

# SIMILAR SECRETS

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**ABSTRACT.** A foundational question in every dispute over intellectual property is whether the defendant’s product is too similar to the plaintiff’s. For almost all intellectual property regimes, an extensive body of case law and academic commentary has examined how such similarity should be measured. Trade secrecy, however, remains a remarkable exception. In trade secrecy cases, just as in other intellectual property cases, the defendant’s good can diverge markedly from what the plaintiff developed. Yet it turns out that trade secret case law provides little guidance for assessing how much similarity is too much. The standard remains, fittingly but frustratingly, a secret.

This Article takes the first close look at what that standard should be. We argue that trade secrecy’s similarity doctrine is currently asking an incomplete set of questions. It inquires almost exclusively into the defendant’s innovation process, instructing fact-finders to determine whether the defendant had acquired any advantage from familiarity with the secret. In doing so, it wrongly skips over an inquiry into the defendant’s product. A better test would consider not only the defendant’s benefit from knowing the secret, but also the kind of product into which that benefit ultimately translates. Part of the trouble is that trade secrecy is looking in the wrong place for guidance. Courts sometimes make analogies to patent law, but the doctrine turns out to be a poor fit. It’s copyright, not patent, that offers trade secrecy’s similarity analysis the best blueprint for improvement.

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## INTRODUCTION

Outright and forthright duplication is a dull and very rare type of infringement.

—Graver Tank & Mfg. Co. v. Linde Air Prods. Co.<sup>1</sup>

Liability for appropriating intellectual property (IP) usually does not require identical copies. All it takes is a sufficient degree of similarity between the plaintiff's and defendant's products. One of IP policy's core questions is figuring out where to draw that line of sufficiency.<sup>2</sup> How similar, in other words, is too similar?

For almost all IP regimes, an extensive body of case law has attempted answers, and an equally extensive volume of academic commentary has offered critiques.<sup>3</sup> Yet there remains a remarkable exception: trade secrecy. In trade secrecy cases, just as in other IP cases, a defendant's intangible good (be it software code, a chemical formula, or a manufacturing method) can diverge from the one that the plaintiff developed. Often, a plaintiff's employee or business associate acquired the secret information perfectly lawfully but then left to start a different venture, modifying that information into something new. Adaptation seems to occur at least as often as verbatim duplication. Indeed, a leading treatise in this area notes that "most appropriation consists of some rather indirect exploitation of the owner's information" rather than a mere slavish copy-and-paste.<sup>4</sup>

Given such exploitation's frequency, courts should know how to think about it. Our claim in this Article is that they don't. In theory, some derivative uses are supposed to lie beyond the trade secret owner's control. Courts like to repeat the maxim that only those uses that qualify as "substantial" constitute actionable misappropriation.

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1. 339 U.S. 605, 607 (1950).

2. See, e.g., Jeanne C. Fromer & Mark A. Lemley, *The Audience in Intellectual Property Infringement*, 112 MICH. L. REV. 1251, 1252 (2014) ("A principal question in IP infringement disputes is whether the defendant's product (or work, or brand, or idea) is too similar in some respect to the plaintiff's.").

3. See, e.g., Barton Beebe, *An Empirical Study of the Multifactor Tests for Trademark Infringement*, 94 CALIF. L. REV. 1581 (2006) (trademark); Fromer & Lemley, *supra* note 2 (copyright, patent, and trademark); Mark A. Lemley, *The Economics of Improvement in Intellectual Property Law*, 75 TEX. L. REV. 989 (1997) (patent and copyright); Pamela Samuelson, *A Fresh Look at Tests for Nonliteral Copyright Infringement*, 107 NW. U. L. REV. 1821 (2013) (copyright).

4. JAMES POOLEY, TRADE SECRETS § 6.03[3] at 6-30 (2017). It further notes that Justice Jackson's observation on the dullness of patent infringement through outright duplication, quoted in this Article's epigraph, "applies equally to trade secrets." *Id.*

tion.<sup>5</sup> But no one really seems to know what that term means. Without ever acknowledging it, courts have veered between cursory analogies to copyright law on the one hand and to patent law on the other. This doctrinal scavenging obscures more than it clarifies. The standard for actionable similarity in trade secrecy cases remains, fittingly yet frustratingly, a secret.

Unfortunately, the upshot in many decisions is that essentially *any* use counts as substantial. The case law seldom investigates whether the copied information was significant to the plaintiff’s product or whether the defendant’s use poses any threat of market harm. Instead, the test quickly collapses into a binary question of whether exposure to the secret educated the defendant at all, regardless of what the defendant’s final product ends up looking like.<sup>6</sup>

That test is hopelessly overbroad. To begin with, it seems to give a windfall to owners in cases where the defendant acquired the information lawfully rather than through a wrongful act. IP policy generally tries to avoid restrictions on downstream use that don’t confer offsetting benefits to society. But such restrictions are especially pernicious in trade secrecy. In other areas of IP, second comers can usually design around an upstream owner’s entitlement by turning to a substitute. A filmmaker unable to license a song can use a different song; a smartphone producer unable to license a chip can use a different chip. But under courts’ current approach to similarity in trade secrecy, it’s virtually impossible for a departing employee to find a substitute. You can’t erase a secret once you know it. If that secret would provide a boost in the R&D process—even one that leads to a product radically different than the one embodying the plaintiff’s secret—the departing employee’s best alternative isn’t a substitute component but to vacate the field altogether. As one judge recently quipped in a headline-grabbing lawsuit between Uber and Google-spinoff Waymo over driverless car technology, “Is an engineer supposed to get a frontal lobotomy before they go on to the next job?”<sup>7</sup>

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5. See RESTATEMENT (THIRD) OF UNFAIR COMPETITION § 40 cmt. c (1995) [hereinafter RESTATEMENT (THIRD)] (observing that while “improvements or modifications” to a trade secret can qualify as actionable misappropriation “if the result is substantially derived from the trade secret,” an actor is not liable “if the contribution made by the trade secret is so slight that the actor’s product or process can be said to derive from other sources of information or from independent creation”).

6. See *id.*, reporter’s note (“Even if the defendant’s final product or process differs significantly from that of the plaintiff, substantial use of the trade secret in the course of the defendant’s research can be sufficient to constitute an appropriation.”).

7. Orly Lobel, *NDAs Are Out of Control. Here’s What Needs to Change*, HARVARD BUS. REV., Jan. 30,

The inattention to a similarity standard is all the more surprising given trade secrecy's exponentially increasing stakes. Trade secrecy was once a decentralized product of individual states' common law. It's now a major IP scheme. Almost all states have implemented a version of the Uniform Trade Secrets Act (UTSA),<sup>8</sup> and as of Congress's enactment of the Defend Trade Secrets Act of 2016 (DTSA), plaintiffs can pursue a claim under federal law as well.<sup>9</sup> The DTSA's passage has been called "the most significant expansion of federal law in intellectual property" since the 1940s.<sup>10</sup> The executive branch, for its part, has also been ramping up enforcement of criminal laws against misappropriation, from a few cases a year in the late 1990s to hundreds over the last decade.<sup>11</sup>

Trade secrecy law's growing supply meets an equally growing demand. One 2014 study, cited in the Senate Report accompanying the DTSA, pegged the current cost of trade secret misappropriation at somewhere between one and three percent of the U.S. gross domestic product.<sup>12</sup> Even before the DTSA's enactment, trade secret litigation had been growing rapidly in both state and federal court.<sup>13</sup> A recent analysis

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2018 (quoting Judge Alsup's colloquy with the parties). The case settled in the middle of trial. Russ Mitchell, *Uber Reaches Settlement with Waymo in Dispute over Theft of Trade Secrets*, L.A. TIMES (Feb. 9, 2018, 8:30 AM), <http://www.latimes.com/business/autos/la-fi-uber-waymo-settlement-20180209-story.html>.

8. UNIF. TRADE SECRETS ACT (1985) [hereinafter UTSA].
9. See Defend Trade Secrets Act of 2016, Pub. L. No. 114-153, 130 Stat. 376 (2016). The DTSA amends the Economic Espionage Act of 1996 to provide a federal cause of action for trade secret misappropriation. 18 U.S.C. § 1836(b). Prior to the DTSA, civil trade secret claims were the exclusive province of state laws, while federal law provided only criminal penalties.
10. ERIC GOLDMAN ET AL., PROFESSORS' LETTER IN OPPOSITION TO THE DEFEND TRADE SECRETS ACT OF 2015 (S. 1890, H.R. 3326), (Nov. 17, 2015), *available at* <https://cyberlaw.stanford.edu/files/blogs/2015%20Professors%20Letter%20in%20Opposition%20to%20DTSA%20FINAL.pdf>.
11. See Orly Lobel, *The DTSA and the New Secrecy Ecology*, 1 BUS., ENTREPRENEURSHIP, & TAX L. REV. \_\_\_ (forthcoming 2018), *available at* <http://ssrn.com/abstract=3083744>.
12. THE CENTER FOR RESPONSIBLE ENTERPRISE AND TRADE & PRICEWATERHOUSECOOPERS LLP, THE ECONOMIC IMPACT OF TRADE SECRET THEFT 9 (2014) (cited in S. REP. NO. 114-220, at 2 (2016)).
13. David S. Almeling et al., *A Statistical Analysis of Trade Secret Litigation in Federal Courts*, 45 GONZ. L. REV. 291, 293, 301-02 (2010) (finding that trade secret litigation in federal court had doubled every decade over the prior 30 years even as federal litigation overall had decreased); David S. Almeling et al., *A Statistical Analysis of Trade Secret Litigation in State Courts*, 46 GONZ. L. REV. 57, 67-68 (2011) (finding that trade secret litigation was increasing at a rate faster than that of state litigation overall).

found that between 2001 and 2012, the number of trade secret cases adjudicated in federal court grew fourteen percent each year.<sup>14</sup> Consistent with these litigation rates, survey evidence confirms that trade secrecy is an enormously popular form of intellectual property protection among firms.<sup>15</sup> Trade secrets, unlike patents, arise by operation of law and are therefore cheap to acquire, without any government examination necessary. And so long as they remain undisclosed, they can last forever.<sup>16</sup>

Part of the story behind trade secrecy's rise may be a declining value in patent protection for certain inventions. Historically, whenever a particular invention has been eligible for a patent, firms have strategized whether a patent or a trade secret would best allow it to capture the invention's value. Following a series of recent Supreme Court decisions, patent-eligible subject matter has narrowed considerably, particularly for software and business methods.<sup>17</sup> According to some, that narrowing has been nudging firms out of the patent system and toward secrecy.<sup>18</sup>

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14. John E. Elmore, *A Quantitative Analysis of Damages in Trade Secrets Litigation*, INSIGHTS, Spring 2016, at 79, 85.
  15. See JOHN E. JANKOWSKI, BUSINESS USE OF INTELLECTUAL PROPERTY PROTECTION DOCUMENTED IN NSF SURVEY, NAT'L SCI. FOUND. (Feb. 2012), <http://www.nsf.gov/statistics/infbrief/nsf12307/nsf12307.pdf> (reporting survey results finding that "a diverse group of industries reported trade secrets as very or somewhat important to their businesses" more so than they did any other form of intellectual property).
  16. The formula for Coca-Cola is probably the most famous example. See *Coca-Cola Bottling Co. of Shreveport, Inc. v. Coca-Cola Co.*, 107 F.R.D. 288, 294 (D. Del. 1985). But it's not the oldest. See Andrew A. Schwartz, *The Corporate Preference for Trade Secret*, 74 OHIO ST. L.J. 623, 651 (2013) (discussing the secret formula of metal alloys used in drum cymbals that Avedis Zildjian invented in 1623 Constantinople, now property of the Massachusetts-based Avedis Zildjian Company, Inc.)
  17. See *Alice Corp. Pty. Ltd. v. CLS Bank Int'l.*, 134 S. Ct. 2347 (2014); *Mayo Collaborative v. Prometheus Labs.*, 566 U.S. 10 (2012); *Bilski v. Kappos*, 561 U.S. 593 (2010).
  18. See, e.g., Lobel, *supra* note 11, at 12 ("Both the strengthening of trade secret law and the uncertainty about patent eligibility of certain biotechnologies, business processes, and software inventions may lead today's firms to rely more heavily on trade secret laws."); Jeffrey Mordaunt and Joshua Swedlow, *Why Trade Secret Litigation Is On The Rise*, LAW360 (Nov. 14, 2017, 12:16 PM), <https://www.law360.com/articles/983195/why-trade-secret-litigation-is-on-the-rise> (concluding that given the current rates of patent invalidation, "interested stakeholders have justifiable concerns regarding the future value of patents involving software and life sciences"); Douglas R. Nemecek, et al., *The Rise of Trade Secret Litigation in the Digital Age*, SKADDEN'S 2018 INSIGHTS (Jan. 23, 2018), <https://www.skadden.com/insights/publications/2018/01/2018-insights/the-rise-of-trade-secret-litigation> (arguing that, following the Supreme Court's recent patentable subject matter decisions, "many companies have lost confidence in the ability to protect their technology with patents and are instead turning to trade secrets.").

Whatever the reason, trade secrets are everywhere—and growing.<sup>19</sup> As this body of law continues ascending within firms’ IP strategies as well as courts’ dockets, its doctrine must figure out what to do in the ubiquitous scenario where a defendant’s product doesn’t look exactly like the plaintiff’s. As a matter of innovation policy, an employee or business partner who comes into contact with a trade secret and then ceases to work with its owner needs to know how to continue researching the same problem without incurring liability. The answer cannot be, as it de facto too often is, that these individuals must simply find different problems to work on.

There is a better way. In Part I of this Article, we survey how trade secrecy handles inexact similarity and then compare it with other IP regimes’ approaches.<sup>20</sup> Trade secret cases don’t always look to a different branch of IP for guidance on assessing similarity, but when they do, it’s most often to patent law.<sup>21</sup> But while patents may have technical subject matter in common with trade secrets, they turn out to be a poor fit. A patent’s scope is defined ex ante by written claims, and its nonliteral similarity test is keyed to the words in those claims. A trade secret’s scope, by contrast, is never truly defined until a misappropriation allegation is actually adjudicated in court. As a result, those cases that purport to be analogizing to patent doctrine end up assessing holistically what a patent case would dissect into individual elements. If they are channeling patent law, they are doing so only at a dizzyingly high level of generality: the unhelpful proposition that misappropriation does not require an absolute identity between plaintiff’s and defendant’s products. The analogy does little analytical work toward specifying what level of similarity misappropriation actually does require.

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19. See, e.g., Peter S. Menell, *Tailoring a Public Policy Exception to Trade Secret Protection*, 105 CALIF. L. REV. 1, 3 (2017) (dubbing trade secrets “the most pervasive form of intellectual property in the modern economy”).
  20. The major IP subfield missing from our scheme is trademark law. We don’t focus on it because, unlike the other regimes that center on promoting innovation and creativity, trademarks’ traditional purpose is reducing consumer confusion. See, e.g., *TrafFix Devices, Inc. v. Marketing Displays, Inc.*, 532 US 23, 34 (2001); *Christian Louboutin S.A. v. Yves Saint Laurent Am. Holdings, Inc.*, 696 F.3d 206, 224 n.20 (2d Cir. 2012); Laura A. Heymann, *The Trademark/Copyright Divide*, 60 S.M.U. L. REV. 55, 65 (2007) (“Unlike copyright and patent law, trademark law is not designed to offer the trademark holder incentives to create . . . Rather, trademark law is typically justified in terms of . . . protecting consumers from deception in the marketplace by prohibiting the use of source-identifying marks if such use is likely to confuse consumers as to the source of the product.”).
  21. See *infra* section I.C.

A few trade secret cases gesture instead toward copyright law.<sup>22</sup> They, too, seem to get no further than the starting point that actionable copying need not be verbatim. But further down in the doctrinal weeds, as we argue in Part II, copyright has more to offer trade secrecy's similarity standard than courts have realized. Copyright infringement analysis breaks the concept of copying down into two halves, one factual and one normative. Even if a defendant did copy something from the plaintiff as a matter of historical fact, the plaintiff must also show that the copied portion was substantial enough to justify liability as a matter of normative judgment.

As part of that second, normative inquiry, courts routinely disregard a defendant's preliminary and otherwise-infringing draft if the final product released to market turns out to be noninfringing. In doing so, they effectively ignore a copy so long as it never attains independent economic significance and therefore poses no threat to the owner's legitimate markets—even if, as is often the case, that copy helps a second comer learn more about the field. In addition, through its fair use doctrine, copyright law often discounts a defendant's commercial exploitation if it was genuinely unforeseeable. Defendants thus have a stronger argument against liability if they are operating in a market that was not reasonably predictable within the plaintiff's industry. That regime allows second comers to exploit remote opportunities that the owner would not have envisioned.

We argue that these features of copyright law offer trade secrecy a helpful but neglected blueprint for how to think about defendants' adaptations. Currently, trade secrecy's similarity doctrine is asking an incomplete set of questions. It inquires almost exclusively into the defendant's innovation *process*, instructing factfinders to determine whether the defendant has acquired any useful knowledge from familiarity with the secret. It wrongly skips over an inquiry into the defendant's *product*.<sup>23</sup> A better test would consider not only the defendant's benefit from knowing the secret, but also the kind of product into which that benefit ultimately translates.

We sketch out the details of implementing that test in Part III. Under our proposal, a defendant wouldn't be liable for using a lawfully acquired secret unless it is

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22. See *infra* section I.D.

23. One of us has previously argued that copyright doctrine makes the opposite mistake, concentrating too much on a defendant's product and not enough on the process of making it. See Joseph P. Fishman, *The Copy Process*, 81 N.Y.U. L. REV. 855 (2016). In general, we think there ought to be more dialogue between these two exclusive-rights regimes. Though rarely compared, they have much to learn from each other.

exploiting a good that materially resembles the owner's secret in a manner that the plaintiff actually foresaw or, given industry trends, could reasonably have foreseen.<sup>24</sup> Merely relying on a secret as a launching pad for developing a genuinely dissimilar good, or operating in a remote and unanticipatable market, would remain permissible.<sup>25</sup>

If courts adopted this proposal, owners would still remain adequately insulated against competition in their core markets. Business information like customer lists and pricing data, which tend to be used in limited and foreseeable ways, would likely be treated just as they are now under current law. And technological information like chemical formulas and industrial methods would continue to receive protection in the markets that had incentivized the owner's investment—just not the ones that hadn't. Downstream users, meanwhile, would gain some additional freedom to pursue cumulative innovation. Employees who know secret information but wish to build upon it would not be tethered to that same employer. Of course, our proposal would make trade secret protection somewhat less attractive to firms. But as more discoveries that might once have been patented now remain secret, it may not be such a bad thing to coax some firms back into disclosing their useful inventions to society.<sup>26</sup>

#### I. SIMILARITY IN TRADE SECRECY

When it comes to similarity standards, there are scholarly cottage industries devoted to copyright's pathologies on the one hand and patent law's on the other. So as we add trade secrecy to the mix, it may seem strange to study those two very regimes

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24. As we stress in Part III, however, an adapter might still be liable if he initially acquires the secret through improper means. We propose only that the notion of "use" exclude unforeseeable adaptations, not that adapters should receive a safe harbor that shields them retroactively from liability for improper acquisition.

25. We do not deal here with the separate, though related, issue of a defendant's substantial improvement to a plaintiff's secret technology. Such improvements could be dealt with if trade secrecy had a fair use doctrine, which it currently does not. Perhaps it should. *See generally* Deepa Varadarajan, *Trade Secret Fair Use*, 83 *FORDHAM L. REV.* 1401, 1408 (2014).

26. *See Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 494 (1974) (Marshall, J., concurring) (observing that "trade secret protection provides in some instances a substantial disincentive to entrance into the patent system," which "deprives society of the benefits of public disclosure of the invention which it is the policy of the patent laws to encourage").

in search of role models. Nevertheless, there are a few good reasons to juxtapose the three together.

First and fundamentally, they are each on some level trying to accomplish the same thing: encouraging investment in developing informational goods that would be undersupplied without some exclusivity mechanism to ward off imitators who wouldn't bear the originator's fixed costs.<sup>27</sup> To be sure, policymakers should also look beyond IP's borders; the common law of property, tort, and contract can provide guidance, too.<sup>28</sup> But given the idiosyncratic difficulties of delineating rights in intangible information that is abstract and in some way new, other IP regimes can be especially fruitful areas to consult.<sup>29</sup>

Second, as this Part surveys, some judges are already invoking patent and, to a lesser degree, copyright law in working through trade secrecy's similarity standard.<sup>30</sup> Lining up trade secrecy's treatment of copyright and patent doctrines next to those same doctrines in their native habitats reveals the strengths and weaknesses of these judicial analogies. Finally, however imperfect these other regimes may be, judges have been refining their contours since the start of the Republic—considerably longer than trade secrecy has existed as a formal body of law. Warts and all, copyright and patent may have valuable lessons to offer the relative newcomer.

This Part begins in section A with a brief overview of a few basic points of trade secret law. Section B turns to the doctrine of substantial derivation, trade secrecy's

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27. See Varadarajan, *supra* note 25, at 1408 (“[Trade secrecy] is increasingly theorized as a subset of intellectual property because it shares the incentive-promoting goals of patent and copyright. Courts and scholars often justify patent, copyright, and trade secret laws as mechanisms to encourage the invention or creation of new technological advances and expressive works.”); cf. Jeanne C. Fromer, *A Psychology of Intellectual Property*, 104 NW. U. L. REV. 1441, 1442–43 (2010) (“Using the same theoretical approach to explain or challenge [copyright’s and patent’s] dissimilarities indicates that, at their foundation, patent and copyright law have more in common than legal scholarship often appreciates . . .”).

28. Indeed, we draw an analogy to tort-law foreseeability principles below. See *infra* section II.C.1. For more extended discussions of how common-law doctrines should influence IP law, see for example Shyamkrishna Balganesh, *Copyright and Good Faith Purchasers*, 104 CALIF. L. REV. 269 (2016); Dmitry Karshedt, *Causal Responsibility and Patent Infringement*, 70 VAND. L. REV. 565 (2017); Henry E. Smith, *Intellectual Property as Property: Delineating Entitlements in Information*, 116 YALE L.J. 1742 (2007); Deepa Varadarajan, *Improvement Doctrines*, 21 GEORGE MASON L. REV. 657 (2014).

29. See Jeanne C. Fromer, *Claiming Intellectual Property*, 76 U. CHI. L. REV. 719, 726 (2009).

30. See *infra* sections II.B–C.

mechanism for analyzing inexact adaptations of protected information. Section C highlights the substantial derivation cases that purport to be analogizing to corresponding doctrines in patent law, yet don't seem to be doing a very good job. Finally, Section D does the same for cases analogizing to copyright.

### *A. Background*

Trade secret law protects valuable information that companies try to keep secret, including both technological inventions like chemical formulas and business information like pricing data.<sup>31</sup> While state trade secret laws vary at the margins, almost every state has enacted a version of the UTSA.<sup>32</sup> In 2016, Congress passed the DTSA, introducing a new federal civil claim for trade secret misappropriation that largely mirrors the UTSA.<sup>33</sup>

Trade secrecy has a different origin story than patent and copyright law. Rather than beginning with the First Congress exercising its powers under the Constitution's IP Clause,<sup>34</sup> trade secret protection grew out of nineteenth-century common law and unfair competition principles.<sup>35</sup> Despite the different provenance, however, most contemporary commentators have come to view trade secrets as a subset of IP, a tool

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31. See ROBERT P. MERGES ET AL., *INTELLECTUAL PROPERTY IN THE NEW TECHNOLOGICAL AGE* 44 (6th ed. 2012).
  32. The UTSA, a model state statute, was issued by the National Conference of Commissioners on Uniform State Laws in 1979. As of this writing, all states have adopted the UTSA except for Massachusetts, New York, and North Carolina. See Trade Secrets Act, UNIFORM L. COMMISSION, <http://www.uniformlaws.org/Act.aspx?title=trade+secrets+act>. More recently, the 1995 Restatement (Third) of Unfair Competition describes the principles of trade secret law, which are largely consistent with the UTSA. See RESTATEMENT (THIRD), *supra* note 5, §§ 39–45.
  33. For a discussion of the similarities and differences between the DTSA and UTSA, see Sharon K. Sandeen & Christopher Seaman, *Toward a Federal Jurisprudence of Trade Secret Law*, 32 *BERKELEY TECH. L.J.* 829 (2017); Lobel, *supra* note 11, at \*4–5.
  34. See U.S. Const. art. I, § 8, cl. 8 (providing that Congress shall have the power “to promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries”).
  35. See, e.g., James Pooley, *The Myth of The Trade Secret Troll, Why the Defend Trade Secrets Act Improves the Protection of Commercial Information*, 23 *GEO. MASON L. REV.* 1045, 1048 (2016). For a detailed history of the evolution of trade secret law in the United States, see generally Sharon Sandeen, *The Evolution of Trade Secret Law and Why Courts Commit Error When They Do Not Follow the Uniform Trade Secrets Act*, 33 *HAMLIN L. REV.* 493 (2010).

to promote innovation and information-sharing similar to patents and copyrights.<sup>36</sup> To acquire protection, a company possessing an eligible secret does not need to apply to any government agency or define *ex ante* the boundaries of their entitlements. The legal right simply springs into being by operation of law. As a result, tricky issues of trade secret validity and scope are left to be worked out through litigation.<sup>37</sup>

To qualify for protection, information must meet several criteria.<sup>38</sup> First, it must have “independent economic value, actual or potential.” Second, it cannot be “generally known” or “readily ascertainable” by others in the field, meaning that firms may not claim any exclusivity over published or well-known industry data. Third, even if those criteria are satisfied, the owner must continuously engage in reasonable measures to keep the information secret.<sup>39</sup> While a trade secret has no fixed term, protection expires as a practical matter once the secret gets out.<sup>40</sup>

To succeed on a trade secret claim, a plaintiff must show not only that a valid trade secret exists but also that the defendant misappropriated it.<sup>41</sup> Misappropriation can occur in a few ways. The first is wrongful acquisition. One may not learn a secret using “improper means,” a nebulous category that includes not only acts that are independently unlawful (think wiretapping or trespassing), but also those that fall below “generally-accepted standards of commercial morality and reasonable conduct.”<sup>42</sup> These improper means cases typically involve individuals with no prior relationship

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36. See, e.g., Mark A. Lemley, *The Surprising Virtues of Treating Trade Secrets as IP Rights*, 61 STAN. L. REV. 311, 324 (2008) (arguing that trade secrets are best conceptualized as intellectual property); ROGER M. MILGRIM, 1 MILGRIM ON TRADE SECRETS 73–98 (2006) (listing cases describing trade secrets as property and intellectual property); see also *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 484–86 (1974) (invoking similar economic rationales for trade secret law that underlie patent and copyright, such as “encourage[ing] invention” and “disseminat[ing] knowledge” rather than “hoard[ing]” it, but also noting the “maintenance of standards of commercial morality” as a motivating policy).

37. For a detailed comparison of the requirements of patent, copyright, and trade secret law, see Varadarajan, *supra* note 25, at 1411–12 (2014).

38. These criteria are laid out similarly in UTSA § 1(4) and 18 U.S.C. § 1839(3).

39. Reasonable secrecy efforts can take different forms in different contexts, including both physical and contractual means. For a discussion of this requirement and the reasons behind it, see generally Deepa Varadarajan, *Trade Secret Precautions, Possession, and Notice*, 68 HASTINGS L.J. 357 (2017).

40. See, e.g., MERGES ET AL., *supra* note 31, at 58; MILGRIM, *supra* note 36, § 1.05.

41. See UTSA § 1(2); 18 U.S.C. § 1839.

42. *E.I. DuPont de Nemours & Co. v. Christopher*, 431 F.2d 1012 (5th Cir. 1970) (quoting RESTATEMENT OF TORTS § 757 cmt. f at 10 (1939)). *Christopher*, likely the most famous improper means case, involved aerial spying.

to the plaintiff, potentially competitors, engaged in some form of competitive intelligence.<sup>43</sup>

A second and more common flavor of misappropriation is using or disclosing the secret in violation of a confidentiality duty. The vast majority of trade secret cases under state law involve departing employees accused of breaching express confidentiality duties in nondisclosure agreements.<sup>44</sup> Other business associates, such as joint-venture collaborators, suppliers, and distributors, may also be subject to express or implied confidentiality duties.<sup>45</sup> Early returns show this trend continuing under the DTSA, with two-thirds of all cases filed in the law's first year involving a current or former employee, a quarter involving a current or former business partner, and only a tenth involving parties without any prior relationship.<sup>46</sup> Finally, third parties can commit misappropriation by using or disclosing the secret if they "knew or had reason to know" that the information had previously been obtained through improper means or in violation of a confidentiality duty.<sup>47</sup>

Each of these acts is an independent basis for liability. A defendant who acquires a secret improperly has committed misappropriation, even without any subsequent disclosure or use. Likewise, a defendant who uses or discloses the secret in violation of a confidentiality duty has committed misappropriation, even if the initial acquisition of that secret was entirely proper (as is often the case with former employees or business associates).<sup>48</sup> Despite this conceptual distinction between acquisition, disclosure and use, plaintiffs may allege multiple theories, and courts sometimes blur the distinctions between them.<sup>49</sup>

Out of these various forms of misappropriation, disputes over adaptations of trade secrets will most likely implicate the meaning of unauthorized "use."<sup>50</sup> A defen-

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43. See Lemley, *supra* note 31, at 318.

44. See, e.g., Ameling et al., *supra* note 13, at 69 (finding that in 77% of state appellate decisions between 1995 and 2009, the alleged misappropriator was an employee or former employee).

45. See, e.g., *id.* at 68–69; MERGES ET AL., *supra* note 31, at 83.

46. David S. Levine & Christopher B. Seaman, *The DTSA At One: An Empirical Study of the First Year of Litigation Under the Defend Trade Secrets Act*, 53 WAKE FOREST L. REV. \_\_\_ (forthcoming 2018) (draft at 32), [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3112679](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3112679).

47. UTSA § 1(2); 18 U.S.C. § 1839.

48. See, e.g., *GlobeSpan, Inc. v. O'Neill*, 151 F. Supp. 2d 1229, 1235 (C.D. Cal. 2001).

49. See *infra* Part III.

50. We say most likely, rather than exclusively, because the firm that hires the former employee or associate

dant who improperly acquired the secret in the first instance would, after all, already be liable; downstream adaptation would be beside the point. In the typical scenario, an individual defendant was once associated with the trade secret owner before leaving to join a competitor or start a competing business himself. That business then either exploits a product or method that is different from—but arguably similar enough to—the trade secret. The owner then sues the individual (and sometimes the new employer) for using the secret without permission. The following sections walk through how courts have come to analyze these cases.

### *B. Substantial Derivation*

As in other areas of IP, actionable use in trade secrecy encompasses more than exact duplication. Trade secret protection would be “quite hollow,” in one court’s words, if it were not “flexible enough to reach modifications.”<sup>51</sup> The Restatement (Third) of Unfair Competition frames this comparative inquiry in terms of “substantial derivation”:

An actor is liable for using the trade secret [even] with independently created improvements or modifications if the result is substantially derived from the trade secret . . . . However, if the contribution made by the trade secret is so slight that the actor’s product or process can be said to derive from other sources of information or from independent creation, the trade secret has not been “used” for purposes of imposing liability. . . . Although the trade secret owner bears the burden of proving unauthorized use, proof of the defendant’s knowledge of the trade secret together with substantial similarities between the parties’ products or processes may justify an inference of use by the defendant.<sup>52</sup>

Several trade secret cases recite this Restatement formulation in assessing when similarity becomes actionable.<sup>53</sup> In theory, at least, “substantial derivation” comprises

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might itself face a claim for third-party use. That possibility is discussed further in Part III below.

51. *American Can*, 742 F.2d at 329–30. See also RESTATEMENT (THIRD), *supra* note 5, § 40, cmt. c (explaining that the defendant’s “unauthorized use need not extend to every aspect of feature of a trade secret” to give rise to liability).
52. RESTATEMENT (THIRD), *supra* note 5, § 40 cmt. c.
53. See, e.g., *GlobeRanger Corp. v. Software AG USA Inc.*, 836 F.3d 447, 498–99 (5th Cir. 2016); *Penalty Kick Mgmt., Ltd. v. Coca Cola Co.*, 318 F.3d 1284, 1293 (11th Cir. 2003); *SpearMarketing Inc. v. BancorpSouth Bank*, 791 F.3d 586, 601 (5th Cir. 2015); *EarthCam Inc. v. OxBlue Corp.*, 49 F.Supp.3d 1210, 1225 (N.D. Ga. 2014); *Callaway Golf Co. v. Dunlop Slazenger Gr. Americas, Inc.*, 325 F. Supp. 2d 457, 460–61 (D. Del. 2004).

two questions. First, as a threshold, factual matter, did the defendant rely on or benefit from information obtained from the plaintiff (as opposed to an entirely independent R&D process)? If so, a second question follows: was that reliance significant enough, as a normative matter, to warrant liability? As the Restatement emphasizes, some contributions will be “so slight” that the defendant cannot be held to have truly “used” the secret in a way the law should penalize.

Despite the Restatement’s nod toward a materiality threshold, many cases minimize or ignore it. They instead emphasize the defendant’s exposure to or reliance on some aspect of the plaintiff’s secret. Whether that aspect was significant doesn’t come up.

This inattention to materiality comes in different forms. In some cases, the court is so preoccupied with a defendant’s admission of use that it doesn’t seem to care that the information used was publicly available—and thus unprotectable in the first place. In *Smith v. Dravo Corp.*, for example, the defendant sold shipping containers, allegedly based on information that it obtained during confidential negotiations to acquire the plaintiff’s business.<sup>54</sup> Because much of the information was readily ascertainable from the containers that the plaintiff itself openly sold, the district court found no improper use of trade secret information.<sup>55</sup> But the Seventh Circuit disagreed, reasoning that even if the defendant could have obtained information from public sources, it in fact did not.<sup>56</sup> The court deemed the defendant’s use improper because its containers were “strikingly similar” to the plaintiff’s. Left unaddressed was the fact that many of those similarities were attributable to the containers’ publicly observable features.<sup>57</sup> The court neither isolated this unprotectable information nor asked whether the defendant had incorporated a qualitatively significant amount of protectable information.

Similarly, in *Rohm & Haas Co. v. Adco Chemical Co.*, the Third Circuit held a defendant liable for using a secret process for manufacturing latex paint vehicles, even though prior publications had revealed much of the relevant information already.<sup>58</sup>

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54. *Smith v. Dravo Corp.*, 203 F.2d 369 (7th Cir. 1953).

55. *Id.* at 374.

56. *Id.* at 374–75 (citing with approval Pennsylvania’s approach that asks “how did defendant learn of plaintiff’s design,” rather than whether “the design could have been obtained through inspection”).

57. *Id.* at 377.

58. 689 F.2d 424, 431 (3d Cir. 1982); see also *Franke v. Wilschek*, 209 F.2d 493, 495 (2d Cir. 1953) (“It matters not that defendants could have gained their knowledge from a study of the expired patent and

That the defendant happened to learn the information from the plaintiff, not from those publications, was enough. Likewise, in *Affiliated Hospital Products, Inc. v. Baldwin*, aspects of the plaintiff's process for manufacturing hypodermic needles were "already in the public domain" or could have been gleaned from "the end product, the machine itself."<sup>59</sup> That public availability didn't matter. Instead, the fact that the defendants "admitted they looked at" the plaintiff's design plans dominated the court's misappropriation analysis.<sup>60</sup>

In other cases, the plaintiff's secret may at least be protectable, but the court ignores or minimizes significant dissimilarities between it and the defendant's product. Instead, it focuses on defendant's access to the plaintiff's secret, seemingly indifferent to whether the copied elements were significant or trivial. On this score, a recent pair of software cases from the Fifth Circuit provides a notable study in contrasts.

In *Spear Marketing, Inc. v. BancorpSouth Bank*, the court reasoned that because the plaintiff's and defendant's competing bank inventory-management programs were insufficiently similar, the defendant could not have used the plaintiff's trade secrets.<sup>61</sup> Direct evidence had established that the defendant had been exposed to the secret. But the court required more than this.<sup>62</sup> It noted that the plaintiff could "point to no similarity" between the programs' interfaces and had failed to introduce any expert testimony "perform[ing] a side-by-side comparison of the two programs." Instead the plaintiff had merely touted the similarity of the two programs' "general function." Rejecting such a "toothless" view of similarity, the court concluded that "[s]uch an overly generous application of the [use] test would allow an inference of use in virtually every trade secret misappropriation claim in which there is evidence" that the defendant had access to plaintiff's proprietary information.<sup>63</sup> Despite trade

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plaintiffs' publicly marketed product. The fact is that they did not. Instead they gained it from plaintiffs via their confidential relationship . . . .")

59. 57 Ill. App. 3d 800, 806–07 (1978); see also *Reingold v. Swiftships, Inc.*, 126 F.3d 645, 652 (5th Cir. 1997) (failing to isolate information contained in a secret fiberglass boat mold that could be readily ascertained from "pre-existing hulls [that] were in the public domain").

60. 57 Ill. App. 3d at 807.

61. 791 F.3d 586, 590 (5th Cir. 2015) (observing that, among other differences, the defendant's program incorporated "different predictive algorithms" and involved a closer "integr[ation] with the rest of the bank's operating system" than the plaintiff's.).

62. *Id.* at 601 (citing RESTATEMENT (THIRD), *supra* note 5, § 40 cmt. c).

63. *Id.* at 602.

secret law’s generally “broad” definition of use,<sup>64</sup> the court nonetheless signaled that succeeding on a substantial derivation theory demands some showing of materiality, at least in cases where “the trade secret at issue is a *technical* feature of a computer program.”<sup>65</sup>

That proposition appears to have lasted barely more than a year before the same court changed course. In *GlobeRanger Corp. v. Software AG US Inc.*, the defendant had allegedly used trade secrets to develop a competing inventory-management software.<sup>66</sup> The Fifth Circuit upheld the jury’s verdict of misappropriation. On the issue of improper use, the court was unmoved by a “lack of similarity evidence” between the competitors’ software.<sup>67</sup> It was enough that they “perform[ed] similar functions.”<sup>68</sup> In the court’s view, a properly “broad” definition of trade secret use required only access to confidential information<sup>69</sup> plus “any exploitation” or use “on any level,” “in any way,” or “any part,” including any “reliance . . . in facilitating research and development.”<sup>70</sup> To the extent that the panel in *Spear* had suggested otherwise, it had been wrong.

Such sweeping language is common.<sup>71</sup> In some judicial formulations, the use element essentially becomes a “but for” test: if the defendant wouldn’t have thought to pursue a particular research project without having first been exposed to the secret, it has committed misappropriation—regardless of how far afield that research leads.<sup>72</sup>

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64. *Id.* at 600.

65. *Id.* at 600–01 (emphasis in original).

66. 836 F.3d 477 (5th Cir. 2016). Curiously, the plaintiff did not have to provide any “specific description of the trade secrets.” *Id.* at 492–93 (quoting *Wellogix*, 716 F.3d at 875.)

67. *Id.* at 497.

68. *Id.* at 499.

69. *Id.* at 499.

70. *Id.* at 498 (quoting *Plains Cotton*, 807 F.2d at 1263).

71. *See, e.g.*, *Think Village-Kiwi, LLC v. Adobe Sys.* No. C 08–04166 SI, 2009 WL 3837270, at \*\*3–4 (N.D. Cal. Nov. 16, 2009); *Affiliated Hospital Products, Inc. v. Baldwin*, 373 N.E.2d 1000, 1006 (App. Ct. Ill. 1978); *Superior Flux & Mfg. Co. v. H&S Indus.*, No. C 79-2327, 1980 WL 30229, at \*2 (N.D. Ohio Nov. 20, 1980).

72. *See, e.g.*, *Leggett & Platt, Inc. v. Hickory Springs Mfg. Co.*, 285 F.3d 1353, 1361 (Fed. Cir. 2002) (defining the actionable use standard as whether the defendant “could not have created its product without the use of [the plaintiff’s] trade secrets”); *Mangren Research & Development Corp. v. Nat’l Chem. Co.*, 87 F.3d 937, 944 (7th Cir. 1996) (upholding a jury instruction to “find that defendants misappropriated Mangren’s trade secrets even if defendants created a new product if defendants could

In such cases, it doesn't seem to matter if the defendant's product is significantly different. Nor does it seem to matter if the defendant is even competing with the plaintiff. Indeed, at least one court has flatly rejected the proposition that it would.<sup>73</sup>

Even when courts pay attention to similarity, they sometimes focus exclusively on quantity rather than its qualitative significance—a bean-counting approach that offers little insight into what work the similarity concept is supposed to be doing. Take, for instance, the Texas Court of Appeals' decision in *Bishop v. Miller*, a case concerning a secret process for mining potash.<sup>74</sup> The defendant, a once-potential investor who had observed the owner's methods but then backed away, argued that the process he employed was so dissimilar to the owner's that no actionable use had occurred. The owner's expert witness opined that the protected method consisted of 21 components, of which the defendant had copied 15.<sup>75</sup> That testimony, according to the court, was enough to sustain a jury's verdict of misappropriation despite a competing expert who considered the methods "fundamentally different."<sup>76</sup>

Perhaps this was the right result, or perhaps not. Either way, however, the court never appeared interested in the qualitative significance of those numbers. Is 15 out of 21 an important statistic because the overlap was enough to make the mining processes technologically equivalent? Because it somehow increased the commercial threat to the owner? Or just because 71% seems like a large number? On the face of the opinion, no one can say.

A similarly thin analysis appeared in *Reingold v. Swiftships, Inc.*<sup>77</sup> The case concerned a defendant who had modified a protected 90-foot boat-hull design to create the bow portion of a new 110-foot mold. Though the defendant alleged that it had altered the shape and form of the mold, the court denied summary judgment based in part on an expert's testimony that somewhere between 40 and 45 feet of the design

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not have done so without use of Mangren's trade secret").

73. See *Collelo v. Geographic Servs., Inc.*, 727 S.E.2d 55, 61–62 (Va. 2012) (reversing a favorable ruling for a defendant that did not compete with the plaintiff and holding that a misappropriation claim does not require "us[ing] the allegedly misappropriated trade secret to compete with the holder of the trade secret").

74. 412 S.W.3d 758 (Tex. Ct. App. 2013).

75. *Id.* at 774.

76. *Id.* at 774–75.

77. 126 F.3d 645 (5th Cir. 1997).

was essentially the same.<sup>78</sup> Of course, one could just as easily say that between 45 and 50 feet of the original mold was entirely different. Future litigants are left to guess why these numbers matter.

While such shallow focus on quantitative similarity will often hand plaintiffs dubious victories, it could also deprive them of deserved ones. The decision in *Dresser Indus. v. Forscan Corp.* shows how.<sup>79</sup> After the plaintiff accused its employee of handing a competitor trade secrets over an electronic device, the appeals court refused to enjoin the sale of the defendant's devices in part because the plaintiff "only characterized 25 of 1000 components of the tool as being similar."<sup>80</sup> Here, again, the mistake isn't that the reported opinion necessarily gets the answer wrong—wrong or right in this case isn't terribly obvious. The mistake is that the court doesn't seem interested in asking the right question. The court's discussion lacks a qualitative dimension. Perhaps those 25 components were the true point of novelty within the proprietary technology, while the other 975 were well-known in the field or unimportant surplusage. If so, the "1000" denominator of the court's fraction would grossly understate the plaintiff's contribution to the defendant's product.<sup>81</sup>

In sum, while in theory the Restatement's substantial derivation framework may allow courts to address a use's materiality, in practice many simply don't bother. One possible source of guidance is other IP regimes that have more established jurisprudences on actionable similarity. As the following two sections discuss, some cases have looked beyond trade secret precedent. Some have drawn analogies to patent law. A few others have invoked copyright law. In none of them, however, does the analogy seem to advance the analysis much.

### *C. Analogies to Patent Law*

The notion that trade secret law might borrow from patent law has an immediate appeal. Patent law covers functional inventions, from machinery to pharmaceuti-

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78. *Id.* at 649–51.

79. 641 S.W.2d 311 (Tex. Ct. App. 1982).

80. *Id.* at 317.

81. See also *Leo Silfen, Inc. v. Cream*, 278 N.E.2d 636 (N.Y. App. Div. 1972) (concluding that the defendant's contacting of "47 out of 1,100 of plaintiffs' customers . . . based on casual memory" did not constitute misappropriation of the plaintiff's customer list, without assessing the importance of the particular customers at issue).

icals,<sup>82</sup> and much of what could be patented could be maintained as a trade secret instead. Unsurprisingly, then, many trade secret cases have referenced patent doctrine in sorting through a defendant’s derivation.<sup>83</sup> Indeed, the connection between the two has a lengthy pedigree, going back at least to a 1927 decision by Judge Augustus Hand.<sup>84</sup>

Nevertheless, any analogy between these two regimes inevitably reaches a stumbling block. While trade secret scope is never defined on paper until it’s adjudicated, patent scope revolves around the written word. Patent cases compare the defendant’s product not with any tangible thing but with the patent document’s “claims,” highly stylized declarations of scope that courts often dub the “metes and bounds” of the invention.<sup>85</sup> A patent plaintiff must typically prove that each literal element within the relevant claim can be found within the defendant’s product.<sup>86</sup>

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82. See 35 U.S.C. § 101 (“Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent . . .”)
83. See, e.g., *Reingold v. Swiftships, Inc.*, 126 F.3d 645, 651 (5th Cir. 1997); *American Can Co. v. Mansukhani*, 742 F.2d 314, 330 (7th Cir. 1984); *Motorola, Inc. v. Computer Displays Int’l, Inc.*, 739 F.2d 1149, 1157–58 (7th Cir. 1984); *Syntex Ophthalmics, Inc. v. Tsuetaki*, 701 F.2d 677 (7th Cir. 1983); *Bolt Assocs. v. Alpine Geophysical Assocs.*, 365 F.2d 742, 748 (3d Cir. 1966); *Sinclair v. Aquarius*, 42 Cal. App. 3d 216, 222 (1974); *Materials Dev. Corp. v. Atl. Advanced Metals, Inc.*, 172 U.S.P.Q. 595, 615 (Mass. Super. Ct. 1971); *Cataphote Corp. v. Hudson*, 422 F.2d 1290, 1294 (5th Cir. 1970); *Minn. Min. & Mfg. Co. v. Tech. Tape Corp.*, 221 N.Y.S.2d 58, 60–61 (1961). *But see* *BladeRoom Gr. Ltd. v. Facebook, Inc.*, Case No. 5:15-cv-01370-EJD, 2018 WL 514923 514923, at \*8–9 (N.D. Cal. Jan. 23, 2018) (“[T]he method of defending against patent infringement by comparing claim limitations to elements, and showing that one does not read on the other, is unsuited to showing the absence of a triable fact of trade secret misappropriation.”); *In re Wilson*, 199 F.3d 1329 (4th Cir. 1999) (unpublished table opinion) (asserting without authority that the doctrine of equivalents is “primarily a patent law doctrine and its application in the trade secret context has been quite limited” and therefore refusing to consider it in assessing the alleged substantial derivation of a trade secret).
84. *Tower Mfg. Co. v. Monsanto Chem. Works*, 20 F.2d 386 (S.D.N.Y. 1927).
85. *E.g.*, *In re Vamco Mach. & Tool, Inc.*, 752 F.2d 1564, 1577 n.5 (Fed. Cir. 1985). The Patent Act requires patentees to include “one or more claims particularly pointing out and distinctly claiming the subject matter that the applicant regards as his invention.” 35 U.S.C. § 112. Early American patent law did not require them, however, leaving validity and infringement to be determined based on the written description of the invention. See, e.g., Jeanne C. Fromer, *Claiming Intellectual Property*, 76 U. CHI. L. REV. 719, 721 (2009); J. Jonas Anderson & Peter S. Menell, *Informal Deference: A Historical, Empirical, and Normative Analysis of Patent Claim Construction*, 108 NW. U. L. REV. 110–11 (2013).
86. See, e.g., *Advanced Steel Recovery, LLC v. X-Body Equip., Inc.*, 808 F.3d 1313, 1319 (Fed. Cir. 2015) (“To establish literal infringement, every limitation set forth in a claim must be found in an accused product, exactly.”)

As a result, when trade secret cases bring up patent law, they nearly always have in mind a judge-made exception called the doctrine of equivalents.<sup>87</sup> Under that doctrine, a product that skirts the literal words of a particular claim element may nonetheless infringe if it comes close enough.<sup>88</sup> To determine whether the defendant's device crosses that line, many courts ask whether an expert in the field would consider it "insubstantially different" or find that it "performs substantially the same function in substantially the same way to obtain substantially the same result" as the claim limitation.<sup>89</sup> Some supplement these tests by looking into the "known interchangeability" of claimed elements with features of the accused product.<sup>90</sup> The trial court may choose which test to apply based on the facts involved.<sup>91</sup> Whichever choice it makes, the Supreme Court has endorsed this common-law expansion of patent scope on the grounds that claim drafting is necessarily inexact and that "unscrupulous copyists" should not be allowed to change minor details of an invention to avoid a patent's literal scope.<sup>92</sup>

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87. One recent exception is *Contour Design, Inc. v. Chance Mold Steel, Co.*, 693 F.3d 102 (1st Cir. 2012). That case drew instead from § 102(f) of the prior Patent Act, a provision concerning validity rather than infringement, to interpret the meaning of the term "derived" in a non-disclosure agreement. *Id.*
88. See *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 21 (1997).
89. *E.g.*, *David Netzer Consulting Eng'r LLC v. Shell Oil Co.*, 824 F.3d 989, 998 (Fed. Cir. 2016); *Catalina Marketing International, Inc. v. Coolsavings.com, Inc.*, 289 F.3d 801, 813 (Fed. Cir. 2002).
90. See, *e.g.*, *Hearing Components, Inc. v. Shure Inc.*, 600 F.3d 1357, 1370–71 (Fed. Cir. 2010); *Warner-Jenkinson Co.*, 520 U.S. at 36; *Vulcan Engineering Co., Inc. v. Fata Aluminum, Inc.*, 278 F.3d 1366, 1374 (Fed. Cir. 2002); *Chiuminata Concrete Concepts, Inc. v. Cardinal Industries, Inc.*, 145 F.3d 1303, 1309 (Fed. Cir. 1998); *Cf.* *Toro Co. v. Deere & Co.*, 355 F.3d 1313, 1324 (Fed. Cir. 2004) (explaining that even though the claimed element and corresponding structure were interchangeable in terms of function, they were not structurally equivalent, and thus a district court's summary judgment of noninfringement was proper).
91. See *Warner-Jenkinson Co.*, 520 U.S. at 39–40 (concluding that the precise formulation of the test is "less important than whether the test is probative of the essential inquiry: Does the accused product or process contain elements identical or equivalent to each claimed element of the patented invention? Different linguistic frameworks may be more suitable to different cases, depending on their particular facts."); *Mylan Inst. LLC v. Aurobindo Pharma Ltd.* 857 F.3d 858, 867 (Fed. Cir. 2017) (explaining that the insubstantial differences standard "may be more suitable than [the function/way/result standard] for determining equivalence in the chemical arts").
92. See, *e.g.*, *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 535 U.S. 722, 731 (2002) ("If patents were always interpreted by their literal terms . . . [u]nimportant and insubstantial substitutes . . . could defeat the patent, and its value to inventors could be destroyed by simple acts of copying."); *Graver Tank & Mfg. Co. v. Linde Air Prods. Co.*, 339 U.S. 605, 607 (1950) (explaining that limiting patent scope to claims' literal terms "would leave room for—indeed encourage—the unscrupulous copyist to

Yet aside from the innocuous but unhelpful recognition that misappropriation can encompass a defendant's trivial modifications, these analogies to patent law are superficial. To begin with, modern patent law's equivalents analysis remains tied to the written claim. In an earlier era, patent cases would find equivalence by comparing the overall similarity between the plaintiff's and defendant's products.<sup>93</sup> But today a patentee must demonstrate equivalence between each element in the claim language and some corresponding structure in the accused device.<sup>94</sup> "Generalized testimony as to the overall similarity between the claims and the accused infringer's product or process will not suffice."<sup>95</sup> One missing element from the claim dooms a plaintiff's case, no matter how similar the rest of the defendant's product.

Trade secrets, by contrast, have no claims to speak of. Nor do they come presorted into elements. Courts must instead figure out trade secret scope on the spot.<sup>96</sup> It's

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make unimportant and insubstantial changes and substitutions").

93. See, e.g., *Graver Tank*, 339 U.S. at 610 (comparing the parties' compositions and finding the two "substantially identical in operation and in result"). In the era before patent claims were required, courts' analysis of patent infringement analysis bore "a remarkable resemblance" to *Graver Tank's* product-focused equivalence analysis. In the era of patent claiming, however, the doctrine of equivalents is seen as "an exception to the general rule that infringement is determined by claim language." ROBERT P. MERGES & JOHN F. DUFFY, *PATENT LAW & POLICY: CASES AND MATERIALS* 813 (6th ed. 2013); see also Michael J. Meurer & Craig Allen Nard, *Invention, Refinement, and Patent Claim Scope: A New Perspective on the Doctrine of Equivalents*, 93 GEO. L.J. 1947, 1963 (2004) ("As the prominence of claims increased, the equitable standards for non-literal patent infringement coalesced into the doctrine of equivalents").
94. *Warner-Jenkinson Co.*, 520 U.S. at 21, 29. Cf. Dan A. Burk & Mark Lemley, *Quantum Patent Mechanics*, 91 LEWIS & CLARK L. REV. 29 (2005) (critiquing the way that courts identify an invention's "elements").
95. *Tex. Instruments Inc. v. Cypress Semiconductor Corp.*, 90 F.3d 1558, 1567 (Fed. Cir. 1996).
96. In some sense, to be sure, patent claims don't come presorted, either. One can't break a claim into constituent elements without knowing where one element ends and the next begins, and the answer is often contestable. See Burk & Lemley, *supra* note 94, at 31 (noting the lack of an established standard "as to either the size of the textual element or the level of abstraction at which the element will be evaluated" and that "[c]ourts define an element almost arbitrarily"); Matthew C. Phillips, *Taking a Step Beyond Maxwell to Tame the Doctrine of Equivalents*, 11 FORDHAM INTELL. PROP. MEDIA & ENT. L.J. 155, 162 (2000) ("The definition of an 'element' is slippery and probably cannot be settled without some resort to arbitrariness."). Nevertheless, claims at least arrive with a fixed text over which to argue. To disaggregate physical objects into elements, by contrast, would require a new text to be constructed from scratch, even if only in the mind of the disaggregator. As interpretively complex as the identification of textual elements is, that complexity is only multiplied when there is no agreed-upon language in which to find them.

unclear how a tool meant to help map words to physical things could help courts when there are no words in sight. Unsurprisingly, then, no trade secret case that invokes the doctrine of equivalents appears to draw any substantive lesson from it. It's little more than jurisprudential name-dropping.

While these structural differences make patent law's doctrine of equivalents a mismatch, it has one feature that trade secrecy realistically could—but often doesn't—incorporate. The relevant audience for evaluating equivalence is, as with most patent doctrines, the technical expert.<sup>97</sup> Courts ask fact-finders to channel the view of a person having ordinary skill in the art in assessing similarity. Given the technical nature of most patentable subject matter, expert testimony is often critical to assessing allegedly insubstantial differences.<sup>98</sup>

But because trade secret cases haven't settled on an appropriate fact-finder's perspective to begin with, the role of technical experts in sorting through substantial derivation remains up for grabs. In *Bolt Assocs. v. Alpine Geophysical Assocs.*, for example, the Third Circuit considered design differences between the owner's secret device for conducting ocean floor surveys and the defendant's allegedly similar devices.<sup>99</sup> In concluding that the defendant's devices incorporated the plaintiff's trade secrets, the court focused on their “mechanical equivalence” and similar functions, observing that “there is no apparent reason why the analogy may not be made to the doctrine of equivalence in patent law.”<sup>100</sup> Despite the analogy, however, the court relied mostly on its own perception of the products' overall dissimilarity, rather than the perspective of one already familiar with the relevant technology.<sup>101</sup>

Similarly, in *Sinclair v. Aquarius*, the court seemed not to rely on an expert's perspective in concluding that the defendant's miniaturized devices for converting brain signals into audible form “functioned substantially the same way and accomplished

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97. See *AquaTex Indus., Inc. v. Techniche Sols.*, 479 F.3d 1320, 1329 (Fed. Cir. 2007).

98. See *id.* (concluding that, in order to rely on the doctrine of equivalents, a plaintiff must present evidence “through the particularized testimony of a person of ordinary skill in the art, typically a qualified expert, who (on a limitation-by-limitation basis) describes the claim limitations and establishes that those skilled in the art would recognize the equivalents”).

99. 365 F.2d 742, 748 (3d Cir. 1966).

100. *Id.*

101. *Id.* (observing that, although “[t]here are, to be sure, differences in the two devices . . . the matter [was not] so technical or complex that it was beyond the understanding of the court”).

substantially the same result”<sup>102</sup> as the plaintiff’s trade secret, which had been demonstrated to the defendant on a “large[r] device.”<sup>103</sup>

Other trade secret cases that invoke the doctrine of equivalents do a better job incorporating expert opinion. In *Syntex Ophthalmics, Inc. v. Tsuetaki*,<sup>104</sup> for example, the Seventh Circuit relied on the testimony of a chemical compounds expert to conclude that trade secret defendants’ compounds for making rigid gas permeable contact lenses were “closely related to and functioned the same way to achieve the same result as” the plaintiff’s trade secret-protected compounds.<sup>105</sup> Similarly, in *Motorola, Inc. v. Computer Displays Int’l*, the same court relied on expert testimony to conclude that defendants’ cathode ray tube monitors were “equivalent in terms of means, function and result” to monitors embodying plaintiff’s trade secrets.<sup>106</sup>

In short, the patent system’s doctrine of equivalents has less to offer trade secret law than the courts invoking it seem to let on. If judges are going to look to patent law for guidance, especially in technologically complex cases, they should at least consult the views of those who know the technology best. Beyond that, however, the analogy is mainly an empty gesture.

#### *D. Analogies to Copyright Law*

While judges seeking doctrinal parallels in other IP regimes most commonly look to patent law, a handful of cases have drawn instead from copyright.<sup>107</sup> Copyright law covers works of authorship such as books, music, films, and software<sup>108</sup> — though it’s virtually always the last of these that is at issue in cases on trade secret de-

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102. 42 Cal. App. 3d 216, 222 (1974) (citing *Graver Tank Mfg. Co. v. Linde Co.*, 339 U.S. 605, 607 (1950)).

103. *Id.* at 219.

104. 701 F.2d 677 (7th Cir. 1983).

105. *See id.* at 684 (concluding that the lower court “properly applied the doctrine of equivalents” in finding “the compounds in question ‘were closely related to and functioned the same way to achieve the same result’ as proscribed compounds”).

106. 739 F.2d 1149, 1157–58 (7th Cir. 1984).

107. *See, e.g.*, *Comprehensive Techs. Int’l v. Software Artisans, Inc.*, 3 F.3d 730 (4th Cir. 1993), *vacated pursuant to settlement* (Sept. 30, 1993); *Engenium Solutions, Inc. v. Symphonic Techs., Inc.* 924 F. Supp. 2d 757 (S.D. Tex. 2013); *Integral Sys. v. Peoplesoft, Inc.*, 1991 WL 498874 (N.D. Cal. July 19, 1991).

108. *See* 17 U.S.C. § 102(a).

rivation.<sup>109</sup> If the judges in these cases are aware of their peers' reliance on patent law, they don't say so. But just as in the patent-analogy cases, the move to copyright doctrine ends up doing little work in the analysis.

Copyright protection extends only to a work's particular expression of ideas, not to the ideas themselves.<sup>110</sup> Still, far more than the complete, literal text falls on the "expression" side of the divide. Abstract patterns and fragments of a work can qualify, from a plotline in a narrative work to a melody lines in a musical one. As a result, copyright ends up policing against not only verbatim but also nonverbatim copying, "else a plagiarist would escape by immaterial variations," in Judge Learned Hand's famous phrasing.<sup>111</sup> At the same time, the law also recognizes that "not all copying . . . is copyright infringement."<sup>112</sup> Just as in trade secret and patent law, the trick is figuring out which is which.

To accomplish that task, copyright doesn't look to any prewritten claims as patent law does. Instead, it assesses the works' likeness directly through two theoretically distinct but practically overlapping doctrines: substantial similarity and the derivative work right. First, in order for a plaintiff to succeed on any claim of infringement under the Copyright Act, she must show that the defendant's work is substantially similar to her own.<sup>113</sup> While copying an entire work is not necessary for an infringement claim, neither is the bare fact of copying *something* sufficient for it. The copied expression must also be significant, whether quantitatively or qualitative-

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109. The one non-software case that we have found in this category should never have included a trade secrecy claim to begin with. In *Stromback v. New Line Cinema*, the purported secrets at issue were a screenplay and a poem. 384 F.3d 283 (6th Cir. 2004). Because these expressive goods require public dissemination to achieve economic value, the court rightly found them to be ineligible subject matter for trade secret protection. But as an alternative basis for dismissal, the court also concluded that the only similarities between the defendant's and plaintiff's works were stock themes, which by definition are not secrets.

110. *Id.* § 102(b); *Nichols v. Universal Pictures Corp.*, 45 F.2d 119 (2d Cir. 1930).

111. *Nichols*, 45 F.2d at 121.

112. *Feist Publ'ns, Inc. v. Rural Tel. Serv. Co.*, 499 U.S. 340, 361 (1991).

113. *See, e.g., Nichols*, 45 F.2d at 121 ("[T]he question is whether the part so taken is substantial."); ROBERT C. OSTERBERG & ERIC C. OSTERBERG, *SUBSTANTIAL SIMILARITY IN COPYRIGHT LAW* § 1:1 (2017); WILLIAM F. PATRY, 3 *PATRY ON COPYRIGHT* § 9:59 (2017) ("For copying to constitute infringement, a defendant must have reproduced a material amount of the plaintiff's expression, or as is frequently stated, the parties' works must be 'substantially similar.'").

ly.<sup>114</sup> This judge-made gloss on statutory copyright protection functions as a materiality threshold for all infringement actions.<sup>115</sup>

Second, the Copyright Act also grants owners the exclusive right to “prepare derivative works based upon the copyrighted work.”<sup>116</sup> The statute defines these works broadly as “work[s] based upon one or more preexisting works” and includes a representative catalog of examples like translations and abridgments.<sup>117</sup> Many courts identify a work as a derivative by asking whether it would qualify as substantially similar under the reproduction right, seemingly conditioning infringement of one right on infringement of another.<sup>118</sup> It’s thus not clear what the derivative work right formally adds to the scope of the owner’s protection. As some have noted, the right often ends up covering the same ground that the substantial similarity doctrine already covers.<sup>119</sup> Indeed, the derivative work right’s primary real-world effect may simply be to enlarge the reproduction right with which it so often travels.<sup>120</sup> For that rea-

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114. See *Harper & Row Publ’ns v. Nation Enters.*, 471 U.S. 539, 543, 548–49 (1985).

115. See Shyamkrishna Balganes, *The Normativity of Copying in Copyright Law*, 62 DUKE L.J. 203, 206 (2012) (explaining that substantial similarity doctrine “places the burden to establish that the defendant’s copying is actionable as a legal proposition on the plaintiff in a copyright-infringement suit, even when the copying is shown to exist as a factual matter.”).

116. 17 U.S.C. § 106(2).

117. 17 U.S.C. § 101. The full list is: “a translation, musical arrangement, dramatization, fictionalization, motion picture version, sound recording, art reproduction, abridgment, condensation, or any other form in which a work may be recast, transformed, or adapted.” *Id.*

118. See, e.g., *Well-Made Toy Mfg. Corp. v. Goffa Int’l Corp.*, 354 F.3d 112, 117 (2d Cir. 2003), *abrogated on other grounds by* *Reed Elsevier, Inc. v. Muchnick*, 559 U.S. 154 (2010) (noting that the same “substantial similarity” test applies whether the defendant’s product is analyzed as a reproduced work or a derivative work); *Litchfield v. Spielberg*, 736 F.2d 1352, 1357 (9th Cir. 1984) (stating that the derivative work standard examines whether the accused work “would be considered an infringing work if the material which it has derived from a prior work had been taken without the consent of a copyright proprietor of such prior work” (quoting *United States v. Taxe*, 540 F.2d 961, 965 n.2 (9th Cir. 1976) (emphasis added)) (internal quotation mark omitted)).

119. See MELVILLE B. NIMMER & DAVID NIMMER, NIMMER ON COPYRIGHT § 8.09[A] (2017); Michael Abramowicz, *A Theory of Copyright’s Derivative Right and Related Doctrines*, 90 MINN. L. REV. 317, 334–35 (2005); Joseph P. Fishman, *Creating Around Copyright*, 128 HARV. L. REV. 1333, 1347 (2015); Jeanne C. Fromer, *An Information Theory of Copyright Law*, 64 EMORY L.J. 71, 109–10 (2014); Lemley, *supra* note 3, at 1018–19; Kelly Casey Mullaley, *Blocking Copyrights Revisited*, 37 COLUM. J.L. & ARTS 57, 73 (2013); Jed Rubenfeld, *The Freedom of Imagination: Copyright’s Constitutionality*, 112 YALE L.J. 1, 50 (2002).

120. See Christina Bohannon, *Reclaiming Copyright*, 23 CARDOZO ARTS & ENT. L.J. 567, 599–600 (2006).

son, we discuss them as a pair.

In order to assess unlawful similarity, courts have developed different approaches depending on how technically complex the work's subject matter is. In most cases involving artistic works like novels or paintings, they instruct juries to adopt a layperson's perspective.<sup>121</sup> The question of fact posed to this hypothetical layperson is, in one leading formulation's words, whether "the ordinary observer, unless he set out to detect disparities, would be disposed to overlook them, and regard their aesthetic appeal as the same."<sup>122</sup>

In cases involving technical works like software code, by contrast, courts are more willing to consult technical experts. In a widely-influential decision, the Second Circuit concluded in *Computer Associates Int'l v. Altai, Inc.* that the ordinary layperson could not make sufficient sense of code's complexities.<sup>123</sup> Approvingly quoting the lower court, it explained that "[i]n the context of computer programs, many of the familiar tests of similarity prove to be inadequate, for they were developed histor-

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121. See, e.g., *Rottlund Co. v. Pinnacle Corp.*, 452 F.3d at 726, 731 (8th Cir. 2006); *Boisson v. Banian*, 273 F.3d 262, 272 (2d Cir. 2001); *Yankee Candle Co., Inc. v. Bridgewater Candle Co., LLC*, 259 F.3d 25, 33–34 (1st Cir. 2001); *Leigh v. Warner Bros., Inc.*, 212 F.3d 1210, 1214 (11th Cir. 2000); *Universal Athletic Sales Co. v. Salkeld*, 511 F.2d 904, 907 (3d Cir. 1975).

122. *Boisson*, 273 F.3d at 272. The gravitational pull of this "ordinary observer" standard traces back to the Second Circuit's 1946 opinion in *Arnstein v. Porter*. 154 F.2d 464, 467 (2d Cir. 1946). Various courts of appeal have put their own individual stamp on the test, though *Arnstein's* factual subjectivity remains copyright's touchstone for assessing legally actionable similarity. The most important of these is the Ninth Circuit, which has subdivided the question of similarity into "intrinsic" and "extrinsic" inquiries. See *Sid & Marty Krofft Television Prods., Inc. v. McDonald's Corp.*, 562 F.2d 1157, 1162–65 (9th Cir. 1977). While the intrinsic test retains the focus on observers' holistic impressions, the extrinsic test allows some degree of analytic dissection, often with the help of expert testimony. See *Three Boys Music Corp. v. Bolton*, 212 F.3d 477, 485 (9th Cir. 2000). Later decisions have acknowledged that these terms are a poor fit for the concepts they describe; the two-step analysis could "more sensibly described as objective and subjective analyses of expression." *Shaw v. Lindheim*, 919 F.2d 1353, 1357 (9th Cir. 1990).

123. 982 F.2d 693, 713 (2d Cir. 1992) (remarking that while a reasonable-person approach "may well have served its purpose when the material under scrutiny was limited to art forms readily comprehensible and generally familiar to the average lay person[,] . . . computer programs are likely to be somewhat impenetrable by lay observers—whether they be judges or juries . . ."); see also Mark A. Lemley, *Our Bizarre System for Proving Copyright Infringement*, 57 J. COPYRIGHT SOC'Y USA 719, 733 (2010) (noting the exceptionality of software cases and that "[v]irtually all the courts considering infringement of computer code have permitted expert testimony as to . . . the issue of improper appropriation").

ically in the context of artistic and literary, rather than utilitarian, works.”<sup>124</sup> *Altai* tells courts in software-infringement cases to abstract the program into various levels of generality (from overall objectives at the top all the way down to the object code at the bottom); filter out any uncopyrightable elements, including both the higher levels of abstraction as well as unprotectable details like public-domain material, methods of operation, and well-known programming techniques; and then compare the remaining expressive kernel with the corresponding elements in the allegedly infringing program.<sup>125</sup> Other circuits have since followed the Second Circuit’s lead.<sup>126</sup>

If courts are going to invoke copyright law to decide trade secret derivation cases, one might have expected them to feature *Altai*’s dissective approach prominently. But they don’t. Nor do they seem to agree on whether copyright’s threshold for actionable similarity should be less than, more than, or the same as trade secrecy’s. Their only common denominator is the same proposition for which other trade secret cases mention patent doctrine: that *some* nonliteral similarity can trigger liability. Never quite explained is how much. As a result, they do little to justify whether trade secret analysis should be looking to copyright doctrine to begin with, and, if so, which way that comparison would cut.

In *Comprehensive Technologies International v. Software Artisans, Inc.*,<sup>127</sup> for example, the Fourth Circuit observed in dicta that trade secrecy’s similarity threshold ought to be lower than copyright’s. It reasoned that a trade secret, unlike a copyright, affords its owner control over ideas (rather than merely those ideas’ expression).<sup>128</sup> As a result, two works “may be sufficiently dissimilar on the level of expression to defeat liability for copyright infringement, but they may be sufficiently similar on a more abstract or ideational level to establish liability for trade secret misappropriation.”<sup>129</sup>

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124. *Id.* (quoting 775 F. Supp. 544, 558 (1991)). The court was careful to emphasize that it did not “intend to disturb the traditional role of lay observers in judging substantial similarity in copyright cases that involve the aesthetic arts, such as music, visual works or literature.” *Id.* at 713–14. For an argument that the literary arts have their own interpretive complexities that demand precisely such a disturbance, see Zahr K. Said, *Reforming Copyright Interpretation*, 28 HARV. J. L. & TECH. 469 (2015).

125. 982 F.2d at 710.

126. See, e.g., *Gen. Universal Sys., Inc. v. Lee*, 379 F.3d 131, 142 (5th Cir. 2004); *Gates Rubber Co. v. Bando Chem. Indus., Ltd.*, 9 F.3d 823, 834–36 (10th Cir. 1993).

127. 3 F.3d 730 (4th Cir. 1993), *vacated pursuant to settlement* (Sept. 30, 1993).

128. *Id.* at 736 n.7.

129. *Id.*

Because the computer programs at issue in the case were so radically dissimilar at even this more generalized “ideational” level, the court never needed to fix the quantum of actionable similarity any more precisely than this. Nevertheless, it still signaled to future litigants that a trade secret owner has a right to control a wider range of derivatives than would a copyright owner.

Contrast that position with the one adopted by the district court in *Integral System v. Peoplesoft, Inc.*,<sup>130</sup> another dispute over software. The plaintiff alleged both copyright infringement and trade secret misappropriation. In dismissing both claims, the court noted that the parties cited no authority or standard on the question of similarity in trade secret cases, instead relying on the same arguments they had made regarding copyright infringement.<sup>131</sup> Without considering potential differences between the two forms of liability, the court essentially copied its noninfringement holding from the copyright analysis and pasted it into its trade secrecy analysis. “At a minimum,” it asserted, “the ‘substantial identity’ test under trade secret law would seem no less stringent than the ‘substantial similarity’ test applied under claims of infringement.”<sup>132</sup> In the court’s view, then, the similarity threshold for trade secret misappropriation is at least as demanding of plaintiffs—perhaps even more, but certainly not less—than its copyright cousin. The court seemed to assume this proposition to be self-evident, offering no rationale for the comparison.

Such double-duty similarity analysis also appeared in *Engenium Solutions, Inc. v. Symphonic Technologies, Inc.*<sup>133</sup> After deciding that a jury could reasonably find the plaintiff’s copyrighted software to be substantially similar to the defendant’s, the court incorporated that finding by reference when it turned to the trade secrecy claim. It noted the existence of the “many similarities” that supported its decision not to dismiss the copyright claim, but it never considered whether similarity ought to be measured the same way on the trade secrecy side.<sup>134</sup>

It’s puzzling that only these few cases so much as broach the possibility of drawing from copyright’s similarity toolkit. It can’t be out of judges’ reasoned choice to favor patent doctrine or a sui generis approach in trade secrecy disputes—the reasoning

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130. 1991 WL 498874 (N.D. Cal. July 19, 1991).

131. *Id.* at \*10.

132. *Id.*

133. 924 F. Supp. 2d 757 (S.D. Tex. 2013).

134. *Id.* at 795–96.

simply never appears in a judicial decision. Courts seem unaware that the choice is even available. Indeed, the likeliest explanation for why these cases gesture toward copyright at all is simply proximity within the legal briefs. The plaintiff in each case had asked the court to adjudicate both copyright and trade secrecy claims alongside each other. Having put in the legwork to assess the works' substantial similarity under copyright law, these courts may reflexively be applying the same analysis again for trade secrecy.

## II. WHAT TRADE SECRECY DOCTRINE CAN LEARN

Relative to copyright and patent, trade secrecy is a young body of law.<sup>135</sup> Perhaps unsurprisingly then, its doctrine on comparing nonidentical products isn't quite fully developed. Yet as trade secrecy expands further into both federal courts and firms' strategic planning, it ought to take seriously how its older IP peers approach the issue.

We're mindful that some consistencies are foolish. Harmonization between exclusive-rights regimes that cover different subject matter isn't necessarily justified for its own sake. If there were a good reason for trade secrets to give their owners broader control of adaptive uses than do patents or copyrights, then we would defend its exceptionalism.<sup>136</sup>

But if anything, the current law gets things backwards. The case for narrowing an owner's control of adaptive uses is arguably even stronger for trade secrets than for other areas of IP. That case revolves around the owner's scope of exclusivity and the range of alternatives available to would-be defendants trying to avoid liability. Start with copyrights and patents. When a second comer winds up unable to use copyrighted or patented information, a substitute is often available, even if imperfect. Indeed, both bodies of law contain judge-made doctrines designed to prevent an owner's entitlement from growing so broad as to exhaust resources for downstream innovation within the field.<sup>137</sup> Beyond limiting the scope of upstream entitlements,

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135. See Lemley, *supra* note 36, at 315. See *supra* text accompanying note 34 to note 35.

136. Cf. Mark A. Lemley, *The Fruit of the Poisonous Tree in IP Law*, 103 IOWA L. REV. 245, 263 (2017) (noting that differences between IP regimes aren't necessarily bad).

137. See, e.g., *Gates Rubber Co. v. Bando Chemical Indus.*, 9 F. 3d 823, 838 (10th Cir. 1993) (discussing copyright's merger doctrine, a "prophylactic device to ensure that courts do not unwittingly grant protection to an idea by granting exclusive rights to the only, or one of only a few, means of expressing that idea"); *McRO, Inc. v. Bandai Namco Games Am. Inc.*, 837 F. 3d 1299, 1313–14 (Fed. Cir. 2016)

each regime in its own way tries to subsidize second comers' ability to avoid infringement. Copyright doctrine, as section A below outlines, shows special solicitude for downstream authors who use the owner's work in interim drafts only in order to ultimately avoid it. Patent doctrine, meanwhile, tries to cabin the doctrine of equivalents to ensure that inventors' design-around efforts don't subject them to enhanced damages for willfulness if they guess wrong and end up infringing the patent.<sup>138</sup> Turning from results to rhetoric, courts view such attempts to circumvent others' exclusive rights as a healthy part of the IP system.<sup>139</sup> Both regimes, in sum, signal that adapters are welcome.<sup>140</sup>

Trade secrecy, by contrast, gives those adapters no such doctrinal safety valves—and often leaves them with far fewer meaningful choices. A popular refrain in misappropriation cases is that courts “cannot compel a man who changes employers to wipe clean the slate of his memory.”<sup>141</sup> True enough. But often it seems like they're trying to. By tying actionable “use” to the conferral of a commercial advantage rather than to the development of a similar product, trade secret law threatens to leave those

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(observing that the “primary concern driving” the jurisprudence around patentable subject matter is ensuring that a patent does not preempt an entire field of inventive activity).

138. *See, e.g., State Indus., Inc. v. A.O. Smith Corp.*, 751 F.2d 1226, 1235–36 (Fed. Cir. 1985).

139. The Federal Circuit has repeatedly endorsed designing around as a driver of creativity and competition. *See, e.g., TiVo Inc. v. EchoStar Corp.*, 646 F.3d 869, 883 (Fed. Cir. 2011) (en banc); *Hilton Davis Chem. Co. v. Warner-Jenkinson Co.*, 62 F.3d 1512, 1520 (Fed. Cir.) (per curiam), *supplemented by* 64 F.3d 675 (Fed. Cir. 1995) (per curiam), *rev'd on other grounds*, 520 U.S. 17 (1996); *Yarway Corp. v. Eur-Control USA, Inc.*, 775 F.2d 268, 277 (Fed. Cir. 1985); *State Indus., Inc. v. A.O. Smith Corp.*, 751 F.2d 1226, 1235–36 (Fed. Cir. 1985); *see also James P. Marsh Corp. v. U.S. Gauge Co.*, 129 F.2d 161, 165 (7th Cir. 1942) (concluding that when a downstream inventor designs around a patent, “the patent system is working at its best. For it is then that we have competition between a holder of a legal monopoly and his competitors.”). While copyright cases don't offer the same rhetorical enthusiasm, they still expressly permit the practice. *See, e.g., Eden Toys, Inc. v. Marshall Field & Co.*, 675 F.2d 498, 501 (2d Cir. 1982) (“Even if an alleged copy is based on a copyrighted work, ‘a defendant may legitimately avoid infringement by intentionally making sufficient changes in a work which would otherwise be regarded as substantially similar to that of the plaintiff’s.’”) (quoting *Warner Bros. Inc. v. Am. Broad. Co.*, 654 F.2d 204, 210 (2d Cir. 1981)).

140. We recognize that this welcome might not be as warm as some readers would like. Would the world be a better place if fair use were easier to prove in court, or patent claim construction less muddy, or if any number of other potential reforms were adopted? Maybe. But we emphasize that our argument is a comparative one. Studying trade secrecy can make scholars of copyright or patent appreciate what they already have.

141. *E.g., Futurecraft Corp. v. Clary Corp.*, 205 Cal. App. 2d 279, 288 (1962).

employees with little alternative but to find different projects altogether. While other IP regimes celebrate designing around, trade secrecy punishes it just the same as outright duplication.<sup>142</sup> Courts scold defendants who study an existing invention and use it “as a springboard to launch [one’s] own approach,” as if that were a bug rather than a feature of the innovation process.<sup>143</sup> When prior exposure to a trade secret gives an individual knowledge, the case law’s “but for” standard of causation essentially tells that individual not to put that knowledge to commercial use ever again.<sup>144</sup> That cannot be the right result for innovation policy.

To a limited degree, trade secrecy case law is already willing to look beyond its four corners to find guidance on how to police derivation. As the previous Part discussed, courts sometimes gesture toward other exclusive-rights regimes when weighing a defendant’s adaptive use of a plaintiff’s secret. But these doctrinal analogies, when they happen at all, are almost uniformly superficial. Out of these analogies, judges’ favorite is patent law’s doctrine of equivalents. Patent practitioners, however, wouldn’t recognize much of what they saw. In trade secrecy’s hands, the analogy does precious little work beyond the bare and banal proposition that liability doesn’t require an absolute identity between products. Courts frequently omit an intended vantage point for fact-finders and then proceed to evaluate trade secrecy’s unwritten scope on a gestalt basis, a move that contemporary patent doctrine would deem a cardinal sin.<sup>145</sup>

We doubt that the doctrine of equivalents, tied as it is to written claims that simply don’t exist for secret information, is the best place for trade secrecy to look. In fact, patent law is probably receiving more attention overall than it should. Instead, it’s copyright—neglected by all but a handful of cases—that offers the biggest suggestions for improvement. Copyright’s maxim that “not all copying . . . is copyright in-

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142. See, e.g., *Smith v. Dravo Corp.*, 203 F.2d 369 (7th Cir. 1953); *Affiliated Hospital Products, Inc. v. Baldwin*, 373 N.E.2d 1000, 1006 (App. Ct. Ill. 1978); see also Michael R. McGurk & Jia W. Lu, *The Intersection of Patents and Trade Secrets*, 7 HASTINGS SCI. & TECH. L.J. 189, 205 (2015) (“[U]nlike patent cases where a defendant can design around the patent to avoid infringement, a trade secret defendant’s design around attempts will not suffice, because designing around a trade secret cannot undo the knowledge and unauthorized use of the trade secret to facilitate the design around.”).

143. *Monovis, Inc. v. Aquino*, 905 F. Supp. 1205, 1232 (W.D.N.Y. 1994). The defendant in *Monovis* had expressly tried to design around a former employer’s trade secret, which the court considered damning evidence of misappropriation. *Id.*

144. See *supra* text accompanying note 66 to note 72.

145. See *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 21 (1997).

fringement”<sup>146</sup> recognizes that some uncompensated benefits aren’t worth penalizing. Even if a copyright defendant values a work enough to imitate it, a court’s inquiry has only just begun.

In this Part, we examine three features of copyright’s infringement framework that would serve trade secrecy well but that have long been overlooked by courts—including the courts that are trying to draw from that very framework. First, the plaintiff’s product should be compared with the product that the defendant is actually exploiting, not with the defendant’s earlier steps along the way. Through both its fair use doctrine and its permissive treatment of a defendant’s preliminary drafts (what judges have come to call “intermediate copying”), copyright law gives leeway to second comers to use an owner’s work as a springboard toward something new, so long as that something doesn’t interfere with the owner’s relevant markets.

While this first feature concerns what courts should be looking at, the second and third concern what courts should be looking for. It’s not enough to show exploitation of some information taken from the plaintiff; the plaintiff must also show that it was qualitatively material to the protected product. Finally, an owner should be entitled to control exploitation of that material information in reasonably foreseeable markets but not in remote ones that could not have been anticipated *ex ante*.

To be sure, it’s not that copyright has devised an ideal similarity standard.<sup>147</sup> Still, whatever its shortcomings, it has developed a more nuanced jurisprudence that makes analytical moves worth emulating. The sections that follow present the case for importing them into the elements of trade secret misappropriation.<sup>148</sup>

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146. *Feist Publ’ns, Inc. v. Rural Tel. Serv. Co.*, 499 U.S. 340, 361 (1991).

147. For good critiques, see, for example, Lemley, *supra* note 123; Samuelson, *supra* note 3.

148. We style these recommendations as parts of the plaintiff’s case, rather than as affirmative defenses, because the plaintiff is best positioned to produce the relevant evidence. As between the parties, it’s the plaintiff who knows what is material to its project and whether it or its industry peers foresaw the commercial use at issue. *Cf. Cambridge Univ. Press v. Patton*, 769 F.3d 1232, 1279 & n.34 (11th Cir. 2014) (placing the burden on the plaintiffs to prove market harm in a fair use case because “where one party has all the evidence on a particular issue . . . it is equitable to require that party of go forward with the evidence.”); Lydia Loren, *Fair Use: An Affirmative Defense?*, 90 WASH. L. REV. 685, 704 (2015) (criticizing other decisions that treat copyright’s fair use doctrine as an affirmative defense, given that “the plaintiff typically is in a better position to provide evidence of the presence of harm to relevant markets if such harm exists”).

### *A. Intermediate Copying*

In a garden variety copyright infringement case, the product that is alleged to constitute an illicit copy is the same product that the defendant is exploiting. But sometimes the relevant copy is merely preliminary, a means toward a noninfringing end. How strictly courts scrutinize such so-called “intermediate copying” depends somewhat, like the substantial similarity standard itself, on the type of work at issue. But even at its strictest, copyright law gives such defendants an easier path than it would in a case of direct of exploitation.

When the work at issue is an artistic one like a novel, play, or film, courts generally allow second comers to make undistributed copies in the course of making a noninfringing work. This categorical approach allows a writer to produce initial drafts that tread closely on a copyrighted predecessor so long as the final draft is not substantially similar to it.<sup>149</sup> As the Ninth Circuit once explained, merely making “working copies” is insufficient to trigger liability because “[c]opyright law’s prohibition against ‘copying’ does not prevent a subsequent author from making photocopies to use solely as source material.”<sup>150</sup>

An important reason for this permissiveness is that others’ intermediate copying doesn’t tend to decrease authors’ incentives to invest in creating artistic works.<sup>151</sup> The

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149. *See, e.g.*, *Stromback v. New Line Cinema*, 384 F.3d 283 (6th Cir. 2004); *See v. Durang*, 711 F.2d 141 (9th Cir. Cal. 1983) (“The only discovery plaintiff suggests is the production of early drafts of defendant’s play on the theory they might reflect copying from plaintiff’s play that was disguised or deleted in later drafts. Copying deleted or so disguised as to be unrecognizable is not copying.”); *Flaherty, v. Filardi*, No. 03 Civ. 2167, 2007 U.S. Dist. LEXIS 69202, at \*8–9 (S.D.N.Y. Sept. 19, 2007) (dismissing a copyright claim over interim drafts of a published, noninfringing final work); *Walker v. Time Life Films, Inc.*, 615 F. Supp. 430, 435 (S.D.N.Y.1985) (refusing to consider earlier drafts of a screenplay because “the Court considers the works as they were presented to the public. . . .”); *Davis v. United Artists, Inc.*, 547 F. Supp. 722, 724 n.9 (S.D.N.Y. 1982) (“[I]nfringement must be the film as produced and broadcast, we do not consider the preliminary scripts.”); *PATRY*, *supra* note 113, § 9:78 (observing that similarities to a defendant’s interim version of a work are “irrelevant to the ultimate question of substantial similarity: that determination rests solely upon a comparison of the plaintiff’s work and the defendant’s final version”).

150. *Stone v. Perpetual Motion, LLC*, 87 F. App’x 51 (9th Cir. 2004).

151. *See, e.g.*, *OSTERBERG & OSTERBERG*, *supra* note 113, § 2:7 at 2-38 (2017) (“[T]he real harm to the copyright owner is not that the defendant created a draft that involved substantial copying, but that the defendant is selling his final version to the public.”); Matthew Sag, *Copyright and Copy-Reliant Technology*, *Nw. U. L. REV.* 1607, 1635–36 (2009) ([I]nfringement requires at least some potential interference with the copyright owner’s expectation of exclusivity. . . . Intermediate scripts that never see the light of day do not communicate the author’s original expression to the public and thus cannot

work's commercial value depends on the expression that readers consume. Private drafts don't compete with published works. Only other published ones do.

If the work at issue is software, courts typically undertake a more exacting inquiry. In cases where a software developer has reverse engineered object code in order to develop a noninfringing program that can interoperate with it, courts have been receptive to the premise that intermediate copies along the way can trigger liability.<sup>152</sup> That doesn't mean, however, that these defendants will actually end up liable—just that they'll have more work to do to avoid it. Rather than handing reverse engineers an outright safe harbor, this line of cases has required them to mount a fair use defense. To prevail, a defendant must show that it needed to copy the protected code in order to access some unprotected elements within it.<sup>153</sup> Even in the cases employing this closer scrutiny, the outcomes for software developers accused of intermediate copying have generally been good ones.<sup>154</sup> The fair use analysis tries to ensure that a

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constitute copyright infringement.”).

152. *See, e.g.*, *Sega Ent's. Ltd. v. Accolade Inc.*, 977 F.2d 1510, 1519 (9th Cir. 1992) (holding that intermediate copying of computer object code may infringe an owner's copyright “regardless of whether the end product of the copying also infringes those rights”); *see also* NIMMER & NIMMER, *supra* note 119, § 13.05 (observing that when a reverse engineer reproduces protected code, “[t]he copy generated is merely preliminary to further uses, but intermediate copying is no less an infringement of the copyright owner's exclusive reproduction right than is ‘final’ copying.”). District courts have essentially quarantined the categorical intermediate copying defense to artistic works. *See, e.g.*, *Eplanade Productions, Inc. v. The Walt Disney Co.*, 17 Civ. 2185(C.D. Cal. Nov. 8, 2017) (finding itself “unable to locate a single case in which the Sega ‘intermediate copying’ theory has been extended to impose liability based upon the copying of nonsoftware-related work” in the course of creating a dissimilar work, and therefore rejecting an infringement claim over preliminary versions of a screenplay); *Quirk v. Sony Pictures Ent'mt*, No. C. 11-3773 RS, 2013 WL 1345075, at \*6 (N.D. Cal. Apr. 2, 2013) (refusing to extend intermediate copying liability to cases “involving alleged copying of books, scripts, or literary characters” rather than code). For a detailed comparison of these two lines of cases, *see* OSTERBERG & OSTERBERG, *supra* note 113, § 2:7 at 2-38.

153. *See, e.g.*, *Sega*, 977 F.2d at 1519.

154. *See, e.g. id.*; *Ticketmaster Corp. v. Tickets.com, Inc.*, No. 99 Civ. 7654, 2000 WL 1887522, at \*3 (C.D. Cal. Aug. 10, 2000), *aff'd*, 2001 WL 51509 (9th Cir. Jan. 22, 2001); *cf.* *Bateman v. Mnemonics, Inc.*, 79 F.3d 1532, 1539 n.18 (11th Cir. 1996) (endorsing this approach); *Atari Games Corp. v. Nintendo of Am., Inc.*, 975 F.2d 832, 843, 24 U.S.P.Q.2d 1015 (Fed. Cir. 1992) (acknowledging that “[w]hen the nature of a work requires intermediate copying to understand the ideas and processes in a copyrighted work, that nature supports a fair use for intermediate copying,” but nevertheless rejecting the defendants' fair use argument because they had “purloined” the copy that they had reverse engineered); *see also* Sag, *supra* note 151, at 1638 (“[I]n the case of computer software, the intermediate copying required for reverse engineering has invariably been found to constitute fair use.”).

defendant's interim copies aren't enabling direct competition in the plaintiff's primary market, and often enough they aren't.<sup>155</sup>

Putting it all together, whether through a carve-out from the prima facie infringement standard at the front end of a case or through fair use at the back end, copyright law is generally tolerant of internal-facing derivatives that form the launching pad for public-facing originals.<sup>156</sup> A copy that might have been actionable in a different context becomes benign when it generates subsequent creation without threatening harm to the plaintiff's legitimate markets.

Trade secrecy lacks any equivalent doctrine. Instead, it pursues what Mark Lemley has called a "fruit of the poisonous tree" approach: a defendant's innovation is tainted, regardless of how different it might be, if it can ultimately be traced back to the plaintiff's secret.<sup>157</sup> Where the resulting product is only trivially dissimilar and therefore competes directly with the plaintiff's product, liability makes sense.<sup>158</sup> But the standard shouldn't sweep in defendants for whom exposure to a secret merely sparks an idea for a product that operates in an entirely different market. That was the unfortunate result in *Collelo v. Geographic Services, Inc.*, in which the Supreme Court of Virginia held a defendant liable even though no reasonable jury could have found that the defendant had taken the secret "in order to do the work that that secret was designed for."<sup>159</sup> The trial court had found "no evidence whatsoever" that the parties were competing or "even doing the same work."<sup>160</sup> It didn't matter. But it should have.

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155. As Matthew Sag has argued, a focus on commercial value can explain copyright's different treatment of scripts and software. See Sag, *supra* note 151, at 1636–38. Code, unlike literary texts that communicate directly to an audience, derives its value from how it enables machines to behave under the hood. See Pamela Samuelson et al., *A Manifesto Concerning the Legal Protection of Computer Programs*, 94 COLUM. L. REV. 2308, 2316 (1994). Noncommunicative uses of software can threaten real market harm to a copyright owner in a way that noncommunicative uses of literature cannot.

156. Cf. Lemley, *supra* note 136, at 260 (describing copyright law's rejection of a "fruit of the poisonous tree" approach insofar as it "goes out of its way to treat even . . . intermediate use as non-infringing in many circumstances if it results in the production of a non-infringing work.").

157. *Id.* at 250–51.

158. See, e.g., *Proline Products, LLC v. McBride*, 324 P.3d 430, 433 (Ct. Civ. App. Okla. 2014) (holding the defendant liable for misappropriating a secret formula for an asphalt cold-patch additive, despite his efforts to design around it, because he had merely swapped in an ingredient "with the same characteristics" as the one he had taken out).

159. 727 S.E.2d 55, 62 (Va. 2012).

160. *Id.*

Lemley posits that trade secrecy's current strictness might be justified on the ground that trade secret misappropriation is harder to detect than other forms of IP infringement and so is bound to go underenforced.<sup>161</sup> Adequate deterrence, the argument goes, would therefore demand that a plaintiff be able to target not only direct exploitation but also downstream adaptations that benefited in some way from familiarity with the secret at the start.

We agree that underenforcement can be a problem. But we're skeptical that targeting materially different adaptations is a good solution. If the goal is to make up for unobserved violations by ramping up deterrence of any observable violations, there are better options. One could, for instance, increase the available damages for plain-vanilla, direct exploitation of the secret. That at least is a theory underlying copyright's statutory damages regime, which permits plaintiffs to recover more than the actual damages they'd be able to prove at trial.<sup>162</sup> Indeed, trade secret law already allows courts to disgorge a defendant's unjust enrichment and to double a damages award where the defendant has acted willfully.<sup>163</sup> Courts might also equitably calculate damages based on a period even longer than that strictly necessary to erase a defendant's head start from the misappropriation.<sup>164</sup> Once the legal system has identified a class of defendants that ought to remedy a plaintiff's harms, it can modulate the severity of those remedies.

Just because they are easier to find doesn't mean that adapters trying to design around the trade secret owner's entitlement should be part of that class. On the contrary, they're engaged in an innovation process that the legal system ought to encourage, and indeed does encourage when the governing IP regime happens to be copyright or patent.<sup>165</sup> Lemley essentially acknowledges as much, qualifying any defense of

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161. Lemley, *supra* note 136, at 266–67.

162. See 17 U.S.C. § 504(c); Roger D. Blair & Thomas F. Cotter, *An Economic Analysis of Damages Rules in Intellectual Property Law*, 39 WM. & MARY L. REV. 1585, 1656 (1998) (conjecturing that copyright's "statutory damages rule provides a response to the potential underenforcement problem" by "provid[ing] the owner with a greater incentive to detect violations and to enforce his rights than would otherwise exist").

163. See USTA §§ 3(a) & (b); 18 U.S.C. §§ 1836(b)(3)(B)(i)(II) & (C).

164. See *Agilent Techs., Inc. v. Kirkland*, No. CIV.A. 3512-VCS, 2010 WL 610725, at \*27 (Del. Ch. Feb. 18, 2010) (equitably running a lost profits calculation beyond the head-start period necessary to cover compensatory and unjust enrichment damages in order to "prevent underenforcement and to remedy the defendant's increased market share").

165. See *supra* text accompanying note 137 through note 140.

trade secrecy’s current approach with the important caveat that the law “should limit the reach of the fruit of the poisonous tree doctrine where the defendant’s product or process is sufficiently changed from the misappropriated one.”<sup>166</sup>

Unfortunately, courts can’t pay such close attention to the defendant’s final product or process if they are going to base the liability decision exclusively on the defendant’s process of developing it. To make room for such product-to-product comparisons, courts must tolerate internal uses of another’s trade secrets when the result ends up different enough—even if that use helps the defendant along the way.<sup>167</sup>

### *B. Materiality*

In formulating the test that would eventually become the modern substantial similarity standard, the Second Circuit announced in *Arnstein v. Porter* that “adequate proof . . . of copying . . . is not enough; for there can be ‘permissible copying,’ copying which is not illicit.”<sup>168</sup> With this division between licit and illicit copying, copyright law recognizes that some acts of imitation aren’t worth punishing. Some are, in a word, immaterial. Not all copying as a factual matter triggers infringement as a legal matter.<sup>169</sup>

Copyright’s materiality filter helps manage entitlements’ scope, tailoring the au-

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166. Lemley, *supra* note 136, at 269.

167. To that end, our proposal would mean that the category of trade secrets covering valuable information on what *not* to do, commonly called “negative know-how,” would not trigger use-based liability. In any event, even under current law, it’s not clear whether a misappropriation claim based *solely* on use of negative know-how could succeed. *See Hurst v. Hughes Tool Co.*, 634 F.2d 895, 899 (5th Cir. 1981) (concluding that exploiting a secret that “provided only negative, ‘what not to do,’ input” to the defendant, did not constitute actionable use). The DTSA in particular, which includes a “use in interstate commerce” requirement meant to bring the law within Congress’ Commerce Clause power, 18 U.S.C. § 1836(b)(1), seems to make negative know-how ineligible for protection altogether. *See Sandeen & Seaman, supra* note 33, at 894 (“[T]here does not seem to be any basis to argue that so-called ‘negative information’ can be protected under the DTSA, as negative information is not normally in use.”).

168. 153 F.3d 154 F.2d 464, 472 (2d Cir. 1946).

169. *See TufAmerica, Inc. v. WB Music Corp.*, 67 F. Supp. 3d 590, 598–99 (S.D.N.Y. 2014) (critiquing a plaintiff who had asked the court to “find qualitative significance simply because defendants have actually copied its work” because such reasoning would “improperly conflate[] factual copying and actionable copying”).

thor's exclusive right to match her expressive contribution.<sup>170</sup> Because it's so easy to obtain a copyright—rarely are works disqualified altogether from copyright's big tent—such limitations on infringement liability are particularly important for cabin-ing the law's overall breadth.<sup>171</sup> In many copyright cases, the factual question of whether copying occurred is conceded; what's disputed is the materiality of that copying.

Copyright cases employ various doctrinal tools to help answer whether the de-fendant's copying crosses the line. For starters, it separates the copying inquiry into two distinct questions. One is strictly objective. It asks whether, as a matter of histori-cal fact, the defendant actually copied anything from the plaintiff. The other is nor-mative, assessing the importance of any copying that actually occurred. Within this normative dimension, courts emphasize that copying a fragment of a larger work won't trigger liability unless it is qualitatively significant. As the Second Circuit put it, “the quantitative analysis of two works must always occur in the shadow of their qualitative nature.”<sup>172</sup> While a large quantity of copying will always push in favor of an infringement finding, a small quantity cannot except if it's genuinely important to the plaintiff's work.

In order to enable that assessment of qualitative significance, courts will often break down the plaintiff's work into its constituent elements and dissect its indi-vidual similarities and dissimilarities with the defendant's work. Thinking about the plaintiff's work as a combination of smaller features, rather than an abstract whole, allows a court to filter out its unprotectable features and center the similarity analysis on whatever remains. This dissection approach is most prevalent in disputes over soft-ware and other technical materials—not a bad fit for trade secret cases, as far as copy-right subject matter goes.<sup>173</sup> But even cases dealing with more traditionally artistic

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170. Mark A. Lemley & Mark A. McKenna, *Scope*, 57 WM. & MARY L. REV. 2197, 2231 (2016). It also helps weed out cases of de minimis copying that are too trivial to merit courts' attention. *See* Lemley, *supra* note 123 at 720.

171. *See* Feist Publ'ns, Inc. v. Rural Tel. Serv. Co., 499 U.S. 340, 345 (1991) (describing copyright's low threshold for protectability).

172. *Nihon Keizai Shimbun, Inc. v. Comline Bus. Data Inc.*, 166 F.3d 65, 71 (2d Cir. 1999); *see also* *TufAmerica, Inc. v. WB Music Corp.*, 67 F. Supp. 3d 590, 596 (S.D.N.Y. 2014) (“[T]he qualitative significance prong of the substantial similarity test . . . in many ways is more important than its quantitative counterpart.”).

173. *See, e.g.*, *Computer Assocs. Int'l, Inc. v. Altai, Inc.*, 982 F.2d 693, 706–11 (2d Cir. 1992); *see also* Lemley & McKenna, *supra* note 170, at 2235 (noting that courts are most eager” to allow dissection, rather

works sometimes go this route as well.<sup>174</sup>

If little protectable expression remains after dissecting the plaintiff’s work, then a court may raise the similarity threshold that triggers liability. To infringe in such cases, a defendant’s work must be not only substantially similar but “virtually identical” to the copyrighted work.<sup>175</sup> Demanding this higher degree of similarity gives a work a thinner level of protection, reflecting the fact its author had not contributed much original expression to it in the first place.<sup>176</sup> Under the banner of this “thinness” standard, copyright law goes easier on defendants who copy, say, a factual compilation than those who copy a novel or a painting.<sup>177</sup>

Trade secrecy could benefit from a similar emphasis on materiality. While the Restatement’s substantial derivation standard exempts adaptations when the trade secret’s contribution is “slight,”<sup>178</sup> that exemption is not binding on—nor, it would seem, followed by—courts.<sup>179</sup> As Part I discussed, current trade secret law cares pri-

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than strictly comparing works as a whole, in software cases).

174. *See, e.g.*, *Kohus v. Mariol* 328 F.3d 848, 855–56 (6th Cir. 2003) (latch design drawings); *Tiseo Architects, Inc. v. B&B Pools Servs. & Supply Co.*, 495 F.3d 344 (6th Cir. 2007) (architectural design drawings); *Yankee Candle Co. v. Bridgewater Candle Co.*, 259 F.3d 25, 33–34 (1st Cir. 2001) (label designs).

175. *See, e.g.*, *Mattel, Inc. v. MGA Entm’t, Inc.*, 616 F.3d 904, 913–14 (9th Cir. 2010) (“If there’s a wide range of expression . . . then copyright protection is ‘broad’ and a work will infringe if it’s ‘substantially similar’ to the copyrighted work. If there’s only a narrow range of expression . . . , then copyright protection is ‘thin’ and a work must be ‘virtually identical’ to infringe.”); *Ets-Hokin v. Skyy Spirits, Inc.*, 323 F.3d 763, 766 (9th Cir. 2003) (observing that after all unprotectable elements were subtracted, the plaintiff was “left with only a ‘thin’ copyright, which protects against only virtually identical copying.”); *TransWestern Pub. Co. LP v. Multimedia Marketing Assocs.*, 133 F.3d 773, 776 (10th Cir. 1998) (“[M]ore similarity is required when less protectible matter is at issue. Thus, if substantial similarity is the normal measure required to demonstrate infringement, ‘supersubstantial’ similarity must pertain when dealing with ‘thin’ works.” (quoting 4 MELVILLE B. NIMMER & DAVID NIMMER, *NIMMER ON COPYRIGHT*, § 13.03[A] at 13–28 (1997))); *Nihon*, 166 F.3d at 71 (concluding that where “the copyrighted work contains both original and unprotected elements, a higher quantity of copying is required to support a finding of substantial similarity than when the infringed work is wholly original”).

176. *See* Balganes, *supra* note 115, at 207–08.

177. *See* *Feist Publ’ns, Inc. v. Rural Tel. Serv. Co.*, 499 U.S. 340, 349 (1991).

178. *See supra* section I.B.

179. *See* Charles Tait Graves, *The Law of Negative Knowledge: A Critique*, 15 *TEX. INTELL. PROP. L.J.* 387, 404 (2007) (“There appear to be no cases applying the [Restatement’s] modification rule but finding that a defendant’s modifications were sufficiently transformative to avoid liability.”).

marily about a defendant's exposure to the plaintiff's secret, not the importance of the elements that the defendant actually copied.<sup>180</sup>

Trade secrecy's validity doctrines, like copyright's, do little scope-managing work. The law imposes no real novelty or originality requirement, encompassing almost any information with potential value that a putative owner can keep secret.<sup>181</sup> Even a confidential compilation of publicly known information can be protected as a trade secret so long as that particular compilation is commercially valuable.<sup>182</sup> Plaintiffs can thus surmount the validity hurdle fairly easily. A low validity threshold increases pressure on the infringement analysis to tailor the scope of the right to the owner's inventive contribution.<sup>183</sup> Too expansive a concept of actionable use risks turning the legal right into, as Lemley puts it, "a standardless, free-roaming right to sue competitors for business conduct that courts or juries might be persuaded to deem objectionable."<sup>184</sup>

That many trade secret cases combine a low threshold for validity with a definition of use that lacks any normative criterion increases the likelihood of incorrect outcomes. In cases like *Smith, Rohm & Hass*, and *Affiliated Hospital Products*, the de-

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180. See *supra* section I.B.

181. See, e.g., *BladeRoom Gr. Ltd. v. Facebook, Inc.*, No. 15-cv-01370, 2018 WL 514923, at \*2 (N.D. Cal. Jan. 23, 2018) ("In a broad sense, a trade secret consists of any unpatented idea which may be used for industrial and commercial purposes." (citation omitted)); see also Varadarajan, *supra* note 25, at 1410.

182. See, e.g., RESTATEMENT (THIRD), *supra* note 5, § 39(f) ("The fact that some or all of the components of the trade secret are well-known does not preclude protection for a secret combination, compilation, or integration of the individual elements"); *Penalty Kick Mgmt. Ltd. v. Coca Cola Co.*, 318 F.3d 1284, 1291 (11th Cir. 2003) (observing that "a unique combination" or compilation of publicly available information may qualify as a trade secret); *Sikes v. McGraw-Edison, Co.*, 665 F.2d 731 (5th Cir. 1982) ("[A] trade secret can exist in a combination of characteristics and components, each of which, by itself, is in the public domain, but the unified process, design and operation of which in unique combination, affords a competitive advantage and is a protectable secret").

183. Cf. Lemley & McKenna, *supra* note 170, at 2230 ("[An] approach which focuses very little on the validity stage and treats the limiting doctrines as inputs into the infringement analysis, puts tremendous pressure on courts to tailor the scope of rights in a work at the infringement stage. As courts typically recognize, the scope of protection to which an author is entitled is supposed to match the size of her original contribution.").

184. Lemley, *supra* note 36, at 343-44 (2008); see also *Protexol Corp. v. Koppers Co.*, 229 F.2d 635, 637 (2d Cir. 1956) (rejecting a view of improper use that would prevent "anyone receiving a trade secret [from] thereafter experiment[ing] with the ingredients therein, even though their use for the purpose had been well known for years," because "[s]uch a result is not only unnecessary for the promotion of business morality, but offensive to the sound policy of promoting technical progress").

defendant had all but lost the case after admitting use—even though much (or all) of the information used was publicly available.<sup>185</sup> In each of these cases, analytic dissection would have focused the court’s use inquiry on protectable elements of the plaintiff’s alleged secret—and not publicly-available aspects that were never eligible for protection to begin with.

To be sure, trade secret law encompasses a broader array of subject matter than copyright (including methods, processes, and ideas),<sup>186</sup> and courts thus have fewer prohibited categories for which to be on the look-out. Yet it still has its limits. It excludes information that is, for example, described in prior publications, generally known within an industry, readily ascertainable from commercialized products,<sup>187</sup> or attributable to an employee’s prior skill and expertise.<sup>188</sup> Some of these unprotectable elements, like published information, may be easier to identify and extricate than others.<sup>189</sup> But all have been excluded from trade secrecy’s purview in order to pro-

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185. *See supra* text accompanying note 54 to note 60.

186. *See* UTSA § 1(4) (establishing that trade secret subject matter includes “a formula, pattern, . . . or process”). Because trade secret law encompasses processes and methods while copyright does not, where a plaintiff brings both copyright and trade secret claims related to software, the copying of more abstract levels may be permissible under the former but not the latter. *See, e.g.*, *GlobeRanger Corp. v. Software AG USA Inc.*, 836 F.3d 447, 489 (5th Cir. 2016) (explaining that trade secret law would prohibit the copying of “broader levels” of abstraction, such as “the organizational structure of a software system”).

187. UTSA § 1(4) (defining “trade secret” to exclude “information . . . generally known to, and . . . readily ascertainable by proper means by, other persons who can obtain economic value from its disclosure or use”); 18 U.S.C. § 1839(3) (same).

188. *See, e.g.*, *Rohm & Haas Co. v. Adco Chemical Co.*, 689 F.2d 424, 432 (3d Cir. 1982) (“[T]he general knowledge, skill and experience gained by an employee during his employment cannot be claimed as a trade secret by his employer”); *Micro Consulting, Inc. v. Zubeldia*, 813 F. Supp. 1514 (W.D. Okla. 1990), *aff’d mem.*, 959 F.2d 245 (10th Cir. 1992) (“[A] person has the right to use ideas generally known . . . and may combine with such general knowledge his own abilities and his knowledge of the customs of the market, the methods of obtaining business, and all other factors which affect his particular fields and to compete with his former employer.”). Nor does trade secret protection prevent the defendant from learning the same information from an unrelated third party—for example, through a separate licensing agreement. *See* *Penalty Kick Mgmt. Ltd. v. Coca Cola Co.*, 31 F.3d 1284, 1294 (11th Cir. 2003).

189. Published information, such as prior patents, may be fairly straightforward to find. By contrast, information that is tacit within an industry or readily ascertainable from commercialized products may be more difficult, requiring further expert testimony and guidance—an inquiry complicated by the fact that “readily ascertainable” is not always clearly defined in the relevant statutes or caselaw. *See, e.g.*, *Celeritas Tech v. Rockwell Int’l Corp.* 150 F.3d 1354, 1358 (Fed. Cir. 1998) (“California law seems

mote cumulative innovation and protect employee mobility.<sup>190</sup> Courts undermine that policy goal by reinserting at the misappropriation stage what has been withheld at the protectability stage.

Trade secrets involving compilations of public data present an additional materiality problem. Like copyright, trade secret subject matter extends to unique combinations of otherwise unprotectable elements.<sup>191</sup> But unlike copyright law, which adjusts the materiality threshold to account for a factual compilation's thin protection, trade secret cases' standard seem to remain uniform. There's no shift to a "virtual identity" threshold to keep individually unprotectable data points unrestricted. As a result, one can effectively launder an unprotectable element into protection by incorporating it into a compilation.<sup>192</sup>

And to the extent trade secrecy cases focus narrowly on quantitative similarities between products, they can miss a fundamental feature of materiality: to assess whether the defendant has taken a significant feature of the plaintiff's work. In cases like *Bishop*, *Reingold*, and *Dresser*, the court recites quantitative metrics as a proxy for materiality, fractions measured in the number of components in a process or feet in the length of a boat hull.<sup>193</sup> Yet, we are left to puzzle over the meaning of those numbers. Were the points of similarity significant or trivial? A qualitative assessment gets at the heart of the materiality inquiry in a way that numbers alone cannot.

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somewhat unsettled regarding whether a trade secret enters the public domain when it is 'readily ascertainable' or whether it must also be 'actually ascertained' by the public"). Disentangling a departing employee's skill and expertise from a protectable trade secret can be particularly cumbersome for courts. See, e.g., RESTATEMENT (THIRD), *supra* note 5, § 42 cmt. d (listing cases "illustrating the difficulties inherent in distinguishing the general skill and knowledge of former employees from the trade secrets of a former employer").

190. See *supra* section I.A.

191. See *supra* note #.

192. See, e.g., *Continental Data Sys., Inc. v. Exxon Corp.*, 638 F. Supp. 432, 442–43 (E.D. Pa. 1986) (finding that a sales manual narrowly qualified as a trade secret, even though it was a combination of publicly available materials, because the plaintiff's unique "decisions to include and exclude elements from a larger pool of data . . . may contain a sufficient degree of novelty, *however slight*, to be excluded from general knowledge," yet then assessing the defendant's use of any "*information contained in the sales manual*" rather than use of the exact combination (emphasis added)); *Rohm & Haas Co.*, 689 F.2d at 433. *But see* *Callaway Golf Co. v. Dunlop Slazenger Gr. Americas, Inc.*, 325 F. Supp. 2d 457, 462 (D. Del. 2004) (focusing the use inquiry on whether the defendant had used the "unique combination" of "common known ingredients in the industry" that plaintiff claimed as its secret).

193. See *supra* text accompanying note 74 to note 81.

One rare trade secrecy case that followed the right route is *American Can Co. v. Mansukhani*.<sup>194</sup> There, the Seventh Circuit dissected the plaintiff's alleged secret, identified its many unprotectable elements, required heightened similarity to account for the "extremely narrow" scope of protection, and seemed to focus on qualitative and not just quantitative similarities.<sup>195</sup> In evaluating whether the defendant's new commercial jet inks were sufficiently similar to the ones he had developed while employed by the plaintiff, the court explained that prior published information, industry knowledge, and the defendant's high level of skill as a chemist significantly narrowed the scope of the plaintiff's entitlement.<sup>196</sup> The court cautioned that any similarity analysis comparing the products could not "lose sight of the original limitations on the plaintiff's trade secrets."<sup>197</sup> More than "functional similarity," it stressed, "was required where the public information and the defendant's own knowledge confined so narrowly the scope of the valid trade secrets."<sup>198</sup>

A few other cases found a similarly narrow scope of protection.<sup>199</sup> But given trade secrecy's lack of a coherent approach to gauging the materiality of a defendant's use, even courts that get the result right are all over the map in terms of how they get there. Regardless of which party wins, many trade secrecy cases recite a very broad definition of actionable use.<sup>200</sup> For trade secret defendants, this line of cases offers little concrete guidance.

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194. 742 F.2d 314 (7th Cir. 1984).

195. *Id.* at 330–31.

196. *Id.* (explaining that "the scope of American Can's trade secrets was extremely narrow—the protected secrets are limited to the precise proportions of ingredients which are themselves already in the public domain" and that "Mansukhani has substantial skill, knowledge and experience in formulating commercial jet inks, [which] he is entitled to use . . . to compete against American Can").

197. *Id.* at 331.

198. *Id.*

199. See, e.g., *Penalty Kick*, 318 F.3d at 1292 (emphasizing that the defendant needs to use "a *substantial portion* of the secret" for liability and engaging in a process of comparison akin to analytic dissection); *Callaway Golf Co. v. Dunlop Slazenger Gr. Am., Inc.*, 318 F. Supp. 2d 205 (D. Del. 2004) (concluding that there was no actionable "use" of plaintiff's trade secret because any commonalities between the plaintiff's and defendant's golf ball technologies related to information "commonly known in the industry" or described in prior patents); *Berry v. Glidden*, 92 F. Supp. 909, 912–13 (S.D.N.Y. 1950) ("[I]t is not enough that defendant used what plaintiff imparted to it in confidence. Before defendant can be restrained from, or held to account for, such use, plaintiff must further establish that he disclosed something novel to the defendant.")

200. See *supra* text accompanying note 66 to note 72.

The take-home lesson is that any use of any aspect of a plaintiff’s alleged secret—no matter how trivial or re-creatable from public-domain materials—is potentially prohibited. Taken to its illogical conclusion, a departing employee who was exposed to any valuable information at his previous employment would have to exit that field on pain of liability for misappropriation.<sup>201</sup> Trade secrecy’s myopic focus on the defendant’s factual use—without sufficient consideration of its materiality—often pushes in the direction of overprotection.<sup>202</sup>

Of course, copyright’s implementation of a materiality filter isn’t perfect. Knowledge of actual copying often infects fact-finders’ perceptions of materiality,<sup>203</sup> and courts don’t use analytic dissection as often as they probably should.<sup>204</sup> Copyright doesn’t have all the right answers. But from time to time, it has some decent ones. The bedrock choice to require materiality is one of them. Trade secrecy should take note and reinvestigate substantial derivation’s stress on *substantial*.

### C. Foreseeability

Even if the copied information was material to the plaintiff’s project, a misappropriation defendant may be using it in a very different way. Should such differences in use ever matter? Patent law offers little guidance on this score, instructing fact-

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201. Such an expansive reading of misappropriation would seem to have the same practical effect as the controversial “inevitable disclosure” theory of trade secret misappropriation, which only some jurisdictions recognize. Under that theory, “a plaintiff may prove a claim of trade secret misappropriation by demonstrating that a defendant’s new employment will inevitably lead him to rely on the plaintiff’s secrets,” even if there is no evidence of actual trade secret disclosure of use by the defendant. *PepsiCo, Inc. v. Redmond*, 54 F.3d 1262, 1269 (7th Cir. 1995); see also Lobel, *supra* note 11, at \*14 (“The doctrine is controversial because it creates an ex-post facto non-compete action against a former employee, even if the absence of neither actual trade secret misappropriation, nor a non-compete clause in the employee’s contract”).

202. Often, though not always. See *supra* text accompanying note 79 to note 81.

203. See, e.g., Shyamkrishna Balganeshe et al., *Judging Similarity*, 100 IOWA L. REV. 269, 270 (2014) (empirically demonstrating “an appreciable upward shift in subjects’ assessments of similarity between works” when they were given additional information about factual copying).

204. See, e.g., Samuelson *supra* note 3, at 1827 (arguing that “some dissection analysis should be undertaken in every copyright infringement case”); Lemley *supra* note 123 at 740 (arguing that analytic dissection and expert testimony should be expanded to both prongs of the substantial similarity analysis in all cases); NIMMER & NIMMER, *supra* note 119, § 13.03 (arguing that *Altai*’s structured analytic dissection approach “should be considered not only for . . . computer programs, but across the gamut of copyright law”).

finders to assess the substantiality of functions, ways, and results without ever specifying the units in which substantiality is to be counted.<sup>205</sup> Copyright's prima facie infringement test fares no better. That framework is designed to examine only what the works look like, not how they are employed.

Tucked into the back end of the copyright analysis, however, is some normative heavy-lifting that trade secrecy could use. Even after a plaintiff has established a prima facie case of infringement, copyright law often exempts a defendant from liability if his conduct posed no commercial harm to the plaintiff. This focus on market effects enters the infringement analysis through the fair use doctrine, a judge-made standard now codified at 17 U.S.C. § 107. Fair use is “an equitable rule of reason’ which ‘permits courts to avoid rigid application of the copyright statute when, on occasion, it would stifle the very creativity which that law is designed to foster.’”<sup>206</sup> Downstream adapters of copyrighted content often invoke fair use to defend against allegations that they have produced infringing derivatives. To assess such arguments, the statute instructs courts to consider several factors,<sup>207</sup> but the Supreme Court has called harm to the plaintiff's markets “undoubtedly the single most important element of fair use”<sup>208</sup> and “the ‘most important, and indeed, central fair use factor.’”<sup>209</sup> Although the Court has since softened that stance,<sup>210</sup> lower courts still emphasize it,<sup>211</sup> and many

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205. *See supra* section I.C.

206. *Stewart v. Abend*, 495 U.S. 207, 236 (1990) (internal citation omitted) (first quoting *Sony Corp. of Am. v. Universal City Studios, Inc.*, 464 U.S. 417, 448 (1984), then quoting *Iowa State Univ. Research Found., Inc. v. Am. Broad. Cos.*, 621 F.2d 57, 60 (2d Cir. 1980)). For fair use's origins in U.S. common law, see *Folsom v. Marsh*, 9 F. Cas. 342, 344–45 (C.C.D. Mass. 1841) (No. 4901).

207. 17 U.S.C. § 107(4) (instructing courts to consider “(1) the purpose and character of the use, (2) the nature of the copyrighted work, (3) the amount and substantiality of the portion used, and (4) the effect of the use upon the potential market for, or value of, the copyrighted work”).

208. *Harper & Row Publ'ns v. Nation Enters.*, 471 U.S. 539, 566 (1985),

209. *Stewart v. Abend*, 495 U.S. 207, 238 (1990) ((quoting 4 MELVILLE B. NIMMER & DAVID NIMMER, NIMMER ON COPYRIGHT § 13.05[A][4], at 13-182 (1978)).

210. *See Campbell v. Acuff-Rose Music*, 510 U.S. 569, 590 n.21, 591 (“The importance of this [market harm] factor will vary, not only with the amount of harm, but also with the relative strength of the showing on the other factors.”).

211. *See, e.g., Kienitz v. Sconnie Nation LLC*, 766 F.3d 756, 758 (7th Cir. 2014) (criticizing case law that overemphasizes a use's transformativeness and concluding that market harm usually should be the most important question); *Author's Guild v. Google, Inc.*, 804 F.3d 202, 213–14 (2d Cir. 2015) (noting that “the Supreme Court has made clear that some of the statute's four listed factors are more significant than others” and quoting its reference to market harm as the most important factor); *Bouchat v.*

commentators continue to view it as the test's linchpin.<sup>212</sup>

As soon as courts begin delving into the question of market harm, however, they need to define just what the relevant market is. Because of the derivative work right and courts' capacious reading of substantial similarity, the answer must necessarily extend beyond exploitation of the original work itself. Some range of ancillary licensing markets will also be included. The owner of the copyright in a novel, for example, is entitled to authorize not only book distribution but also the creation of movie versions, sequels, and translations.<sup>213</sup> How many other markets count is a recurring question. Of course, whatever the defendant's challenged activity happens to be, there are always foregone royalties at stake. But it would be perverse if a copyright owner's sheer willingness to license a use would spring forth a right to control that use; were it so, every defendant would flunk the market harm part of the test.<sup>214</sup> Even if we wished to charge you, dear reader, for simply thinking about this Article, we wouldn't suffer an actionable harm when you do so for free.<sup>215</sup> Courts have therefore recognized that "not every effect on potential licensing revenues enters the analysis under the fourth factor."<sup>216</sup> They must somehow distinguish between uses for which a copyright owner is entitled to require a license and uses for which it isn't.

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Baltimore Ravens Ltd. Partnership, 619 F.3d 301, 312 (4th Cir. 2010) (similar).

212. See, e.g., James Gibson, *Risk Aversion and Rights Accretion in Intellectual Property Law*, 116 YALE L.J. 882, 896 (2007) (describing widespread agreement that the market-harm factor is "the most important"); Barton Beebe, *An Empirical Study of U.S. Copyright Fair Use Opinions*, 1978-2005, 156 U. PA. L. REV. 549, 586 (2008) (finding that within published fair use cases under the current Copyright Act, the "the outcome of the [market harm] factor appears to drive the outcome of the test," while "the outcome of the [nature of the use] factor also appears to be highly influential").

213. See 17 U.S.C. § 101 (defining the range of derivative works under the copyright owner's control).

214. See, e.g., *Am. Geophysical Union v. Texaco Inc.*, 60 F.3d 913, 930 n.17 (2d Cir. 1994) ("[W]ere a court automatically to conclude in every case that potential licensing revenues were impermissibly impaired simply because the secondary user did not pay a fee for the right to engage in the use, the fourth fair use factor would always favor the copyright holder."); *Hofheinz v. AMC Productions, Inc.*, 147 F. Supp. 2d 127, 140 (E.D.N.Y. 2001) (noting that "if carried to a logical conclusion," the plaintiff's circular argument over lost licensing revenue "could eviscerate the affirmative defense of fair use since every copyright infringer seeking the protection of the fair use doctrine could have potentially sought a license from the owner of the infringed work."); Fromer & Lemley, *supra* note 2, at 1293 ("If IP owners are free to argue that the entire world is their market because they could demand a license fee in exchange for not suing someone who uses their work in a particular way, the market substitution test becomes circular and ultimately empty.").

215. Still, tips are always appreciated.

216. *Am. Geophysical Union*, 60 F.3d at 929.

Many courts accomplish that task through a foreseeability test.<sup>217</sup> The fourth factor's investigation of potential licensing revenues is limited to "traditional, reasonable, or likely to be developed markets."<sup>218</sup> Remote, transformative ventures, by contrast, have a stronger claim to remaining open for second comers to try. Thus, for example, an artist who plastered posters on walls as street art couldn't control a band's use of that art within a video backdrop for a concert performance.<sup>219</sup> Or a company that recorded a conference call with investment analysts couldn't control Bloomberg's dissemination of the recording to its subscribers because, at the time of recording, it was unaware of whether such a licensing market existed, and the possibility of tapping into one "played no role in stimulating" its creation.<sup>220</sup> By contrast, a television series' producer could control the exploitation of a book of episode plot summaries where licensed book versions were already an established part of the market.<sup>221</sup> And a quilt's designer could control appearances of the quilt in a sitcom where she was already commonly licensing similar artwork for use in film and television.<sup>222</sup> The upshot is that the less predictable the defendant's commercial usage of the plaintiff's work, the less right the plaintiff has to demand permission.

Thinking about IP scope from the perspective of one's customers (and, by extension, other competitors who would like to cater to them) makes sense.<sup>223</sup> On the standard account at least, IP rights are meant to insulate creative investment from potential market harms. And to figure out what's going to happen in the marketplace, fact-finders need to channel the views of the consumers who comprise it.

Courts should adopt a comparable standard for trade secret derivation. A defen-

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217. See Pamela Samuelson, *The Quest for a Sound Conception of Copyright's Derivative Work Right*, 101 GEO. L.J. 1505, 1521, 1559–60 (2013).

218. *Am. Geophysical Union*, 60 F.3d at 929; accord, e.g., *TCA Television Corp. v. McCollum*, 839 F.3d 168, 186 (2d Cir. 2016); *Seltzer v. Green Day, Inc.*, 725 F.3d 1170, 1179 (9th Cir. 2013); *Bill Graham Archives v. Dorling Kindersley Ltd.*, 448 F.3d 605, 614 (2d Cir. 2006); *Ringgold v. Black Entertainment Television, Inc.*, 126 F.3d 70, 80–81 (2d Cir. 1997).

219. See *Seltzer*, 725 F.3d at 1179.

220. See *Swatch Gr. Mgmt. Servs. v. Bloomberg LP*, 756 F.3d 73, 91 (2d Cir. 2014).

221. See *Twin Peaks Prods., Inc. v. Publ'ns Int'l*, 996 F.2d 1366, 1377 (2d Cir. 1993) (rejecting a fair use defense because the books "report[ed] the plot in such extraordinary detail as to risk impairment of the market for the copyrighted works themselves or derivative works that the author is entitled to license").

222. See *Ringgold*, 126 F.3d at 80–81 (denying the defendant's summary judgment motion).

223. See *Fromer & Lemley*, *supra* note 2, at 1290–91.

dant's adaptation of secret information should be actionable only if, as of the time of the secret's development, either the plaintiff actually foresaw, or a reasonable firm in the plaintiff's industry would have foreseen, the commercial use at issue. If not, the adaptation should be permitted.

Within the common law, a foreseeability limitation has an excellent pedigree. From tort law's proximate causation to contract law's doctrine of impossibility, courts have tried to cabin liability when an intervening event is genuinely unanticipatable.<sup>224</sup> The classic economic justification for these rules is that people are incentivized to act today by the subjective probabilities they assign to possible outcomes tomorrow. If someone foresees a risk of loss, she will conform her behavior to avoid it if the costs of doing so don't outweigh the risk-adjusted benefits. Law can modulate that behavior by adding costs or benefits to the equation. In the textbook negligence example, a company that might not have otherwise decided to invest in preventing loss to others would do so if the expected value of an eventual damages payout outweighs the expected value of the investment. The threat of liability thus encourages a higher standard of care.

People make these *ex ante* decisions based on the possible scenarios that they can forecast. That which cannot reasonably be predicted also cannot do much to incentivize. If a law is meant to affect individuals' cost/benefit calculations, it shouldn't need to consider future outcomes that even those individuals wouldn't have considered themselves.<sup>225</sup>

So it is with copyright's treatment of market harm. Just as negligence doctrine has no economic need to make a defendant internalize the costs of an unanticipatable loss, copyright doctrine has no economic need to allow a plaintiff to internalize the benefits of an unanticipatable gain. The law lets owners control exploitation of their works both in their primary markets and in ancillary markets that are "traditional, reasonable, or likely to be developed."<sup>226</sup> When applied properly, that standard serves

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224. For additional examples, see Shyamkrishna Balganesh, *Foreseeability and Copyright Incentives*, 122 HARV. L. REV. 1569, 1594–1600 (2009).

225. *See id.* at 1592; *see also* Eric Kades, *Windfalls*, 108 YALE L.J. 1489, 1492 (1999) ("Societal capture of windfalls, by definition, does not affect incentives to engage in productive activity and therefore does not discourage effort or enterprise.")

226. *Bill Graham Archives v. Dorling Kindersley Ltd.*, 448 F.3d 605, 614–15 (2d Cir. 2006) (quoting *Am. Geophysical Union v. Texaco, Inc.*, 60 F.3d 913, 930 (2d Cir. 1994)) (internal quotation marks omitted).

as a gatekeeper that withholds exclusivity in markets that weren't objectively foreseeable at the time the author decided to invest in making the work.<sup>227</sup>

This restriction on copyright scope limits the author's rewards to those that are genuinely likely to influence creative investments.<sup>228</sup> IP protection isn't costless, of course, driving up prices for consumers and follow-on creators.<sup>229</sup> If society is going to provide it, it should gain more than it gives up. Limiting owners' control to reasonably foreseeable uses helps keep these social costs no larger than they need be to facilitate creative production. Whatever private harm copyright owners might experience by the inability to control uses they never had in mind at the time of creation, that harm shouldn't affect the initial investment decision. True, it would reduce the unexpected bonus they would gain. But as Eric Kades has observed in the taxation context, redistributing such windfalls should still leave intact private incentives to invest. "Taxing surprises," as he puts it, "cannot distort agents' economic planning."<sup>230</sup> As far as copyright policy goes, rational authors should still invest in making the same works even without the added surplus that would come from controlling what they didn't see coming.

The lack of harm to upstream owners isn't a foreseeability limitation's only virtue. It also accrues social benefits downstream. Exempting unforeseeable uses sends a signal to downstream authors to explore and exploit new markets that the owner's

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227. See Christina Bohannon, *Copyright Harm, Foreseeability, and Fair Use*, 85 WASH. U.L. REV. 969, 1019 (2007) ("Clearly, these courts are attempting to limit liability to foreseeable markets, which are the markets most likely to influence an author's decision to create a copyrighted work."); Justin Hughes, *Copyright and Its Rewards, Foreseen and Unforeseen*, 122 HARV. L. REV. F. 81, 90 (2009) (comparing this test to a foreseeability inquiry); Samuelson, *supra* note 217, at 1559 (concluding that the dominant rationales for granting copyright owners control over derivatives apply only to foreseeable markets).

228. We use "author" here somewhat loosely to include the various intermediaries through which individual authors work. In practice, the probability distributions of commercial success will often have an even larger influence on the publishers, studios, labels, and other profit-maximizing firms that help bring copies of a work to market. See generally Jonathan M. Barnett, *Copyright Without Creators*, 9 REV. L. & ECON. 389 (2013).

229. See, e.g., YOCHAI BENKLER, *THE WEALTH OF NETWORKS: HOW SOCIAL PRODUCTION TRANSFORMS MARKETS AND FREEDOM* 35–37 (2006). One of us has argued that this second cost, in the form of diminished creative opportunities for second comers, has likely been overstated. See generally Fishman, *supra* note 119. Even if so, though, we agree that it's more than zero. See *id.* at 1400–1403.

230. See Kades, *supra* note 225, at 1494–95.

industry hasn't yet envisioned.<sup>231</sup> It steers commercial activity toward risk-taking, channeling second comers toward new adaptations of content for different audiences rather than sterily copying the content that the public already has.<sup>232</sup>

So it should be, too, for trade secrecy. Trade secret protection induces firms to invest in developing valuable information without engaging in as much wasteful self-help to keep that information away from competitors.<sup>233</sup> To perform that inducement role, the law needs to offer a carrot sufficiently large to convince firms that they'll be able to recoup their expenses. If a company is content with that carrot based on projected revenues from X number of foreseeable uses, it would still make the investment even without the extra returns from an X+1th use that it had never contemplated.

Imagine, for instance, if a high-level employee of the Coca-Cola Company departed with her (legitimately acquired) knowledge of its secret formula. After studying its chemical structure, she discovers that if she combines it with other ingredients she can put it to a novel use: automotive fuel.<sup>234</sup> She begins selling the fuel through her new firm, prompting an immediate lawsuit. Under our proposal, a court would ask whether Coke would stand to lose any current or reasonably foreseeable customers. Assuming, as we do, that the answer would be no, that employee would face no liability for her use of the formula. We think this would be a sensible result—and one that probably wouldn't occur under current law. Competing with the plaintiff is,

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231. See Samuelson, *supra* note 217, at 1559–60. Shyamkrishna Balganesh has dubbed such carveouts from liability to be copyright's "downstream incentives," encouraging creativity by subtracting a penalty rather than by adding a payment. Shyamkrishna Balganesh, Response, *Tiered Originality and the Dualism of Copyright Incentives*, 95 VA. L. REV. IN BRIEF 67, 69 (2009).

232. Cf. Fishman, *supra* note 119, at 1397 (making a similar observation about fair use's privileging of uses deemed to be "transformative").

233. See Lemley, *supra* note 36, 333–37 (reviewing evidence that, without legal protection, companies overinvest in keeping commercially valuable information secret and underinvest in precontractual negotiations with potential business partners)

234. Is this a stretch? Maybe, but then again you might not have thought to use McDonald's fries to cure male pattern baldness, either. See Christina Zhao, *Chemical in McDonald's Fries Could Cure Baldness, Study Says*, NEWSWEEK (Feb. 4, 2018, 10:01 AM), <http://www.newsweek.com/chemical-mcdonalds-fries-may-cure-male-baldness-study-say-799439>. And for what it's worth, Coke can at least be used therapeutically in a lavage for treating gastric phytobezoars. See S.D. Ladas et al., *Systematic Review: Coca-Cola Can Effectively Dissolve Gastric Phytobezoars as a First-line Treatment*, 37 ALIMENTARY PHARMACOLOGY & THERAPEUTICS 169 (2013).

after all, not an element of a misappropriation claim.<sup>235</sup> The R&D boost that the employee’s knowledge gave her at the outset would be enough to support liability.

Before addressing how such a foreseeability limitation would work in practice, we pause to consider two potential objections to the entire enterprise. One possible argument against a foreseeability limitation concerns entrepreneurs who expect the unexpected. Maybe, the theory would go, some innovators are incentivized not only by the revenue streams that they foresee but also by the expectation that they will be able to capture even those that they can’t foresee—untethered to any particular industry trend or forecast. At the very least, this argument may have some purchase with judges. The Supreme Court seemed to have such authors in mind when it upheld Congress’ retroactive extension of copyright’s duration for already-existing works, reasoning that they could have been incentivized both by the existing term length and by a prediction that Congress would extend it at some indeterminate future point.<sup>236</sup>

If such indiscriminate optimism for the future does provide an incentive, however, it’s likely to be weak. Innovation is already beset by all sorts of technological and financial uncertainties.<sup>237</sup> Most paths in scientific research turn out to be dead ends, and the few promising ones that emerge often face obstacles to successful commercialization. Even what’s anticipated to be an invention’s core market can easily fail. Given the gauntlet of contingencies, the ability to control entirely unforeseeable future markets amounts to a lottery ticket whose award is simply another lottery ticket. The marginal incentive effect is probably minimal.<sup>238</sup>

A second argument against this legal intervention concerns the viability of licensing markets. If the defendant has indeed appropriated something material, why not simply ask that she take out a license in order to produce her modified product? Why, in other words, wouldn’t originator and adapter reach a Coasean bargain re-

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235. See *Collelo v. Geographic Servs., Inc.*, 727 S.E.2d 55, 61–62 (Va. 2012).

236. *Eldred v. Ashcroft*, 537 U.S. 186, 215 (2003).

237. See Robert Merges, *Intellectual Property Rights and Bargaining Breakdown: The Case of Blocking Patents*, 62 TENN. L. REV. 75, 101 (1994).

238. See *id.*; Balganes, *supra* note 224, at 1619–20. As Michael Meurer and Craig Nard note in the doctrine-of-equivalents context, while an inventor could in theory be incentivized by some “aggregate probability” of many improbable technological developments, “[t]here is no statistical evidence suggesting this is a serious problem,” and “case law and the history of technology” suggest that “few inventors have much to fear.” Michael J. Meurer & Craig Allen Nard, *Invention, Refinement and Patent Claim Scope: A New Perspective on the Doctrine of Equivalents*, 93 GEO. L.J. 1947, 1998 (2005).

ardless of who receives the initial entitlement? Perhaps, the argument might go, it would be simpler to assign the originating firm the rights over a wide range of markets—even ones that a court might ultimately deem unforeseeable at the outset—rather than divvying those rights up through a messy, fact-intensive investigation.<sup>239</sup> An efficient licensing market would ensure that second comers could pursue innovative ways to exploit the secret, even if they have to pay a portion of their returns in order to do so.

A standard rebuttal to such arguments in the IP literature is to emphasize the costliness of transacting over rights in intangible information.<sup>240</sup> We agree that impediments to efficient licensing are often present, but we think they are particularly strong in the world of trade secrets. In patent law, at least, an improver of an underlying, patented technology is entitled to a separate patent on the improvement. Because practicing the improvement patent usually means infringing the claims of the original, the improver must first obtain a license from the original patentee. The original patentee, meanwhile, cannot practice the improvement without the improver's permission. This “blocking patents” scenario encourages the parties to enter a cross-licensing agreement, each armed with valuable consideration to offer the other.<sup>241</sup>

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239. Such an argument would echo Edmund Kitch's prospect theory of patents, which posited that it is socially beneficial to issue broad patent rights in the early stages of technical development, not so much to encourage invention upstream but to encourage efficient use and commercialization downstream. See Edmund W. Kitch, *The Nature and Function of the Patent System*, 20 J.L. & ECON. 265, 276 (1977). The theory has proven controversial. Compare Lemley, *supra* note 3, at 1045–46 (arguing that the theory requires assuming “that information is perfect, all parties are rational, and licensing is costless”), with John F. Duffy, *Rethinking the Prospect Theory of Patents*, 71 U. CHI. L. REV. 439 (2004) (arguing that the patent system's prospect features are important because they channel rivalry in ways that maximize the social benefits from the patent monopoly).

240. See, e.g., Michael W. Carroll, *One Size Does Not Fit All: A Framework for Tailoring Intellectual Property Rights*, 70 OHIO ST. L.J. 1361, 1393 (2009) (“Most commentators agree that difficulties in valuing patents and copyrights raise transaction costs to the point that allocative efficiency will depend upon the subject matter, scope and duration of intellectual property entitlements.”); Brett M. Frischmann & Mark A. Lemley, *Spillovers*, 107 COLUM. L. REV. 257, 275–76 (2007) (“Search, identification, and transaction costs are much greater with IP than they are with land or goods. . . . Once we admit that we live in a world rife with transaction costs, we must also admit that both design and allocation of rights matter. This is especially true of IP.”); Lemley, *supra* note 3, at 1054–56 (observing that “while the parties ideally would base the cost of a license on the value of the right licensed, that value will likely be difficult to determine accurately in the case of unique goods like intellectual property rights” and the “difficulty of valuing both original inventions and improvements, may also prevent bargaining parties from coming to terms”).

241. See Lemley, *supra* note 3, at 1052 (“[B]locking patents provides just such a bargaining mechanism.

Trade secrecy, by contrast, offers downstream adapters no real bargaining chip to bring to the negotiating table. Even if they could assert their own trade secret protection over their modifications, it would likely mean little to the originator, who might just as well be able to develop the same information in-house.<sup>242</sup> Realistically, they would have only the value of the modifications themselves, but of course they can't disclose a modification without handing it to the trade secret owner unencumbered. And the original trade secret owner can't value the modification without knowing what it is. This predicament, Kenneth Arrow's famous information paradox, can prevent the two sides from even understanding what they would be bargaining over—let alone what the right bargain would be.<sup>243</sup>

Even if this paradox could be overcome, the typical trade secret licensing scenario is rife with noneconomic reasons for bargaining breakdown. It's hard enough trying to make a deal with your own competitors.<sup>244</sup> Now imagine if that competitor has hired away one of your star employees, who is working very hard to enrich them, quite possibly at your expense. The success or failure of licensing negotiations in the world of mobile talent can be driven by feelings of betrayal or anger just

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Improvers have an incentive to invest in research even in the shadow of an original invention, since they can obtain a patent on their improvement. And the fact that an improvement patent gives them some real bargaining power also provides them with an incentive to come to the bargaining table, and indirectly, an incentive to invest in improvement in the first place.”); cf. Katherine J. Strandburg, *Patent Fair Use 2.0*, U.C. IRVINE L. REV. 265, 298 (2011) (theorizing that an expectation of blocking patents bringing upstream and downstream innovators to the bargaining table has led to doctrinal obsolescence of the reverse doctrine of equivalents, which exempts substantial improvers from infringement liability altogether).

242. A blocking patent, by contrast, gives the downstream inventor a good bargaining position precisely because it would foreclose any subsequent development, even if done independently. No trade secret can do that.
243. Kenneth J. Arrow, *Economic Welfare and the Allocation of Resources for Invention*, in *THE RATE AND DIRECTION OF INVENTIVE ACTIVITY: ECONOMIC AND SOCIAL FACTORS* 609, 614–16 (1962). To some extent, all licensing negotiations over trade secrets suffer from this problem. See POOLEY, *supra* note 4, at 6–44 (noting that a potential licensee may be reluctant to expose employees who are best equipped to assess the licensor's technology for fear that “exposing them to the secrets of the prospective licensor might taint them and engender subsequent litigation if the technology ultimately is developed in house.”). For more on how Arrow's information paradox can play out in IP licensing generally, see Lemley, *supra* note 3, at 1051.
244. See Lemley, *supra* note 3, at 1061 (“Corporate intellectual property owners may refuse to license patent rights to a competitor not because there is anything wrong with the licensing deal, but simply because the proposed licensee is a competitor.”).

as much as it can be by dollars and cents.<sup>245</sup> To take a notorious example, the plaintiff in one of modern trade secret law's most famous cases, *Pepsico, Inc. v. Redmond*,<sup>246</sup> was driven not by concerns over misappropriation but by indignation that a rival could raid its employees—and that its employees might prefer a competitor.<sup>247</sup> However great the likelihood of bargaining breakdown in other areas of IP, noneconomic factors in common trade secrecy scenarios can make things worse.

Thus far, this section has presented the general case for cabining trade secrecy's substantial derivation standard to reasonably foreseeable markets. In the two subsections below, we address two subsidiary, doctrinal-design questions that this standard would raise: (1) whose foreseeing counts? and (2) as of which moment in time? As we explain, the best version of this test would be based on what the plaintiff could have foreseen, or should have foreseen based on trends and developments within its industry, as of the date the trade secret was first developed.

### *I. Whose Foresight?*

Once trade secrecy can settle on the right questions to ask, it needs to decide who should be answering them. Jeanne Fromer and Mark Lemley refer to this decision as IP infringement's choice of "audience": from whose perspective should factfinders conduct a similarity assessment—an average layperson, a technical expert, a consumer from the intended demographic, or perhaps someone else entirely?<sup>248</sup> For trade secrets, a commercial foreseeability test should be measured from the perspec-

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245. *Cf., e.g.*, *Proline Products, LLC v. McBride*, 324 P.3d 430 (Ct. Civ. App. Okla. 2014) (describing estrangements and reconciliations in management of secret formula within a family business, ultimately ending in misappropriation).

246. 54 F.3d 1262 (7th Cir. 1995).

247. See Alan Hyde, *The Story of PepsiCo, Inc. v. Redmond: How the Doctrine of Inevitable Disclosure of the Trade Secrets of Marketing Sports Beverages Was Brewed*, in *EMPLOYMENT LAW STORIES* 117, 125 (Samuel Estreicher & Gillian Lester eds., 2007)

248. See generally Fromer & Lemley, *supra* note 2. The authors do not mention trade secrecy except in a footnote that suggests that courts in these cases seem to be employing a "reasonable competitor" standard. *Id.* at 1254 n.7. As we discuss in this section, we certainly agree that putting oneself in a competitor's shoes is a worthy goal in trade secrecy cases. But as a description of current judicial practice, we fear that the authors may be giving courts too much credit. In our survey of trade secret cases, we found almost no suggestion that judges had a particular vantage point in mind for making similarity assessments.

tive of reasonable competitors within the plaintiff's industry. That is, courts would ask whether the plaintiff actually knew, or should have known based on industry trends, that its secret was likely to be exploited in the manner that the defendant had chosen.

In copyright cases, fact-finders implicitly incorporate the issue of market harm by adopting the perspective of end consumers (or at least their more murkily defined counterparts, the reasonable observers).<sup>249</sup> That model would work with some trade secrecy fact patterns, but not all. In cases where the secret is embodied in a retail product, the analogy works. The protected information is baked directly into the goods for which consumers are paying, much the same as a patented toaster or a copyrighted romance novel. But trade secrets, likely more so than any other form of IP, often aren't directed at end consumers. Instead, they frequently derive their commercial value from internal use within the firm. A proprietary manufacturing method might help get goods to market more cheaply, but the end user isn't interested in the method. Likewise, a customer list might enable enough sales to justify the years of business negotiations and relationship-building that underlie it, but none of those customers is purchasing the list.

For this reason, when it comes to market harm in trade secrecy cases, we think that a consumer lens will frequently end up beside the point. For trade secrets that are exploited purely internally, the hypothetical market demand that matters comes not from the firm's customers but from its competitors. When such a trade secret is at issue, courts will need to ask whether the competitor's method of exploitation is a good substitute for the owner's method.

Of course, a particular plaintiff might have more specialized knowledge that gives it better foresight than do its industry peers. In such cases, the plaintiff should not be penalized just because the rest of the field hasn't yet caught up. Our proposal of tying foreseeability to the reasonable consumer or competitor is meant to be a floor. If the plaintiff knows more and can therefore forecast a wider range of potential markets, it should get the benefit of a correspondingly larger scope. In this sense, our proposal is the mirror image of the black-letter negligence rule that "[i]f an actor has skills or knowledge that exceed those possessed by most others, these skills or knowledge are circumstances to be taken into account in determining whether the actor has

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249. *See id.* at 1299 (discussing copyright cases whose ordinary observer or consumer standard asks, in effect, "[h]ow similar is the defendant's product to the plaintiff's creative contribution, and what is the marketplace impact of that similarity?").

behaved as a reasonably careful person.”<sup>250</sup> Just as superior foresight expands the boundaries of a defendant’s duty in a negligence case, so too should they expand the boundaries of a plaintiff’s entitlement scope in an infringement case. Originating firms would thus avoid being penalized for staying ahead of the curve. Indeed, this standard may incentivize them to get even further ahead than they otherwise would.<sup>251</sup>

## 2. Foreseeability as of *When*?

Introducing foreseeability to the misappropriation analysis requires a choice of timing. Should the the range of reasonably anticipatable markets be assessed from the time when the plaintiff first developed the secret information, or instead from when the alleged misappropriation first occurred?

We think the earlier point in time makes better sense. If trade secret protection is meant to encourage the development of socially valuable information, its foreseeability analysis should be tied to the point in time when an owner decides to invest in that development.<sup>252</sup> That moment—the decision whether to pursue a project or not,

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250. RESTATEMENT (THIRD) OF TORTS: LIAB. FOR PHYSICAL & EMOTIONAL HARM § 12 (2010); *see also, e.g.*, *Everett v. Bucky Warren, Inc.*, 380 N.E.2d 653, 659 (Mass. 1978) (holding a hockey coach to higher standard of care because he had acquired substantial experience and knowledge); *Toth v. Cmty. Hosp. at Glen Cove*, 239 N.E.2d 368, 372–73 (N.Y. 1968) (“[A] physician should use his best judgment and whatever superior knowledge, skill and intelligence he has. Thus, a specialist may be held liable where a general practitioner may not.”); *Osborne v. Montgomery*, 234 N.W. 372, 380 (Wis. 1931) (“If the actor in a particular case in fact has superior perception or possesses superior knowledge, he is required to exercise his superior powers in determining whether or not his conduct involves an unreasonable risk of injury to the interests of another . . .”).

251. One possible objection is that firms might be perversely incentivized to invest in developing new knowledge only to warehouse it—not to use it—just for the sake of expanding their rights’ scope. We suspect, however, that any such incentive wouldn’t change actual research trajectories except at the extreme margin. Firms likely have so many demands on their R&D resources that they wouldn’t invest in projects whose only forecasted benefit is expanding an existing trade secret’s scope in entirely unknown directions. In any event, if our suspicion turns out to be wrong, policymakers could consider requiring some affirmative use of the secret in order to achieve protection. That addition, however, would require changing the UTSA, which grants protection to used and unused information alike. *See* Eric R. Claeys, *The Use Requirement at Common Law and Under the Uniform Trade Secrets Act*, 33 *HAMLIN L. REV.* 583, 584 (2010); Varadarajan, *supra* note 39, at 392–93.

252. *Cf.* Balganes, *supra* note 224, at 1588–89, 1603 (arguing in favor of a foreseeability filter in copyright that “would require a plaintiff to establish that the defendant’s copying was objectively foreseeable at the time of creation” because post-creation considerations “bear little connection to the idea of creator

to spend more or less on it, or to prioritize it now or later—is when the law’s incentive effects actually matter. On this temporal point, we part ways from the copyright model, which generally assesses a market’s foreseeability as of the time of infringement.<sup>253</sup>

Of course, R&D isn’t an owner’s only expense over the life of a trade secret. Even after the information has come into existence, owners must make continual investments in guarding its secrecy. If they don’t, the legal protection ceases to exist. But trade secret law doesn’t seek to promote these continued secrecy investments for their own sake. It requires them, rather, as a signaling device that the secrets at issue are valuable enough to merit legal protection.<sup>254</sup> Indeed, most commentators would think society better off if information were shared freely, not locked behind closed doors. As a result, while trade secrecy is rightfully concerned with subsidizing R&D in the first instance, it shouldn’t be concerned with separately subsidizing these secrecy investments downstream. So long as would-be owners see enough value in trade secrecy protection over the markets that are reasonably anticipatable at the point of development, they will make the investments that the law cares about. Whether they choose later on to continue investing in secrecy is beside the point.

Identifying that point in time will probably be easier for some kinds of secrets than for others. For technological information, patent law provides a doctrinal template. Much like the assessment of a patentee’s date of invention, the date of a trade secret’s creation would correspond to the date when a device or process incorporating the secret was successfully reduced to working form.<sup>255</sup> For business information like

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incentives”).

253. See Balganes, *supra* note 224, at 1589 (“Courts have . . . based the determination on plaintiffs’ post-creation ability, motive, interest, or expectation to enter a certain market — but never on their ex ante incentive in creating the work . . .”).
254. See, e.g., *Rockwell Graphic Sys. v. DEV Indus.*, 925 F.2d 174, 179 (7th Cir. 1991) (observing that trade secrecy requires owners to take reasonable precautions because, if an owner had “expended only paltry resource” on preventing a secret “from falling into the hands of competitors . . . why should the law, whose machinery is far from costless, bother to provide [it] with a remedy? The information . . . cannot have been worth much if [the owner] did not think it worthwhile to make serious efforts to keep the information secret.”); see also Varadarajan, *supra* note 39 (describing various rationales for this requirement).
255. See 35 U.S.C. § 102(g) (1952 Act, repealed 2011) (explaining that priority is generally granted to the first inventor who reduces the invention to practice). Reducing an invention to practice means building a working version of it or filing a patent application with enough disclosure to enable others in the field to build a working version of it. See MERGES & DUFFY, *supra* note 93, at 424 (explaining that

customer lists, the answer is less clear. Such information may be constantly evolving, leaving a single date of creation harder to deduce. Ultimately, however, we aren't nearly as concerned about business-information cases because we suspect that a colorable foreseeability argument is less likely to come up. Business information is often firm or industry specific. Courts are probably less likely to encounter situations where a departing employee makes use of it in a remote market. To go back to the hypothetical employee at Coca-Cola: even if the company's secret formula finds a surprising demand in the world of automotive fuels, we doubt that its customer lists would as well.

One drawback to reaching further back in time to peg the foreseeability analysis is hindsight bias. Where foreseeability of the defendant's use is assessed in the present based on some state of affairs in the distant past, hindsight bias may push toward an anachronistic conclusion that the defendant's use was more foreseeable than it actually was.<sup>256</sup> We concede that, to some degree, this bias is likely unavoidable. Still, as courts develop a body of case law applying a foreseeability filter in trade secrecy, they may come to rely on various considerations to help mitigate hindsight bias' effects, much the same way as patent jurisprudence has done in assessing nonobviousness.<sup>257</sup>

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§ 102(g)'s priority rules were applied to define the "date of invention" in other subsections of the 1952 Patent Act). Since the America Invents Act of 2011 shifted U.S. patent law to a first-to-file priority system, the date of invention has become less relevant to recently issued patents. See Timothy R. Holbrook, *Patent Disclosures and Time*, 69 VAND. L. REV. 1459, 1463 (2016).

256. See generally Jeffrey J. Rachlinski, *A Positive Psychological Theory of Judging in Hindsight*, 65 U. CHI. REV. 571 (1998).

257. See, e.g., *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966) (explaining that "secondary considerations as commercial success, long felt but unsolved needs, failure of others . . . might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented" and "as indicia of obviousness or nonobviousness, these inquiries may have relevancy"); *In re Cyclobenzaprine Hydrochloride Extended-Release Capsule Patent Litig.*, 676 F.3d 1063, 1079 (Fed. Cir. 2012) (emphasizing the importance of these secondary considerations in "guard[ing] as a check against hindsight bias"). For further exploration of the hindsight problem in patent law's nonobviousness context, see Gregory N. Mandel, *Patently Non-Obvious: Empirical Demonstration that the Hindsight Bias Renders Patent Decisions Irrational*, 67 OHIO ST. L. J. 1391 (2006); Glynn Lunney, Jr. & Christian T. Johnson, *Not So Obvious After All: Patent Law's Nonobviousness Requirement: KSR, and the Fear of Hindsight Bias*, 47 GA. L. REV. 41 (2012).

## III. IMPLEMENTATION

So what now? Courts have gotten trade secrecy into its current muddle on adaptive uses. Courts can just as well get it out. Across multiple intellectual property regimes, judges have been the driving force behind crafting and refining infringement standards.<sup>258</sup> Try and find the substantial similarity standard in the Copyright Act or the doctrine of equivalents in the Patent Act.<sup>259</sup> You'll find them only in judicial opinions.<sup>260</sup> Even provisions within these statutes that modern practitioners may take for granted as legislative, from copyright's idea/expression dichotomy<sup>261</sup> and fair use defense<sup>262</sup> to patent law's nonobviousness requirement,<sup>263</sup> began in the courts, only to be codified later once Congress had caught up.<sup>264</sup>

Likely nowhere within IP is this judicial role more profound than in trade secrecy. Unlike copyrights and patents, which received at least terse legislative protection beginning with the very first Congress, trade secrets have lived most of their existence without even a primordial statute to cling to. Trade secrecy is a creation of the common law.<sup>265</sup>

Today, of course, we have both state and federal trade secret statutes. Yet while they establish that misappropriation can occur through "use," they leave that term largely undefined.<sup>266</sup> Judges must supply the normative content. Nothing in the state or federal statutory schemes prevents them from determining how derivation should be embedded within that term. Indeed, they've already established infringement scope in precisely this way for the wrongful acquisition form of liability, defining

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258. Peter S. Menell, *The Mixed Heritage of Federal Intellectual Property Law and Ramifications for Statutory Interpretation*, in *INTELLECTUAL PROPERTY AND THE COMMON LAW* 63, 63 (Shyamkrishna Balganesh ed., 2013) (discussing the standards for patent and copyright infringement and concluding that "the judiciary's imprint and evolving role are unmistakable and profound").

259. Go on. We'll wait.

260. For an excellent survey of courts' role in fashioning these two statutory torts, see generally Menell, *supra* note 258.

261. 17 U.S.C. § 102(b).

262. *Id.* § 107.

263. 35 U.S.C. § 103.

264. See Menell, *supra* note 258.

265. See *supra* text accompanying note 35.

266. See, e.g., UTSA § 1; 18 U.S.C. § 1839.

what makes different forms of copying proper or improper.<sup>267</sup> They can do so just as easily for forms of adaptive use.

Courts will, however, need to exercise care in implementing any changes. Our proposal centers on how to interpret the word “use” in current statutory definitions of misappropriation.<sup>268</sup> It does not depend on, and we do not advocate for, significant changes in the meaning of “disclosure” or “acquisition,” the other paths to liability. Liability is justified where the defendant either discloses the secret in ways likely to destroy its value or uses improper means to acquire it—regardless of any adaptation downstream.

With respect to disclosure, the need for deterring the value-destroying revelation of secrets, even when connected to a legitimate adaptive use, should be intuitive. A fundamental premise of the case for permitting unforeseeable derivatives is that they threaten little legitimate market harm to the trade secret owner.<sup>269</sup> But if the use winds up spilling the secret, it wipes out the entire value. Even if controlling unanticipated derivatives does not enter a firm’s ex ante investment calculus, controlling against exclusivity-destroying disclosures certainly does. As a result, courts should hold downstream adapters liable for any public disclosures—just as they do already— independently of any defenses those adapters may have against a use-based theory of liability.

Admittedly, this nondisclosure caveat reduces the value of our proposal to potential defendants. Any new incentive to adapt existing secrets could be offset somewhat by the risk of ending up liable anyway through the backdoor of disclosure. But we doubt that this risk would change the investment decision very often. Adapters that plan to commercialize their discoveries have an interest in maintaining secrecy, just as the upstream trade secret owner does. To the extent that their interests are aligned, a continued-secrecy requirement shouldn’t significantly alter adapters’ commercialization strategies. Indeed, trade secret doctrine permits reverse engineering

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267. For example, the reverse engineering limitation, one of the most important limitations on trade secret liability, was a creation of the courts. *See, e.g., Kewanee*, 416 U.S. at 476 (1974) (citing *National Tube Co. v. Eastern Tube Co.*, 3 Ohio Cir. Ct. R. NS. 459, 462 (1902), *aff’d* 70 NE. 1127 (1903)). While the UTSA does not explicitly mention reverse engineering, the federal trade secret statute excludes “reverse engineering and independent derivation” from its definition of improper means. 18 U.S.C. § 1839(6).

268. UTSA § 1; 18 U.S.C. § 1839.

269. *See supra* section II.C.

based on precisely this assumption that appropriator and originator alike wouldn't want to see a secret get out.<sup>270</sup> In some instances, to be sure, an adapter may have preferred instead to seek patent protection, which would require disclosure and thereby erase the upstream owner's trade secret protection.<sup>271</sup> So the two parties' interests don't always overlap. But compared to the social cost of allowing such downstream patent filings and the existential disincentive to upstream investment in trade secrets that would accompany it, forcing adapters to hold on to their secrets seems like the better of the bargain.

That leaves wrongful acquisition. Even if downstream adaptation's innovation spillovers are as large as we've posited, trade secrecy should still penalize adapters who acquire the underlying information through improper means such as theft, wire-tapping, or misrepresentation.<sup>272</sup> The notion that an otherwise-lawful use of information could be tainted by the manner in which it was initially obtained is already a familiar principle of copyright's fair use doctrine.<sup>273</sup> In that context, it's often seen as an equitable requirement of good faith.<sup>274</sup> It's at least that much in trade secrecy doc-

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270. See, e.g., *Faiveley Transp. Malmo AB v. Wabtec Corp.*, 559 F.3d 110, 119 (2d Cir. 2009) (“[Appropriators] will often have the same incentive as the originator to maintain the confidentiality of the secret in order to profit from the proprietary knowledge.”); Pamela Samuelson & Suzanne Scotchmer, *The Law and Economics of Reverse Engineering*, 111 YALE L.J. 1575, 1658 (2002) (noting that trade secret cases seldom need to address a reverse engineer's attempt to publish the secret “because reverse engineers have generally had little incentive to publish or otherwise disclose information they learn from reverse engineering. Reverse engineers have typically kept the resulting know-how secret for competitive advantage.”).

271. We concede that patent protection is a more meaningful option for adapters than for reverse engineers. Because a reverse engineer by definition hasn't invented the technology at issue, a patent isn't up for discussion. See *In re Bass*, 474 F.2d 1276, 1290 (C.C.P.A. 1973) (“[O]ne who did not himself invent the subject matter’(i.e., he did not originate it) has no right to a patent on it.” (internal quotation marks omitted)). Trade secrecy is the only legal protection realistically available. By contrast, one who adapts a trade secret into a novel and nonobvious product could very well receive a patent.

272. Both the UTSA and DTSA recognize a distinct category of misappropriation based on “acquisition of a trade secret of another by a person who knows or has reason to know that the secret was acquired by improper means.” See UTSA § 1(2); 18 U.S.C. § 1839(5).

273. See *Harper & Row Publ'ns v. Nation Enters.*, 471 U.S. 539, 563 (1985) (rejecting a fair use defense where the defendant had “knowingly exploited a purloined manuscript”); *Atari Games Corp. v. Nintendo of Am. Inc.*, 975 F.2d 832, 843 (Fed. Cir. 1992) (concluding that “[t]o invoke the fair use exception, an individual must possess an authorized copy of a literary work,” and therefore rejecting a fair use defense to intermediate copying of source code where the defendant was not authorized to possess the code being copied).

274. See, e.g., *Harper & Row*, 471 U.S. at 562 (justifying its ruling on the grounds that “fair use presupposes

trine, but it also channels downstream actors toward commercial methods with large positive externalities. The definition of misappropriation privileges reverse engineering over industrial espionage because, as the Seventh Circuit has noted, it “involves the use of technical skills that we want to encourage.”<sup>275</sup> Reverse engineers learn by doing, and that learning can eventually spill over into future innovations.

By distinguishing between proper and improper means of acquisition, trade secrecy effectively subsidizes that learning. A competitor who might otherwise be indifferent between costly reverse engineering and equally costly snooping is pushed toward the more socially productive option.<sup>276</sup> Courts should therefore continue to discriminate between legitimate and illegitimate acquisition, irrespective of whether the acquisition yields a slavish imitation or a radically different result.

To be sure, the odds are slim that the scope of acquisition liability would change much. Allegations of improper acquisition without any accompanying allegations of subsequent disclosure or use are rare.<sup>277</sup> In fact, prior to the enactment of the UTSA, a pure acquisition-based theory of misappropriation was not even recognized under state common law.<sup>278</sup>

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‘good faith’ and ‘fair dealing’” (quoting *Time Inc. v. Bernard Geis Assocs.*, 293 F. Supp. 130, 146 (S.D.N.Y. 1968))).

275. *Rockwell Graphic Sys. v. DEV Indus.*, 925 F.2d 174, 178 (7th Cir. 1991).

276. See Jeanne C. Fromer, *A Legal Tangle of Secrets and Disclosures in Trade: Tabor v. Hoffman and Beyond*, in *INTELLECTUAL PROPERTY AT THE EDGE: THE CONTESTED CONTOURS OF IP* 286 (Rochelle C. Dreyfuss & Jane C. Ginsburg eds., 2014) (“[R]equiring third parties to reverse engineer—rather than use the secret directly—might also be helpful to the third parties (and society at large) by teaching them more about the information, its uses, and further refinements.”); Dan L. Burk, *Muddy Rules for Cyberspace*, 21 *CARDOZO L. REV.* 121, 174 (1999) (“[W]hen competitors do opt for independent development or reverse engineering, these alternatives channel their investment into socially useful activity—either option develops productive technological or business expertise within the firm, rather than wasteful expertise in industrial espionage.”).

277. See MILGRIM, *supra* note 36, § 15.01; Sharon K Sandeen, *Out of Thin Air: Trade Secrets, Cybersecurity, and the Wrongful Acquisition Tort*, in *RESEARCH HANDBOOK ON INTELLECTUAL PROPERTY AND DIGITAL TECHNOLOGIES* (Tanya Aplin, ed. forthcoming 2018), [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3106034](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3106034), at \*9 (“One explanation for the paucity of wrongful acquisition cases . . . is that most trade secret cases involve parties that are in a confidential relationship, and of those, most involve the employer–employee relationship” and “typically . . . there is no claim of acquisition by improper means because the employer voluntarily disclosed its secrets to its employees”).

278. See MILGRIM, *supra* note 36, § 1.01 (describing the old Restatement of Torts approach under which wrongful acquisition of a trade secret was “simply a predicate for holding the wrongdoer liable for the later unauthorized use or disclosure of the secret”); *RESTATEMENT (THIRD)*, *supra* note 5, § 40 cmt. b

Still, whatever the infrequency of such cases, there's still some risk that the expansive statutory definition of improper acquisition under both state and federal law could cause mischief when departing employees are involved.<sup>279</sup> Much of the problem lies in the potential for third-party liability. Take an example we used previously: the Coca-Cola employee who uses her legitimately acquired knowledge of Coke's secret formula to create an automotive fuel. To succeed on a trade secret misappropriation claim against the former employee, Coca-Cola would likely have to prove her unlawful disclosure or use, since the employee acquired the information lawfully.<sup>280</sup> But if her start-up company is liable anyway under an acquisition theory, any dispute over the employee's derivation no longer matters much.

A similar third-party concern arises with disclosure. Suppose in the course of creating that automotive fuel, the departing employee shared the formula with one or two individuals at her newly formed company under conditions of strict secrecy. Under current law, that may very well be a problem. A disclosure need not be "public" in order to be actionable; even private disclosures can give rise to liability.<sup>281</sup> Yet to en-

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(similar).

279. The open-ended definitions of "improper means" in the UTSA and DTSA contain terms that could sweep large swaths of conduct into liability, such as "breach of a duty of maintain secrecy" or the catchall "other means." *See, e.g.,* Barr-Mullin, Inc. v. Browning, 424 S.E. 2d 226, 230 (N.C. App. 1993) (seemingly adopting a broad view of acquisition-based liability in stating that a prima facie case is established if the defendant knew or should have known of the trade secret and "has had a specific opportunity to acquire the trade secret"); *see also* Lobel, *supra* note 11, at \*4 (predicting broader interpretations of improper means under the DTSA than under state law); Blue Star Land Servs., LLC v. Coleman, No. CIV-17-931-R, 2017 WL 6210901, at \*6-7 (W.D. Okla. Dec. 8, 2017) (concluding that under the DTSA, departing employees who formed a competing firm could be held liable on an acquisition-based theory under the DTSA, but under state trade secret law, plaintiff would have to show actual use of the secret).
280. *See* RESTATEMENT (THIRD), *supra* note 5, § 40 cmt. b ("The cases requiring proof of wrongful use or disclosure . . . typically involve information that has been acquired by the defendant through a confidential disclosure from the trade secret owner. In such cases the acquisition of the secret is not improper; only a subsequent use of disclosure in breach of the defendant's duty of confidence in wrongful.").
281. *Id.* (observing that "an actor may be subject to liability...in connection with either a public or a private disclosure of a trade secret" because "[a] private disclosure can increase the likelihood of both unauthorized use and further disclosure"). In many cases, a plaintiff will allege misappropriation based on both unauthorized disclosure and use. *See, e.g.,* Penalty Kick, Mgmt. Ltd. v. Coca Cola, 318 F.3d 1284, 1292-94 (11th Cir. 2003) (alleging misappropriation based on disclosure and use). Cases where a plaintiff alleges only disclosure-based misappropriation, but not use, tend to involve a defendant that publicly disclosed or threatens to publicly disclose trade secret information. *See, e.g.,* Precision Plating

force that rule against adaptations that don't qualify as actionable uses would turn the entire substantial derivation framework into a nullity. A plaintiff in a derivation case should not be able to prevail on a disclosure-based theory unless a defendant's private disclosure is likely to compromise the value of the plaintiff's secret.

#### CONCLUSION

Every IP regime needs a plan for how to handle nonliteral similarity. Trade secrecy has made it a long time without much of one—probably longer than it reasonably should have. But it can't paper over that gap any longer, if indeed it ever could. A national innovation policy increasingly dependent on trade secret law cannot afford to treat all derivative uses the same. Too many lawsuits, industrial strategies, and individual employee decisions depend on courts enabling fact-finders to distinguish the good from the bad.

Courts looking to other exclusive-rights regimes for guidance are on the right track. But they could be doing far more than they are now, which is essentially just shoring up the uncontroversial claim that something less than absolute identity between products can be enough for liability. Not every move that these other regimes make will translate well into trade secret doctrine, but copyright law—the place that trade secrecy cases seem least likely to look—has several that would. Trade secrecy's derivation framework would produce better outcomes if it focused on the product that the defendant is actually exploiting, required that the plaintiff's secret made a material contribution to that product, and exempted uses of that secret in unforeseeable markets. It doesn't need to copy the copyright approach completely. But a little similarity wouldn't hurt.

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& Metal Finishing Inc. v. Martin-Marietta Corp., 435 F.2d 1262 (5th Cir. 1970) (awarding damages where “defendants public disclosure of the [secret] process . . . amount[ed] to a complete destruction of the value of the process”).