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Combination Trade Secrets and the Logic of Intellectual Property

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I. ABSTRACT

There is a growing debate between the proponents of the public domain and supporters of private ownership of information. The contentious discussion on these issues has not yet focused on trade secret law, but it is time to subject trade secret law to the same questions of public policy now asked of copyright, patent, and trademark law. One theory of trade secret law that poses a direct threat to the public domain is the so-called combination trade secret, a concept that permits some combinations of publicly available information to be treated as intellectual property. Despite more than a century of case law on this theory, courts and commentators have never developed a set of tests to properly analyze whether an asserted combination trade secret should be recognized as such. We propose that such combination secrets must satisfy standards no less stringent than those applied for individual trade secrets in order to qualify for intellectual property protection. Specifically, combination trade secrets must not be obvious and must have functionally interrelated elements that provide economic value over combinations with publicly known alternatives. Furthermore, in order to have misappropriated a combination trade secret, a defendant must know about and intend to misappropriate the entire combination, and not have independently derived it. If applied, these tests would protect information in the public domain from overbroad or exaggerated combination claims, while ensuring that truly unique combinations receive intellectual property protection.

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II. INTRODUCTION

There is a growing movement to protect and enlarge the amount of information in the public domain against the countervailing drive towards expanding the boundaries of intellectual property and encroaching on what is publicly available.1 This movement is important because the public domain commons is a rich source for innovation, whether in art and culture or science and technology.2 At the same time, the value of information publicly available creates an incentive to assert sole dominion over ideas otherwise free for all to use.3

The debate between ownership and commons is being raised on every major intellectual property front: patent, trademark, copyright, and trade secret. Commentators have given prominent attention to the perils of patents governing common concepts, trademarks allowing the silencing of speech, copyrights lasting too long or covering too much, and the new para-copyrights destroying the delicate balance set by America’s two hundred year history of copyright jurisprudence.4
By contrast, scholars have largely ignored the battles over trade secret law.\(^5\)

This silence is surprising for two reasons. First, how state law defines a trade secret directly affects innumerable employees and inventors, especially in high technology industries. The rights of hundreds of thousands of skilled employees are directly affected by state law trade secret decisions. Second, the sheer amount of information to which trade secret law is applicable dwarfs that encompassed by patent and trademark regulation, and may be as broad and amorphous as the fixed expressions governed by copyright.\(^6\) Indeed, the concept of a trade secret is so elastic that it can encompass any economically valuable idea that is not in the public domain.\(^7\) Thus, protecting the public domain may first and foremost be a battle over the scope of trade secrets law.

The time has come for trade secrets law to be subjected to the same rigorous analysis now expected when discussing federal intellectual property laws. In virtually every trade secrets case, the right of an employee to take the job of his or her choice and the public interest in fostering the growth of small and innovative businesses is balanced against a former employer's claim to a property right in some or all of the former employee's knowledge. Unfortunately, the


\(^6\) Although there is no empirical way to prove it, it seems possible that trade secret law covers more information than the three other principle areas of intellectual property law. Patent law has a wide subject matter but is bounded by the expense and difficulty of obtaining a patent and the limited term of an issued patent. In addition, patent law is bounded by the finite number of patents in force at any given time. Trademark law's subject matter is much narrower, covering only the use of marks used in commerce to identify and distinguish goods. Copyright law is limited in subject matter to fixed expression, as opposed to ideas or concepts, and copyrights are also available for only limited times. *But see Eldred v. Ashcroft*, 537 U.S. 186 (2003). By contrast, a trade secret may last forever, requires no registration, need not be memorialized in fixed expression, and may consist of any economically valuable but not generally known information.

\(^7\) For example, California's version of the Uniform Trade Secrets Act defines a trade secret as secret information that "[d]erives independent economic value, actual or potential, from not being generally known to the public or to other persons who can obtain economic value from its disclosure or use." *See Cal. Civ. Code § 3426.1(d).*
current regime of trade secret law has been disproportionately shaped, since the mid-nineteenth century, by the narrow interests of former employers. Lawyers representing the interests of former employers created a number of legal doctrines that make it easier to enjoin a former employee, including trade secret-based noncompetition and nonsolicitation agreements, inevitable disclosure, combination trade secrets, and the theory of negative know-how. Courts nationwide have written these theories into law, and have sometimes done so without the detailed analysis one finds in published patent and copyright decisions.

This article proposes a methodology to analyze whether a plaintiff's claimed ownership of a combination trade secret ought to be protected by trade secret law. In proposing a reform of this area of intellectual property law, we offer a critique of trade secrets law inspired by, and related to, the current debates over the application of

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9. There are numerous published cases nationwide addressing noncompetition agreements based on alleged trade secrets, and many more addressing other doctrines that restrict employees' abilities to change jobs and also encroach on the public domain. Examples include Pepsico, Inc. v. Redmond, 54 F.3d 1262, 1270 (7th Cir. 1995) (well-known decision that breathed new life into the inevitable disclosure theory, with no discussion of the theory's negative effects or its invitation to file meritless accusations); Courtesy Temp. Serv., Inc. v. Camacho, 222 Cal. App. 3d 1278, 1288-89 (1990) (asserting in dicta that a defendant might be liable for not using a former employer's secret customer information that he or she knows would prove fruitless under a negative know-how theory; such reasoning might allow a lawsuit whether or not the former employee contacts the customer); UZ Engineered Prod. Co. v. Midwest Motor Supply Co., 770 N.E.2d 1068, 1084 (Ohio Ct. App. 2001) (upholding two-year noncompetition and nonsolicitation agreements and affirming judgment against employer who hired plaintiff's employees under a claim of tortious interference with the restrictive contracts).

10. Even in jurisdictions that permit noncompetition agreements and theories such as inevitable disclosure, courts often recognize the plight of the employee trying to change jobs and reach results less restrictive than the law might allow. E.g., EarthWeb, Inc. v. Schlack, 71 F. Supp. 2d 299, 310, 316 (S.D. N.Y. 1999) (thoughtful decision rejecting a plaintiff's attempt to enforce one-year non-competition agreement and obtain an inevitable disclosure injunction). This is not always the case. E.g., Lumex, Inc., v. Highsmith, 919 F. Supp. 624, 631 (E.D. N.Y. 1996) (in issuing an inevitable disclosure injunction and upholding a noncompetition agreement, court held that "bonus and stock option rights" offered by new employer were an incentive to disclose trade secrets; if applied broadly, such reasoning would create "evidence" of future theft out of one of the main reasons people change jobs—better compensation); Elcor Chem. Corp. v. Agri-Sul, Inc., 494 S.W.2d 204, 213 (Tex. Civ. App. 1973) (affirming trial court in holding former employees liable for trade secret misappropriation despite their apparent showing that material was in the public domain by way of "articles and trade magazines": "It does not matter that [defendants] could have gained their knowledge from a study of books and magazines. The fact is that they did not do so.").
copyright, patent, and trademark laws and the need to protect information in the public domain from further encroachment.

A combination trade secret is a set of elements, each by itself in the public domain, whose synthesis can be a legally protected property right even though the elements by themselves are not. An easily understood example is the formula for Coca-Cola. Although the concept of a combination secret has been recognized and applied for more than a century, courts and commentators have never constructed an explicit test to determine whether or not such an intellectual property right in fact exists in any given case. The result is a muddled doctrine that poses a direct threat to employee mobility, competition, and innovation. At this time, when the scope of intellectual property law is a burning issue, the doctrine of combination secrets is in dire need of discussion and reform.

In that spirit, and based on our review of virtually every combination case in the published reports nationwide, we offer a battery of tests to separate what is truly protectable from makeweight allegations designed to punish employees for leaving their jobs and joining a competitor.

Despite being recognized as a legal concept for more than a century, and despite being described in well over one hundred published cases nationwide, there has been no systematic attempt to define a set of standards for the application of combination trade secrets. The three major efforts to systematically define trade secret law, the Restatement of Torts, the Uniform Trade Secrets Act, and the Restatement of Unfair Competition are either silent on the concept or mention it without elaboration.11 Treatise-writers, in turn, have given the concept only general attention, and it appears that not a single law review article has ever been dedicated to the topic.12

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11. See RESTATEMENT OF TORTS § 757 cmt. b, (1939) (noting that trade secrets can include "any formula, pattern, device, or compilation of information" that meets certain requirements); UNIFORM TRADE SECRETS ACT § 1(4) (1985) (same for any "formula, pattern, compilation, program, device, method, technique, or process"); RESTATEMENT (THIRD) OF UNFAIR COMPETITION § 39 cmt. f, (1995) (noting combination concept without analysis).

Our goal, in this neglected area of intellectual property law, is a simple one: to propose useful judicial tests for deciding whether a combination trade secret misappropriation claim is valid. We aim to separate valid claims from artificial attempts to use the label of combination trade secret to re-claim information already in the public domain and available for society to use. The following sections are intended to act as a roadmap for any court’s analysis of a combination claim.

III. HISTORY: THE DEVELOPMENT OF THE COMBINATION CONCEPT

The combination concept, like most of the trade secret law applied by state courts today, is rooted in the ethos of nineteenth century and early twentieth century employment law. As the nation industrialized, employers became concerned that former employees would use information learned during their employment to compete against them.13 By the 1890s, they had begun seeking injunctive relief and the enforcement of noncompetition agreements against former employees to protect alleged secrets of the trade.14

It was against this backdrop—a crude and elementary body of common law not yet recognized as trade secrets law—that some courts began to apply the rules that information in the public domain could not be the property of any one company, and rules that required a plaintiff to establish the secrecy of the information on which it sued.15 It was only after the public domain defense became established that the combination theory of trade secrets law was first developed as a plaintiff’s response.

To our knowledge, the first published decision to enunciate the combination trade secret concept in its modern form was an 1894 New York decision in which Eastman-Kodak sued former chemists for using the company’s innovations in photographic chemicals for their new business.16 In Eastman Co. v. Reichenbach, the defendants argued that the chemicals they used “were already known to the scientific mind” and therefore were not the plaintiff’s trade secrets.17

13. See generally Fisk, supra note 8 (describing development of American trade secret law during the nineteenth century).
17. See id. at 112.
The court used a then-current analogy to demonstrate the flaw in the
defense’s argument:

It cannot be truly stated that Alexander Bell invented or discovered
electricity, but it may be stated, without fear of contradiction, that
he did invent the telephone, although it was known long before his
day that by means of a continuous current of electricity both
vibration and sound could be transmitted over considerable
distances. . . .

So in regard to some of the inventions or discoveries claimed as
property by the plaintiff. They were obtained by compounding
certain well-known ingredients, possessing well-defined
properties, but in such a manner as to produce new results, and
these results were found to be useful in the manufacture of
photographic instruments and supplies to such an extent as to give
the plaintiff great advantage over its competitors.18

Further applications of this concept appear to have been few and far
between over the next fifty years.19 By the 1950s, however, the
combination concept was well-established and frequently recited.20
More than a century after Eastman, its simple insight is still the
working definition courts use when analyzing a claimed combination
trade secret.

IV. THE DANGERS ASSOCIATED WITH COMBINATION CLAIMS

Despite a century of law on combination secrets, courts
nationwide have not fully developed the concept or applied precise
standards to separate what is truly secret from what is common

18. See id. at 112–13.

Ch. Div. 1949) (finding secret in plaintiff’s chemical process despite public domain material on
individual elements); Belmont Labs, Inc. v. Heist, 151 A. 15, 18 (Pa. 1930) (finding “secret
process” in plaintiff’s particular mixture of known chemicals for pharmaceutical product);
Germo Mfg. Co. v. Combs, 240 S.W. 872, 882 (Mo. Ct. App. 1922) (noting that plaintiff could
have secret formula even though one ingredient, chlorine, was well-known); Stone v. Goss, 55
A. 736, 737 (N.J. Ct. App. 1903) (finding trade secret in particular mixture of “well known”
ingredients).

20. See, e.g., By-Buk Co. v. Printed Cellophane Tape Co., 163 Cal. App. 2d 157, 166
(1958) (fact that “component parts” of machine “were standard parts that could be procured by
anyone in the open market” did not prevent finding that combination in machine was “unique or
unusual”); Allen Mfg. Co. v. Loika, 144 A.2d 306, 309 (Conn. 1958) (same for elements of
combination secret as a “method” of combining known elements “which produces a product
superior to that of competitors.”); Ferroline Corp. v. General Aniline & Film Corp., 207 F.2d
912, 921 (7th Cir. 1953) (a trade secret can exist if “the combination of interrelated parts
represented a valuable contribution arising from plaintiff's independent efforts.”).
knowledge. With few exceptions, the courts appear not to have recognized the ease by which plaintiffs (or, more precisely, their attorneys) can rhetorically construct a combination trade secret out of individual, publicly known items of information that the defendant has a right to use. These problems are due, at least in part, to the absence of an analysis for combination claims that distinguishes the elements of such claims from the standard analysis applied to the far more commonplace individual trade secret claims.

The vast majority of trade secret lawsuits involve intellectual property claims to information asserted as individual trade secrets, rather than as a combination: customer lists, novel software or hardware architectures, and specific implementations of generally known manufacturing concepts, to take some common examples. In such cases, defendants seek to prove, often successfully, that the plaintiff cannot have a property right in the information because it is in the public domain.21 This is typically done by reference to technical papers, academic presentations, and materials published by competitors in the field.

A plaintiff's assertion of a combination claim is often a riposte to the defendant's showing that some or all of the items in question are in the public domain. The plaintiff points out that a combination of items that, in isolation, are publicly known can still be a protectable trade secret. But how this combination is conceived, and what relations must be demonstrated between its constituent elements in order for trade secret protection to accrue, is something the common law has failed to spell out. Not every combination of known elements is a trade secret, but where do courts draw the line?

A. The spectrum of secrecy in claimed combinations

In beginning the analysis of combination trade secret claims, we must take note of the broad spectrum of information that can be brought within the concept. At one extreme, the concept is almost superfluous, because the combination itself can also be defined as a single, individual trade secret. Almost any individual trade secret claim includes both components and ideas—engineering techniques,

software programming languages—that in themselves are public domain knowledge free for anyone to use.

Take, for example, the fact that the formula for Coca-Cola includes sugar, corn syrup, and other elements that by themselves are in the public domain. Their chemical combination into a recipe is not something that can be derived from mere knowledge of the individual elements. Nobody would seriously dispute the claim that Coca-Cola owns the chemical formula by which it creates its soft drink from common ingredients, and nobody would seriously claim that because those ingredients are known, the exact proportions at which the elements are chemically combined do not constitute a secret.\(^{22}\)

At the other extreme, let us imagine a scenario where not only are all of the individual elements of a claimed combination secret in the public domain, but the combination of those elements is itself in the public domain. In one case, for example, a plaintiff claimed a combination trade secret in the general idea of preparing, breading, and frying skinless fried chicken, as opposed to any unique steps or secret recipe for particular ingredients.\(^{22}\) No impartial observer would accept the claim that a company owns an exclusionary property right in such information (though trade secrets plaintiffs attempt such claims with some frequency).\(^{24}\)


\(^{24}\) See Strategic Directions Group, Inc. v. Bristol Myers Squibb Company, 293 F.3d 1062, 1065 (8th Cir. 2002) (system of market research questions not secret “individually or in combination”); TGC Corp. v. HTM Sports, B.V., 896 F. Supp. 751, 760 (E.D. Tenn. 1995) (no secret where all elements in sports gloves and their combinations known in the trade); Ashland Management Inc. v. Janien, 604 N.Y.S.2d 912, 918 (N.Y. 1993) (mathematical model for investment strategy not combination secret where it could be easily deduced and generated based on the plaintiff's generalized public disclosures); Hutchison v. KFC Corp., 883 F. Supp. 517, 521 (D. Nev. 1993), aff'd, 51 F.3d 280 (9th Cir. 1995) (process of making skinless fried chicken known in industry); Computer Care v. Service Sys. Ent., Inc., 982 F.2d 1063 (7th Cir. 1992) (system of reminding auto owners that their cars need service was obvious; “one need not also have knowledge of a special formula or technique for combining those components”); Coenco, Inc. v. Conenco Sales, Inc., 940 F.2d 1176, 1178–79 (8th Cir. 1991) (no combination secret in machine where both individual elements and combination were known); Cataphote Corp. v. Hudson, 444 F.2d 1313, 1317 (5th Cir. 1971) (process for making glass beads too common to be a trade secret); Houser v. Snap-Tools Corp., 202 F. Supp 181, 187 (D. Md. 1962)
Both of these extremes are easily dealt with without complex analysis. Many claimed combination trade secrets, however, are in the middle—some or all of their individual elements are in the public domain, and competitors know about and use similar combinations of similar elements. Courts therefore face the difficult task of determining whether the claimed combination of known elements is close enough to the industry’s common practice to be deemed “generally known,” or, by contrast, whether the set of elements

25. Cases where the claimed combination was held not sufficiently distinct and thus generally known and not secret include Wal-Mart Stores, Inc. v. P.O. Market, Inc., 66 S.W.3d 620, 634 (Ark. 2002) (no combination secret in system for executing bulk credit transactions because system was merely a “variation of other economic models already in the public domain and readily ascertainable” as opposed to “unique information”); BioCore, Inc. v. Khosrowshahi, 96 F. Supp. 2d 1221, 1229 (D. Kan. 2000) (no combination secret in use of certain devices for processing medical product where “Other persons in this field know that this type of equipment is used to produce collagen-based products.”); Capital Asset Research Corp. v. Finnegan, 160 F.3d 683 (11th Cir. 1998) (no combination trade secret in business method for evaluating bids on tax deeds); Pope v. Alberto-Culver Co., 694 N.E.2d 615, 619 (Ill. App. Ct. 1998) (no combination secret in dispenser for hair product where elements were “easily within the realm of general skills and knowledge in the industry”); Weins v. Sporleder, 569 N.W.2d 16, 18-19 (S.D. 1997) (no combination secret in formula for animal feed supplement programs where product was “a combination of well-known feed materials provided as a feed supplement” and formula was “within the realm of general skills and knowledge in the relevant industry” (quoting Computer Care v. Service Sys. Ent., Inc., 982 F.2d 1063, 1972 (7th Cir. 1991))); Comprehensive Tech. Int’l, Inc. v. Software Artisans, Inc., F.3d 730, 737 (4th Cir. 1993) (no combination secret in software database programs where their “arrangement and interaction of the functions” was common to all similar programs); Integral Sys., Inc. v. Peoplesoft, Inc., 1991 WL 498874, *14 (N.D. Cal. 1991) (no combination secret in plaintiff’s software where evidence showed that its elements were among the elements already known in the industry and used in similar applications); Preston Corp. v. Fabrication Ent., Inc., 513 N.Y.S.2d 51, 52 (N.Y. App. Div. 1987) (manufacturing process was generally known and not unique); Fishing Concepts, Inc. v. Ross, 226 U.S.P.Q. 692 (D. Minn. 1985) (no combination secret in marketing strategy for fishing camp industry where all of the elements of the strategy were known in the trade); Engineered Mech. Serv., Inc. v. Langlois, 464 So.2d 329 (La. Ct. App. 1984) (no combination secret in steam engine repair process where “the processes utilized by EMS employed techniques and procedures which were matters of public knowledge that had been developed by others before EMS applied them to specific repair problems”); MBL Corp. v. Diekman, 445 N.E.2d 418, 423 (Ill. App. Ct. 1983) (process of producing urethane flat belts “generally known in the industry”); Jostens, Inc. v. National Computer Sys., Inc., 318 N.W.2d 691, 703 (Minn. 1982) (no combination secret in system of designing class ring molds where it merely combined three generally known subsystems that had been used in the industry or more generally in the machine tooling trade); Microbiological Research Corp. v. Muna, 625 P.2d 690, 700 (Utah 1981) (no combination secret in diagnostic kit where the process reflected nothing more than the “skill and knowledge of the trade”); Arco Indus. Corp. v. Chemcast Corp., 633 F.2d 435, 442 (6th Cir. 1980) (plaintiff’s automobile grommet not a combination secret because, among other things, the industry already knew about combining the various elements involved); Mid-America Marketing Corp. v. Dakota Indus., Inc., 281 N.W.2d 419, 424 n.2 (S.D. 1979) (no combination secret where plaintiff’s prototype hair treatment bonnet merely combined elements
differs enough from common practice to constitute a trade secret. In these cases, the generalized definition of a combination secret so often employed is not sufficient to separate legitimate claims from fabricated allegations.

It is this middle ground scenario—that is, the intellectual space between the easily-defeated combination claim entirely in the public domain and a combination claim whose elements are all individually secret or are otherwise so intertwined that protection through a combination theory is redundant—that is the focus of this article.

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already used in other such bonnets in the trade); Davis v. General Motors Corp., 196 U.S.P.Q. 218, 222 (N.D. Ill. 1977) (process for making automotive emission suppression catalysts generally known in the trade); Wilson Certified Foods, Inc. v. Fairbury Food Prod., Inc., 370 F. Supp. 1081, 1084 (D. Neb. 1974) (meat rendering process generally known); Cudahy Co. v. American Labs., Inc., 313 F. Supp. 1339 (D. Neb. 1970) (no combination secret in techniques for processing animal byproducts where "the processes and techniques are rather common and while there are variations no manufacturer has a competitive advantage because of the small variations occurring from producer to producer."); Nickelson v. General Motors, Corp., 361 F.2d 196, 199 (7th Cir. 1966) (no combination secret where elements of plaintiff's chrome plating process were all used already in the chrome plating industry); Julie Research Labs., Inc. v. Select Photographic Eng'g, Inc., 810 F. Supp. 513, 519–20 (S.D. N.Y 1992), aff'd, 998 F.2d 65, 67 (2d Cir. 1993) (electronic photo imaging and retouching system not a combination secret where, among other things, its elements were already known in the industry and thus obvious choices to implement).

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Without a proper framework for analyzing such claims, there is a serious and real risk to innovation, competition, and employee mobility.

B. Risks posed by overbroad application of the combination concept

The risks of the overbroad combination trade secrets misappropriation claims are not hypothetical. Recent scholarship regarding factors promoting the regional growth of innovative technology companies suggests that, although it may seem counterintuitive, new ideas, new businesses, and economic growth are directly linked to an open flow of information the public domain and frequent job-hopping by highly skilled employees.\(^\text{27}\) In particular, commentators have contrasted the Boston area—America’s first high-technology concentration, in a state with strict trade secret and employee mobility laws—with California’s Silicon Valley, which outpaced Boston by the 1970s in a state where the courts promote employee mobility, most noncompetition agreements are illegal, and trade secret laws are less strict than elsewhere.\(^\text{28}\) The dual forces promoting information dissemination and re-use are what Professor Ronald Gilson calls “knowledge spillovers.”\(^\text{29}\) It makes sense that knowledge spillovers promote growth because innovation does not generally take place in a vacuum.\(^\text{30}\) Rather, it takes place in environments where individuals have access to cutting-edge ideas of others, and have rights to modify and build upon those ideas to create something new.

Unfortunately, traditional trade secrets law is often out of sync with on-the-ground realities. This may be the case because the

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27. See Annalee Saxenian, REGIONAL ADVANTAGE: CULTURE AND COMPETITION IN SILICON VALLEY AND ROUTE 128 at 31–37, 41, 60–78 (Harvard University Press 1996) (contrasting factors such as free flow of skilled labor and information in Silicon Valley and Boston’s Route 128 to account for success of the former); Ronald J. Gilson, The Legal Infrastructure of High Technology Industrial Districts: Silicon Valley, Route 128, and Covenants not to Compete, 74 N.Y.U. L. REV. 575, 594–619 (1999) (contrasting the trade secret regimes of the same regions to account for Silicon Valley’s disproportionate success).


29. See Gilson, supra note 27, at 621.

30. See id.
common law trade secret doctrines are largely shaped by individual, isolated disputes where the balance of power lies with a more powerful former employer against an individual or smaller company. Although scores of trade secret cases are published each year, courts—at least on the published record—rarely consider on the record the wider economic implications of the rules they create. When courts permit overbroad trade secrets recognition for information that is not in fact secret, affirm noncompetition agreements, and issue injunctions that prevent employees from switching jobs, they may unwittingly act as a direct impediment to the economic and social goods described above. At the same time, and not surprisingly, scholars have found that states with a less overbearing trade secrets regime are more likely to provide for growth in high-technology industry.31

The combination concept, if misused, can stifle innovation, competition, and employee mobility. A renewed attention to its definition and required elements is as necessary to protect the interests described above as curtailing noncompetition agreements and the inevitable disclosure doctrine.

Let us imagine a scenario that illustrates the dangers posed by an overbroad combination trade secret allegation. After being sued, the defendant, a former employee, has just proven that the five alleged secrets his former employer accused him of stealing have been published by competitors in the trade literature. The five alleged secrets relate to aspects of the plaintiff’s machine, a complicated device with scores of individual parts and functions. The defendant’s machine performs the same functions, but employs a different design in every aspect except for the five similarities on which the plaintiff based its lawsuit. The five elements relate to different aspects of the machine and do not interoperate except in the general sense that they are all necessary for the machine to function properly.

May the plaintiff, in such a case, insist that the five elements—even though publicly known and without a functional interrelationship—are a combination trade secret such that the defendant is liable for using them?

Under slightly different facts, imagine that the defendant’s five elements do share a functional interrelationship, but are only a minor variation of the same process that other competitors use to accomplish the same goal. For example, suppose the only variation among the

31. See id.
various machines is that different competitors have selected different off-the-shelf components previously used in other industries to accomplish the same goal in the industry at issue. May a plaintiff in such an industry claim a combination trade secret in its particular variation of combining such components? In the following sections, we provide a framework for answering these questions in a manner that protects true trade secrets but at the same time prevents encroachment into the public domain.

V. REFORM

As the case law stands today, the conceptual vagueness of the combination trade secret poses an unacceptable risk to employee mobility and the dissemination of nonsecret information. A clever trade secrets plaintiff can fabricate a combination of items in the public domain where none in fact exists, and the law provides courts little guidance on how to distinguish a valid claim from a lawyer-driven rhetorical construct. Surprisingly, the courts have never explicitly adopted a multi-factor test to determine whether or not a combination secret exists in a given case.

We propose a four-element test to guide courts in this determination, and we also argue that a defense used in analyzing individual trade secrets—Independent derivation—is crucial in the combination context:

\begin{enumerate}
\item Is there a functional interrelationship between the elements in the claimed combination secret?
\item Does the combination create value above and beyond the sum total value of the individual items that it encompasses?
\item Is the combination obvious?
\item Did the defendant know of and intend to misappropriate the combination \textit{qua} combination?
\item Can the defendant prove that it independently derived the elements that make up the claimed combination?
\end{enumerate}

This test is meant to amplify, but not replace, the existing tests all courts use to determine the existence of individual trade secrets: secrecy, competitive value, the defendant’s knowledge of the information allegedly stolen, and the defendant’s improper use or disclosure of the secret.\textsuperscript{32} Our analysis is intended to aid courts where

\textsuperscript{32} See \textit{CAL. CIV. CODE} § 3426.1(b) (West 2003) (listing elements of misappropriation claim for California’s version of Uniform Trade Secrets Act).
the traditional analysis for individual claims breaks down in the face of more complex combination claims.

A. Is there a functional interrelationship between the elements in the claimed combination secret?

When analyzing an individual trade secret, the first question after the plaintiff specifically identifies its claimed trade secrets is whether the information is in fact secret—that is, not available in the public domain at the time of the alleged theft. If a combination claim can be a set of elements that by themselves are nonsecret, how can a court analyze whether the plaintiff has shown that the claimed combination meets the secrecy requirement of trade secret law?

To begin with, the rule cannot be so meaningless such that a plaintiff needs only to state that its collection of nonsecret items, when strung together, is a set of information that nobody else has made public. If that were the law, anticompetitive trade secrets plaintiffs could construct combination secrets with ease. A plaintiff could make a list of the similar nonsecret items used by both the plaintiff and the defendant—in software code or in a machine, for example—gerrymander the list to ensure that no third parties also use the same nonsecret elements, and call that list a "combination trade secret."

Something more is necessary to guarantee that a plaintiff's collection of elements is in fact a trade secret. We propose that courts examine, in each case, whether the collection of elements is functionally interrelated in a machine, process, or formula.

In the vast majority of cases involving legitimate combination secrets, this test will be easily met. Formulas and recipes by definition consist of ingredients that functionally interrelate in a precise manner, according to the measure of each element in the mix. Coca-Cola's formula, to stick with our example, is a functionally interrelated combination of nonsecret ingredients that interact to produce a unique taste. The taste of Coca-Cola is not simply the taste of sugar mixed with the taste of corn syrup and other ingredients; it is the taste of that complete mixture.

33. As with any trade secrets lawsuit, a plaintiff must identify the allegedly stolen combination secret with sufficient specificity before the court need reach the actual substantive analysis of whether the information is in fact a trade secret. Thus, a plaintiff's failure to describe the combination in anything more than general terms is a threshold barrier to its lawsuit. See Trandes Corp. v. Guy F. Atkinson Co., 996 F.2d 655 (4th Cir. 1993) (plaintiff alleged secret "formulas" in its software configuration but relied only on conclusory allegations and failed to specifically identify what the "formulas" were).
Without expressly discussing an interrelationship requirement, many cases have defined combination secrets using language that implicitly suggests that claiming some interrelationship between individual components is required. For example, the most common phrase used over and over again in published cases from throughout the United States, "unified process," literally seems to require a process composed of elements that interoperate to form a unit. The steps of such processes are fundamentally interrelated because they act in concert to produce the result of the process. Without one of the steps, the end result of the process is not achieved.

34. See, e.g., Saforo & Assoc., Inc. v. Porocel Corp., 991 S.W.2d 117, 121 (Ark. 1999) (describing combination trade secret as a "unified process"); Vermont Microsystems, Inc. v. Autodesk, Inc., 88 F.3d 142, 147 (2d Cir. 1996) (holding under California law that a combination of elements, each of which is "known by itself," where the "unified process" in combination is secret); Harbor Software, Inc. v. Applied Sys., Inc., 936 F. Supp. 167, 172 (S.D. N.Y. 1996) (combination secret in software based on its "unified process design" in a "unique combination" of elements); Computer Care v. Service Sys. Ent., Inc., 982 F.2d 1063 (7th Cir. 1992) (combination secret requires "unified process design and operation") (quoting Smokenders, Inc. v. Smoke No More, Inc., 184 U.S.P.Q. 309 (S.D. Fla. 1974); Julie Research Labs. v. Select Photographic Eng'g, Inc., 810 F. Supp. 513, 519 (S.D. N.Y. 1992) ("That the various processes of a trade secret may be in the public domain does not diminish its protectability if the components are combined into a unified process or operation which in combination affords a competitive advantage [citations omitted], or if the computer hardware and software involved are linked together or arranged in a unique way to produce a singular product not generally accomplished with the use of off-the shelf articles."); Schalk v. State, 823 S.W.2d 633, 642 (Tex. Crim. App. 1991) (contrasting availability of component parts by themselves with secret "unified process"); Integrated Cash Mgmt. Serv. v. Digital Trans., Inc., 920 F.2d 171 (2d Cir. 1990) (holding that "non-secret nature of individual utility programs" in software did not mean that "the manner in which ICM's generic utility programs interact" was not a secret); Q-Co Indus. Inc. v. Hoffman, 625 F. Supp. 608, 617 (S.D. N.Y. 1985) (using the "unified process" phrase in a software case); Cybertek Computer Prods., Inc., v. Whitfield, 203 U.S.P.Q. 1020, 1024 (Cal. Super. Ct. 1977) (although elements of software were known in isolation, combination trade secret existed because "the specifications of these basic mechanical elements and their relationship to each other embodied in plaintiff's machine were not publicly known"); Wilkes v. Pioneer American Ins. Co., 383 F. Supp. 1135, 1140 (D.S.C. 1974) (stating general definition); Winston Research Co. v. Minn. Mining & Mfg. Co., 350 F.2d 134, 139 (9th Cir. 1965) (holding under California law that even though components of recorder could be found in other recorders, "the specifications of these basic mechanical elements and their relationship to each other in the machine made their combination a secret"); Imperial Chem. Indus., Ltd. v. National Distillers & Chem. Corp., 342 F.2d 737, 742–43 (2d Cir. 1965) (fact that some general concepts and individual components were known did not preclude secrecy where "there is no unified description anywhere in the literature of the process, design, or operation" of which and thus its "totality" was a secret); By-Buk Co. v. Printed Cellophane Tape Co., 163 Cal. App. 2d 157, 166 (1958) (fact that "component parts" of machine "were standard parts that could be procured by anyone in the open market" did not prevent finding that combination in machine was "unique or unusual"); Ferroline Corp. v. General Aniline & Film Corp., 207 F.2d 912, 921 (7th Cir. 1953) (a trade secret can exist if "the combination of interrelated parts represented a valuable contribution arising from plaintiff's independent efforts.").
A few courts have offered more precise language on the relationship between elements of an alleged combination secret. For example, the Fifth Circuit once described a plaintiff’s articulation of its claim as an “entire, integrated line comprised of its unique combination of steps and equipment, rather than the components thereof viewed in isolation.” In another case, the Second Circuit approvingly quoted a district court’s finding that the combination secret in a plaintiff’s software involved “the way in which [the plaintiff’s] various components fit together as building blocks in order to form the unique whole.” In Maryland, another court once found a combination trade secret in a process made up of some known elements where the plaintiff showed their “selection, order, and conjunction” was the claimed secret. It would seem, then, that our prescription would make overt what has already been assumed by the courts in numerous cases ever since the combination concept was first enunciated.

At least one court has rejected a combination claim where the elements of the alleged secret had no functional interrelationship. In Lawfinders Associates, Inc. v. Legal Research Center, Inc., the plaintiff alleged that certain aspects of its business in providing legal research and brief writing to attorneys, such as various fee and market strategy arrangements, were trade secrets. The plaintiff also argued that even if the items were individually in the public domain, they constituted a combination trade secret. The court rejected this argument because, among other things, there was no functional interrelationship between the elements of the claimed combination: “Each of the purported trade secrets stands on its own, that is, each purported trade secret does not necessarily rely on another purported trade secret to be useful.”

This analysis should be requisite in every case where a combination trade secret is alleged. The danger of ignoring an interrelationship requirement can be demonstrated by a case that

35. See Keystone Plastics, Inc. v. C&P Plastics, Inc., 506 F.2d 960, 960 (5th Cir. 1975) (the defendant was found not to have used the combination and the claimed combination was found to be generally known).


39. See id. at 423.

40. Id.
reached the opposite result despite lack of any functional relationship between the elements of the claimed secret, which apparently was a collection of known business methods.

In *Tan-Line Studios Inc. v. Bradley*, the plaintiff claimed the defendant had misappropriated trade secrets relating to the operation of a tanning parlor.\(^41\) The defendant responded that the claimed secrets, "methods of employee recruitment and training, studio layout, cash control, advertising, accounting, marketing, promotion, and site selection, among others," were obvious and generally known.\(^42\) The court rejected this argument and, citing the traditional definition of a combination secret, found a secret in the plaintiff's "entire methodology for conducting a tanning studio."\(^43\)

The decision in *Tan-Line Studios* is not sound; under its logic, any given set of individual, generally known items of information would be a combination trade secret just because the plaintiff happens to use them all. The risk of such results demonstrates the necessity for a functional interrelationship test. In every legitimate case, the interrelationship will be easily demonstrated. Artificially constructed strings of unconnected elements, by contrast, will have to stand or fall according to whether each is, in isolation, an individual trade secret.\(^44\)

**B. Does the combination create value above and beyond the sum total value of the individual items that it encompasses?**

A second test we propose involves the value element of establishing a trade secret. The value of a combination trade secret must be greater than the sum total value of its constituent elements, but explaining why that is so is not straightforward. Trade secrets, whether individual or combination, derive competitive economic value from not being generally known.\(^45\) For individual trade secrets, this test amounts to a question of whether the secret is better than


\(^{42}\) See *id.* at 2038.

\(^{43}\) See *id.*

\(^{44}\) Well-crafted deposition questioning is one way to unmask a false "combination." Where a trade secret plaintiff has identified the elements of its claimed combination, the defendant should query the plaintiff's employees in deposition as to whether various elements are interrelated. By questioning witnesses on each link in the chain of allegedly connected elements, a well-prepared defendant can easily expose the absence of a functional relationship between elements.

\(^{45}\) See, e.g., *CAL. CIV. CODE § 3426(d)(1)* (West 1987 & Supp. 2003) (enacting the Uniform Trade Secrets Act and requiring that a trade secret "Derives independent economic value, actual or potential, from not being generally known to the public or to other persons who can obtain economic value from its disclosure or use.")
known alternatives, because, if not, it would not have a value greater than the known alternative.\textsuperscript{46} For combination trade secrets, the test should be no less stringent. For many combinations, however, it is unclear to which alternatives the combination ought to be compared.

In the first instance, a combination must be compared to known combinations for accomplishing the same task or arriving at the same result. If a secret combination achieves no better result than one that is publicly known, then the combination is not a trade secret worthy of protection by the courts.

Difficulty arises when attempting to understand what comparison must be made for a combination including publicly known elements. If a combination of two elements is claimed, and one is publicly known, then the value gained by use of the public element cannot be part of the competitive economic value used to justify liability for theft of the combination. Because the known element may be used by all, known alternatives to the combination may include the known element. For example, if Kentucky Fried Chicken's trade secret consists of creating seasoning through a variety of spices, applying the spices to its chicken in a secret way, and then frying its chicken using publicly known methods, then it must be compared not only to other combinations which bake chicken, but also other combinations which also fry the chicken as their final step. Because anyone can fry chicken, being able to fry the chicken must be ignored when comparing Kentucky Fried Chicken's combination trade secret's value to that of competitors.\textsuperscript{47}

Unfortunately, merely ignoring publicly known elements in understanding whether a combination trade secret meets the competitive value test proves too much. While it is clear that a combination trade secret may exist in a combination made up entirely of publicly known elements, none would meet the test of competitive value if all their constituent elements were ignored. Instead these elements must be discounted but only by their value in isolation or

46. See, e.g., Aetna Bldg. Maint. Co. v. West, 39 Cal. 2d 198, 206 (1952) (holding that ""methods of doing business and processes which are but skillful variations of general processes known to the particular trade"" (quoting Rest., Agency, § 396, com. b.) do not constitute trade secrets); Microbiological Research Corp. v. Muna, 625 P.2d 690, 698–99 (Utah 1981) (holding that the use of certain chemicals plaintiff claimed as a trade secret were merely one of "several equally effective...agents," and thus failed to qualify for trade secret protection).

47. In Hutchinson v. KFC Corp., F. Supp. 517 (D. Nev. 1993), aff'd, 51 F.3d 280 (9th Cir. 1995), the court considered whether Hutchinson had a protectable trade secret in its skinless fried chicken steps of "'skinning, cutting, marinating, breading and frying chicken.' Because the court found that the entire combination was not a secret, it did not need to reach the tests presented in this paper.
combinations that are also known. In the Kentucky Fried Chicken example, frying the chicken is known but its benefits in combination with the seasoning and application used by Kentucky Fried Chicken are more than frying ordinarily provides. Thus, though the value of ordinary frying must be discounted the added value of frying chicken prepared in Kentucky Fried Chicken’s secret way must be counted as part of the value of Kentucky Fried Chicken’s combination secret.

In mathematical terms $f$ is a function that returns value. We can express the normal trade secret competitive value test as $f$(claimed secret) must be greater than $f$(known alternatives), or the value of the claimed secret must be more than that of known alternatives. For a combination with three elements, A, B and C, where D, E and F are the elements’ best known alternatives, it is clear that $f$(A,B,C) must be greater than $f$(D,E,F). However, if A,B, and C are publicly known, then our test would also require that $f$(A,B,C) be greater than $f$(A)+$f$(B)+$f$(C) since the value of A, B and C on their own can be recouped by any company in the industry and will not be trade secret misappropriation. Put more simply, the whole of the combination must have a greater value than the sum of its parts. As the Fifth Circuit wrote: “That the whole of a manufacturing process may be greater than the sum of its parts is not the paradox it seems at first blush.”

In many ways, this test is simply a restatement of the previous section’s requirement that combination be functionally interrelated. If a combination is not functionally interrelated its value will be nothing more than the sum of its parts. When those parts are publicly known, the combination’s value is readily available to competitors and its competitive value is nil.

C. Is the combination obvious?

Courts have asserted that trade secrets do not need to be nonobvious, in contrast to the novelty and nonobviousness requirements of patent law. In addition, whether another person or company has also come up with an alleged trade secret is not relevant to the trade secret analysis unless the other inventor has disclosed the idea into the public domain and thus destroyed its status as a trade

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48. See Keystone Plastics, Inc. v. C & P Plastics, Inc., 506 F.2d 960, 964 (5th Cir. 1975) (affirming finding no misappropriation because defendants used different process).

secret. This is why two companies may simultaneously hold a valid trade secret in the same information.

However, if every element of a combination is in the public domain, the general proposition that trade secrets do not require a showing of nonobviousness leads to strange results. For example, consider a manufacturing process making plastic widgets. Standard spacing of the widgets in production is six, eight or twelve inches. Three types of plastics are used to make the widgets: standard, regular and normal. Use of each spacing is publicly known, as is use of each type of plastic and the fact that any of these types of plastics and spacings could be used to make widgets. Furthermore, many widget factories use multiple combinations of plastics and spacing such that for every possible combination, at least a few factories use it. Nevertheless, unless the combination of using standard plastic with six inch spacing has been publicly disclosed, it may be claimed as a trade secret. Thus, without some form of nonobviousness requirement, the mere combination of known elements in known ways may be the basis for liability so long as the specific configuration has not been disclosed.

This problem is particularly apparent in combinations involving a small number of nonsecret elements. In Pope v. Alberto-Culver Company, the Appellate Court of Illinois considered whether a proposal for a squeezable tube-shaped dispenser of lye-based hair relaxer was a trade secret. The court understood the plaintiff’s claim as for combination of two known pieces of information: the use of a tube-shaped dispenser for hair products and the use of lye-base hair relaxer as a hair product. The court wrote:

There is no dispute that a tube dispenser for nonlye-based hair relaxer, with a nozzle, was already in existence at the time plaintiff submitted her proposal to defendant. There is no dispute that a squeezable bottle-shaped dispenser, with a nozzle, was already in existence for lye-based relaxer.

50. See Perritt, supra note 49.
51. This example is based on a real combination trade secret alleged against a company the authors represented in California. The technologies at issue have been obscured but the number of potential and obvious combinations is the same.
53. See id. at 618 (“the alleged trade secret, which is really a combination of two existing products—lye-based hair relaxer and a stock caulk tube.”).
54. Id.
Nevertheless, the court continued:

The fact that [the combination] had not been utilized is simply not determinative . . . .[W]e find that the product at issue in this case can be readily duplicated without considerable time, effort or expense. We further find plaintiff has failed to demonstrate the alleged trade secrets were not within the general skills and knowledge of the industry or were not readily ascertainable without involving considerable time, effort or expense. 55

The Pope opinion, and others like it, is troubling because their holdings are over-determined. 56 It is not clear that obviousness, as opposed to some other trade secret criteria, was the cause of the holding against the plaintiff. Furthermore, these cases do not give any guidelines for other courts to follow regarding when a combination is obvious and when it is not. 57

We suggest that a combination of information should not be a trade secret if the combination consists of publicly known elements whose combination is obvious because of the limited number of potential alternatives. A combination is not a combination trade secret unless it is not obvious within its particular context. Put another way, if a finite number of alternatives for any step of a process, part of a machine or design choice in a configuration is publicly known, then its combination with any similarly finite set of alternatives should also be deemed to be publicly known for the purpose of determining whether a combination trade secret exists.

D. Did the defendant know of and intend to misappropriate the combination qua combination?

The next steps in the traditional analysis for individual trade secrets are whether the defendant had knowledge of the alleged secret, and, if so, whether the defendant improperly used or disclosed the secret. Implicit in this analysis is the requirement that the defendant's use or disclosure was intentional. If the defendant did not use the

55. Id. at 618–19.
56. See, e.g., Ashland Management, Inc. v. Janien, 624 N.E.2d 1007, 1012–13 (N.Y. 1993) (information that can be easily derived from public information is not a trade secret); Computer Care v. Service Systems Enterprises, Inc., 982 F.2d 1063, 1073 (7th Cir.1992) (plaintiff failed to demonstrate that its alleged secrets were not "readily duplicated without involving considerable time, effort or expense.") (quoting Hamer Holding Group, Inc. v. Elmore, 560 N.E.2d 907, 918 (Ill. App. Ct. 1990)). Hutchison v. KFC Corp., 883 F. Supp. 517, 521 (D. Nev. 1993), aff'd, 51 F.3d 280 (9th Cir. 1995) ("If the subject matter of a trade secret is obvious and not a secret, then there can be no trade secret.").
57. See id.
secret (or never knew about it to begin with), there is no liability—a rule that holds true for alleged combination secrets as well.\(^5\)

The difficulty with combination claims, where the alleged secret is comprised of items in the public domain, is that the defendant may have used them together without intending to steal anything. The defendant may never have known about the plaintiff’s combination at all; or, in the alternative, it may only have known about some part of its elements and not the complete set of them. For these reasons, in combination cases the knowledge and use elements of the misappropriation test require a heightened focus on the intent requirement underlying the theory of trade secrets liability.

Trade secret misappropriation is an intentional tort. All the same, the question of intent is almost never litigated in cases involving individual trade secrets, because it is redundant. When a plaintiff proves it had transmitted knowledge of a secret to the defendant and that the defendant used or disclosed it, there is an implied finding that the defendant acted intentionally.\(^5\) The only

\(^5\) Indeed, combination claims often fail for the simple reason that the defendant did not use or disclose the claimed set of elements. See Inflight Newspapers, Inc. v. Magazines In-Flight, LLC, 990 F. Supp. 119, 130 (E.D. N.Y. 1997) (although ex-employees knew their former employer’s software configuration, they did not use it and instead hired a third party consultant to design the defendant’s system); Comprehensive Tech. Int’l, Inc. v. Software Artisans, Inc., 3 F.3d 730, 737 (4th Cir. 1993) (no misappropriation where, among other things, defendants did not copy “any unique designs or functions” of allegedly secret software programs); Integral Sys., Inc. v. Peoplesoft, Inc., 1991 WL 498874, *14 (N.D. Cal. 1991) (despite alleging combination claim; plaintiff failed to show that defendant used anything secret in designing its software); Plains Cotton Coop. Assoc. v. Goodpasture Computer Serv., Inc., 807 F.2d 1256, 1263 (5th Cir. 1987) (no misappropriation where defendants did not copy “particular implementations of software functions” claimed as secret); Metallurgical Indus., Inc. v. Fourtek, Inc., 790 F.2d 1195, 1205 (5th Cir. 1986) (defendant disclosed plaintiff’s combination secret for furnace internally, but never put it to commercial use and thus did no misappropriation took place); Q-Co Indus., Inc. v. Hoffman, 625 F. Supp. 608, 618 (S.D. N.Y. 1985) (defendants stole ideas in plaintiff’s software system but had not developed a successful system and thus could not be enjoined); Dynamics Research Corp. v. Analytic Sciences Corp., 400 N.E.2d 1274, 1285 (Mass. App. Ct. 1980) (even if plaintiff had combination secret in software, defendant did not use plaintiff’s software and instead licensed programs from third party); Keystone Plastics, Inc. v. C&P Plastics, Inc., 506 F.2d 960, 964 (5th Cir. 1975) (holding that “Defendant’s extrusion line differs in every material detail from the line of Keystone...and, furthermore, it was not used by C&P.”) (Architectural Models, Inc. v. Neklason, 264 F. Supp. 312, 320–22 (N.D. Cal. 1967) (holding under California law that trade secret claim failed because, among other things, defendant did not use plaintiff’s specific implementation for router assembly and instead developed its own implementation of general concept); Abbott Labs. v. Norse Chem. Corp., 147 N.W.2d 529, 538 (Wis. 1967) (no misappropriation of process of producing chemical sweeteners where defendant employed same known concepts but used “variations” of somewhat “different equipment” in implementing those concepts).

\(^5\) The authors are aware of no case that addresses the hypothetically possible situation of an individual defendant who unintentionally misappropriated a trade secret. As noted, courts
occasions in which intent is an issue in individual trade secrets cases are when the defendant believes he had permission to use the information, or reasonably but erroneously believes that the information is in the public domain.\footnote{The authors are unaware of any published decision addressing these issues.}

Intent is not something that can be so easily glossed over when analyzing a combination trade secret claim. In contrast to individual trade secret misappropriation, intent and use/disclosure are not as likely to be synonymous. There is a serious danger in skipping too lightly over the intent question. Without an explicit intent requirement, a defendant might be found liable for using a secret combination of items because, by coincidence, the defendant uses the same elements that the plaintiff uses in a similar machine or process.\footnote{This is typically accomplished by evidence that a former employee learned the alleged secret during his or her employment with the plaintiff. \textit{See} \textit{Cal. CIV. CODE} § 3426.1(b)(2)(B)(ii) (West 2003) (defining a disclosure under a duty of confidentiality as one means to come into possession of a trade secret).}

\textit{The knowledge element}

No defendant can steal a trade secret he never learned from the plaintiff. In individual trade secret cases, the question whether the defendant knew the alleged secret is straightforward—the plaintiff need only prove that it disclosed the single item of information at issue to the defendant.\footnote{The intent analysis is even more important in criminal prosecutions for trade secrets misappropriation under statutes such as \textit{CAL. PEN. CODE} § 499c.}

In a combination trade secret case, the plaintiff must prove that the defendant not only learned about each element of the combination from the plaintiff, but also knew about the plaintiff’s interrelated combination itself. It is entirely possible that a defendant might have learned some elements of his former employer’s design or process, but never knew about other elements. In such cases, the defendant
cannot be charged with knowledge of the whole alleged combination, and the plaintiff’s case should fail.\textsuperscript{63}

\textit{The intentional use or disclosure element}

Once a plaintiff proves that the defendant knew the alleged secret, the plaintiff must then prove that the defendant improperly used or disclosed the information.\textsuperscript{64} Where the plaintiff has proved the information to be secret, proving improper use or disclosure is simple in cases where the information shows up in the defendant’s formulas or technology (and where the defendant cannot prove the defense of independent derivation). But again, this element of the misappropriation analysis is more complex where a combination trade secret is alleged.

The more difficult analyses of combination claims involve elements in the public domain, and for that reason the appearance of the same information in the defendant’s formulas or technology does not establish a prima facie case of theft. The defendant may have innocently hit upon the same set of public domain elements in trying to reach the same competitive goal. Less innocently, the defendant may have intentionally misappropriated some elements of the claimed combination but developed the others without wrongdoing. We will discuss these possibilities in greater detail below when analyzing the affirmative defense of independent derivation.

But as for the use or disclosure element, courts should, in each case where misappropriation of a combination secret is alleged, ask whether the defendant intended to misappropriate the entire combination as a combination. If not, and if any of the individual items within the alleged combination are secret, courts should ask if the defendant intended to misappropriate any of the secret items on an individual basis. This simple test should suffice to separate true wrongdoers from those whose work reflects merely the innocent, chance use of similar ideas in combination.

\textit{E. Did the defendant independently derive one or more elements of the claimed combination?}

The defense of independent derivation—a defendant’s showing that it is not liable for using the same secret information as the

\textsuperscript{63} We have found no published decisions analyzing the knowledge element of a plaintiff’s combination trade secret claim.

\textsuperscript{64} E.g., CAL. CIV. CODE § 3426.1(b)(2) (UTSA provision barring “disclosure or use” by certain classes of individuals who have come into possession of a trade secret).
plaintiff because it learned about and developed the information through means other than an improper disclosure of the plaintiff's ideas— is common in individual trade secret cases.65

The defense is far more important where a plaintiff alleges the theft of a combination secret. This is so for three reasons. First, where information is admittedly in the public domain, at least in part, courts need to pay close attention to the source of the defendant's information to ensure that the plaintiff's claims do not encroach upon the public's right to use openly available information. Second, because many combination allegations involve sets of elements that are common in the trade—with each competitor using a slightly different variation of the same basic elements—a combination allegation may overreach into information widely used. Finally, and most important, the defendant may have innocently hit upon similar elements in its process or machine, and a clever plaintiff can take advantage of that fact to craft an anticompetitive combination claim.

Thus, in each case where a combination trade secret is asserted, courts should examine the circumstances by which the defendant came to use each of the elements that make up the claimed process. In many cases, businesses working in the same field race to develop similar technology, and it is hardly surprising that many of them choose to use similar techniques to achieve similar results. Finding that the defendant has proved an independent derivation defense is straightforward where the defendant proves that it decided upon the same combination as the plaintiff through sources other than the plaintiff's former employees—such as employees from elsewhere, the public domain, or third party businesses or consultants. Many combination cases have been disposed of for exactly these reasons.66

65. E.g., Curl v. IBM Corp., 517 F.2d 212, 213 (5th Cir. 1975) (finding where plaintiff claimed misappropriation of allegedly secret typewriter improvements, defendant proved that its typewriter design was “essentially complete” before it ever received the plaintiff's information); Lloyd Pest Control Co. v. Lopez, 315 P.2d 757, 759 (Cal. Dist. Ct. App. 1959) (finding no liability where former employee, using independent means, came across former employer’s allegedly secret customers).

66. Independent derivation cases in the combination context include Penalty Kick Management Ltd. v. Coca-Cola Co., 164 F. Supp. 2d 1376, 1381 (N.D. Ga. 2001) (defendant’s printing process and other ideas independently developed by third parties); Glaxo Inc. v. Novopharm Ltd., 931 F. Supp. 1280, 1304–05 (E.D. N.C. 1996) (noting that “independent development is an absolute defense to a claim of trade secret misappropriation”; defendant's employee had developed claimed combination separately from other employee who had received plaintiff's information); Bolt Assoc., Inc. v. Alpine Geophysical Assoc., Inc., 365 F.2d 742, 749 (3d Cir. 1966) (reversing trial court so that defendant could raise defense that its development of pneumatic acoustical repeater came not from plaintiff but from third party); Houser v. Snap-On Tools Corp., 202 F. Supp. 181, 186 (D. Md. 1962) (no combination secret in
For example, in *Penalty Kick Management Ltd. v. The Coca-Cola Company*, the plaintiff sued Coca-Cola for allegedly misappropriating a secret means of preparing a holographic message on a drink bottle that could be read only after the beverage was consumed. Although the plaintiff's process contained several public domain elements, the District Court for the Northern District of Georgia found that it constituted a combination trade secret. All the same, Coca-Cola escaped liability by proving it had independently derived the secret because it had obtained the information it used in its process from two third party companies that had developed the ideas and disclosed them to Coca-Cola.

Not all cases, however, will be so straightforward. Because a combination claim involves several items of information rather than just one, there are two other possibilities of which courts need to be aware when analyzing an independent derivation defense.

The first is the case where the defendant has stolen one or more elements of the claimed combination, but innocently hit upon the other elements. This is a real possibility because companies often employ engineers from several different past employers, and different engineers frequently have input into a company's project. One can readily imagine a case where, before a misappropriation of some elements of the plaintiff's alleged combination secret, the defendant's other engineers have already derived the rest of the elements on their own. In such cases, the defendant would be liable only for the theft of the individual elements from the plaintiff, to the extent that those elements qualify as individual trade secrets.

But what if one engineer knowingly takes two elements from his former employer, and another engineer, without knowledge of the misappropriation, then builds upon those elements without knowledge of the theft, and arrives at a process similar to that of the plaintiff? In such cases, should courts punish only the theft of the two individual elements—and thus leave untouched the innocent innovation of the co-worker—or should all subsequent work be treated as a sort of fruit of the poisonous tree?
In other words, should a defendant in those circumstances be required to prove independent derivation of all of the elements of the claimed combination, or only some of them, in order to prove the defense?

The second possibility helps answer this question. A more common issue occurs where the defendant intentionally steals the plaintiff’s combination process, but then, through its own innovation, modifies or improves the process. Several courts have found defendants liable for such misappropriation. 70 A federal district court in Illinois bluntly stated the rationale for this rule when faced with a defendant that had modified an oven process it had misappropriated:

The fact that the Temperfect oven may have used slightly different or modified component parts to achieve the same or an improved result as compared to the Thermodyne oven is not the real concern. Indeed, if those slightly different or modified component parts were “connected” or “interrelated” in a manner that was derived improperly from the Thermodyne technology, Defendants would be in trouble. Or, stated differently, if the Temperfect oven could not have been developed but for the secret information underlying the interrelatedness of the component parts comprising the Thermodyne oven, Defendants are in trouble. 71

In this scenario, the defendant has acted with intent throughout its engineering or design effort—it has known all along that it acted wrongly, even though its end process differs from that of the plaintiff. In such cases, liability is appropriate, because the defendant has acted wrongfully during its entire development process, and the underlying but for cause of its technology is misappropriated ideas.

By contrast, and to return to the first possibility we posed, courts should not impose liability in the fruit-of-the-poisonous-tree situation where part of the combination’s elements were derived without intentional misappropriation, and instead through the subsequent, innocent use of public domain information. If the defendant proves that it innocently built upon stolen elements to create a combination

70. See Thermodyne Food Serv. Prod., Inc. v. McDonald’s Corp., 940 F. Supp. 1300, 1308 (N.D. Ill. 1996) (defendant modified stolen oven process); In re Innovative Constr. Sys., Inc., 793 F.2d 875, 886–87 (7th Cir. 1986) (defendant modified formula for emulated brick siding process); Forest Labs., Inc. v. Pillsbury Co., 452 F.2d 621, 625 (7th Cir. 1971) (rejecting argument that defendant had modified method for packing sweetener tablets); M. Bryce & Assocs., Inc. v. Gladstone, 319 N.W.2d 907, 912 (Wis. Ct. App. 1982) (rejecting argument that defendant’s use of secret management information system was not precisely the same as plaintiff’s system); see also RESTATEMENT OF TORTS: INTERFERENCE WITH BUSINESS RELATIONS § 757, cmt. c (stating rule).

71. See Thermodyne Food Serv. Prod., Inc. v. McDonald’s Corp., 940 F. Supp. at 1308.
similar to that of the plaintiff, we believe the case should be treated as theft of individual secrets, with damages awarded accordingly. This result both protects the use of public information and prevents plaintiffs from overreaching and receiving a windfall beyond the wrongful acts that actually took place.

F. Has the Plaintiff omitted necessary parts of its true combination in order to match its allegations to the defendant’s use of public domain information?

One additional point may come into play in analyzing a claimed combination where the plaintiff crafts its claim (or changes its initial story) in order to match the defendant’s use of public domain items by omitting or dropping elements from its alleged combination.

As an illustration, the Eighth Circuit once encountered a plaintiff who endeavored to change its combination trade secret story to prevail over the defendant, and it attacked the plaintiff’s fraudulent allegations in strong language. In *American Airlines, Inc. v. KLM Royal Dutch Airlines*, the plaintiff first alleged that the defendant had misappropriated a set of five well-known business ideas that were combined with certain algorithms and formulae as to constitute a trade secret. The defendant moved for summary judgment because there was neither evidence that it had ever learned of the plaintiff’s algorithms and formulae, nor evidence that it knew plaintiff used one of the five publicly known business ideas.

In a blatant effort to change its story through the rhetorical device of a combination trade secret, the plaintiff responded by having its expert claim in deposition that the four remaining publicly known elements were, together and without the other elements of the supposed combination, a trade secret. The court noted the plaintiff had “attempted to manufacture a material issue of fact” through “manufactured contradictory testimony” and affirmed a summary judgment for the defendant.

This was the correct result, but not every defendant can count on an equally clumsy plaintiff and an equally attentive court. What is really at issue here is what we will call the omission problem: on one hand, a trade secrets plaintiff acting in bad faith might omit some of

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72. See *American Airlines, Inc. v. KLM Royal Dutch Airlines, Inc.*, 114 F.3d 108, 110 (8th Cir. 1997).
73. See *id.* at 110.
74. See *id.*
75. See *id.* at 110–12.
the elements that make up its true combination and instead allege a different, incomplete combination deliberately constructed to match the defendant's use of publicly known elements. On the other hand, a defendant might know the plaintiff's full combination, intend to steal it, yet modify or change certain elements in order to improve upon the misappropriated process, or simply to hide its theft.

The former possibility is like that illustrated by *American Airlines*. We discussed the latter possibility above as the case where a defendant should be barred from raising the independent derivation defense because it has merely modified what it misappropriated.

The difficulty in a real-life case, of course, is that it may be hard to tell which of the two possibilities is actually true. A defendant might wrongfully accuse a plaintiff of jerry-rigging a claim when the defendant has in fact knowingly modified a stolen combination, and vice versa. The only solution is careful examination by the courts. If the defendant has independently derived its process, the plaintiff's tactic of omitting or dropping elements to match what the defendant uses will be transparent. But if the defendant knew of, intentionally took, and then modified for its use the entire interrelated combination, it should be found liable.

VI. CONCLUSION

The absence of a rigorous analysis to determine the existence of combination trade secrets poses serious risks to innovation, competition, and employee freedom. Because such trade secret claims involve elements of public domain information, plaintiffs may overreach and seek to hold competitors liable for use of information free for all to use. A legal regime that permits such encroachments on the public domain renders the public interest in innovation subservient to anticompetitive attempts by individual companies to create monopoly interests in information. Former employees may find their livelihoods threatened by ex-employers who seek to punish them for using sets of elements commonly used in a given industry.

For all of these reasons, courts should pay greater attention to combination claims by using the test we propose here—a test that ensures liability for true misappropriation but imposes formidable obstacles to those who seek to use the trade secret laws as anticompetitive weapons. If courts faced with an alleged combination trade secret analyze that claim with special attention to the functional interrelationship of the combined elements, the value of the combination above the sum total value of its elements, the
obviousness of the combination, and the defendant's knowledge of and intent to misappropriate the combination as a whole, they can properly address the special problems posed by such claims.