' payment system, we hold that payment processing by the Defendants as alleged in Perfect 10's First Amended Complaint does not constitute a "material contribution" under the test for contributory infringement of copyrights.²⁷³

In other words, because, in the court's view, the event at issue (display and reproduction of Perfect 10's copyrighted images on the infringing websites) would still have occurred even if Visa had not agreed to process the credit card payments of consumers patronizing the infringing websites, Visa could not be described as the cause of the infringement.

Although the but for test works adequately much of the time,²⁷⁴ there are situations where it reveals a fundamental flaw. Sometimes the trier of fact will need to sort out the interplay of several potential causal agents, each of which may be sufficient to produce the studied event. In performing the necessary counterfactual analysis under the but for test, the trier of fact inquires only as to whether the removal of one act will prevent the plaintiff's injury. If an event has multiple causes, the removal of one act will still permit the event to occur and the act cannot be

²⁶⁸ See 2 DAVID G. OWEN ET AL., *MADDEN & OWEN ON PRODUCTS LIABILITY* § 12:2, at 730 (3d ed. 2000).

²⁶⁹ KEETON ET AL., *supra* note 106, at 266.

²⁷⁰ *Boim v. Holy Land Foundation for Release and Development*, 511 F.3d 707, 736 (7th Cir. 2007).

²⁷¹ *Id.*

²⁷² KEETON ET AL., *supra* note 106, at 266; see also Calabresi, *supra* note 223, at 85 (describing the "virtual universality of the but for test").

²⁷³ *Perfect 10, Inc. v. Visa Int'l Serv. Ass'n*, 494 F.3d 788, 798 (9th Cir. 2007).

²⁷⁴ See David W. Robertson, *Causation in the Restatement (Third) of Torts: Three Arguable Mistakes*, 44 WAKE FOREST L. REV. 1007, 1009 (2009).

described as a but for cause. This phenomenon, commonly described as “overdetermination,” is a well known problem for the but for test.²⁷⁵

The but for test was viewed as unacceptable in these cases of “overdetermined” or “duplicative”²⁷⁶ causation because one could argue that the same event would have occurred absent one of the acts at issue.²⁷⁷ For example, in a case where the defendant set a fire that merged with a fire from another source and then ended up burning the plaintiff’s property, the defendant could argue that it did not cause the plaintiff’s injury.²⁷⁸ Because the fire from the other source would have burned the plaintiff’s property with or without the addition of the defendant’s fire, the defendant could not be deemed a but for cause of the plaintiff’s damages.

A slightly different problem for the but for test occurs when many different actions come together to produce an outcome. Sometimes an event is caused not by a single factor but by the presence of multiple factors arriving in the right time and sequence. In fact, causal theorists tell us that this is how most events typically occur.²⁷⁹ Moreover, there may be multiple sets of actions with each resulting in the same outcome.²⁸⁰ Note that a court’s task in determining whether the defendant caused a tortious event in the midst of several independent causal factors is exponentially more difficult than in the situation where a single causal act is being examined.²⁸¹ Yet the underlying assumption behind the but for test is that particular acts must be isolated and unquestionably associated with an observed event, ignoring the presence of multi-factor causation.²⁸² As a result, it may often be impossible to identify the defendant’s actions as a but-for cause of the plaintiff’s harm.²⁸³

Take, for example, the case of twenty separate factory owners that all discharge waste into a single stream. Plaintiff owns a quaint cottage downstream of the factories. Although each owner’s individual contribution is minimal, when several discharges (but not necessarily all twenty of the discharges) are totaled together, the result is a fouling of the waters that works an injury on the plaintiff.²⁸⁴ An individual factory’s minimal discharge cannot be described as the but for cause of the injury; even if one factory had disposed of its waste properly, the discharge by the nineteen others still would have injured the plaintiff. The problem is that a causation rule that excludes situations where a court cannot pinpoint whether a contributory defendant’s conduct is a but for cause of plaintiff’s harm seems too stingy.²⁸⁵ We may intuitively believe

²⁷⁵ See Jason M. Solomon, *Causing Constitutional Harm: How Tort Law Can Help Determine Harmless Error in Criminal Trials*, 99 NW. U. L. REV. 1053, 1078 (2005).

²⁷⁶ DOBBS, *supra* note 140, at 415.

²⁷⁷ KEETON ET AL., *supra* note 106, at 266-67.

²⁷⁸ Anderson v. Minneapolis, St. Paul & Sault Ste. Marie Railway Co., 179 N.W. 45 (Minn. 1920).

²⁷⁹ See KENNETH J. ROTHMAN ET AL., MODERN EPIDEMIOLOGY 6 (3d ed. 2008).

²⁸⁰ *See id.*

²⁸¹ Cf. Timothy D. Lytton, *Responsibility for Human Suffering: Awareness, Participation, and the Frontiers of Tort Law*, 78 CORNELL L. REV. 470, 503 (1993) (describing how, as societies became more industrial, they became more complex, resulting in interactions through many intermediaries and “social structures in which causal connections became indirect and often unforeseeable”).

²⁸² Conway-Jones, *supra* note 169, at 887.

²⁸³ See Jill E. Fisch, *Cause for Concern: Causation and Federal Securities Fraud*, 94 IOWA L. REV. 811, 834 (2009).

²⁸⁴ This example is borrowed from Warren v. Parkhurst, 92 N.Y.S. 725 (N.Y. Sup. Ct. 1904).

²⁸⁵ Mastafa v. Australian Wheat Bd. Ltd., No. 07 Civ. 7955(GEL), 2008 WL 4378443, at *3 (S.D.N.Y. Sept. 25, 2008) (noting that a requirement of but-for causality “would significantly undermine aiding and abetting liability in the federal courts”); Fisch, *supra* note 283, at 834 (“[E]ven when the presence of multiple causal factors makes it impossible to identify the defendant’s tortious conduct as a but-for cause of the plaintiff’s harm, common law courts have nonetheless imposed liability.”).

that liability should be found even in situations where the conduct at issue is not a but for cause of harm.²⁸⁶

These issues of overdetermination and multi-factor causation haunt use of the but for test in contributory infringement litigation. For example, suppose various entities do things that facilitate the maintenance of a website that displays user-generated content. Sometimes the website's users post infringing material. A search engine allows consumers to find the website.²⁸⁷ An advertiser pays the website owner to place its ads on the website, thereby providing needed funds for the maintenance of the website.²⁸⁸ A credit card company allows the website to receive payments for access to its content.²⁸⁹ Another entity encourages consumers to use the website to display and reproduce copyrighted content.²⁹⁰ How should the contributions of these entities be assessed? When we engage in the counterfactual analysis required of the but for test, it is hard to argue that any of these entities are but for causes of infringement. Illegal posting might still take place even if the advertising, credit card processing, or search engine listings were discontinued. Likewise, it may be impossible to prove that users would not have posted infringing content if they had not received particular encouragement from a single entity.²⁹¹ Yet courts have decided that at least some of these actions constitute material contributions to infringement.

2. The “Substantial Factor” Test

A second test of causation, the substantial factor test, was introduced to assess those situations where two acts simultaneously (or nearly simultaneously) bring about an event yet either act, operating alone, could have produced the event independently.²⁹² Under the substantial factor test, if any one act, operating alone, would be sufficient to bring about the event, then each actor is independently responsible.²⁹³ Hence, the person who starts one of two fires that burn down the same area factually caused the plaintiff's injury because his action was sufficient, by itself, to cause the injury. The substantial factor test also has been used by courts to find factual causation when the presence of multiple competing factors makes the precise causal role of a single factor impossible to define.²⁹⁴ One factory, if a court concludes that its discharge “substantially” contributed to the ruining of the plaintiff's beachfront, would

²⁸⁶ Honoré, *supra* note 225, at 7 (discussing “cases in which the but-for test is difficult to reconcile with our intuitive judgments of responsibility”).

²⁸⁷ *Perfect 10, Inc. v. Amazon.com, Inc.*, 508 F.3d 1146 (9th Cir. 2007).

²⁸⁸ *Cf. Metro-Goldwyn-Mayer Studios Inc. v. Grokster, Ltd.*, 545 U.S. 913, 926 (2005) (defendants sold advertising space rather than charging a user fee); *see also* Casey C. Charles, Note, *Landlords, Dance Halls, and UGC Hosts: Direct Financial Benefit and the Digital Millennium Copyright Act*, 13 LEWIS & CLARK L. REV. 1085, 1109 (2009) (“An important caveat is that the absence of a paying subscriber does not act as a liability shield where the advertiser has treated an infringing host's website as a draw.”).

²⁸⁹ *Perfect 10, Inc. v. Visa Int'l Serv. Ass'n*, 494 F.3d 788, 807 (9th Cir. 2007).

²⁹⁰ *Cf. A&M Records, Inc. v. Napster*, 239 F.3d 1004, 1019 (9th Cir. 2001) (explaining that “liability exists if the defendant engages in personal conduct that encourages or assists the infringement”).

²⁹¹ Honoré, *supra* note 225, at 7 (explaining how encouragement can be a good example of overdetermination as a person may receive encouragement from multiple sources in the context of interpersonal relationships yet we cannot show that the person would have acted differently if one source of encouragement is removed).

²⁹² KEETON ET AL., *supra* note 106, at 266.

²⁹³ *Id.* at 266-67.

²⁹⁴ *See, e.g., Borel v. Fibreboard Paper Prods. Corp.*, 493 F.2d 1076, 1094 (5th Cir. 1973); *see also* Fisch, *supra* note 283, at 835.

satisfy the test even if the injury still would have occurred without the single factory's contribution.²⁹⁵ Words of encouragement may be deemed "substantial" for their contribution to the direct tortfeasor's decision to do wrong even if the direct tortfeasor received sufficient encouragement from other sources as well.²⁹⁶

Although the substantial factor test allows for liability in the face of overdetermination, the problem with the substantial factor test is that it offers very little to guide the trier of fact.²⁹⁷ In cases employing the substantial factor test, judges have been uncomfortable imposing liability when the defendant's actions cause some harm, but only to a limited degree. According to common law tort doctrine, for something to be a substantial factor, it must actually facilitate the underlying tort in a meaningful way and not just represent "a little aid."²⁹⁸ The case law suggests that the contribution cannot be "too small," but offers little prescriptive advice on how to differentiate contributions that are insignificant from ones that are substantial.²⁹⁹ The difficulty for intellectual property courts in applying the substantial factor test lies in determining when the quantity of infringement facilitated by the contributory defendant's services is too great. It is not obvious that a single factory's minimal discharge should be considered a substantial factor in the injury suffered by the beachfront property owner. Similarly, how should a court decide whether the provision of credit card payments services, internet access, online location services, advertising revenue, or words of encouragement is "substantial" enough? Picking up on this ambiguity, many tort law scholars criticize the substantial factor test for replacing the rigor of the but for test with a regime that offers no guidance to juries determining causation.³⁰⁰ The ambiguity within the substantial factor test threatens to collapse the distinction between factual and proximate causation as the trier of fact is given full discretion to decide what makes an action substantial or not.³⁰¹ If the substantial factor test lacks sufficient content to be useful and the but for test exempts too many actions from liability, we need to find another model for assessing causation.

3. The Sufficient Component Cause Framework

Luckily, epidemiology has recognized causation's interdependent nature for awhile, and developed its causal methodology accordingly. The epidemiologist Kenneth Rothman suggested

²⁹⁵ Courts openly acknowledge that the substantial factor test is less rigorous and more plaintiff-friendly than the but for test. *See* *Cipollone v. Liggett Group, Inc.*, 893 F.2d 541, 562 n.17 (3d Cir. 1990) (stating that "a 'but for' test requires more direct linkage between defendant's conduct and the injury than does the 'substantial factor' [test]"). Courts nevertheless call for the substantial factor test's use in a variety of contexts. *E.g.*, *Graham v. Roberts*, 441 F.2d 995 (D.C. Cir. 1970); *Thompson v. Kaczinski*, 774 N.W.2d 829, 836 (Iowa 2009).

²⁹⁶ Honoré, *supra* note 225, at 7.

²⁹⁷ DOBBS, *supra* note 140, at 416 ("The substantial factor test is not so much a test as an incantation."); Honoré, *supra* note 225, at 7 (noting that the substantial factor approach to causation "presupposes an independent understanding of causes as necessary and/or sufficient conditions in relation to their consequences").

²⁹⁸ *In re Am. Cont'l Corp./Lincoln S. & L. Sec. Litig.*, 794 F. Supp. 1424, 1434-35 (D. Ariz. 1992).

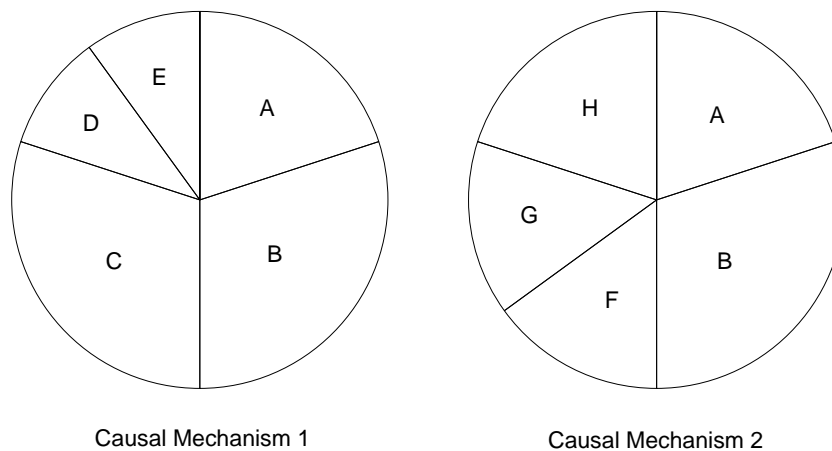
²⁹⁹ *See* *Lorrain v. Ryan*, 628 A.2d 543, 547-48 (Vt. 1993).

³⁰⁰ *E.g.*, Bert Black & David H. Hollander, Jr., *Unraveling Causation: Back to the Basics*, 3 U. BALT. J. ENVTL. L.J. (1993); Robertson, *supra* note 137, at 1780; Richard W. Wright, *Causation in Tort Law*, 73 CAL. L. REV. 1735, 1782-83 (1985). Most distressing to these scholars, modern courts employ the substantial factor test in situations that do not involve two distinct acts that jointly bring about an event. *See, e.g.*, *Elam v. Alcolac, Inc.*, 765 S.W.2d 42, 174 (Mo. Ct. App. 1988); *see also* David A. Fischer, *Insufficient Causes*, 94 KY. L.J. 277, 277 (2006) ("Over the years, courts also used the substantial factor test to do an increasing variety of things it was never intended to do and for which it is not appropriate.").

³⁰¹ Wright, *supra* note 300, at 1781-84.

in 1976 that causation can best be thought of via the concept of a sufficient causal mechanism.³⁰² Rothman defines a sufficient causal mechanism as a constellation of events or characteristics that is minimally sufficient for an outcome to occur.³⁰³ Rothman considered causes as necessary components in a sufficient causal mechanism and thus his interpretation became known as the Sufficient Component Cause (SCC) framework. Rothman’s causal framework asks if there are a group of events, characteristics or conditions that, acting together, are sufficient to result in some outcome. His analysis deals with a major weakness of the but for causation standard—the failure to recognize the interdependent nature of the various factors resulting in some event. Rothman’s framework contributes the insight that entire causal mechanisms, rather than isolated actions, should be scrutinized. Instead of simply looking at one piece in a complete causal pie, the epidemiologist constructs several complete causal mechanisms and examines multiple pieces at once. This sort of analysis of causation reveals that an action may be causal even when its removal still permits the studied event to occur, given the presence of a complete independent causal mechanism.³⁰⁴ Spread of the H1N1 virus may occur in hospitals even though health care workers are washing their hands because the disease is also being transmitted through workers coughing, sneezing, and the behaviors of infected patients.

The SCC framework’s ability to address multi-factor causation can be best demonstrated through graphical representations.³⁰⁵ For example, assume our interest is in the prevention of mortality from automobile accidents. A sufficient component cause diagram may be represented as:



Causal mechanism 1 represents a fatality resulting from a single car accident. Each of the components are defined as follows:

- Component A represents excessive speed of the driver.
- Component B represents the lack of use of a seat belt.
- Component C represents a slick road surface due to rain.
- Component D represents inadequate signage at a sharp turn in the road.

³⁰² Kenneth J. Rothman, *Causes*, 104 AM. J. EPIDEMIOLOGY 587, 587 (1976).

³⁰³ ROTHMAN ET AL., *supra* note 279, at 6.

³⁰⁴ See John McBeth & Lis Cordingley, *Current Issues and New Direction in Psychology and Health: Epidemiology and Health Psychology - Please Bridge the Gap*, 24 PSYCH. & HEALTH 861, 863 (2009).

³⁰⁵ Rothman, *supra* note 302, at 589.

- Component E represents a faulty guard rail.

Now observe causal mechanism 2. This mechanism again results in the outcome under study, a fatality from an automobile accident. The individual causal components are defined as follows:

- Component A represents excessive speed of the driver.
- Component B represents failure to use a seat belt.
- Component F represents the distraction of the driver by a cell phone call.
- Component G represents a malfunctioning traffic signal.
- Component H represents the presence of a second car.

Note that for the same outcome, in this case, mortality from car accidents, there is more than one sufficient causal mechanism. This makes intuitive sense as there is certainly more than one way for a car accident to take place. Further, the two casual mechanisms share some component causes (e.g., A and B) and have others that are unique unto themselves. An important point in Rothman’s definition of a sufficient causal mechanism is that in the presence of all of the components of either causal mechanism, the outcome will take place.³⁰⁶ In other words, each pie chart represents a set of conditions sufficient to cause a death from a car accident.

The SCC framework is more inclusive than the but for causation test. One can see that even for a single car accident, multiple different component causes enter into the equation. So long as a particular component can be deemed a necessary part of a single causal mechanism, it can be labeled a “cause” of the event being studied, even if it is not necessary to another causal mechanism for the same event. For example, someone applying but for causation to components D and E might argue that the sign maker and the guardrail manufacturer should be absolved from responsibility because, even if we imagined a counterfactual world without their negligent behavior, car accidents would still occur, as evidenced by the graph of causal mechanism 2. According to the SCC framework, however, the determination of a cause of an event does not imply its presence in *every* sufficient causal mechanism. An action or condition that causes one instance of an event may be completely unrelated to another instance of the same type of event.³⁰⁷ Intuitively we understand that every automobile accident does not involve a faulty guard rail. The SCC framework formalizes this intuition and reveals that the relevance of a causal event cannot be studied in isolation; rather, independent combination of particular factors can produce the studied event.³⁰⁸

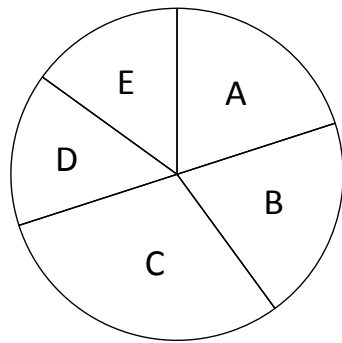
4. Applying the SCC Framework to Contributory Infringement

Courts could use a similar analysis to identify when a contribution is “material” to some act of infringement. The diagram below describes the scenario at issue in *Visa*—an unauthorized website provides access to copies of the plaintiff’s copyrighted works and accepts payment in the form of credit card transfers:

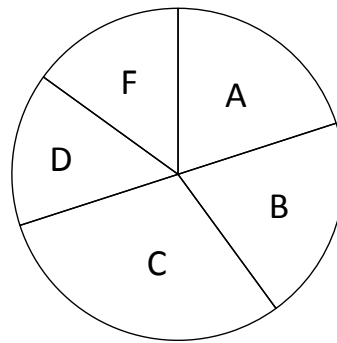
³⁰⁶ ROTHMAN ET AL., *supra* note 279, at 6.

³⁰⁷ *Id.* at 6-7.

³⁰⁸ *See* Conway-Jones, *supra* note 169, at 887 (criticizing use of the but for and substantial factor causation tests in toxic tort litigation because both “are predicated on the assumption that events can be isolated, identified, and unquestionably associated with an expected event”).



Causal Mechanism 1



Causal Mechanism 2

Causal mechanisms 1 and 2 describe events of online copyright infringement. Each of the components are defined as follows:

- Component A represents the presence of a valid copyrighted photograph. This component reflects the author’s satisfaction of the originality, fixation, and authorship requirements of copyright law.
- Component B represents the ability of an individual to find the copyrighted material on the Internet.
- Component C refers to the ability of the consumer to access the infringing material online through the connectivity provided by an internet service provider.
- Component D represents the hosting of the copyrighted material on the direct infringer’s website.
- Component E represents the ability to access the infringing website via a paid credit card subscription.
- Component F represents financial support for the direct infringer’s website in the form of paid advertising.

Just as with the automobile fatality example, one can see that even for a single case of online copyright infringement, multiple different component causes enter into the equation, implicating several parties. Component B may be the responsibility of a search engine such as Google. Component C is the responsibility of internet service providers like cable and telephone service companies. Component D is the responsibility of the direct infringer, which makes the infringing images available over the Internet for a fee. Component E is the responsibility of credit card companies like Visa that process the payments that allow consumers to access the infringing site.

The diagram shows that online infringement can take more than one form, and that a party’s actions may still be causal even if their removal does not put an end to all infringement. It may be that multiple search engines (e.g., Google, Yahoo, Bing) allow individuals to find the infringing websites. According to the SCC model, this overdetermination does not invalidate causation as the presence of one search engine as part of one causal mechanism potentially identifies it as a cause. This is to say that a component in the causal mechanism may be potentially supplied by more than one party, and the presence of alternative suppliers of the causal component should not invalidate causal responsibility.

The diagram also addresses multi-factor causation. Even when the ability to receive credit card payments is taken away (component E), infringement may continue to occur if the rogue website raises sufficient advertising revenue (component F). This scenario presented great difficulty for the Ninth Circuit in determining whether or not Visa was causally responsible for the activity of the infringing websites. The diagram above is only descriptive of one interpretation of events; it does not prove that Visa caused the infringement. But it does demonstrate that Visa's responsibility turns, at least in part, on the particular causation model being employed. The majority found that Visa could not be liable because infringement "can occur without using Defendants' payment system."³⁰⁹ The majority's interpretation is reasonable if one strictly applies the but for test for factual causation. On the other hand, the SCC model allows for factual causation to be found even if infringement still occurs when the provision of credit card services is assumed away.

For a few reasons, we believe that courts evaluating contributory infringement should use a model permitting causal findings when an act is part of a single sufficient causal mechanism. First, at least in some specific subject areas, tort law is moving towards imposing liability in situations of overdetermined and multi-factor causation.³¹⁰ It may be time to employ a similar sensitivity to the presence of multiple causal factors in the contributory infringement context. Second, intellectual property transactions often implicate multiple actors. Unlike some tortious acts injuring one's personal property or person that involve relatively simple interfaces between one actor and one victim, intellectual property violations often involve multiple parties at once.³¹¹ Digital technology compounds this phenomenon as millions of users may transact with a particular website and with a particular item of intellectual property at the same time.³¹² Given all these moving parts, it makes sense to employ a model for contributory infringement that acknowledges the presence of multi-factor causation. Finally, such a model represents a greater emphasis on prediction than attribution. The SCC framework asks the trier of fact to concoct a series of recipes for when a particular event will occur. In contrast, the but for test narrowly focuses on the question of whether the entity at issue changed the course of past events.³¹³

³⁰⁹ *Perfect 10, Inc. v. Visa Int'l Serv. Ass'n*, 494 F.3d 788, 798 (9th Cir. 2007).

³¹⁰ In the mid-1980s, Richard Wright developed a new analysis of causation. Under his paradigm, which he labeled the NESS test, the trier of fact must determine whether the defendant's act is a necessary element for the sufficiency of a sufficient set. Wright, *supra* note 300, at 1788. Wright's test has gained increasing support in the legal academy over the past twenty-five years. See Fischer, *supra* note 300, at 277; see also Richard Fumerton & Ken Kress, Causation and the Law: Preemption, Lawful Sufficiency, and Causal Sufficiency, 64 *LAW & CONTEMP. PROBS.* 83, 83 (2001) (describing the NESS test as "the most successful and influential work in this area in recent years"). Like the SCC model, the NESS test relies on the understanding that there might be a variety of distinct sets of conditions that are sufficient to produce a particular event. Wright, *supra* note 207, at 1102. Wright states the causal rule of NESS as follows: "a condition contributed to some consequence if and only if it was necessary for the sufficiency of a set of existing antecedent conditions that was sufficient for the occurrence of the consequence." *Id.* at 1102-03. Following this rule, a court should examine, not whether an individual factory's discharge was independently sufficient to ruin the plaintiff's waterfront, but whether the individual factory's discharge was necessary to a set of antecedent conditions that added up to the plaintiff's injury. *Id.* at 1106-07. Thus, NESS permits a court to find causation even in circumstances where the defendant's contribution would have failed the but for test.

³¹¹ See Bartholomew, *supra* note 29, at 822.

³¹² See *Tiffany, Inc. v. eBay, Inc.*, 576 F. Supp. 2d 463, 475 (S.D.N.Y. 2008) (six million new listings are posted on eBay daily); Jeffrey Rosen, *Google's Gatekeepers*, *N.Y. TIMES MAG.*, Nov. 30, 2008, at 50 (thirteen hours of content are uploaded onto YouTube every minute).

³¹³ Honoré, *supra* note 225, at 9.

Because intellectual property law is designed to foster innovation,³¹⁴ courts must balance the goal of assigning responsibility with the goal of predicting which liability rules can best preserve the incentives for intellectual creation.³¹⁵ A theory of multiple component causes strikes this balance better than tort law's traditional test of causation.³¹⁶

B. Awareness of the Difference Between General and Specific Causation

Ten years ago, a movie starring Julia Roberts got people talking about chromium. The movie, *Erin Brockovich*, dramatized the events surrounding a class action lawsuit involving exposure to a particular form of chromium, hexavalent chromium or Cr(VI).³¹⁷ Members of a California community sued local utility Pacific Gas & Electric (PG&E), contending that its use of Cr(VI) contaminated their groundwater and caused cancer in residents. As proof of Cr(VI)'s deleterious effects, the community pointed to diagnoses of cancer in specific individuals in the community.³¹⁸ The lawsuit resulted in a record-breaking settlement.³¹⁹

Years later, a group of epidemiologists investigated the link between Cr(VI) and cancer. They assessed cancer rates among the general California population as well as PG&E employees, both companywide and at three sites that utilized Cr(VI) in their cooling towers.³²⁰ They found that workers at PG&E had *lower* cancer rates than the general population and that the rates of cancer and related mortality were not different between workers at the selected sites and other PG&E workers around the state.³²¹

Why the discrepancy? The case of Cr(VI) highlights an important nuance to causation: causal analysis is often used to answer two different types of questions.³²² At times, we use "causation" to reference an inquiry into the effect of an action on an outcome. At other times, "causation" refers to an investigation into the cause of a particular instance of an event.³²³ One of these causal questions is general, the other is specific. Does Cr(VI) cause cancer? Did Cr(VI)

³¹⁴ See *Atari Games Corp. v. Nintendo*, 897 F.2d 1572, 1576 (9th Cir. 1990).

³¹⁵ This is not the same balance struck by traditional tort liability rules, which often turn on whether the defendant deviated from a customary standard, which can disincentivize innovation. See Kenneth S. Abraham, *Custom, Noncustomary Practice, and Negligence*, 109 COLUM. L. REV. 1784, 1813 (2009); Gideon Parchomovsky & Alex Stein, *Torts and Innovation*, 107 MICH. L. REV. 285, 290-98 (2008); see also George P. Fletcher, *Fairness and Utility in Tort Theory*, 85 HARV. L. REV. 537 (1972) (contending that tort law is structured so that issues of certain individual rights trump utilitarian concerns).

³¹⁶ When compared to the but for causation test, both the substantial factor test and the SCC model expand the number of actions that can be identified as causal. SCC is a better solution, however, as it retains the counterfactual analysis of the but for test, but requires this analysis to be performed in the proper context, i.e., in the presence of other component causes. See *infra* Part III.C.

³¹⁷ ERIN BROCKOVICH (Universal Studios, Columbia Pictures 2000).

³¹⁸ See Gina Kolata, *Reflections: A Hit Movie is Rated 'F' in Science*, NY TIMES, Apr. 11, 2000.

³¹⁹ Lewis L. Maltby, *Out of the Frying Pan, Into the Fire: The Feasibility of Post-Dispute Employment Arbitration Agreements*, 30 WM. MITCHELL L. REV. 313, 325 n.26 (2003).

³²⁰ W.J. Blot, *A Cohort Mortality Study Among Gas Generator Utility Workers*. 42 J. OCCUP. ENVIRON. MED. 194, 199 (2000).

³²¹ The lower rates of cancer among PG&E employees was attributed to the "healthy worker effect." That is healthy individuals tend to be employed while those stricken with cancer are often not healthy enough to acquire physically demanding jobs. See *id.*

³²² See Christopher Hitchcock, *Probabilistic Causation*, *THE STANFORD ENCYCLOPEDIA OF PHILOSOPHY* (Edward N. Zalta ed. 2008), <http://plato.stanford.edu/archives/fall2008/entries/causation-probabilistic/> (last visited Feb. 12, 2009).

³²³ A.P. Dawid, *Causal Inference Without Counterfactuals*, 95 J. AM. STAT. ASSOC. 407, 408 (2000).

cause *my* cancer? When determining factual causation, it is important to be precise as to which type of causal inquiry we are undertaking.³²⁴ Unfortunately, the courts adjudicating contributory infringement disputes have been particularly imprecise on this issue. In this section, we describe how courts have analyzed the material contribution requirement under both general and specific causation without acknowledging the difference. We then explain why investigating general causation is preferable, at least in the specialized context of contributory infringement.

1. Inconsistent Use of General and Specific Causation in Contributory Infringement Decisions

As demonstrated in the previous section, the *Visa* court invoked the classic definition of but for causation. In order to identify the shortcomings of this test, we can rewrite it more precisely as:

$$\begin{aligned} &X \text{ is a cause of } Y \text{ if and only if} \\ &Y_{(X=1)} = 1 \text{ and } Y_{(X=0)} = 0 \end{aligned}$$

Generally the characters 1 and 0 can be read as present and absent respectively. Therefore the notation $Y_{(X=1)} = 1$ can be read as Y is present when X is present. Note that we can never directly observe both $Y_{(X=1)}$ and $Y_{(X=0)}$ at the same time. At the most, one can be observed directly and the other must be empirically estimated or based upon one's intuition.³²⁵

Without explicitly stating that they are doing so, some courts have used a different causal test to evaluate the material contribution requirement. For example, in *Fonovisa v. Cherry Auction*, the Ninth Circuit explained that it had "little difficulty" in holding that the plaintiffs' allegations satisfied the material contribution requirement for a swap meet owner accused of contributing to the infringing activities of its vendors.³²⁶ Relying on factual causation, at least in part, to make this determination, the court explained: "it would be difficult for the infringing activity to take place in the massive quantities alleged without the support services provided by the swap meet."³²⁷ Under this brand of counterfactual analysis, when the removal of the defendant's actions reduces the aggregate amount of injury suffered by the plaintiff, causation has been satisfied. We can represent the causal test used in *Fonovisa* as follows:

$$\begin{aligned} &X \text{ is a cause of } Y \text{ if and only if} \\ &Y_{(X=1)} = Y_1 \text{ and } Y_{(X=0)} = Y_0 \\ &\text{for any } Y_1 \neq Y_0 \end{aligned}$$

The definition above demonstrates that the *Fonovisa* court did not use the same test of causality as the *Visa* court. The key distinction between the but for test used in *Visa* and the test used in *Fonovisa* is the expected outcome in the absence of the defendant's actions, defined as Y_0 in the formal definition. In the *Visa* decision, the court required that $Y_0 = 0$, effectively that there is no infringement in the absence of the defendant's actions. Hence, under the *Visa* court's

³²⁴ See *id.* at 424.

³²⁵ See Michael D. Green, *The Future of Proportional Responsibility*, in *EXPLORING TORT LAW* 352, 354 (M. Stuart Madden ed. 2005).

³²⁶ *Fonovisa, Inc. v. Cherry Auction, Inc.*, 76 F.3d 259, 264 (9th Cir. 1996).

³²⁷ *Id.*

analysis, any infringement occurring in the absence of the defendant's activity defeats causation.³²⁸ For the *Fonovisa* court, however, there is not an expectation that putting a stop to a contributory defendant's causative activities should end all infringement.³²⁹ In essence, the decision recognizes that the primary infringers may continue to commit acts of infringement without the support of the swap meet. Yet the swap meet causes at least some infringement if the "quantity" of infringement with the swap meet's services, Y_1 , is greater than the "quantity" of infringement without, Y_0 .

Obviously, there is a great difference between the two causation tests. Another way to put it is that both tests rely on counterfactual analysis, but the content of that analysis differs. The *Visa* definition of causation requires proof that the removal of the contributory defendant's contribution will prevent an individual, specific case of infringement while *Fonovisa*'s definition of causation only requires proof that the removal will generally stop a certain amount of infringement. Overall, the more generalized definition of causation appears to be favored over the specific definition by courts evaluating recent infringement cases,³³⁰ but it is unlikely that the courts are consciously applying one definition over another.

2. Intellectual Property's Need for a Generalized Causation Inquiry

We believe that in the unique context of intellectual property, it makes sense to formalize use of a generalized inquiry into causation, like the test used in *Fonovisa*. There is a lot riding on whether a court chooses the more specific or the more general view of causation; one view is much more generous to plaintiffs than the other. But our concern is not so much the level of generosity afforded to plaintiffs as the need to select a causation definition that tracks the goals behind intellectual property protection. Intellectual property law differs from general tort law in that it is particularly concerned with the aggregate effects of a defendant's behavior rather than precisely identifying who is blameworthy for a particular wrongful act. Starting from its explicit link to "Progress" in the arts and sciences in the U.S. Constitution,³³¹ intellectual property law derives legitimacy from its instrumental effectiveness, not in how it satisfies any particular moral code.³³² Hence, the rationale for patent and copyright laws is their ability to incentivize the creation of new creative works and inventions.³³³ Similarly, the most familiar justification for trademark law focuses on preserving efficient marketplaces.³³⁴ As a result, the goal of

³²⁸ *Perfect 10, Inc. v. Visa Int'l Serv. Ass'n*, 494 F.3d 788, 798 (9th Cir. 2007).

³²⁹ *Fonovisa*, 76 F.3d at 264 (stating only that "it would be difficult for the infringing activity to take place" without the swap meet's support services).

³³⁰ *E.g.*, *Perfect 10, Inc. v. Amazon.com*, 508 F.3d 1146, 1172 (9th Cir. 2007); *In re Aimster Copyright Litig.*, 334 F.3d 643, 653 (7th Cir. 2003); *Lifetime Homes, Inc. v. Residential Development Corp.*, 510 F. Supp. 2d 794, 806-07 (M.D. Fla. 2007).

³³¹ U.S. CONST. art I, § 8, cl. 8.

³³² *See* JULIE E. COHEN ET AL., *COPYRIGHT IN A GLOBAL INFORMATION ECONOMY* 7 (2d ed. 2006); *see also* Alan Devlin & Neel Sukhatme, *Self-Realizing Inventions and the Utilitarian Foundation of Patent Law*, 51 WM. & MARY L. REV. 897, 901 (2010) (contending that the "[a]lmost all commentators and judges agree that . . . the purpose of the patent system is to induce the creation and commercialization of technology"); Dotan Oliar, *Making Sense of the Intellectual Property Clause: Promotion of Progress as a Limitation on Congress's Intellectual Property Power*, 94 GEO. L.J. 1771 (2006) (providing detailed historical argument on the role of the "Progress" clause as a check on Congressional attempts to use intellectual property law non-utilitarian purposes).

³³³ David Fagundes, *Property Rhetoric and the Public Domain*, 94 MINN. L. REV. 652, 684 (2010).

³³⁴ Barton Beebe, *The Semiotic Analysis of Trademark Law*, 51 UCLA L. REV. 621, 623-24 (2004); *see also* Mark P. McKenna, *Testing Modern Trademark Law's Theory of Harm*, 95 IOWA L. REV. 63, 117 (2009).

contributory infringement law lies mostly in furthering these instrumental purposes. Contributory infringement doctrine tries to identify parties that are fanning the flames of infringement and stop their conduct before there is a precipitous decline in the incentives for intellectual creation.³³⁵ Contributory infringement cases often involve new technologies,³³⁶ and intellectual property law, given its instrumental goals, strives to serve as an incubator for these commercial innovations.³³⁷

The general approach to causation acts instrumentally by asking what the effects of a particular causal agent are. For example, a court weighing the materiality of a new technological service to infringement engages in some sort of analysis of the effects of that service on the general amount of infringement occurring in the marketplace. It is not so important to the court to pinpoint whether the service facilitated a particular act of infringement (e.g., a single illegal download of the latest Lady Gaga track from a peer-to-peer file sharing system). Rather, the real question is just how many acts of infringement can be attributed to the activities of the contributory defendant. The point of the analysis is not so much tying blameworthy actors to specific wrongful acts as it is to impose liability where it can have a significant impact in stanching the flow of infringing activity.³³⁸

By contrast, a specific approach to causation examines events and tries to find their cause so as to impose liability on culpable parties. By emphasizing the importance of linking the actor to a particular single event, the specific approach to causation steers more towards concepts of blame and fairness and less towards instrumental purposes. Precisely identifying blameworthy parties is an important aspect of tort law.³³⁹ Yet blameworthiness is not as central to the principles of intellectual property law.³⁴⁰ The generalized approach, finding causation in situations that are likely to have important aggregate effects on the total amount of infringement, hews more closely to these principles.³⁴¹

³³⁵ See Giles S. Rich, *Infringement Under Section 271 of the Patent Act of 1952*, 21 GEO. WASH. L. REV. 521, 522 (1953) (explaining that patent law's statutory provision against contributory infringement was designed to preserve incentives for inventors).

³³⁶ See Ben DePoorter, *Technology and Uncertainty: The Shaping Effect on Copyright Law*, 157 U. PA. L. REV. 1831, 1835-36 (2009); Shubha Ghosh, *The Fable of the Commons: Exclusivity and the Construction of Intellectual Property Markets*, U.C. DAVIS L. REV. 855, 879-80 (2007).

³³⁷ See ROBERT P. MERGES ET AL., *INTELLECTUAL PROPERTY IN THE NEW TECHNOLOGICAL AGE* 13 (5th ed. 2010) (“[G]overnment has created intellectual property rights in an effort to give authors and inventors control over the use and distribution of their ideas, thereby encouraging them to invest in the production of new ideas and works of authorship.”); Barton Beebe, *Intellectual Property Law and the Sumptuary Code*, 123 HARV. L. REV. 809, 813 (2010) (stating that the “express purpose and primary effect of intellectual property law remains . . . the promotion of technological and cultural progress”).

³³⁸ This focus on the instrumental effects of contributory infringement verdicts is evident in the general predisposition of courts to favor injunctive relief over damages awards in infringement actions. See *eBay v. MercExchange*, 547 U.S. 388, 395 (2006) (Roberts, C.J., concurring) (suggesting that injunctions will remain the standard remedy in patent cases); Philip J. Weiser & Dale Hatfield, *Spectrum Policy Reform and the Next Frontier of Property Rights*, 15 GEO. MASON L. REV. 549, 568 n.105 (2008) (“In the intellectual property context, injunctive relief is generally the available and appropriate remedy, but the state of the law in this area remains controversial.”).

³³⁹ See generally Jules L. Coleman, *Tort Law and the Demands of Corrective Justice*, 67 IND. L.J. 349 (1992).

³⁴⁰ See *Sari Louis Ferraud Int'l v. Viewfinder, Inc.*, 406 F. Supp. 2d 274, 281 (S.D.N.Y. 2005), *vacated and remanded*, 489 F.3d 474 (2d Cir. 2007) (“Copyright and trademark law are not matters of strong moral principle.”).

³⁴¹ One might argue that by advocating a general rather than specific approach to causation, we are really asking courts to impose liability on the basis of risk instead of actual harm. In a sense, however, all analyses of causality are based on probabilities. Even in determining whether one particular act caused one particular event “nature’s laws are deterministic and randomness surfaces owing merely to our ignorance of the underlying boundary conditions.” PEARL, *supra* note 230, at 26. Hence, risk is an essential aspect of any causal analysis, general or

We acknowledge that contributory infringement law, like tort law, strikes a balance between concepts of corrective justice and distributive justice.³⁴² Although we advocate a general causation analysis designed to position liability where it can do the most for aggregate social welfare, we also note that our plan for contributory infringement still requires proof of some knowledge of the underlying infringing activity, a requirement that owes more to individual rights than community interests.³⁴³ Proximate cause also continues to exist in our plan, preventing those extensions of liability that may enhance overall social welfare, but stray too far from public sentiments regarding fairness and blame. Our position, however, is that the balance between the normative components of liability—requirement of a culpable mental state and proximate cause—and causation should be struck more in favor of distributive justice in the particular context of intellectual property, and that is why a causation model addressing general causation is appropriate. Moreover, regardless of whether a specific or general approach to causation is favored, the imprecise way that factual causation has been defined in infringement law has led to a great deal of confusion. Some of this confusion could be allayed by openly stating which type of counterfactual analysis is being employed, i.e., what the required value of Y_0 must be to demonstrate causation.³⁴⁴

C. Determining Accurate Referents

Another critical part of the epidemiologist's causal framework is specifying a referent for each component identified in a causal mechanism.³⁴⁵ Knowing the disease rate in a particular sub-population exposed to some contaminant can provide no causal knowledge without an estimate of the expected rate without the exposure. Epidemiological scholarship explicitly acknowledges the role of the counterfactual in determining not only each component of the causal mechanism but also its appropriate referent, suggesting that an action, event or condition can only be determined as a cause *with respect to* some specified alternative.³⁴⁶ Although the concept seems simple, often times much care must be dedicated to assigning a proper referent. In this section, we describe the importance of referent selection to epidemiological research. Epidemiologists must test the logic of particular referent choices and identify them with specificity. We then discuss how courts could incorporate rigorous referent selection into the material contribution analysis.

1. Referent Selection in Epidemiology

specific. We also stress even if courts did implement our causation model in their analysis of material contribution, liability would also require an actual violation of the plaintiff's intellectual property rights as no claim for contributory infringement is permitted without proof of an underlying act of direct infringement. See *Linear Tech. Corp. v. Impala Linear Corp.*, 379 F.3d 1311, 1326 (Fed. Cir. 2004).

³⁴² For an insightful discussion of how, in general, the law should balance these competing approaches, see LOUIS KAPLOW & STEVEN SHAVELL, *FAIRNESS VERSUS WELFARE* (2002).

³⁴³ The inducement variety of contributory infringement, as enunciated in the *Grokster* decision, puts particular emphasis on proof of a culpable mental state and just punishment for individuals. See Bartholomew, *supra* note 29, at 840-44.

³⁴⁴ In his *Visa* dissent, Judge Kozinski seemed to recognize, at least vaguely, that there was a discrepancy between the majority's causal definition and the definition used by most other infringement decisions. See *Perfect 10, Inc. v. Visa Int'l Serv. Ass'n*, 494 F.3d 788, 811-13 (9th Cir. 2007).

³⁴⁵ ROTHMAN ET AL., *supra* note 279, at 7.

³⁴⁶ *Id.* at 7-8.

Whenever a researcher suggests a potential component of a causal mechanism, the real causal impact of that component is tested by the determination of a suitable referent.³⁴⁷ The process of referent specification requires the researcher to examine whether her assumptions about the force of a particular component are reasonable. In specifying potential referents, it may be revealed that what the researcher had believed to be a significant causal force really has no effect on the outcome at issue. Take the case of the effects of advanced paternal age on the success rate of assisted reproductive technologies (ART). Until recently, it was believed that increased paternal age led to lower ART success rates. This belief was based in part on evidence from a study of couples implanted with female egg cells from anonymous young donors.³⁴⁸ The study revealed that there were significant increases in pregnancy loss, decreases in live birth rate, and decreases in early embryo formation for men greater than 50 years of age.³⁴⁹

Yet new research shows that paternal age does not have such a striking effect on pregnancy.³⁵⁰ Instead, the earlier study was flawed by use of an improper referent. That study compared couples featuring older men with couples featuring younger men. It did not acknowledge the role that the maternal recipient's age could play in this process. Those couples attempting multiple cycles of ART typically featured older maternal recipients and had lower success rates. When researchers compared paternal ages using only a couple's *first* attempt at ART, there was little evidence for a causal effect.³⁵¹

In addition to requiring testing of potential referent choices, epidemiology mandates that the alternative to a potential causal component to be identified with specificity.³⁵² Requiring the precise acknowledgement of a referent for any particular causal analysis is crucial in identifying the causal contribution. For example, most would acknowledge that drinking alcohol during pregnancy causes health related problems in offspring. Yet as a causal statement, this is far too imprecise. There are many examples of women drinking prior to knowledge of a pregnancy or in limited amounts without ill effects on the child. Without properly specifying the referent, anecdotal evidence such as this can be used to weaken causal claims. Instead, the analyst must identify the amount of alcohol that can be consumed without injuring offspring and the times

³⁴⁷ What we term here a "suitable referent" others have referred to as "the manipulations (interventions) that will transport us from the actual to a counterfactual possible world." Scheines, *supra* note 35, at 964.

³⁴⁸ John L. Frattarelli et al., *Male Age Negatively Impacts Embryo Development and Reproductive Outcome in Donor Oocyte Assisted Reproductive Technology Cycles*, 90 FERTILITY & STERILITY 97, 97-103 (2008).

³⁴⁹ *See id.* at 102.

³⁵⁰ Brian W. Whitcomb et al., *Contribution of Male Age to Outcomes in Assisted Reproductive Technologies*, FERTILITY & STERILITY (forthcoming 2010).

³⁵¹ Failure to agree on an appropriate referent can explain failures to arrive at consensus on pressing health problems. For example, much effort has been dedicated to finding the causes of the United States obesity epidemic. *See* Steven Reinberg, *U.S. Obesity Epidemic Continues to Grow*, WASH. POST, July 17, 2008. It is commonly believed that watching television provides a low level of physical activity and thus causally contributes to obesity. *See* OFFICE OF THE SURGEON GEN., U.S. DEP'T OF HEALTH AND HUMAN SERVS., THE SURGEON GENERAL'S CALL TO ACTION TO PREVENT AND DECREASE OVERWEIGHT AND OBESITY 2 (2001), available at <http://www.surgeongeneral.gov/topics/obesity/calltoaction/CalltoAction.pdf>. Yet studies on the subject have been inconsistent because of the different referents chosen by different researchers. *See* T.N. Robinson, *Television Viewing and Childhood Obesity*, 48 PEDIATRIC CLINICS N. AM. 1017 (2001). A study concluding that television causes obesity assumes that, in the absence of television, an obese individual would fill his time with another, more physically demanding activity. This is not necessarily the case, however. Television does not cause obesity if the time once spent watching television is replaced with time consuming large amounts of calorie-laden fast food. Television can be viewed to have different causal effects on obesity precisely because researchers are unclear as to activities individuals will undertake in its place.

³⁵² ROTHMAN ET AL., *supra* note 279, at 7-8.

during pregnancy when alcohol may be consumed safely.³⁵³ Requiring specification of a referent forces the trier of fact to precisely identify an actor's causal contribution.

2. Applying Referent Selection Practices to Contributory Infringement

To the extent courts consider referents, they often remain in the background as unstated assumptions.³⁵⁴ But in retraining our minds to analyze causation more openly and accurately, identifying referents is essential. We offer a formal definition of causation for contributory infringement, integrating the importance of referent selection into prior definitions as follows:

X_1 is a cause of Y with respect to some alternative X_2 if and only if
 $Y_{(X=X_1)} = Y_1$ and $Y_{(X=X_2)} = Y_0$
for any $Y_1 \neq Y_0$

Writing our test in prose, we would say that *some event, action or condition is a cause of some outcome with respect to some specified alternative if and only if the expected outcome when the action is present is different than when the alternative is present.* This is the definition that we propose courts employ when assessing the materiality of a contributory defendant's contribution to infringement.

The new definition requires the trier of fact to provide some explanation for the alternative, X_2 , to the proposed causal agent, X_1 . The presence or absence of causation hinges on this comparison. For example, one trier of fact may contend that the reasonable alternative to credit card processing services for websites that display infringing content is sending personal checks and money orders to the website.³⁵⁵ Under this view, X_2 is funding the infringing website through personal checks and X_1 is the current regime allowing credit card payments. Because the level of infringement is likely to drop significantly when consumers are forced to delay gratification and wait for a check to travel through the mail before they can access the infringing photos, the credit card payments are a cause of infringement.

But what if the trier of fact chooses a different referent? One could also argue that the reasonable referent in this situation is free access to the infringing website. After all, there are many non-commercial websites displaying pornographic images and many commercial websites rely on advertising, not user subscriptions, for financing.³⁵⁶ Hence, X_2 could be identified as having no requirement of consumer payment at all. If this referent was chosen, instead of causing infringement, credit card services might be viewed as limiting infringement; the amount

³⁵³ See R. Louise Floyd et al., *Prevention of Fetal Alcohol Disorders*, 15 DEV. DISABILITIES RES. REV. 193 (2009).

³⁵⁴ The NESS model developed by Richard Wright employs many of the causal concepts described in Part III. See generally Wright, *supra* note 300. We focus on the epidemiological framework articulated by Rothman for two reasons. First, Rothman's model predates Wright's by ten years. Second, Rothman's particular emphasis on specification of a proper referent is crucial in applying a theory of multiple component causes to the practices of contributory infringement law. It will never be possible to interrogate referents with the same vigor in law as in epidemiology. The need to resolve legal disputes in a finite timeframe means that judges cannot hold themselves to the same standards of evidentiary proof as scientists. See Andrew R. Klein, *Causation and Uncertainty: Making Connections in a Time of Change*, 49 JURIMETRICS 5, 29 (2008). But the recent contributory infringement cases show a need for greater attention to referent selection and Rothman's model does the best job of stressing this aspect of counterfactual analysis.

³⁵⁵ See *Perfect 10, Inc. v. Visa Int'l Serv. Ass'n*, 494 F.3d 788, 812-13 (9th Cir. 2007) (Kozinski, J., dissenting) (discussing likelihood of "other viable funding mechanisms" if credit card payments were no longer accepted).

³⁵⁶ See *id.* at 797-98.

of people willing to access the images for free would certainly be greater than the amount of people willing to pay to access the images.

Judges may also disagree as to the appropriate philosophical approach to referent selection. One approach might be to specify the referent to the defendant's behavior by turning to some industry standard. Thus our definition of X_2 in *Visa* may be the estimated action of a typical credit processing provider. Did Visa's actions differ significantly from what we would expect from a standard provider of credit card services? If not, if Visa was merely following industry practice, then Visa's actions should not be considered causative.

But we could also choose a different referent and obtain a different causal result. Instead of using an industry standard, the referent could be defined as some idealized credit processor that takes proactive steps to identify and remove potential infringers from its customer base. In that case, X_2 is the hypothetical action of an idealized credit processing provider. Now the crucial causative question is much different. With respect to some idealized provider, it is more likely that Visa's actions should be considered causative. Thus, determination of each component cause is wholly dependent upon the definition of its referent. Employing a conservative referent that relies on preexisting practices tends to reduce the perceived causal effects of the component at issue. Using an aspirational referent that compares the action at issue to the behavior of an idealized party results in a greater perception of causal responsibility.

Given the wide range of possible referent selection described above, one criticism of our proposed test might be that judges will continue to be free to base liability on their own subjective considerations. Admittedly, forcing courts to identify referents does not prevent judicial biases or inconsistencies from appearing the law.³⁵⁷ Judges can reasonably differ on what a referent for a proposed causal factor should be. Referent selection inherently requires some attention to the policy considerations that are part of the proximate cause analysis that we urge separating from factual causation.³⁵⁸

But the answer is not to ignore the centrality of referent selection. Epidemiology teaches that rigorous identification of referents is at the heart of counterfactual analysis. In his *Visa* dissent, Judge Kozinski astutely acknowledges the need for judges to identify the available alternatives to the defendant's conduct that they believe to be present in the marketplace. In this regard, he follows the epidemiological model. He concludes that there are no realistic alternatives to credit card processing services.³⁵⁹ Whether one agrees with Judge Kozinski's answer in this regard is not the point. The point is that in evaluating causation, a trier of fact must always assess the availability of realistic alternatives to the defendant's activity. An event or action can only be considered a cause with respect to some specified alternative. Whether an idealized or conservative choice is made for a referent, courts should make their choices of referents transparently. Open selection of the alternative permits other courts to challenge the selection if they disagree. It also allows subsequent courts to change their causal analysis if new information places the selection of the referent into question.

In addition, there are some guideposts for referent selection that remove some potential for judicial discretion. For example, the *Visa* majority fretted that if it defined material

³⁵⁷ No causal investigation can be fully inoculated against bias. Even in epidemiological research, which requires that the missing counterfactual account be based on empirical observations, some of the most respected minds have committed errors in referent selection that only came to light years later. See, e.g., Paul D. Stolley, *When Genius Errs: R.A. Fisher and the Lung Cancer Controversy*, 133 AM. J. OF EPIDEMIOLOGY 416 (1991).

³⁵⁸ See *supra* Part II.C.1.

³⁵⁹ *Visa*, 494 F.3d at 814, 817.

contribution in a way that ensnared the credit card service provider, then utilities that provide water and electricity to a direct infringer would be liable as well.³⁶⁰ Reasonable referent selection and testing through counterfactual analysis is the key to this dilemma. If the utility's action is removed from the causal mechanism, there is really nothing to replace it with, i.e., no reasonable referent. We cannot replace the provision of electricity with something else. Nor can we replace the current regime with a new one requiring utilities to monitor their subscriber's conduct for infringement.³⁶¹ When no reasonable referent can be found for a proposed causal component, the component must be removed from the causal mechanism.³⁶²

Similarly, a defendant search engine should not escape causal responsibility simply because if its services are removed another search engine will take its place. Neither a court nor a scientist should use as a referent the same action provided by a different actor. A lawyer for Google might make the argument that if Google did not help online consumers find infringing content, another search engine would. If the only alternative to Google facilitating infringement is some other search engine facilitating infringement, then Google's actions cannot be described as causal. But appropriate referent selection requires a court to posit a different action to replace the act at issue, not just a different actor. At least for the purposes of determining legal liability, a referent is not reasonable if it presumes the presence of illegal activity. If Google's behavior violates the law, then it is not reasonable to adopt a referent that assumes that identical illegal activity will take its place.

* * *

The discussion of causality in this Part highlights three things lacking in current contributory infringement analysis. First, the definition we offer above is phrased in a way to permit liability in the face of overdetermination and multi-factor causation. The but for test only finds causation when the counterfactual removal of the defendant's act reveals that the infringement would not have occurred. In contrast, our definition allows for causation when the act is part of a set of acts sufficient to produce infringement, even if another set of acts could cause infringement as well. Second, the definition invokes general, not specific causation. Instead of only finding causation when the defendant's action can be tied to a specific act of infringement, the definition permits causation when removal of the defendant's action results in some decrease in overall harm to the plaintiff. Third, the definition, by including the phrase "with respect to some alternative," mandates that the trier of fact make explicit in her counterfactual analysis that a reasonable referent to the defendant's conduct has been identified. Causation is completely dependent on the analyst's choice of referent. By forcing these choices to be explicitly stated, the definition insures that judicial perceptions of the marketplace will be subjected to full scrutiny by higher courts and the public.

IV. CONCLUSION

Contributory infringement law stands at a crossroads. Having decided to expand the doctrine past manufacturers and distributors, courts now need to set principled limits on liability that offer some predictive content to technologists. As it stands now, contributory infringement

³⁶⁰ *Id.* at 800.

³⁶¹ Someday the reasonableness of this referent may change as anti-piracy recognition technologies become more and more sophisticated. See Sonya K. Katyal, *Filtering, Privacy, Surveillance, and Disobedience*, 32 COLUM. J. L. & ARTS 401, 405-06 (2009).

³⁶² ROTHMAN ET AL., *supra* note 279, at 7.

law is a confusing stew of ambiguous terms and inconsistent decisions. We suggest two reforms to get contributory infringement law back on the right track.

First, greater attention should be paid to the rules of causation laid out in American tort law. As it stands now, to the extent contributory infringement decisions address causation at all, they do it in a conclusory and inconsistent manner. Both the Supreme Court and legal scholars have suggested greater attention should be paid to tort law when assessing the liability of indirect actors for intellectual property infringement. But that is not nearly specific enough guidance for courts wrestling with the material contribution requirement. The law of aiding and abetting, the closest tort law analogue to contributory infringement, lacks coherence and varies depending on the underlying tort and jurisdiction at issue. Yet the aiding and abetting cases do take seriously the requirement that the defendant somehow cause the underlying tortious act. Tort law's rules of causation offer valuable guidance for courts struggling to find a principled framework for their contributory infringement decisions. Tort law counsels that analysis of factual causation must be clearly delimited from proximate causation, an analysis of the appropriate scope of liability that involves considerations of public policy. Recent contributory infringement decisions commit the mistake of intertwining discussions of factual causation with prudentialist reasoning, resulting in sweeping precedents with a false stamp of empirical truth. By splitting factual from proximate cause, contributory infringement courts would more precisely identify culpable actors while allowing for more specific exclusions on public policy grounds for valuable technological intermediaries.

Second, the field of epidemiology offers significant advances in causal theory that could be implemented in the contributory infringement context. The current but for and substantial factor causation tests are not subtle enough to assess causation in a complicated digital world. In a complex marketplace, there will almost always be multiple actors and alternative actions available to accomplish the same tasks. Thus multi-factor causation and overdetermination should be considered the rule, rather than the exception in cases of contributory infringement. Epidemiologists recognize that causation relies on multiple sets of interdependent components, and have adjusted their causal models accordingly. They also carefully distinguish between questions of general and specific causation. The former is of more value to the utilitarian underpinnings of intellectual property law. Epidemiology also counsels rigorous attention to the selection of referents for any identified causal component. A particular event can only be considered a cause with respect to some alternative. The current contributory infringement jurisprudence pays scant attention to this central command of epidemiological research.

By its nature, contributory infringement will always be an imprecise science. Half of the analysis involves an assessment of the contributor's mental state, and it is never possible to peer into the mind of another entity with perfect clarity.³⁶³ The other half of contributory infringement doctrine, the material contribution requirement, has its own complexities. But these complexities do not justify a randomized, unstructured system for imposing barriers on commercial intermediaries. By emphasizing and prioritizing the causal roots of contributory liability, courts assessing contributory infringement can place this area of the law on a more principled path that satisfies our intuitions about legal responsibility while offering predictive comfort to online businesses.

³⁶³ See Honoré, *supra* note 225, at 12 (explaining that issues of intent and foreseeability are non-causal).