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THE LAW OF NEGATIVE KNOWLEDGE: A CRITIQUE

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*388 I. Introduction

Perhaps the strangest theory of trade secret law is the concept of negative know-how, a theory under which an employee who resigns and joins a different business can be liable for not repeating the mistakes and failures of his or her former employer. The former employer, in other words, can claim its own errors as intellectual property and use them to sue a former employee who knows about them even if the former employee has not copied the employer's technology or otherwise made "positive" use of its information. The Uniform Trade Secrets Act has legitimized the theory in its commentary, albeit without describing its boundaries, and some courts have used it to prevent employees from working for competitors after resigning.

Negative know-how is not the only trade secret theory under which a former employee can be liable even if he or she develops information that differs from that of the plaintiff. Under a second theory, the modification rule, a trade secret defendant cannot escape liability for taking a trade secret but then modifying or improving it so that it is no longer the same. Courts have frequently used the theory to rebuff trade secret defendants who argue that because they improved or altered the secret information taken from the plaintiff to create a different end product they should not be liable.

These theories together form the law of negative knowledge in trade secret jurisprudence--the area of law where avoiding or modifying something another party has done can still lead to liability. An ordinary trade secret claim, by contrast, is an accusation that a defendant has re-used the plaintiff's secret information in a product design, a business concept, and so forth in the same manner in which the plaintiff used it. On one side, the side of negative knowledge, the defendant elects not to follow what the plaintiff did. On the other, ordinary side, the defendant elects to follow what the plaintiff did.

The boundaries of the negative knowledge concepts have not been well articulated in the case law. This Article is the first to examine these theories in detail, tease out their implications, and highlight the tensions between them. It will come to a different conclusion about each, and propose means by which courts can address both.

One of these theories, the doctrine of negative know-how, is conceptually unworkable and serves mainly as an anticompetitive threat to employee mobility. It bestows intellectual property rights in accidents, mistakes, incorrect theories, failed tests, dead ends, and obsolete approaches. It does so without the usual theoretical justification for intellectual property law, promoting invention, because companies will continue to invent even if mistakes are not protected as trade secrets. It puts a former employee in an impossible double bind: Avoid the mistake and be liable, or go through a pointless, potentially impossible replication of the former employer's mistake, making sure to spend at least as much money and time doing so as the ***389** employer did. Replicating the mistake, however, likely means having to use the employer's "positive" information that was intermixed with its "negative" information, and thus the former employee may be liable in any event. The former employee is damned if he does, and damned if he doesn't.

Broad application of the negative know-how theory then would create new restrictions on employee mobility and allow employers to obtain court-created non-competition covenants against former employees based on their knowledge of failures and errors. It would make it all too easy for lawyers to sue a former employee over meaningless "trade secret" accusations, without any need to show actual use of truly valuable information. It is not clear why the drafters of the Uniform Trade Secrets Act believed that the negative know-how theory is tenable.

By contrast, the second theory of negative knowledge, the modification rule, has a solid basis in theory and is regularly applied in practice without absurd consequences. In this Article, it serves as a useful contrast to the negative know-how theory. Indeed, the modification rule and the negative know-how concept are inconsistent at a theoretical level: The modification rule appears to allow minor, insubstantial use of a trade secret if the final product differs, but the negative know-how theory could be interpreted to create strict liability against anyone who does not pointlessly replicate even minor mistakes and "blind alleys."

This Article therefore proposes that courts critically analyze trade secret claims based on negative knowledge. As to the negative know-how theory, courts should be extremely skeptical and reject it wherever possible, especially as a basis for injunction barring a former employee from taking new employment. By carefully focusing on the elements of the trade secret tort, especially use and damages, and the defenses available to a former employee, most if not all negative know-how claims will not withstand scrutiny.

As to the modification rule, courts should be careful where the only asserted modification is a move completely away from the plaintiff's trade secret rather than its use as the source of the modified technology. Courts should also be hesitant where

the new modified product and the original secret product are both just mere variations on public domain knowledge because, in such cases, the modification may stem from non-secret information and not the former employer's variation on the public domain information. Finally, courts applying the modification rule should not allow windfall damages where just a small portion of the defendant's product reflects the modified trade secret because full damages for the entire technology would give the trade secret plaintiff rights in information it never knew about or owned as a trade secret.

The proposals presented here are not isolated and should be seen from a broader perspective. This article is the fifth in a series exploring trade secret practices that too strongly favor the former employer over the former employee, and too readily limit the ability of former employees to use public domain ***390** information.[1] Like the theory of combination trade secrets and the problems of identifying trade secret claims during litigation, too little attention has been paid to the law of negative knowledge.

This ongoing series serves two goals. The first is to bring clarity to difficult areas of intellectual property law for attorneys and judges who must grapple with far-flung, conflicting, and confusing case law, and to make easily understood proposals that can be applied in any given case. The second is to bring trade secret law into the ongoing discussions in intellectual property circles regarding overly restrictive laws that serve to narrow the public domain. Intellectual property scholars have centered these public domain debates on internet and copyright law, and it is time to extend the same analyses into trade secret jurisprudence.

The theory of negative know-how and the modification rule are ripe for attention because there is not yet any sustained scholarly work focused on either of these doctrines. Courts and commentators have noted the existence of the negative know-how concept[2] and the modification rule,[3] but there has not yet been a full-length analysis.

Before reaching a critique of the negative knowledge doctrines and proposals for addressing them, this Article will explore what negative knowledge means in general and then explain how courts have treated both doctrines.

*391 II. Overview: Negative Knowledge and the Creative Process

A. Negative Knowledge in General

Broadly speaking, negative knowledge is information about perceived mistakes and shortcomings that one avoids in order to create something new, or that one modifies into something different and improved.

At some level, the use of negative knowledge is pervasive and not controversial. All or almost all creative activity in the arts and sciences takes place against a horizon of past practices, past creative work, and past failures. The perceived mistakes and errors of one's predecessors, or of one's own making, can be a springboard to new ideas. Indeed, it is commonplace that creative individuals sometimes use detailed knowledge about previous approaches to problems in order to reject them. Use of such negative know-how is common in the arts, the sciences, philosophy, and probably all branches of learning.

A few simple and well-known theories illustrate the point. An influential historian of science argued that important shifts in the sciences--chemistry, physics, astronomy, and so forth--have occurred where older theories proved inadequate to explain newly-discovered anomalies and problems, leading to a breakdown of the older theory in favor of a new "paradigm."[4] Aristotle knew Plato personally and studied under him, only to reject his theory of Forms as mistaken and to develop his own philosophy of essence.[5] And a literary critic has argued that major Anglo-American poets struggled against their predecessors in a process that resulted in new forms of poetry, albeit directly derived from intimate knowledge of what came before.[6] In each of these examples, something is rejected but also serves as a turning point in the creation of something new; and in each of these examples, the lines between negative knowledge, positive knowledge, and modifications of prior knowledge are blurry.

The ordinary, mundane use of negative knowledge in technology contexts is similar to these famous examples. Engineers and other creative employees are immersed in the details of various projects, and may come to reject or move away from certain approaches as a direct result of such familiarity. Although some inventions may come in the proverbial flash of inspiration or result from unanticipated results of experimentation on a different problem, many others come only after rejecting prior approaches and making mistakes along the way.

An engineer may decide that programming in one language offers more options than programming in another and change course from her perceived ***392** mistake in using the former language. A chip designer may find that certain voltage ranges work better than others for the components involved after trying several approaches. Chemists may struggle with different ratios of ingredients in a formula and learn about blind alleys only after spending time and money on varying ideas. An employee may see a co-worker's sales methods as flawed and suggest that the company adopt improvements and train the workforce accordingly. Anyone can read a patent or a company's marketing materials and decide that the approach described is erroneous. In these or other cases, what constitutes a mistake may be a matter of debate--different engineers may perceive the same approach as flawed or as adequate. Similarly, employees may disagree whether innovations outside the company have rendered an internal company concept suboptimal for future work.

B. Negative Knowledge in the Trade Secret Context

These everyday examples of negative knowledge differ from the concept of negative know-how in trade secret law. In the trade secret context, the employee who knows about the mistake wishes to leave and start a new job, and the mistake is not generally known in the industry. Absent the employment relationship, he or she would not know about the former employer's negative information.

Whether and to what extent trade secret law obligates former employees to avoid the use of negative information after starting a new job is a difficult subject. The double negative, not using negative information, focuses the analysis not on the technology a former employee ultimately develops at a new job, but on his or her inner thought process about what steps to take or not take along the way.

Every skilled employee who changes jobs must strive to avoid using the former employer's trade secrets, which necessarily means avoiding discrete, nonpublic items of information that appear to be secret. This entails an actual thought process during which an individual defines potential trade secrets from among the former employer's information, thinks about what should not be used, and thinks about how to do things differently to avoid those items of information.

The former employee usually undertakes this analysis alone, because the former employer's technology cannot be discussed with others at a new job, but sometimes seeks legal advice. This analysis may include a public domain search for items of information the former employee believes to be non-secret.

Where information is on the margin between secrecy and non-secrecy, the former employee's guiding principle, long established in trade secret law, is that he can use information that falls within his general skills, knowledge, training, and experience.[7]

***393** For positive information, separating secret material from general skills and knowledge is usually straightforward. An employee may have learned that programming source code in a particular language is efficient and easy, but he generally cannot copy precise, nonpublic lines of code written in that language and take them to the next job. Another employee at the same company may have learned what sales techniques work best when selling the software to customers, but he cannot call the exact same customers if the former employer's customer list would likely constitute a trade secret in that jurisdiction.

In each such case, the former employee has a broad range of skills learned from trial and error that can be used at a new job without fear of trade secret liability. For each item of information that may be a trade secret, the former employee can avoid it simply by not using it and not disclosing it to others. For negative information, however, separating what information can and cannot be used at the next job is not easy. When the former employee thinks about what information cannot be used at the next job, the focus is normally on positive information. But the former employee may have made mistakes, errors, engaged in wasted efforts, paid too much for something, or used inefficient methods to reach a result, or may have seen co-workers do so.

If the former employee does not repeat those mistakes, this could be viewed as the application of his general skills, knowledge, and experience. That is, the person developed skills through trial and error, and will not repeat that learning process at the next job. The software engineer will not try programming languages that he has already concluded are inefficient, and the salesperson will not try sales techniques that she has concluded are less successful than others.

But from a former employer's perspective, the same application of skills and experience could also be viewed as a misappropriation of negative information, or at least as a ready justification for a lawsuit. The exact reasons why the engineer chose to use one programming language after experimenting with others may not all be in the public domain. The salesperson's personal trial and error process for what techniques work and do not work may not all be published in how-to books. By not repeating the trial and error process, each former employee may have made use, in some sense, of negative information that the former employer might call a trade secret.

Likewise, a former employee may wish to avoid the employer's secret information, but also to create something very similar and better. From the employee's point of view, this is avoiding the potential trade secret and relying on generally known techniques to create something similar and better. But from a former employer's perspective, this same thought process is merely a modification of the plaintiff's secret, and thus a misappropriation. The line between good faith avoidance and modification is not always clear.

***394** When a former employee undergoes this self-analysis, most of it will take place only in her thoughts. An important question for the law of negative knowledge then is how far into a former employee's thought process the law can intrude to find the individual liable for use of negative information. Under the theory of negative know-how and the modification rule, trade secret law provides that a former employer can raise accusations based on use of negative knowledge. However, the boundaries of such claims and their justifications remain murky in the case law.

III. The Theory of Negative Know-How and Trade Secret Law

For many decades, negative know-how, information about what did not work or was mistaken, was not generally treated as a trade secret. The earliest organized outline of trade secret law, the 1939 Restatement (First) of Torts, did not include negative know-how in its definition of trade secrecy.[8] Because the Restatement required that a trade secret must be something in use by the plaintiff,[9] it implicitly ruled out most negative know-how because parties will not continue to use information they believe to be mistaken.[10]

As a result, most courts ruling in trade secret cases from the period before the Uniform Trade Secrets Act was adopted, and in those states which today still apply the 1939 Restatement, refused to recognize trade secrets in negative know-how or to hold defendants liable for not repeating a plaintiff's mistakes.[11]

***395** This remained true in some cases where former employers sought to enjoin employees from joining competitors on a theory that they would disclose trade secrets in the future, a theory sometimes known as "inevitable disclosure."[12] And at least one case applying the Restatement even described negative know-how as an example of what was permissible to use.[13]

The law has not been unanimous in Restatement jurisdictions.[14] Some courts have included the risk of non-use of negative know-how as a factor when issuing injunctions. In those cases, however, the primary focus was the former employer's ordinary, positive information, so it is not clear whether the injunction would have issued if only negative know-how had been at issue.[15]

In the most detailed discussion of the negative know-how concept in a Restatement jurisdiction, Metallurgical Industries, Inc. v. Fourtek, Inc., the Fifth Circuit applied Texas law and rejected a negative know-how claim by holding that the claimed negative information was indistinguishable from the positive ***396** information also being claimed as trade secrets.[16] There, the defendants knew how the plaintiff had faced problems in developing its zinc recovery furnace as well as the plaintiff's solutions to those mistakes.[17] The court found that the trade secret claims at issue lay in the solutions found, and that the prior negative information leading to those solutions was not a separate category of information.[18] Without rejecting the concept of negative know-how altogether, it held that "[a]lthough we decline to hold that this distinction will always be unavailing, in this case at least we regard the distinction between 'positive' and 'negative' knowledge to be unintelligible."[19] Because the plaintiff in Metallurgical found a solution to each problem it faced and accused the defendant of taking those solutions, there was a complete overlap between problem and solution, and thus no excess of dead ends or failed approaches that the court could have addressed as trade secret claims separate from the positive solutions.

The 1985 Metallurgical case indicates uncertainty about the status of negative know-how, despite finding the concept incoherent under its particular fact pattern. And indeed, by the 1980s, change was in the air. The Uniform Trade Secrets Act (UTSA), promulgated in 1979 and gradually adopted by more than forty jurisdictions, changed course from the Restatement

and indicated in commentary that negative know-how could indeed fit within the definition of a trade secret.[20] In turn, the 1995 Restatement (Third) of Unfair Competition, which has been adopted in one jurisdiction and is influential in others,[21] followed suit and seemingly frowned on the exclusion of negative know-how from the trade secret concept.[22]

It is not clear why the drafters of the Uniform Trade Secrets Act felt that negative know-how should be classified as trade secrets. The official commentary on the issue consists of one sentence.[23] There is no discussion of the seeming conflict between treating negative know-how as trade secrets and the rule that ***397** former employees can take their general skills and knowledge from job to job. There is no discussion of how a former employee can avoid not using negative information and no indication how use or damages of such a trade secret should be calculated. The drafters did not express concern over the potential impact negative know-how trade secret claims could have on employee mobility, and there is nothing to indicate whether they believed that a former employee is duty-bound to artificially repeat a former employer's mistakes in order to avoid liability. A departing employee seeking to act in good faith and avoid use of trade secrets under this theory finds no guidance from the UTSA commentary, or that of the 1995 Restatement.

In any event, courts responded after the UTSA's enactment and began to more readily recognize negative know-how as a valid trade secret claim. At the most extreme, this meant making the non-use of negative information the basis for an inevitable disclosure injunction to prevent a former employee from working at a new job.[24] As one Connecticut court stated in 2002 when issuing an injunction against a former employee who sought to join a competitor, it would be impossible for the former employee not to gain from the plaintiff's mistakes: "However well intentioned the defendants may be, it seems virtually impossible for Avery Dennison's trade secret information, particularly as to 'dead ends,' to not affect the employment relationship of Donald Finkle while in the employ of Bic."[25] And in the strongest application of the negative know-how theory on record, a Utah court issued an inevitable disclosure injunction against a former employee where the court found that the defendants would not repeat the former employer's mistakes at the new job. The court was frank in describing its thought process when issuing the injunction, and its language is worth reading carefully to illuminate the farthest reaches of the negative know-how theory:

> Through their long and intimate experience on the Wolf Mountain project Merkey and Major learned two important classes of information: what worked and what didn't. While it is one thing for them to claim that they will not use Novell's trade secrets, it is inconceivable to believe that if they are designing a product similar to Wolf Mountain that they ever would start down any of the blind alleys that they already know won't work. No one is going to spend money trying that which they already know will end in failure. At least as to negative knowledge, it is inevitable that Merkey and Major will not use any of the negative knowledge which they learned while at Novell and that negative knowledge gives them a considerable head start or competitive advantage as they develop competing products for the market. They should not be allowed this profit at the expense ***398** of their contractual and fiduciary obligations not to use knowledge gained while at Novell.[26]

The problems with combining the aggressively anti-employee inevitable disclosure theory with a theory of negative know-how will be discussed below.

In another strikingly novel application of a negative know-how theory, a 1990 California case appears to suggest that a trade secret plaintiff might have valid "negative research" trade secrets in the identities of customers who were not interested in the plaintiff's goods and thus would not appear on the plaintiff's customer list.[27] In other words, a trade secret plaintiff could assert secrets not just in a customer list of who to call, but also in a list of who not to call. The court's statement was dicta and was not altogether clear, but one subsequent federal case applying California law has accepted that premise, again albeit in dicta.[28]

Another federal court relied on the California case to deny a motion to dismiss trade secret claims, in part because the court found that the plaintiff stated valid claims that included negative know-how allegations regarding business methods "that proved unsuccessful and should be avoided," restaurant features "that have proved unsuccessful and should be avoided," and the identities of suppliers who did not prove to be reliable.[29]

In another highly questionable ruling, the Ninth Circuit purported to apply California law to affirm summary judgment against a plaintiff's trade secret assertions, including a claim based on negative know-how, because the information was not secret, but then remanded to allow the plaintiff to proceed on the same ***399** claims under an unfair competition theory.[30] The decision is not only contrary to California law, which bars claims where former employees use non-secret information, but

the court appears to have concluded that it is possible to be liable for not using non-secret negative information.[31] The holding seems extreme, and it is not clear that the Ninth Circuit considered the ramifications of its logic. Allowing claims based on non-use of non-secret negative information would make any worthless, well-known mistake a weapon to use in litigation against a former employee.

Not all attempts to pursue negative know-how-based trade secret claims in Uniform Trade Secrets Act jurisdictions have been successful. In one California case, a former employer sought a preliminary injunction against its former employees based in part on a negative research theory--a claim that they knew about "what does and does not work in the process of designing digital media management software."[32] The court rejected the request because, among other things, the plaintiff's claim was "simply too nebulous a category of information to qualify for trade secret protection."[33] The court saw the request as an attempt to bar the employees from working in the entire field of digital media management.[34]

In a Connecticut case, the trade secret plaintiff asserted that the defendant, which had developed technology different from that of the plaintiff, had used negative knowledge as well as ordinary trade secrets in designing product features.[35] After a detailed examination of the technical evidence, the court rejected that argument, finding that the defendant had made no use of the plaintiff's alleged secrets.[36] In another Connecticut case, the court found that the claimed negative know-how trade secrets were not secrets at all and thus had to go no further to reject the plaintiff's claim.[37]

***400** Finally, negative know-how has been used to support injunctions against former employees to enforce non-competition covenants--boilerplate agreements, valid in most jurisdictions, in which an employer requires that an employee avoid working for a competitor for some period of time after leaving the company. For example, in affirming the issuance of preliminary injunction, the Seventh Circuit relied in part on a negative knowledge theory:

> In this case, the balance of irreparable harms weighs heavily in Brunswick's favor. Jones possesses confidential information concerning Brunswick's engineering failures and successes, financial performance and projections, and marketing plans. Access to such information could enable a competitor to cut the time and costs required to develop a new product by avoiding engineering blind alleys.[38]

Notably, the Seventh Circuit's reasoning in using negative know-how to enforce a non-competition covenant is the same as the reasoning of the courts which have used negative know-how to enforce "inevitable disclosure injunctions." This is not a coincidence, and the tendency of negative know-how to support what amounts to non-competition orders is one of the many problems with the theory.

IV. The Modification Rule and Trade Secret Law

The second area of trade secret law in which negative information is a factor is the modification rule. Unlike the negative know-how theory, the modification rule has been widely and unanimously accepted for many decades, and its applications have almost uniformly been sensible and aimed at actual use of a plaintiff's secret technology.

The modification rule involves negative knowledge because a trade secret defendant may take a plaintiff's trade secret, decide that it can be improved or should be modified, and thus the defendant's end product may not copy the plaintiff's positive product. Rather, the plaintiff's information is used in a negative sense, as it is rejected but forms the basis along the way for a different, related application.

A federal court in California defined the modification rule as follows: "The imposition of liability is not dependent upon proof that the alleged offender employed the trade secret in the precise form in which it was disclosed. The offender may be liable even though he uses differences in detail, modifications, or improvements."[39]

Under the modification rule, trade secret law differs from copyright law, which permits intermediate infringement of a copyrighted work in cases where ***401** there is no copying in the final product.[40] This is so because trade secret law covers the use of nonpublic ideas, regardless if they copy the plaintiff's form of expressing them. As a Wisconsin court once explained in a case where the modification rule was at issue, "The line of demarcation between trade secret and copyright protection is clear. Trade secret law protects content irrespective of form of expression; copyright law protects form of expression but not the underlying ideas."[41]

At the same time, the modification rule makes trade secret law analogous to patent law, which applies the doctrine of equivalents to impose liability where the product accused of patent infringement contains elements different from but equivalent to the claims of the patented invention.[42]

The modification rule is well-established. The 1939 Restatement explained the concept in some detail:

> To subject a person to liability . . . for the use of another's trade secret, there is no requirement that he use it in exactly the form in which he received it. He may be liable even if he uses it with modifications or improvements upon it effected by his own efforts. Differences in detail do not preclude liability if, substantially, the process used by the actor is derived from the other's secret in the manner stated in this Section. The liability is avoided only when the contribution by the other's secret is so slight that the actor's process can be said to be derived from other sources; although even in such a case the actor is still subject to liability for harm caused by his disclosure or possession of the secret. . . . The extent of the modifications or improvements made by the actor upon the other's secret may, however, affect the computation of damages or profits for which he is liable to the other.[43]

The 1995 Restatement (Third) of Unfair Competition repeats the modification rule, using similar language.[44] The comments to the Uniform Trade Secrets Act do not mention the modification rule, just as they say little to define unlawful use of a trade secret in general, but courts in UTSA jurisdictions have applied the rule.

Indeed, the modification rule is frequently applied when a trade secret defendant has misappropriated a plaintiff's secret technology but then tries to avoid liability by arguing that it ultimately changed the plaintiff's ideas to some degree or another into something else. For example, in an Illinois case a group of employees ***402** left and used a secret oven design to create their own product, and moved for summary judgment against the plaintiff's trade secret claim.[45] The court denied the motion for several reasons, among them that the defendants' use of different or slightly modified component parts in designing their oven was not a defense.[46] The court explained that the real question was not whether there were minor differences between the two products, but whether the defendant's version was created as a result of the secret information in the design of the plaintiff's oven.[47]

In another example from a California case, a former employee who had designed a machine for making die-cut masks resigned, joined a competitor, and created a similar machine.[48] When the plaintiff sued for trade secret misappropriation, the defendants argued that after the lawsuit was filed, they had "made certain improvements and changes in the machines."[49] The court, affirming the trial court, held that "defendants cannot escape responsibility by showing that they had improved upon or modified plaintiff's process. Even though they may have modified or improved the plaintiff's process they are still wrongfully using its property."[50]

This basic theme--that minor improvements or modifications are not a bar to liability--has been repeated in numerous cases applying the modification rule.[51]

***403** Some of the cases have defined the modification rule as one that applies if a defendant's technology is substantially derived from the plaintiff's technology.[52] Another court affirmed a jury verdict where the jury instructions described the modification rule as a sort of "but for" causation: "You may find that defendants misappropriated [plaintiff's] trade secrets even if defendants created a new product if defendants could not have done so without use of [plaintiff's] trade secret."[53] Still others have expressly applied the patent law doctrine of equivalents, to hold that products reaching the same result in the same manner amount to trade secret misappropriation.[54]

***404** These formulations suggest that there is some point where a modification of the plaintiff's technology may be so transformative that no liability should attach. The phrase "substantially derived from" implies that technology only somewhat derived from a plaintiff's trade secret is not trade secret misappropriation. The 1995 Restatement states in commentary that "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 . . . ."[55] There appear to be no cases applying the modification rule but finding that a defendant's modifications were sufficiently transformative to avoid liability.

Overall, the modification rule is far more sensible than the theory of negative know-how, but this vagueness in defining the degree of permitted modification is one of the problems with the theory discussed below.

V. Problems in the Law of Negative Knowledge

With a working definition of negative knowledge and a review of how the courts have treated the related concepts of negative know-how and the modification rule, it is possible to critique negative knowledge as it relates to trade secret law.

Like issues treated previously in this series of articles,[56] such as combination trade secrets and the identification of trade secret claims during litigation, overbroad applications of the negative knowledge concepts threaten employee mobility and the right of affected parties to use information they would otherwise be free to use. Too many rules and concepts in trade secret law favor the former employer at the departing employee's expense and make it easy to entangle the employee in expensive litigation without having to actually identify and prove misappropriation of a real trade secret. For those who favor a broad public domain and an equal playing field between the inventive employee and the employer, the negative knowledge concepts are overdue for criticism. The theoretical background for those viewpoints is discussed next, followed by a description of the problems in the law of negative knowledge.

A. Approaches to a Critique of Overbroad Trade Secret Rules

Trade secret law is a relatively recent development; it arose in the early nineteenth century in both England and the United States during the Industrial Revolution and then during the rise in large corporations supported by a skilled workforce.[57] Compared to other types of intellectual property such as trademarks ***405** and patents, trade secret law remains vague, inconsistent, and ill-defined in many areas. A search on Westlaw or Lexis databases shows that trade secret cases, like other intellectual property cases, have increased in the past two decades. This increase, perhaps a sign of an economy ever more focused on high technology, means that greater debate and reflection about trade secret law is needed. This is especially so for borderline concepts like negative know-how.

Indeed, debate over the reach of trade secret law should be included in the broader debate in recent years about the scope of intellectual property law and the value of the public domain.[58] Most of this debate has taken place within the context of copyright and internet law as new technologies upend old methods of content distribution. The debate also extends to patent law, with regard to overbroad business method patents and so-called patent trolls, holding companies which own patents and pursue litigation as their only line of business.[59] Many of the proponents of these various debates seem unaware of one another. But recognizing common ground could lead to a more interdisciplinary approach to similar problems, where those from different backgrounds share ideas and propose solutions to serve common goals.

Those challenging the reach of intellectual property laws fall into several philosophical camps, each of which is useful for the analysis of overbroad trade secret rules. These various positions are not mutually exclusive, and those interested in less restrictive intellectual property rules fall across the political spectrum. One approach takes a type of utilitarian position by arguing that lesser restrictions on certain intellectual property and non-competition laws may provide greater economic benefits to society overall, as employees can more easily change jobs, join entrepreneurial start-up companies, and spread their skills and knowledge.[60] A second approach, which might also be seen as utilitarian, focuses on a more general benefit to society that flows from placing as much information as ***406** possible in the public domain, free for citizens to use in whatever creative ways they see fit. This is the approach most associated with Stanford's Lawrence Lessig and his critique of copyright law.[61]

A third approach, one that might be termed a rights-based philosophy, focuses on the law's treatment of individual employees as they move from job to job. Scholars taking this approach sometimes come from a background in employment law, labor law, and sexual harassment law, rather than intellectual property law, and focus on the employee's rights versus the power of the employer.[62] Finally, and perhaps further afield, one could apply a critical theory widespread in the humanities to critique a legal regime that centralizes the control of information while subjecting creative individuals to an imbalanced regime of contractual covenants, overbroad categories of off-limits information, threats and disruptive lawsuits, and unbalanced litigation rules.[63]

All of these approaches support the critique of negative knowledge presented in this article. For example, rigorously applying the theory of negative know-how against departing employees around the nation would inhibit employee mobility and impede the formation of creative start-up enterprises, thus harming the overall economy. Using negative know-how to stop

former employees from even joining a ***407** competitor would give former employers too much latitude to harass employees as a punishment for resigning--encroaching upon the rights of employees versus their employers. Prohibiting the dissemination of mistakes and errors by labeling them trade secrets shrinks the pool of information potentially available for use in a given jurisdiction.

At the same time, however, no theory preference is necessary to recognize that some aspects of the law of negative knowledge, particularly the theory of negative know-how, fail because of their own internal incoherence. No philosophical discussion or economic analysis is necessary to show how the law of negative knowledge can lead to absurdities in actual practice. One need not subscribe to any particular point of view, or even believe in general that trade secret law is too restrictive, to conclude that the law of negative knowledge is ill-defined and too strongly favors one side in a litigation over the other.

It should also be noted, perhaps to anticipate the fears of skeptics, that a concern over the overreach of trade secret law is not the same as opposition to trade secret law. Nothing presented here, for example, would upset the rules that provide for liability when an individual walks out the door with copies of the company's secret, valuable source code. The concern here, and in the wider debates over trade secret law, is with procedural rules and legal doctrines that make it easy to attack former employees with flimsy or nonexistent secrecy claims.

B. Negative Know-How: Problems in Applying the Theory

The theory of negative know-how is deeply flawed, both in its apparent theoretical justification and in its application in a litigation context. To recognize these problems, one need only imagine, step by step, a scenario where an employee resigns, forms a new company, acts in good faith to avoid use of trade secrets, and then must defend a lawsuit where the former employer asserts negative know-how claims. Whether the issue is identifying the claimed trade secret, determining if it has been used, or trying to assess damages, the difficulties with the theory become all too apparent.

It is surprising, then, that the Uniform Trade Secrets Act accepted the theory in commentary, and that some courts have accepted it without discussing the many problems inherent in it. These problems fall into five areas, each of which will be discussed below: lack of theoretical justification, erosion of the rule protecting use of general skills and knowledge, the seeming ineluctability of liability and injunctive relief, determining the use or non-use of the alleged secret, and determining the plaintiff's damages.

1. Lack of Theoretical Justification

The standard theoretical justification for trade secret law, and for intellectual property law in general, is that granting rights in intangible creative information will best promote the creation of such information. Companies which are assured that their non-public ideas will be protected from use or disclosure by others will ***408** more readily develop new ideas.[64] If such ideas could be disclosed and taken at will by others, the theory goes, companies would not invest the time and money to develop them.

The standard theory does not support protection for mistakes, errors, and obsolete approaches. In the first place, trade secret law generally did not protect negative know-how for many decades, until the Uniform Trade Secrets Act was promulgated in the 1980s. Nobody has ever asserted that innovation suffered as a result. As an empirical matter, then, it appears that the standard theory is not true as to negative know-how. Second, it is doubtful that companies in the real world have any understanding that their mistakes could be intellectual property, and probably do not invest in creativity on that basis.

Third, it seems doubtful that negative know-how constitutes intellectual "property" at all.[65] While one might create an abstract hypothetical under which one entity pays money to buy or license a set of purely negative information about mistakes and errors, it seems unlikely that any such transaction would ever really take place. Of course, a party might license another's entire body of nonpublic experimentation in a technology area, and the license might thus include information about mistakes, but the mistakes would not likely be the primary purpose of the license.

2. Erosion of the General Skills and Knowledge Rule

If any theory supports the theory of negative know-how, it may be an unspoken belief that employee mobility should be

severely restricted to prevent an employee from using his or her general skills, experience, knowledge, and training at the next job.

As discussed above, a standard rule courts sometimes apply to define a permissible body of knowledge that a mobile employee can use is his or her general skills, knowledge, training, and experience. This rule helps protect employee mobility by preventing a trade secret plaintiff from declaring that everything the employee learned during his or her employment can be classified as a trade secret. If employees could not safely transfer their training and skills from job to job, or change jobs without repeating the mistakes that constituted their general learning process, they would be unable to change jobs within the same field or start new, competing businesses. To protect employee mobility and the benefits that flow ***409** from it, it makes sense to go as far up to the line as possible to allow employees to apply their skills and training at a new job.

The negative know-how concept cuts directly against the rule protecting general skills and knowledge because it takes what is quintessentially part of an employee's training and skill development, the trial and error process by which everyone learns to improve, and turns it into part of the employer's body of trade secrets. Although state law public policy favoring employee mobility varies depending on the degree to which non-competition covenants are permitted in a given jurisdiction, a strict application of the negative know-how theory would seemingly encroach on employee mobility everywhere.

3. Ineluctable Liability and Injunctive Relief

The third problem with the negative know-how theory is that its strict application would almost ineluctably lead to an injunction or even liability against a mobile employee. Just as a strict application of the negative know-how theory would erode the protection for employees' general skills and knowledge, it would also turn trade secret lawsuits into even more one-sided contests.

Things are bad enough as they are, especially in jurisdictions that permit inevitable disclosure injunctions. Any former employer which wants to stop a former employee from competition, or just attack the employee to send a message to the workforce, can cause significant disruption merely by filing a lawsuit, even if no wrongdoing is ever proved. The employer can discuss its anticompetitive desires behind the attorney-client privilege so that they are not discoverable. Its attorneys can then file a lawsuit to disrupt the former employee's livelihood under the protections of the litigation privilege, and make no more than vague accusations about trade secrets without description. The mere filing of the lawsuit can prevent the employee from obtaining funding for a new company, scare off customers, or even cause a potential new employer to renege on a job offer.[66] And where inevitable disclosure is an accepted theory, lawyers can attack the employee as an untrustworthy thief, and, without proving actual trade secret misappropriation, obtain an order preventing the employee from starting a new job.

The theory of negative know-how, if widely accepted, would make things worse. Because every employee learns by trial and error, a former employer's attorneys would always be able to make a list of such mistakes, label them "valuable" and "time-consuming," and charge the former employee with gaining an unfair head start by not repeating the mistakes. This would be true even if the information were truly de minimis and something the former employer never cared about until its lawyers crafted the trade secret claims. The law of trade secrecy would blend into the far more restrictive law of non-competition covenants, ***410** because former employees could obtain what amounts to a non-compete covenant through a court-ordered injunction barring competitive employment.

The theory is particularly dangerous where inevitable disclosure injunctions are permitted, because in some sense it is indeed inevitable that former employees will not repeat the mistakes and errors they have learned about from previous jobs. Two law student commentaries have described the combination of inevitable disclosure and the negative know-how theory. One focused on the heyday of inevitable disclosure in the 1990s and explained how negative know-how could be used as a basis for it.[67] The second recognized the danger that the negative know-how theory could "broaden" the inevitable disclosure theory.[68]

Highlighting this danger, some practitioners have advised trade secret plaintiffs to use negative know-how allegations in support of inevitable disclosure injunction requests against former employees. One describes inevitable disclosure injunctions as a "potentially valuable litigation weapon," and advises former employers not to "overlook information concerning research and development alternatives that an ex-employee knows did not work, commonly referred to as 'negative knowledge' or 'blind alleys.'"[69] Another, less strident article from the trade secret plaintiff's perspective acknowledges that negative know-how claims are hard to define and thus that damages are hard to recover for such allegations, but nonetheless notes that the theory has been used to obtain injunctive relief against former employees.[70] This commentary shows how negative

know-how claims can serve goals other than proving actual use of trade secrets--the employer can use a negative information claim to try to enjoin a former employee, even if the employer realizes that defining the information during discovery or proving damages in later stages of the case would be difficult or impossible.

4. Use or Non-Use of the Alleged Secret

Perhaps the most important problem with the negative know-how theory is its incompatibility with the use element of a trade secret misappropriation claim. For positive trade secrets, a former employee's mere possession, or mere memory, of ***411** the information is not a ground for liability.[71] The defendant has to do something with that information that injures the plaintiff or provides a gain to the defendant. For negative know-how, however, the use element is subject to a reductio ad absurdum: To avoid liability for not using negative know-how, the defendant must replicate all of the employer's mistakes when working in a similar area of technology or a comparable business.

Imagine a former employee who knows a host of mistakes, blind alleys, and failed experiments the former employer made in a chip design, and must set up a fake laboratory to repeat each of those mistakes. If the former employer made three missteps along the way, or ten, or thirty, each must not only be repeated, but the former employee must be sure to take the same amount of time and spend the same amount of money in order to avoid a "head start" accusation. Imagine a "mistake team" assigned to such a project. And imagine if the mistakes cannot be replicated without setting up the same laboratory environment as that of the former employer and also repeating the positive steps that were interspersed with the blind alleys. Worse, imagine if the former employee is not sure if the former employer would agree that a certain item was really a mistake, and thus might not be able to perfectly repeat everything the employer would label negative know-how in a litigation.

All of this is fanciful. Few if any real world employers would hire anyone subject to such onerous and absurd requirements. But this result logically flows from the negative know-how concept.

It does not appear that any court or trade secret commentator has ever analyzed the seeming incompatibility of the use element of a trade secret claim with the negative know-how theory. Indeed, the only source to recognize the problem appears to have been a treatise on civil procedure, whose authors-- perhaps looking at the theory from an outsider's fresh perspective--found the UTSA's approval of negative know-how "questionable":

> [I]t is not clear how a court could enjoin the competitor or the employee from making use of this "negative knowledge"; are the defendants to be ordered under penalty of contempt to repeat the plaintiff's fruitless research and to be as enthusiastic about it as if they did not know it was doomed to fail? Moreover, how could an innocent defendant prove that the negative information had never been used? It would seem that the common law was wise in denying trade secret status to "negative know-how."[72] ***412** The problem remains if one examines non-technical trade secret information. If a plaintiff can claim trade secrets not just in a customer list but also in a list of customers who were not interested, must a former employee go through the exercise of calling each of those failed leads again? The same would be true for business plans or market strategies. For example, if a company mapped out ten potential applications for downloadable cell phone content but then rejected nine of them, a former employee might be charged with misappropriation if she started a new company marketing downloads and did not repeat the same time and effort on the nine unpromising applications.

Trade secret defendants can also be liable not just for directly putting a trade secret to use, but also by disclosing the secret to others. Just as one has a right to disclose one's general skills and knowledge to others, such as co-workers, negative know-how within that body of knowledge would fall within the same protection. A more difficult question would arise, however, if an employee joined an existing company, saw that others at the company were embarking on a complex and expensive experiment that the employee knew would be fruitless, and told his co-workers to stop, saving the company time and money. The public interest in employee mobility should outweigh a rush to broadly legitimize the negative know-how theory based on such highly unusual events.

5. Damages and Proximate Causation

The fifth problem for the theory of negative know-how is the difficulty in proving that the nonuse of a mistake or dead end

experiment damaged the plaintiff or unjustly enriched the defendant. The most common types of damages in trade secret cases are compensatory damages for injury to the plaintiff (such as lost profits) and unjust enrichment by the defendant (such as sales of a product made with misappropriated trade secrets). For both, the plaintiff must prove that the misappropriation was the proximate cause of the injury[73] or enrichment.[74]

***413** If a defendant creates a new product that does not contain the plaintiff's positive trade secrets, but also skipped a repetition of the plaintiff's mistakes, it seems difficult to prove that but for avoiding the mistake, the end result would have differed. The end product is different, regardless whether the mistake is skipped or is repeated in a fake laboratory. At most, the plaintiff might argue that the defendant saved time by not repeating the blind alleys and thus made it to market faster. But that argument assumes that the defendant would have repeated the blind alley in the same manner, spending the same amount of time and money as the plaintiff, if the defendant had never known about the negative know-how. It seems just as likely, if not more so, that the defendant may never have considered the blind alley at all, or gone about addressing it differently. The fact that the plaintiff made mistakes and was inefficient during its own development process does not establish but for causation that the defendant would have been equally inefficient absent knowledge of the plaintiff's mistakes.

6. Negative Know-How: Proposals

Given its incoherence, its lack of theoretical justification, and the threat it poses to employee mobility, the theory of negative know-how should be treated with skepticism. The comments to the Uniform Trade Secret Act and the Restatement (Third) of Unfair Competition approve the negative know-how theory. Comments are not the same as statutory text, however, and courts in UTSA jurisdictions may thus retain latitude at least to circumscribe the theory. Above all, courts should avoid combining the negative know-how theory with the inevitable disclosure theory when considering injunction requests, because doing so amounts to a court-created non-competition covenant that would prevent employee mobility in every such case.

It is possible that there are extreme, unusual fact patterns under which a use or disclosure of a specific item of negative know-how could operate in the same manner as the misappropriation of a positive trade secret. Because the theory has been approved in UTSA jurisdictions and perhaps cannot be completely curtailed, courts should reserve the theory for extreme situations that go beyond a former employee using his or her general skills, knowledge, experience, and training at a new job.[75]

One area where negative know-how claims might be preserved is where their disclosure essentially discloses the plaintiff's positive trade secret as well. For example, imagine a scenario where a secret chemical formula required a very precise ratio of three ingredients, and the plaintiff had conducted failed experiments ***414** with ratios that were very close to its final choice, both less than and more than that choice. A former employee could disclose only the failed experiments, but doing so would cause the addressee to understand exactly what the plaintiff's final choice was. Such conduct would not really be a negative know-how claim, however, but a disguised disclosure of the positive secret.

C. The Modification Rule: Problems in Applying the Theory and Proposals

On the whole, the modification rule is a far more sensible fit with the general framework of trade secret law. Its usual application--to prevent parties from taking a trade secret and using it during the process of changing it into something else--poses no unique threat to employee mobility, and can be tested for use and proximately caused damages.

It is important to note that the modification rule is inconsistent with the negative know-how theory in a manner that highlights the unbalanced nature of the latter. The modification rule appears to allow insignificant use of a trade secret along the path towards a different end product. Some space, in other words, exists where the court will not pry into the former employee's thought process so long as the tangible result is manifestly the result of independent thinking. By contrast, the negative know-how theory proposes a ruthless interrogation into the former employee's mind, to find out if the employee knew about mistakes and chose not to repeat them. Even if the defendant's new work had absolutely nothing to do with the plaintiff's secret information, it would seem that the failure to repeat dead ends could nonetheless be a trade secret claim. It does not seem that any court has discussed this theoretical inconsistency between the two approaches, but the modification rule better balances the playing field between employer and employee.

Still, the modification rule is not without problems. The first is a rhetorical possibility: that a former employer might claim that a defendant's move away from the employer's own secret information is itself a modification of that secret information.

But merely knowing about and moving away from a trade secret--something every former employee must do--should not be confused with taking a trade secret and then changing it into a variant. A recent Connecticut federal court decision rejected a plaintiff's argument that the defendant gained an advantage merely by learning about the plaintiff's allegedly secret product and then designing a different product:

> The flaw in [plaintiff's] position is that defendants are alleged to have gained some advantage by avoiding the successes of [plaintiff] . . . . [Plaintiff] does not demonstrate how a reasonable jury could take evidence that defendants looked at [plaintiff's] successful innovation and then steered clear of what [plaintiff] had done to logically conclude that defendants gained any advantage from their knowledge of [plaintiff's] secret stabilization method.[76] ***415** A second problem arises when the plaintiff's secret information is merely a variation on public domain concepts, as in an industry where several competitors use the same open source software but modify it for internal use. If a former employee creates improved software that is itself merely another variation on the open source software, applying the modification rule would not be sound. Stated differently, when the plaintiff and the defendant both work from common, public domain concepts and the defendant's product does not use the plaintiff's specific, secret features, the modification rule should not apply.

This possibility--where both sides work from a base of common, public knowledge--illustrates how the common definitions of the modification rule are not sufficiently specific. As discussed above, some courts define the rule as one governing products that are substantial derivatives of those of the plaintiff. Others borrow the doctrine of equivalents from patent law, to apply a test that one commentator describes as whether "the defendant's device or process performs substantially the same function in substantially the same way to obtain the same result."[77]

Borrowing from patent law--which confers a monopoly over the invention--or speaking of "substantial derivatives" would not be a properly balanced analysis in cases where the defendant and plaintiff both used a non-secret functionality or idea to develop different products. The defendant's product may well be a modification or improvement of the plaintiff's product, but where the trade secret protection was thin to begin with, the defendant should be allowed to apply the non-secret portion of the plaintiff's product to the new development.

Third, and finally, courts applying the modification rule should be careful not to award the plaintiff windfall damages in the defendant's gain from a product where only a fraction of the development stemmed from modifying the plaintiff's secret. Awarding the entire gain as damages would not only overcompensate the plaintiff for the injury, but would confer intellectual property in ideas the plaintiff never knew about--specifically, the defendant's improvements and independently derived portions of the technology. The 1939 and 1995 Restatements both call for apportionment of damages in such cases, and the concept of apportionment in trade secret law is well established.[78]

*416 V. Conclusion

Trade secret law includes two theories of negative knowledge, and both deserve greater scrutiny and analysis. One, the negative know-how theory, poses considerable theoretical and practical difficulties. It represents a serious threat to employee mobility, and should be strictly scrutinized. The second, the modification rule, reflects a sound means to find liability where the defendant uses trade secrets along the way to its final end product, but it too should be critically analyzed and better defined.

Footnotes

[a1] Charles Tait Graves is an associate at Wilson Sonsini Goodrich & Rosati in San Francisco, California. This article is the fifth in a series that seeks to clarify frequently-litigated but obscure areas of trade secret law in the interest of protecting employee mobility and the right to use information in the public domain.

[1] For the previous articles in the series, see Charles Tait Graves & Brian D. Range, Identification of Trade Secret Claims During Litigation: Solutions for a Ubiquitous Dispute, 5 Nw. J. Tech. & Intell. Prop. (forthcoming); Tait Graves, Nonpublic Information and California Tort Law: A Proposal for Harmonizing California's Employee Mobility and Intellectual Property Regimes Under

the Uniform Trade Secrets Act, 2006 UCLA J.L. & Tech. 1 (2006); Tait Graves, Bad Faith and the Public Domain: Requiring a Pre-Lawsuit Investigation of Potential Trade Secret Claims, 8 Va. J.L. & Tech. 12 (2003); Tait Graves & Alexander Macgillivray, Combination Trade Secrets and the Logic of Intellectual Property, 20 Santa Clara Computer & High Tech. L.J. 261 (2004).

[2] See, e.g., James Pooley, Trade Secrets §4.02[3] (2006) (noting split in case law over negative know-how); Roger Milgrim, Trade Secrets §1.02[1] (2006) (noting negative know-how issue with citations); Raymond T. Nimmer, Information Law §5:30 (2006) (noting concept of negative know-how and asserting that "[t]he two newer sources of trade secret law properly inter the illusory distinction between affirmative and negative information, never truly justified in law or in fact"); Victoria Cundiff, The New York Law of Trade Secrets: A Practical Guide, 67-JUN N.Y. St. B.J. 32, 35 (1995) (noting negative know-how concept); Melvin F. Jager, Trade Secrets Law §3:34 (2006) ("Since knowing what not to do often leads automatically to knowing what to do, such valuable negative information has been granted trade secret protection."); Douglas Danner & Larry Varn, Pattern Discovery: Tort Actions §8:68 (2006) (noting that Uniform Trade Secrets Act §1.4 (1985) includes negative knowledge concept); Yuval Feldman, An Experimental Approach to the Study of Social Norms: The Allocation of Intellectual Property Rights in the Workplace, 10 J. Intell. Prop. L. 59, 73 n.57 (2002) (stating that "most" of the "knowledge aggregated by a firm" is negative know-how); Katherine V.W. Stone, The New Psychological Contract: Implications of the Changing Workplace for Labor and Employment Law, 48 UCLA L. Rev. 519, 576 (noting existence of negative know-how concept).

[3] See, e.g., Jager, supra note 2, §5:8 (2006) ("Modifications to the misappropriated information will not avoid liability as long as a substantial portion of the trade secret remains in 'use' by the accused."); Milgrim, supra note 2, §15.01[1][d][vi] (2006) (noting modification concept with citations); Raymond T. Nimmer, Law of Computer Technology §3:51 (2006) (noting modification concept with citations); Louis Altman, Callmann on Unfair Competition §14:32 (2006) ("Minor modifications do not insulate the defendant from liability for wrongful use of the plaintiff's trade secret.").

[4] See generally Thomas S. Kuhn, The Structure of Scientific Revolutions 64, 68, 71, 77-80 (Univ. of Chicago Press rev. ed. 1970).

[5] See generally Aristotle, Metaphysics 111-17 (Loeb Classical Lib. ed., 1933) (arguing that the theory of Forms led to absurdities); Vasilis Politis, Aristotle and the Metaphysics 295 (Routledge 2004) (noting that Aristotle knew Plato "both from his work and from close personal acquaintance").

[6] See generally Harold Bloom, The Anxiety of Influence 5-18 (Oxford Univ. Press, 2d ed. 1997).

[7] The D.C. Circuit has yet to announce the factors it deems relevant in determining likelihood of confusion. 4 McCarthy, supra note 13, § 24:42, at 24-73. The Federal Circuit's test, as articulated by the Court of Customs and Patent Appeals, only comes into play in proceedings before the Patent and Trademark Office (such as registration proceedings), and thus is not directly relevant to liability issues. Application of E.I. Dupont De Nemours & Co., 476 F.2d 1357, 1361 (C.C.P.A. 1973) (setting forth thirteen-factor test for refusing registration based on likelihood of confusion with the mark of a prior user).

[8] See generally Restatement (First) of Torts §757 (1939) (no mention of negative know-how).

[9] See Restatement (First) of Torts §757 cmt. b (1939) ("A trade secret may consist of any formula, pattern, device or compilation of information which is used in one's business....").

[10] Of course, a company and a former employee may disagree over whether a certain approach is a mistake or not. A former employee might view the employer's approach to software databases to be antiquated and time-consuming; the company itself may believe that its methods are sound and thus continue to use them. The problem of differing perceptions about what constitutes negative information is discussed below.

[11] See EarthWeb, Inc. v. Schlack, 71 F. Supp. 2d 299, 305, 316 (S.D.N.Y. 1999) (In this Restatement jurisdiction, plaintiff's request for "inevitable disclosure" injunction against a former employee was based in part on the assertion that the employee had "awareness of the trial and error process that EarthWeb undertook in implementing the products and services of outside consultants." The court denied the request, finding among other things that defendant's knowledge of "developmental problems" constituted the type of knowledge he could not be restrained from using.); SI Handling Sys., Inc. v. Heisley, 753 F.2d 1244, 1262

(3d Cir. 1985) (Pennsylvania law follows the Restatement. Plaintiff's negative know-how claim was rejected on request for preliminary injunction where the court found that Pennsylvania employees do not have trade secrets in mistakes and failures.); Hurst v. Hughes Tool Co., 634 F.2d 895, 899 (5th Cir. 1981) (Texas law also follows the Restatement. The court declined to find use of alleged trade secrets where defendant only learned "negative, 'what not to do' input" from plaintiff.); Hunt v. Pan Am. Energy, Inc., 540 F.2d 894, 903-04 (8th Cir. 1976) (North Dakota law follows the Restatement. In this case, the defendant allegedly took secret logs which showed "negative information" about "where not to buy" coal, but the court found defendant did not use such information in making purchases.); Standard Brands, Inc. v. Zumpe, 264 F. Supp. 254, 260 n.6 (E.D. La. 1967) (noting in dicta that although plaintiff believed that negative know-how was valuable, "there is some doubt whether such negative values are protected as trade secrets"); Van Prod. Co. v. General Welding & Fab. Co., 213 A.2d 769, 774, 777-78 (Pa. 1965) (In this Restatement jurisdiction, a request for an injunction against a former employee, based in part on "know-how" including "mistakes and corrections," was rejected by the court who found the negative know-how portion to fall within the type of experience an employee can take from job to job.); Winston Research Corp. v. 3M Corp., 350 F.2d 134, 143-44 (9th Cir. 1965) (At the time, California law followed the Restatement. The court reversed an injunction against former employees as to the portion relating to "knowledge of what not to do...and how not to make the same mistakes" as the plaintiff did in developing its machine. The court found such a theory overly restrictive and held that defendants were barred only from utilizing "the positive specifications" of the plaintiff's machine.); Detachable Bit Co. v. Timken Roller Bearing Co., 133 F.2d 632, 635 (6th Cir. 1943) (The court, apparently applying Ohio law, affirmed dismissal of the complaint where plaintiff could identify no alleged trade secrets. The court found instead that any knowledge the former employee gained was "knowledge related to mistakes to be avoided rather than to valuable practices revealed or disclosed in confidence. Perhaps such knowledge has its advantages but it is doubtful that it forms a legal or equitable basis for recovery."); Pressed Steel Car Co. v. Standard Steel Car Co., 60 A. 4 (Pa. 1904) (The court gave a sort of negative know-how concept as an example of what is permissible and as a contrast to what the defendants actually did. "They bring with them, as is their undoubted right, the skill and experience gained while working for the pioneer company. This would enable the new company to avoid many of the expensive experiments and mistakes of the old....").

[12] See EarthWeb, 71 F. Supp. 2d at 309; E.R. Squibb & Sons, Inc. v. Hollister, Inc., Civ. A No. 91-203, 1991 WL 15296, at *4 (D.N.J. Feb. 5, 1991) (In this Restatement jurisdiction, where plaintiff sought an injunction against a former employee on inevitable disclosure theory, based on ordinary trade secret claims as well as negative know-how, the court rejected the request, finding among other things that "Squibb seeks to protect its 'negative information' as a trade secret. The Court of Appeals has held that an employer cannot assert proprietary rights over problem-solving ability or knowledge of mistakes.") (citing SI Handling, 753 F.2d at 1262).

[13] See Brentwood Indus., Inc. v. Entex Tech., Inc., No. Civ. A. 04-CV-03892, 2005 WL 757189, at *18 (E.D. Pa. Mar. 31, 2005) (The court followed the Restatement--although Pennsylvania adopted the UTSA in 2004--and found that "the information sought to be protected will not be utilized by defendants in any way other than possibly as a model for what not to do in their efforts to market and sell BioWeb." In so ruling, the court did not seem aware of the negative know-how category, and perhaps the plaintiff did not attempt to raise that sort of claim.).

[14] See, e.g., Johns-Manville Corp. v. Guardian Indus. Corp., 586 F. Supp. 1034, 1074 (E.D. Mich. 1983) (stating in dicta, in a pre-UTSA Michigan case decided under the Restatement, that the concept of unfair competition "covers not only useful information that a competitor wrongfully acquires and implements, but the competitive edge a competitor gains by avoiding the developer's blind alleys").

[15] See Affiliated Hosp. Prods., Inc. v. Baldwin, 373 N.E.2d 1000, 1006 (Ill. Ct. App. 1978) (reversing the denial of motion for preliminary injunction where defendant's knowledge included, among other things, "pitfalls to avoid" in machine design); Gillette Co. v. Williams, 360 F. Supp. 1171, 1173 (D. Conn. 1973) (In a case over a former employee's non-competition covenant, the court denied a motion to dismiss the application for preliminary injunction where some of the alleged secrets constituted knowledge "developed negatively in learning what research avenues were not worthy of pursuit."); Allis-Chambers Mfg. Co. v. Cont'l Aviation & Eng'g Corp., 255 F. Supp. 645, 652, 654 (E.D. Mich. 1966) (holding that the plaintiff's alleged trade secrets included "blind alley" and "negative test result" research among many others and granting an injunction against working for competitor).

[16] 790 F.2d 1195, 1202-03 (5th Cir. 1986) (Texas law, Restatement jurisdiction).

[17] Id. at 1197-98.

[18] Id. at 1203.

[19] Id.

[20] See Unif. Trade Secrets Act §1, Commissioners' Comment (amended 1985) ("The definition [of a trade secret] includes information that has commercial value from a negative viewpoint, for example the results of lengthy and expensive research which proves that a certain process will not work could be of great value to a competitor.") (emphasis added); see also Pooley, supra note 2, §4.02[3]; Jager, supra note 2, at app. A2 (2006) ("The Uniform Act settles the issue of 'negative information' by giving it trade secret status.").

[21] One state, Wyoming, has adopted the newer Restatement, and other Restatement jurisdictions have relied on it. See generally Briefing.com v. Jones, 126 P.3d 928, 936 (Wyo. 2006); Expediters Int'l of Wash., Inc. v. Direct Line Cargo Mgmt. Serv., Inc., 995 F. Supp. 468, 481 (D.N.J. 1998) (relying on the Restatement (Third) of Unfair Competition).

[22] See Restatement (Third) of Unfair Competition §39 cmt. e (1995) (noting that earlier cases requiring continuous use of information to qualify for trade secrecy, a rule rejected by the Restatement, "places in doubt protection for so-called 'negative' information that teaches conduct to be avoided, such as knowledge that a particular process or technique is unsuitable for commercial use").

[23] See supra note 20.

[24] See Avery Dennison Corp. v. Finkle, No. CV010757706, 2002 WL 241284, at *2 (Conn. Super. Ct. Feb. 1, 2002) (applying the Connecticut UTSA and granting the inevitable disclosure injunction to prevent employee from starting a new job based in part on negative know-how theory); Int'l Bus. Mach., Corp. v. Seagate Tech., Inc., No. Civ. 3-91-630, 1991 WL 757821, at *2 (D. Minn. Dec. 31, 1991) (applying the Minnesota UTSA and finding that a former employee's knowledge included "test successes and failures, including the benefits of negative knowledge (i.e. the knowledge of what has not worked)" in issuing the preliminary injunction restraining employment on the inevitable disclosure theory).

[25] See Finkle, 2002 WL 241284, at *3.

[26] See Novell, Inc. v. Timpanogos Research Group, Inc., 46 U.S.P.Q.2d 1197, 1216-17 (Utah Dist. Ct. 1998). The court also found that the defendants had retained documents and engaged in other questionable behavior, but the negative know-how theory appears to have been a major component, if not the deciding element, of the court's ruling. Id.

[27] See Courtesy Temp. Serv., Inc. v. Camacho, 222 Cal. App. 3d 1278, 1287 (Cal. Ct. App. 1990) ("If a customer list is acquired by lengthy and expensive efforts which, from a negative viewpoint, indicate those entities that have not subscribed to plaintiff's services, it deserves protection as a 'trade secret' under the act."). It is not at all clear that the Camacho court truly intended to declare that one can have a trade secret in a list of unsuccessful customer contacts; the ambiguous wording can also be read to state merely that one type of circumstantial evidence that a list of successful contacts contains trade secrets is a showing that the plaintiff developed the list through trial and error. In any event, the Camacho court's handling of California trade secret law seems questionable across the board; the decision also made an error by mistakenly citing pre-UTSA common law unfair competition cases to support a faulty assertion that a distinct California statutory unfair competition claim was not preempted by the UTSA because it purportedly is a statute that related to trade secret claims before the UTSA was enacted. See id. at 1291 (citing two pre-UTSA common law cases without recognizing that statutory and common law unfair competition claims are not the same thing in California, and thus assuming in error that statutory unfair competition claims had been used for trade secret accusations before the UTSA was enacted); see also Ernest Paper Prods., Inc. v. Mobil Chem. Co., Inc., No. CV95-7918LGB, 1997 WL 33483520, at *8 (C.D. Cal. Dec. 2, 1997) (finding Camacho inconsistent with better-reasoned California authority).

[28] See Cinebase Software, Inc. v. Media Guar. Trust, Inc., No. C98-1100EMS, 1998 WL 661465, at *12 (N.D. Cal. Sept. 22, 1998) (applying the California UTSA and stating that "'negative research' can be protectable as a trade secret," while citing Camacho for the proposition that "[t]he trade secret, in other words, was the fact that certain entities were not worth soliciting for business").

[29] See Morton v. Rank Am., Inc., 812 F. Supp. 1062, 1073-74 (C.D. Cal. 1993) (citing Camacho for the proposition that "[c]ertain 'negative' research may also result in the creation of protectable information").

[30] See Self Directed Placement Corp. v. Control Data Corp., 908 F.2d 462, 465-67 (9th Cir. 1990).

[31] It is not clear that the court would have reached the same result had "positive" information not also been at issue. In any event, and as described in a prior article in this series, the Self Directed case not only misread a prior California decision in order to apply its unfair competition theory, but ignored California's long history of barring claims against former employees for use of non-secret information. See Graves, Nonpublic Information and California Tort Law, supra note 1, at *64. Along with Camacho, it seems that some of the cases applying outlier theories of negative know-how are questionable for other reasons as well.

[32] Cinebase, 1998 WL 661465, at *12 (applying the California UTSA and denying a request for preliminary injunction based in part on claims regarding "negative research").

[33] Id.

[34] Id.

[35] On-Line Techs., Inc. v. Perkin-Elmer Corp., 253 F. Supp. 2d 313, 322-23 (D. Conn. 2003) (applying the Connecticut UTSA and granting the motion for summary judgment but recognizing the concept of negative know-how as valid).

[36] Id. at 333.

[37] See Clearwater Sys. Corp. v. Evapco, Inc., No. 3: 05CV507, 2005 WL 3543717, at *13 n.21 (D. Conn. 2005) (applying Connecticut UTSA and stating that, because the claimed trade secrets in "dead end" knowledge of fruitless research paths were found to be readily ascertainable, the court "[did] not need to reach the question whether Connecticut affords trade secret protection to that type of negative information"); see also Pfizer, Inc. v. ICI Am., Inc., 1984 WL 8262, at *8 (Del. Ch. 1984) (applying Delaware UTSA and denying a request for inevitable disclosure injunction on non-secrecy grounds where defendant knew plaintiff's "dead ends," among other things).

[38] Brunswick Corp. v. Jones, 784 F.2d 271, 275 (7th Cir. 1986) (applying Wisconsin law).

[39] Digital Dev. Corp. v. Int'l Memory Sys., 185 U.S.P.Q. 136, 141 (S.D. Cal. 1973) (finding for plaintiff).

[40] See generally Sony Computer Entm't, Inc. v. Connectix Corp., 203 F.3d 596, 602-03 (9th Cir. 2000) (holding that intermediate copying of software during reverse engineering effort that did not appear in final product was not copyright infringement).

[41] M. Bryce & Assocs., Inc. v. Gladstone, 319 N.W.2d 907, 915 (Wis. Ct. App. 1982) (The court affirmed the jury verdict for plaintiff where management information systems were similar, and where jury was instructed on the modification rule. The ruling against copyright preemption was based on a different focus of trade secret law.).

[42] See generally Warner-Jenkinson Co. v. Hilton Davis Chem. Co., 520 U.S. 17, 40 (1997) (stating that the "essential inquiry" is, "Does the accused product or process contain elements identical or equivalent to each claimed element of the patented invention?").

[43] Restatement (First) of Torts §757 cmt. c (1939).

[44] Restatement (Third) of Unfair Competition §40 cmt. c (1995).

[45] Thermodyne Food Serv. Prod., Inc. v. McDonald's Corp., 940 F. Supp. 1300, 1308 (N.D. Ill. 1996) (stating the test as: "Although a product appears to be a new or different product, a violation of the [Illinois UTSA] occurs if the modification or new product was substantially derived from another's trade secret").

[46] Id.

[47] Id.

[48] By-Buk Co. v. Printed Cellophane Tape Co., 329 P.2d 147, 154 (Cal. Ct. App. 1958).

[49] Id.

[50] Id.

[51] See, e.g., Reingold v. Swiftships, Inc., 126 F.3d 645, 651 (5th Cir. 1997) (The court reversed a finding for the defendant where defendant used plaintiff's 90-foot boat hull mold to create 110-foot mold, noting the modification rule and holding that a defendant can be liable if the substance of its process is derived from the plaintiff's trade secret.); Pioneer Hi-Bred Int'l v. Holden Found. Seeds, Inc., 35 F.3d 1226, 1238 (8th Cir. 1994) (affirming judgment where court accepted expert testimony that defendant's hybrid seed product had been "more likely than not" "derived" from plaintiff's genetic sources); Monovis, Inc. v. Aquino, 905 F. Supp. 1205, 1232 (W.D.N.Y. 1994) (The defendant was liable where the new method was described as "remarkably similar" but not identical to the plaintiff's process. The court found it to be "derivative" of the plaintiff's process.); Computer Assocs. Int'l, Inc. v. Bryan, 784 F. Supp. 982, 1009 (E.D.N.Y. 1992) (enjoining defendant after he modified plaintiff's software program into a different programming language to create an "advanced form"); Q-Co Indus., Inc. v. Hoffman, 625 F. Supp. 608, 614 (S.D.N.Y. 1985) (finding former employee's software program to be a "conversion" of plaintiff's software program on strong evidence that, despite differences, plaintiff had borrowed heavily from plaintiff's software); Richardson v. Suzuki Motor Co., 868 F.2d 1226, 1244 (Fed. Cir. 1984) (The trial court erred by instructing jury that under California trade secret law "slavish" copying was necessary to find misappropriation. The court noted that minor variations do not excuse a defendant.); Syntex Opthalmics, Inc. v. Novicky, 214 U.S.P.Q. 272, 281 (N.D. Ill. 1982) (granting preliminary injunction where claimed modifications to plaintiff's product were apparently minor); Affiliated Hosp. Prods., Inc. v. Baldwin, 373 N.E.2d 1000, 1007 (Ill. App. Ct. 1978) (reversing denial of motion for preliminary injunction where, among other things, differences in defendant's product were insufficient to avoid injunction where plaintiff's trade secrets had been used); Cybertek Computer Prods., Inc. v. Whitfield, 203 U.S.P.Q. 1020, 1025 (Cal. App. Dep't Super. Ct. 1977) (trial court opinion noting that "trade secrets need not be exactly copied in order to impose liability" and holding for plaintiff where "the conceded difference in terminology utilized in the systems is not significant"); Sinclair v. Aquarius Elec., Inc., 42 Cal. App. 3d 216, 222 (Cal. Ct. App. 1974) (Devices with "minor variations" did not render a restrictive agreement ineffective, because the products "functioned substantially the same way and accomplished substantially the same result."); Greenberg v. Croyden Plastics Co., 378 F. Supp. 806, 815 (E.D. Pa. 1974) (finding defendant's flavoring method "in all essential aspects identical" to that of plaintiff despite a "slightly different" flavoring agent and the use of a "minutely different quantity"); Forest Labs., Inc. v. Pillsbury Co., 452 F.2d 621, 625 (7th Cir. 1971) (The court affirmed a trial court misappropriation ruling where defendant's product operated in a different method, but there was "insufficient difference in the two methods to absolve Pillsbury from liability." The degree of difference and standard applied to find insufficient difference was unclear.); Sperry Rand Corp. v. Pentronix, Inc., 311 F. Supp. 910, 923 (E.D. Penn. 1970) (defense effort to point out apparently meaningless differences between its technology and that of plaintiff failed in clear case of theft); Republic Aviation Corp. v. Schenk, 152 U.S.P.Q. 830, 833 (N.Y. Sup. Ct. 1967) (defendant argued that its system had "improvements and refinements," but court ruled that it was "similar in design" and that defendants had used "integral components" of the plaintiff's system); Sperry Rand Corp. v. Rothlein, 241 F. Supp. 549, 562-63 (D. Conn. 1964) (defendant's technology found "substantially the same" as that of plaintiff despite claimed differences in manufacturing process); Harris Mfg. Co. v. Williams, 157 F. Supp. 779, 786 (W.D. Ark. 1957) (flooring mastic was "not exactly the same" and "perhaps even [had] some slight improvements" but was "in all substantial aspects the same, and is the direct result of a violation of plaintiff's trade secret by defendants"); Mycalex Corp. of America v. Pemco Corp., 64 F. Supp. 420, 425 (D. Md. 1946) (stating modification rule in dicta), aff'd, 159 F.2d 907 (4th Cir. 1947); Stuckes v. Nat'l Candy Co., 138 S.W. 352, 355 (Mo. Ct. App. 1911) (reversing nonsuit and holding that defendant, which received plaintiff's secret candy component, could not escape liability for using it just because it made changes).

[52] See, e.g., In re Innovative Constr. Sys., Inc., 793 F.2d 875, 886-887 (7th Cir. 1986) (Modifications based on climate changes where the defendant was located and "the availability of certain raw materials" was insufficient to avoid liability. The test was whether the "substance of the process" was derived from the plaintiff's process.); Gen. Elec. Co. v. Sung, 843 F. Supp. 776, 778-79 (D. Mass. 1994) (defendant's industrial diamond-making process found to be substantially derived from plaintiff's documents, which defendant had taken); Am. Can Co. v. Mansukhani, 621 F. Supp. 111, 113 (E.D. Wis. 1985) (granting permanent injunction where defendants' inks "substantially derived" from those of plaintiff), aff'd, 814 F.2d 421, 426 n.6 (7th Cir. 1987) (noting that misappropriation can be found if a product is substantially derived from the plaintiff's trade secret, despite modifications or improvements).

[53] Mangren Research & Dev. Corp. v. Nat'l Chem. Co., 87 F.3d 937, 944 (7th Cir. 1996).

[54] See Motorola, Inc. v. Computer Displays Int'l, Inc., 739 F.2d 1149, 1156 (7th Cir. 1984) (The court affirmed a finding of violation of the trade secret consent decree. Using the patent law doctrine of equivalents, the court formulated the test as whether defendant's product was substantially like that of the plaintiff. "[T]his interpretation is in accord with trade secret law, which protects the holder of a trade secret from uses substantially derived from that secret." In this case, the product had only minor changes, with 60-75% of the circuitry identical.); Syntex Ophthalmics, Inc. v. Tsuetaki, 701 F.2d 677, 684 (7th Cir. 1983) (affirming trial court's use of the doctrine of equivalents to prohibit use of chemical compounds too close to the plaintiff's secret compound); Materials Dev. Corp. v. Atl. Advanced Metals, Inc., 172 U.S.P.Q. 595, 615 (Mass. Super. Ct. 1971) (using doctrine of equivalents to find that the defendant's "process is the substantial equivalent of" the plaintiff's process); Tower Mfg. Co. v. Monsanto Chem. Works, 20 F.2d 386, 387 (S.D.N.Y. 1927) (This was apparently the first court to apply the doctrine of equivalents in a trade secret case where the defendant had an improved process over that of the plaintiff. The court sent the case to a master for factual findings after ruling on interrogatories and noting that "the fiduciary obligation of one bound not to disclose a secret process, or not to use such a process that has been improperly disclosed, is not violated, where the process employed is used to produce an identical result in ways directly suggested by the disclosure, though slightly differing from it in detail.").

[55] See Restatement (Third) of Unfair Competition §40 cmt. c (1995).

[56] See supra, note 1.

[57] See Alan Watson, Trade Secrets and Roman Law: The Myth Exploded, 11 Tul. Eur. & Civ. L.F. 19 (1996) (documenting how earlier commentators were incorrect in claiming that trade secret law dates to the Roman era). Indeed, trade secret law is not mentioned in Blackstone's 1769 Commentaries, and appears instead to have been created several decades afterwards. See generally William Blackstone 2, Commentaries on the Laws of England 405-07 (1769) (Univ. of Chicago Press ed.) (noting patent and copyright law, but no mention of trade secret law); Catherine L. Fisk, Working Knowledge: Trade Secrets, Restrictive Covenants in Employment, and the Rise of Corporate Intellectual Property 1800-1920, 52 Hastings L.J. 441, 442, 450 (2001) (noting absence of trade secret law at the beginning of the 1800s: "Today's practices and doctrines developed in the context of radical changes in the American law and workplace culture, which were brought about by the nineteenth century industrial revolutions").

[58] See Pamela Samuelson, Enriching Discourse on Public Domains, 55 Duke L.J. 783 (2006) (perhaps the single best introduction to the various conceptions of the "public domain" and the political and philosophical viewpoints underlying them); James Boyle et al., Collected Papers--Duke Conference on the Public Domain, 66 Law & Contemp. Prob. 1 (2003) (a more detailed overview of the public domain).

[59] See, e.g., Julie Creswell, So Small a Town, So Many Patent Suits, N.Y. Times, Sept. 24, 2006, §3, at 1 (noting controversies in patent law and debate over whether expansion of patent litigation has created "an excess of expensive litigation that is actually stifling innovation").

[60] This is the view most associated with the work of Professors Ronald Gilson of Stanford and Annalee Saxenian of Berkeley. See 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); Annalee Saxenian, Regional Advantage: Culture and Competition in Silicon Valley and Route 128 31-37, 41, 60-78 (Harvard Univ. Press 1996).

[61] See, e.g., Lawrence Lessig, Re-Crafting a Public Domain, 18 Yale J.L. & Human. 56, 64 (2006) (making a "culture" argument for

a broader public domain); Lawrence Lessig, Free Culture xiv (Penguin Press 2004) (making a "culture" argument for a broader public domain). The work of Siva Vaidhyanathan of NYU similarly critiques overbroad copyright rules and tactics for restricting "what individuals can do with elements of their own culture." See Siva Vaidhyanathan, Copyright Jungle, Colum. Journalism Rev., Sept. 1, 2006, at 42.

62 Two leading scholars whose work is helpful for this approach are Catherine Fisk of Duke and Katherine V.W. Stone of Cornell. Their work does not focus on the mechanics of trade secret law in litigation per se, but provides useful historical and theoretical approaches for rethinking the inventor/employer relationship. See, e.g., Catherine L. Fisk, Authors at Work: The Origins of the Work-for-Hire Doctrine, 15 Yale J.L. & Human. 1 (2003); Catherine L. Fisk, Reflections on the New Psychological Contract and the Ownership of Human Capital, 34 Conn. L. Rev. 765 (2002); Fisk, Working Knowledge, supra note 57; Catherine L. Fisk, Removing the 'Fuel of Interest' from the 'Fire of Genius': Law and the Employee-Inventor, 1830-1930, 65 U. Chi. L. Rev. 1127 (1998); see also Katherine V.W. Stone, Human Capital and Employee Mobility: A Rejoinder, 34 Conn. L. Rev. 1233 (2002); Stone, supra note 2.

63 It does not appear that any work applying the various "critical theories" popular in the humanities to trade secret law has yet been published, though at least two such works have taken aim at overbroad applications of trademark law and internet regulation. See generally Rosemary J. Coombe, The Cultural Life of Intellectual Properties (Duke Univ. Press 1998); James Boyle, Foucault in Cyberspace: Surveillance, Sovereignty, and Hard-Wired Censors (1997), http://www.law.duke.edu/boylesite/foucault.htm (last visited Mar. 3, 2007). In conversations and informal discussion about the reach of intellectual property law, some have described the problem as one within the framework of power relations most associated with Michel Foucault, or one germane to the work of the French philosopher Gilles Deleuze. See generally Gilles Deleuze & Felix Guattari, A Thousand Plateaus 21 (Univ. of Minn. Press 1987) (in work that sounds surprisingly like a promotion for open source software, valorizing creative thought in a "rhizome" model over an "arborescent" model: "In contrast to centered (even polycentric) systems with hierarchical modes of communication and preestablished paths, the rhizome is an acentered, nonhierarchical, nonsignifying system without a General and without an organizing memory or central automation, defined solely by a circulation of states"). It is not clear whether such approaches would be fruitful; critical theorists sometimes apply needlessly dense jargon to problems that deserve to be discussed in a manner open to outsiders, and their philosophies in general present more of an ethos of opposition than a framework for specific legal proposals. At the same time, scholarly work from that vantage point might help illuminate problems in intellectual property law not readily apparent to those working within the litigation system.

64 See Pooley, supra note 2, §1.02[1] (2006) (explaining policy goals of trade secret law).

65 There is a debate within trade secret law as to whether trade secrets should be seen as property rights, or instead as relational rights-- that is, a set of restrictions that can be imposed based on a confidentiality obligation. See Henry H. Perritt, Jr., Trade Secrets: A Practitioner's Guide 7-8 (1994) (explaining the problem). That issue is beyond the scope of this article, but those who view trade secret law from a relational perspective may be more willing to see negative know-how as a valid trade secret concept. If the point of trade secret law is to restrict individuals, particularly former employees, from competition, negative know-how need not be justified from a property rights perspective, any more than a non-competition covenant. By contrast, if trade secrets are seen as property rights, and if the point of trade secret law is merely to protect those rights rather than to limit competition by former employees, the critique discussed here is fully applicable.

66 These are not hypothetical results; the author has seen each occur just after the filing of a trade secret lawsuit against a former employee.

67 See Nathan Hamler, Note, The Impending Merger of the Inevitable Disclosure Doctrine and Negative Trade Secrets: Is Trade Secrets Law Headed in the Right Direction?, 25 J. Corp. L. 383 (2000) (noting problem with combination of the two theories, but without taking a strong stand against either or offering specific proposals).

68 See Adam Gill, Note, The Inevitable Disclosure Doctrine: Inequitable Results are Threatened but Not Inevitable, 24 Hastings Comm. & Ent. L.J. 403, 421-22 (2002) (noting problem with combination of negative know-how and inevitable disclosure theories).

69 Michael B. Carlinsky & Lara M. Krieger, Protecting Trade Secrets: Using 'Inevitable Misappropriation' and the Exit Interview, N.Y. St. B.J., Feb. 1999, at 29, 30; see William G. Porter II & Michael C. Griffaton, Identifying and Protecting Employers'

Interests in Trade Secrets and Proprietary Information, 68 Def. Couns. J. 439, 440 (2001) (asserting in an article aimed at former employers that the "expansion" of trade secret law to include negative information "is important because a competitor can learn as much about a company's processes by studying its failures as well as its successes").

[70] See Colleen M. Coyle, Special Litigation Issues Pertaining to Trade Secrets--Key Decisions as Counsel for Plaintiff, 719 PLI/Pat 253, 263 (2002).

[71] See, e.g., Gibson-Homans Co. v. Wall-Tite, Inc., 26 U.S.P.Q.2d (BNA) 1867, 1870-71 (C.D. Cal. 1992) (Mere possession is not enough to establish threatened misappropriation under California UTSA. Defendant kept a notebook with pages referencing plaintiff's secret formulas, but did not make use of such information.).

[72] 26 Charles Alan Wright & Kenneth W. Graham, Jr., Federal Practice & Procedure §5644, n.189 (2006) (commenting on trade secret law when discussing the evidentiary trade secret privilege, while also making a less convincing argument that trade secret plaintiffs might recoup costs for failed research through trade secret litigation based on negative knowledge claims: "It is like saying that a burglar has enhanced the value of my worthless TV set by stealing it since I can lie to the insurance company and collect the cost of a working set").

[73] Although the question does not arise as often as it does for compensatory damages, there are cases applying a proximate causation requirement for trade secret damages as well. See, e.g., Pearl Invs., L.L.C. v. Standard I/O, Inc., 324 F. Supp. 2d 43, 47 (D. Maine 2004); (applying the Maine UTSA, the court collected cases for a ruling that proximate causation is required for damages); Total Care Physicians, P.A. v. O'Hara, No. Civ.A 99C-11-20JRS, 2003 WL 21733023, at *2 (Del. Super. Ct. July 10, 2003) (holding that "but for" proximate causation is the UTSA standard); Kenyon & Landon, Inc. v. Bus. Letter, Inc., No. 01-1386, 2002 WL 31309700, at *3 (Iowa Ct. App. Oct. 16, 2002) (applying the Iowa UTSA and approving a jury instruction with a proximate causation requirement); Newsouth Commc'ns Corp. v. Universal Tel. Co., No. CIV.A. 02-2722, 2002 WL 31246558, at *24 (E.D. La. Oct. 4, 2002) (applying the Louisiana UTSA where the plaintiff failed to show causation, the court noted that res ipsa loquitur does not apply in trade secret cases); World Wide Prosthetic Supply, Inc. v. Mikulsky, 631 N.W.2d 253, 472 (Wisc. Ct. App. 2001) (applying the Wisconsin UTSA and finding that damages that are the "natural and proximate result of [defendant's] conduct" are recoverable); Computer Scis. Corp. v. Computer Assocs. Int'l, Inc., No. CV 98-1374-WMB SHX, CV 98-1440-WMB SHX, 1999 WL 675446, at *12-13 (C.D. Cal. Aug. 12, 1999) (applying the California UTSA and requiring a showing of a "causative link" ("but for" cause) between the alleged misappropriation and claimed damages); Russo v. Baxter Healthcare Corp., 140 F.3d 6, 10 (1st Cir. 1998) (applying the Rhode Island UTSA and using but-for causation test for claimed harm to plaintiff).

[74] There are many cases applying a proximate causation requirement for unjust enrichment in trade secret cases. See, e.g., NuCar Consulting, Inc. v. Doyle, No. Civ.A. 19756-NC, 2005 WL 820706, at *11 (Del. Ch. Apr. 5, 2005) (in an unjust enrichment claim, holding that "caused" under Delaware UTSA refers to a "but for" test of proximate causation); Dunsmore & Assocs., Ltd. v. D'Alessio, No. 409906, 2000 WL 124995, at *10 (Conn. Jan. 6, 2000) (employing proximate cause analysis to determine if defendant was unjustly enriched through use of customer list-type information).

[75] One jurisdiction, California, has a strong policy in favor of employee mobility that is based on a separate statute. Cal. Bus. & Prof. Code §16600 (Deering 2006). The policies underlying that statute and its case law would seemingly override any application of the negative know-how theory that encroached on protected mobility rights.

[76] On-Line Techs., Inc. v. Perkin-Elmer Corp., 253 F. Supp. 2d 313, 333 (D. Conn. 2003).

[77] Louis Altman, Callmann on Unfair Competition, Trademarks and Monopolies §14:32 (4th ed. 2006) (citing Laurie Visual Etudes, Inc. v. Chesebrough-Pond's, Inc., 432 N.Y.S.2d 457 (N.Y. Sup. Ct. 1980), rev'd 441 N.Y.S.2d 88 (N.Y. App. Div. 1981), and noting that the modification rule should not apply to all products based on non-secret base of information).

[78] See discussion supra notes 43-44. Several trade secret cases address the apportionment of damages in general. KW Plastics v. U.S. Can Co., 131 F. Supp. 2d 1289, 1295 (M.D. Ala. 2001) (Applying the Illinois UTSA, the court found that plaintiff's expert wrongly "assumes that each and every penny that [defendant] gained constitutes unjust enrichment" in asserting that alleged secrets caused defendant to obtain a ten-year contract from a third party. The expert did not try to value the secrets used or determine whether use of them caused defendant to obtain a contract with a third party.); Cacique, Inc. v. Robert Reiser & Co.,

Inc., 169 F.3d 619, 623 (9th Cir. 1999) (Applying the California UTSA, the court noted, in ruling that a reasonable royalty was not available because unjust enrichment was provable, that unjust enrichment could be calculated by determining what portion of the defendant's profits resulted from use of the secret process. "Even if the district court decides that only a small portion of [defendant's] profits are due to the trade secret ... the court can compare the sales of modified and unmodified [equipment] to determine [defendant's] unjust enrichment."); Vermont Microsystems, Inc. v. Autodesk, Inc., 138 F.3d 449, 450 (2nd Cir. 1998) (Applying the California UTSA, the court noted, where the district court found evidence too speculative to award unjust enrichment, that "[i]f the trade secret accounts for only a portion of the profits earned on the defendant's sales, such as when the trade secret relates to a single component of a product marketable without the secret, an award to the plaintiff of defendant's entire profit may be unjust."); Morlife Inc. v. Perry, 56 Cal. App. 4th 1514, 1528 (Cal. Ct. App. 1997) (in customer list case where one-third of defendants' earnings came from "secret" customers, unjust enrichment was one third of their salaries during set period); Web Comm. Group, Inc. v. Gateway 2000, Inc., No. 93 C 6821, 1994 WL 171448, at *1-2 (N.D. Ill. May 3, 1994) (Under the Illinois UTSA, an advertiser sued its client, a computer company, for giving another advertiser the plaintiff's allegedly secret advertising ideas. The unjust enrichment theory was rejected where plaintiff sought to claim the defendant computer maker's entire profits from computer sales. The court noted that the real measure of unjust enrichment, if any, would be specific savings by the computer company if the third party advertiser using the plaintiff's information undercut the plaintiff's price to the computer company for advertising.); Schiller & Schmidt, Inc. v. Nordisco Corp., 969 F.2d 410, 415 (7th Cir. 1992) (Applying the Illinois UTSA, the court rejected the expert's damages opinion for failure to apportion losses caused by use of trade secrets from losses caused by lawful competition by the defendant, a new company.).