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SEARCHING SECRETS

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A Fourth Amendment violation has traditionally involved a physical intrusion such as the search of a house or the seizure of a person or her papers. Today, investigators rarely need to break down doors, rummage through drawers, or invade one's peace and repose to obtain incriminating evidence in an investigation.

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Instead, the government may unobtrusively intercept information from electronic files, GPS transmissions, and intangible communications. In the near future, it may even be possible to intercept information directly from suspects' brains. Courts and scholars have analogized modern searches for information to searches of tangible property like containers and have treated protected information like the "content" inside. That metaphor is flawed because it focuses exclusively on whether information is secluded and assigns no value to the substantive information itself.

This Article explores the descriptive potential of intellectual property law as a metaphor to describe current Fourth Amendment search and seizure law. It applies this new metaphor to identifying, automatic, memorialized, and uttered evidence to solve current riddles and predict how the Fourth Amendment will apply to emerging technology. Unlike real property law, intellectual property law recognizes that who authored information—and not just how or where it was stored—informs the individual interests at stake in that information. The exclusive rights of authors, including nondisclosure, are interests recognized by copyright law. Recognizing the secrecy interests of individuals has broad implications for the Fourth Amendment in the information age. Together with real property law, an intellectual property law metaphor better describes emerging doctrine, which has required greater government justification to search certain categories of information. But it also reveals the normative shortcomings of current doctrine when the secrets the government seeks are automatically generated information that arises from computer activities, via GPS tracking, or are emitted by our brains.

INTRODUCTION

Can you keep a secret? Under the Fourth Amendment, that depends on whether it's yours to keep. The Fourth Amendment guarantees "[t]he right of the people to be secure in their persons, houses, papers, and effects, against unreasonable searches and seizures."[1] Fourth Amendment protections arose from physical intrusions upon personal property but have evolved to protect "people, not places" against unreasonable searches and seizures.[2] Those protections apply even if the investigative technique requires no physical trespass upon protected property. Such is often the case in modern criminal investigations, which can proceed without physical intrusion upon a suspect's person, house, papers, and effects or even her concurrent awareness. The objects of modern searches are often intangible information stored in computers, electronic communications, or the suspect's own brain.

Government investigations to obtain information implicate the Fourth Amendment only if the investigation intrudes upon the lawful privacy interests of individuals. Those interests—individuals' "reasonable expectations of privacy"[3]—depend on the interests that society recognizes through law and custom. Traditionally, courts have relied on property law to inform reasonable expectations of privacy in Fourth Amendment searches. This Article explores how intellectual property law may better explain current doctrine concerning searches and seizures of informational property.

The government can already obtain incriminating information from our emails, our phone calls, and our Internet searches. Recent advances in neuroscience foretell that thoughts and images in our brains could become the target of future government investigations. Despite these technological advances of the information age, current Fourth Amendment doctrine affords us little if any protection against searches of our intangible effects.

Even though the Fourth Amendment touchstone evolved from property to people and their privacy, analogies to the paradigmatic physical search still have a powerful hold on the judicial mind. The focus on physical trespass upon property has muddled judicial review of modern searches and has led to persistent and ever-growing confusion over the scope of the individual interests at stake. Scholars have

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[1] U.S. CONST. amend. IV.

[2] Katz v. United States, 389 U.S. 347, 351 (1967).

[3] *Id.* at 360 (Harlan, J., concurring).

resigned themselves to believing that Supreme Court Fourth Amendment doctrine is incoherent, with little sense to be made of recent cases. Worse yet, the focus on physical trespass has obfuscated the far more relevant metaphor of intellectual property law, which holds greater descriptive power and relevance.

Fourth Amendment claimants were historically concerned with violent physical intrusions upon their persons and their houses or forced disclosure of their papers. As investigative techniques have shifted from brute force to sense-enhanced and surreptitious searches, individuals are much less likely to be subjected to government violence against their tangible property. Modern complaints focus on the nondisclosure of personal information, their papers, and their effects.[4] Along with this shifting landscape of Fourth Amendment claims, a default explanation has emerged from judicial opinions and scholarship about when an individual has a cognizable Fourth Amendment privacy interest in searches of informational property. That explanation dichotomizes "content" and "no-content" information and protects the former but not the latter.[5] But applying the tangible property concept of content/no-content lacks descriptive coherence and normative grounding when applied to searches of intangible informational property.

Courts and scholars have applied this approach to classify email addresses and telephone numbers as content-free information,[6] and the body of emails or content of telephone conversations as content-rich. Warrantless investigations of the former have been found reasonable, while warrantless investigations of the latter have been deemed per se unreasonable. The intuition that email addresses are different from the content of email messages is sound, but the doctrinal categories used to distinguish between them are not. These different types of information do implicate different privacy interests, but not because phone numbers dialed always lack "content."

The different privacy interests that individuals hold in phone numbers, email addresses, email messages, or their thoughts and memories can be better understood by broadening the sources of law invoked to determine reasonable expectations of privacy in the Fourth Amendment. This Article explores how the Court already relies implicitly upon intellectual property law to understand reasonable expec-

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[4] *See infra* Section I.A.

[5] *See infra* Section I.B.

[6] *See infra* notes 51-57 and accompanying text.

tations of privacy. The Court has recognized Fourth Amendment privacy interests that are best described as arising from the rights of individuals to exclude others from their expressions as part of the bundle of rights accorded them by intellectual property law. Just as real property law has traditionally informed expectations of privacy in searches of tangible property, intellectual property law may also inform the expectations of privacy in searches of informational property.

Others before me have persuasively demonstrated that not all elements of the Fourth Amendment fit neatly into a single, internally consistent theory. Although I agree, an increasingly consistent pattern has developed pertaining to the individual interests the Court has recognized in searches or seizures of intangible information. That pattern, which has received little attention from academic scholarship, becomes evident when considering the exclusive rights of individuals that arise from intellectual property law.

The right to exclude others in intellectual property law better accounts for current doctrine about searches of informational property than does real property law. Intellectual property law distinguishes between the rights of authors and the rights of mere possessors of information, a distinction equally relevant in the Fourth Amendment context. Asking who authored the information focuses the inquiry on whose and what type of Fourth Amendment privacy interests are at stake. Individuals have a cognizable right to nondisclosure of their information when they have authored or originated it. Authors can properly claim a "secrecy interest" in "their" writings and effects. Mere possessors of information have the right to exclude others from their own copies of the information, but authors have an additional right to secure the substantive secrecy of informational content.[7] Recognizing that Fourth Amendment privacy interests can arise from both property and intellectual property rights helps to resolve both old and new riddles in Fourth Amendment law. Searches and seizures of private papers and surreptitious searches of thoughts and memories all implicate an author's interest in secrecy.

This Article explores the descriptive potential of an intellectual property law metaphor for understanding Fourth Amendment search and seizure law and its normative implication. Part I places the discussion in context by explaining the underpinnings of Fourth Amendment law, tracing the doctrinal development that has resulted in the

[7] *See infra* subsection II.A.2.

reliance on property law to inform expectations of privacy. Part II develops the until-now overlooked descriptive metaphor of intellectual property for assessing whether a Fourth Amendment violation has occurred in the search or seizure of informational property. It focuses by example on copyright law and the exclusive rights of authors and explains how intellectual property law better describes the reasonableness inquiry for modern searches and seizures. Part III then applies this approach to the spectrum of evidence introduced in my companion article, *Incriminating Thoughts*.[8] This application aligns current doctrine with an intellectual property metaphor and illustrates how this new framework predicts when one will have a cognizable secrecy interest, in addition to the traditional seclusion interest that typically informs the reasonableness of searches and seizures. Part III also discusses cases that do *not* fit the pattern and speculates about the basis for deviations in those cases. Finally, Part IV examines whether an intellectual property metaphor aligns with societal expectations of privacy in an era where electronic, digital, and even brain-based thoughts may be searched.

Two caveats frame this discussion. First, I am not arguing that intellectual property law *ought* to guide all Fourth Amendment decisions. Instead, I wish to explore the descriptive potential of intellectual property law in the Fourth Amendment context. Second, in drawing on the constitutional analogy to the Copyright Clause, I do not claim that those who authored and ratified the Fourth Amendment imagined that the Copyright Clause should inform the reasonableness of searches and seizures. My claim is simply that an intellectual property metaphor holds greater descriptive potential than real property law alone in searches of informational property.

I. EXISTING FOURTH AMENDMENT FRAMEWORKS

A. *Property to Privacy and Back Again*

In its first major case interpreting the Search and Seizure Clause of the Fourth Amendment,[9] the United States Supreme Court articulated the then-prevailing view that the Fourth Amendment balances indi-

[8] Nita A. Farahany, *Incriminating Thoughts*, 64 STAN. L. REV. 351 (2012).

[9] The Search and Seizure Clause, the first clause of the Fourth Amendment, provides, "The right of the people to be secure in their persons, houses, papers, and effects, against unreasonable searches and seizures, shall not be violated." U.S. CONST. amend. IV.

vidual property interests against the societal need for the evidence sought.[10] The sacrosanct nature of property interests demanded justification even for "bruising grass" on one's property.[11] In this context, an "unreasonable" search meant the use of general warrants to infringe on an individual's property interest.[12] Since then, property law has held a stranglehold on Fourth Amendment doctrine.

In due time, the Court confronted modern investigative techniques that allowed investigators to obtain evidence without any physical interference or trespass upon a person's real property. In the earliest of such cases, *Olmstead v. United States*, police placed a wiretap on "ordinary telephone wires from the residences of four of the petitioners."[13] Because the wiretap was placed outside of the suspect's property, the Court found that no Fourth Amendment search had occurred.[14] Instead, the Court held that "voluntary conversations secretly overheard" are not tangible property or "material things" that the Fourth Amendment protects.[15] The phone taps did not intrude upon any tangible property interest that Olmstead held, so no search of his home, curtilage, or papers had occurred.[16]

Justice Brandeis dissented, echoing themes that he had developed in a *Harvard Law Review* article long before.[17] In a prophetic passage, he imagined a future that is now almost upon us:

> Ways may some day be developed by which the Government, without removing papers from secret drawers, can reproduce them in court, and by which it will be enabled to expose to a jury the most intimate occurrences of the home. Advances in the psychic and related sciences may bring means of exploring unexpressed beliefs, thoughts and emotions. . . . Can

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[10] *See* Boyd v. United States, 116 U.S. 616, 627 (1886) (stating that the "sacred and incommunicable" right of property is only set aside "for the good of the whole" (quoting Entick v. Carrington, (1765) 19 How. St. Tr. 1029 (C.P.) 1066 (Eng.))).

[11] *Id.* (quoting *Entick*, 19 How. St. Tr. at 1066).

[12] David A. Sullivan, *A Bright Line in the Sky?: Toward a New Fourth Amendment Search Standard for Advancing Surveillance Technology*, 44 ARIZ. L. REV. 967, 971 (2002); *see also* Note, *The Life and Times of* Boyd v. United States *(1886–1976)*, 76 MICH. L. REV. 184, 189 (1977) (stating that while early Fourth Amendment doctrine was not designed to protect property rights, property law came to define the scope of the privilege).

[13] 277 U.S. 438, 457 (1928), *overruled by* Katz v. United States, 389 U.S. 347 (1967), *and* Berger v. New York, 388 U.S. 41 (1967).

[14] *Id.* at 464-65.

[15] *Id.* at 464.

[16] *Id.* at 456-57, 466.

[17] *See* Samuel D. Warren & Louis D. Brandeis, *The Right to Privacy*, 4 HARV. L. REV. 193, 207 (1890) (arguing for greater protections of "the right to one's personality").

> it be that the Constitution affords no protection against such invasions of individual security?[18]

Brandeis thought not. He argued that the Fourth Amendment protects against "every unjustifiable intrusion by the Government upon the privacy of the individual, whatever the means employed."[19] His dissent was prescient in realizing a future in which physically unobtrusive searches can occur. Furthermore, he foreshadowed the doctrinal shift in Fourth Amendment cases from one concerned only with trespass upon property to one in which individual privacy is the prime interest at stake.[20]

In *Katz v. United States*, the Court addressed whether the Fourth Amendment applies to intangible private conversations held in a public glass-enclosed phone booth.[21] FBI agents attached a device to the outside of a public telephone booth to listen to the defendant's conversations.[22] The Government argued that this eavesdropping did not implicate the Fourth Amendment because no trespass upon the defendant's property occurred and because the defendant voluntarily held his conversation in a public place.[23] But the Court pointedly rejected the idea that "constitutionally protected areas" are a "talismanic solution to every Fourth Amendment problem."[24] Instead, what an individual "seeks to preserve as private, even in an area accessible to the public, may be constitutionally protected."[25] Justice Harlan concurred and proposed the expectation-of-privacy analysis[26] that the Court eventually adopted in *Smith v. Maryland*.[27] This two-pronged privacy test finds that a Fourth Amendment search occurs when an individual has a subjective expectation of privacy that society recognizes as reasonable.[28]

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[18] 277 U.S. at 474 (Brandeis, J., dissenting).

[19] *Id.* at 478.

[20] *See, e.g.*, Katz v. United States, 389 U.S. 347, 351-53 (1967) (affirming that the Fourth Amendment protects communications one seeks to preserve as private and dismissing the claim that a search requires physical trespass upon property).

[21] *Id.* at 348-49.

[22] *Id.*

[23] *Id.* at 351-53.

[24] *Id.* at 351 n.9.

[25] *Id.* at 351-52.

[26] *See id.* at 361 (Harlan, J., concurring).

[27] 442 U.S. 735, 740-41 (1979).

[28] *Katz*, 389 U.S. at 361.

The privacy test was originally meant to determine if there was an invasion of a Fourth Amendment interest.[29] If so, a warrant was almost always required to justify a search.[30] Today, the ex ante issuance of search warrants is the exception rather than the rule,[31] so the core of Fourth Amendment analysis is an ex post assessment of the reasonableness of the search that has already occurred.[32] The Court now uses the *Katz* privacy test in two ways: first, to ask whether the invaded interest is important enough to even constitute a "search,"[33] and second, if a search has occurred, to determine its reasonableness by balancing individual interests against governmental and societal interests. The Court has found lesser intrusions upon privacy reasonable without the ex ante issuance of a warrant.[34] Whether as an ex ante analysis (asking if a warrant should issue) or as an ex post assessment (asking after the investigation if the intrusion was a search and also unreasonable), the focus of a Fourth Amendment inquiry is on whether an unlawful intrusion upon individual interests has occurred.

Most recently, in *United States v. Jones*, the Court revisited its property-invasion-as-privacy rationale, holding that the government's installation of a GPS tracking device on a suspect's vehicle constitutes a search subject to the Fourth Amendment.[35] Justice Scalia, writing for the majority, emphasized that the government had "physically occupied private property for the purpose of obtaining information."[36] In-

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[29] *See* CONG. RESEARCH SERV., LIBRARY OF CONG., THE CONSTITUTION OF THE UNITED STATES OF AMERICA: ANALYSIS AND INTERPRETATION, S. DOC. NO. 108-17, at 1291 (Johnny H. Killian et al. eds., 2004).

[30] *Id.*

[31] *See* William J. Stuntz, *Warrants and Fourth Amendment Remedies*, 77 VA. L. REV. 881, 922 (1991) (stating that, in practice, warrants are required only for wiretaps and searches of homes or offices).

[32] *See* Samson v. California, 547 U.S. 843, 855 n.4 (2006) ("The touchstone of the Fourth Amendment is reasonableness, not individualized suspicion."); Akhil Reed Amar, *Fourth Amendment First Principles*, 107 HARV. L. REV. 757, 801 (1994) ("The core of the Fourth Amendment . . . is neither a warrant nor probable cause, but reasonableness.").

[33] *See* Kyllo v. United States, 533 U.S. 27, 32-33 (2001) (noting that "[i]n assessing when a search is not a search," the Court has "applied somewhat in reverse" *Katz*'s privacy test by holding that a Fourth Amendment search does not occur when the individual lacks either a subjective or a reasonable expectation of privacy).

[34] *See* CONG. RESEARCH SERV., *supra* note 29, at 1313 ("While the Supreme Court stresses the importance of warrants and has repeatedly referred to searches without warrants as 'exceptional,' it appears that the greater number of searches . . . take place without warrant." (footnote omitted)).

[35] 132 S. Ct. 945, 949 (2012).

[36] *Id.*

voking Lord Camden's opinion in *Entick v. Carrington*[37] and the text of the Fourth Amendment itself, Justice Scalia echoed the significance of property rights to search and seizure analysis.[38] Although acknowledging that the Court had expanded beyond a strictly property-based approach in *Katz*, the opinion nevertheless emphasized that property rights remain the central source of individual interests protected by the Fourth Amendment.[39] While the police could have obtained the same result in *Jones* without a physical trespass, and such an intrusion might still be unconstitutional under *Katz*, the facts in *Jones* did not require the Court to resolve that question.[40] Moreover, since the government took the position that the GPS tracking did not constitute a search, the Court left for another day the further question of which individual interests, beyond intrusion upon property, an individual could claim to assess the reasonableness of the search that had occurred.

Justice Sotomayor, concurring with the opinion, and Justice Alito, concurring with the result, highlighted the limitations of focusing just on property-based interests in searches of informational property. Justice Sotomayor underscored that physical intrusions are rarely necessary or likely in government investigations for information.[41] Whether through factory-installed GPS technology or surveillance of electronic signals transmitted by computers, cell phones, or even our brains, the government may obtain "a precise, comprehensive record of a person's public movements that reflects a wealth of detail about her familial, political, professional, religious, and sexual associations" without ever committing a physical trespass.[42] Similarly, Justice Alito found the majority's focus on trespass problematic, concluding the *Katz* expectation of privacy analysis to be better, though "not without its own difficulties."[43] Yet he expressed doubt as to whether case law could keep pace with rapidly changing technology, suggesting instead that individual interests might be more easily defined and protected by legislation.[44]

What remains after *Jones* is an incomplete description of which individual interests beyond real property intrusions the Fourth Amend-

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[37] (1765) 19 How. St. Tr. 1029 (C.P.) (Eng.).
[38] *Jones*, 132 S. Ct. at 949.
[39] *Id.* at 950.
[40] *Id.* at 954.
[41] *Id.* at 955 (Sotomayor, J., concurring).
[42] *Id.*
[43] *Id.* at 962 (Alito, J., concurring in the judgment)
[44] *Id.* at 962-64.

ment protects. At the very least, *Jones* repudiates the view that *Katz* was "a shift in Fourth Amendment jurisprudential paradigms from a property-based framework to an expectation-of-privacy framework."[45] Real property law remains central to Fourth Amendment individual interests. But the *Jones* majority also emphasized that trespass upon property and the *Katz* expectation of privacy test coexist in Fourth Amendment jurisprudence. Unfortunately, the *Katz* Court treated "the meaning of privacy as too obvious to merit extended discussion."[46] But fifty years later and with new dueling opinions in *Jones*, the meaning of privacy remains anything but obvious.[47]

B. *The Content/No-Content Approach*

The concurrences in *Jones* underscored that in the information age, defendants are less concerned about intrusions upon their real property and more concerned about intrusions upon their information. When the police search a cell phone, for example, few defendants complain that the police physically opened their cell phones and searched the microprocessors, the batteries, or other internal parts. Their primary concern is that the police searched the information stored in the cell phone memory: call histories, text messages, emails, documents, photographs, and other data. Their privacy interests center on the information in the memory and not the physical contents inside the casing of the phone. Put simply, intrusion upon real property is not the primary concern of the modern Fourth Amendment complainant.

In *Smith v. Maryland*,[48] the Court laid the foundation for extending the traditional property-based protections to modern searches of intangible information. The Court held that the government's use of a pen register—a device that records the phone numbers one dials—was not a Fourth Amendment search.[49] Using a content/no-content dichotomy as its guide, the Court explained that "a pen register differs signifi-

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[45] Sullivan, *supra* note 12, at 974.

[46] Richard A. Posner, *The Uncertain Protection of Privacy by the Supreme Court*, 1979 SUP. CT. REV. 173, 186.

[47] *See* Daniel J. Solove, *A Taxonomy of Privacy*, 154 U. PA. L. REV. 477, 479-81 (2006) (collecting sources expressing and exemplifying the vagueness of the concept of privacy).

[48] 442 U.S. 735 (1979).

[49] *See id.* at 745-46.

cantly from the listening device employed in *Katz*, for pen registers do not acquire the *contents* of communications."[50]

Courts, scholars, and the executive branch[51] have built upon *Smith* to argue that the content/no-content distinction should apply to searches of computers and their electronic contents. This approach treats information on the "outside" of an envelope, container, or computer file as no-content information, and information on the "inside" of the envelope, container, or computer file as content information. From Supreme Court cases on pen registers[52] to lower court cases concerning cell phones,[53] emails,[54] and IP addresses,[55] treating informational searches like physical searches of real property has taken hold.

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[50] *Id.* at 741.

[51] For example,

> Justice Department officials have told members of Congress that Smith v. Maryland authorizes federal agents to use Carnivore's pen mode application without triggering Fourth Amendment protections. According to this interpretation, federal agents use Carnivore to conduct pen register searches because they believe that the addresses found in the TO and FROM lines of an e-mail are the electronic equivalent of the numbers dialed on a telephone.

Tracey Maclin, Katz*,* Kyllo*, and Technology: Virtual Fourth Amendment Protection in the Twenty-First Century*, 72 MISS. L.J. 51, 127-28 (2002) (footnote omitted) (internal quotation marks omitted). The FBI and numerous courts have also applied the content/no-content distinction to authorize Internet pen registers to capture the "to" and "from" fields in email messages. Anthony E. Orr, Note, *Marking Carnivore's Territory: Rethinking Pen Registers on the Internet*, 8 MICH. TELECOMM. & TECH. L. REV. 219, 226 (2002).

[52] *See Smith*, 442 U.S. at 743 ("[I]t is too much to believe that telephone subscribers . . . harbor any general expectation that the numbers they dial will remain secret.").

[53] *See, e.g.*, Quon v. Arch Wireless Operating Co., 529 F.3d 892, 905 (9th Cir. 2008) ("[U]sers . . . have a reasonable expectation of privacy in the content of their text messages vis-a-vis the service provider."), *rev'd on other grounds sub nom.* City of Ontario v. Quon, 130 S. Ct. 2619 (2010).

[54] *See, e.g.*, United States v. Forrester, 512 F.3d 500, 510 (9th Cir. 2008) (holding that using computer surveillance techniques that revealed the "to" and "from" addresses of email messages, addresses of websites the defendant had visited, and the total amount of data transmitted to or from defendant's Internet account did not amount to a "search" in violation of Fourth Amendment); United States v. Lifshitz, 369 F.3d 173, 190 (2d Cir. 2004) (analogizing the privacy expectations of an email user to the expectations of an individual communicating by regular mail); United States v. Maxwell, 45 M.J. 406, 418 (C.A.A.F. 1996) (remarking that the sender of an email, like someone who sends a letter by mail, generally "enjoys a reasonable expectation that police officials will not intercept the transmission without probable cause and a search warrant").

[55] *See, e.g.*, United States v. Christie, 624 F.3d 558, 574 (3d Cir. 2011) (holding that "no reasonable expectation of privacy exists in an IP address, because that information is . . . conveyed to and, indeed, from third parties"); United States v. Hambrick, No. 99-4793, 2000 WL 1062039, at *4 (4th Cir. Aug. 3, 2000) (concluding that information furnished to an Internet service provider in creating an email account is "non-content

When investigators seek only no-content information—things outside of the container—this framework implies that no Fourth Amendment search has occurred. Professor Orin Kerr has argued that this outside/inside distinction translates easily to modern informational content: "[A]ddressing (or 'envelope') information is the data that the network uses to deliver the communications to or from the user; the content information is the payload that the user sends or receives."[56]

Applying the same framework to electronic communications, Kerr explained,

> In the case of e-mail, for example, the subject line, the body of the message, and any attachments count as the contents of the communication. They are the actual message to be sent. Everything else in the e-mail, including the to/from address and the size of the e-mail, counts as noncontent information. Internet IP headers provide another easy case. Computers generate IP headers to deliver Internet communications, and most Internet users remain blissfully unaware of their existence. The headers are therefore non-content information rather than the contents of communications. Other examples may be more difficult, but these important cases are straightforward.[57]

This description has intuitive appeal and suggests two unarticulated rationales that might support using the content/no-content framework to determine when a "search" for information has occurred: the user's awareness of the information created and the user's intent to create a communication. But neither explanation has been offered in support of this dichotomy, and aside from the ability to reuse the existing property framework, it is unclear what normative purpose the dichotomy achieves.

There are other substantial descriptive and normative shortcomings in applying a content/no-content approach to determine when a Fourth Amendment search of protected information has occurred. Consider the problems presented by ubiquitous automated phone systems. Imagine that the police have attached a pen register to a sus-

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information" that does not give rise to a legitimate expectation of privacy); State v. Mello, 27 A.3d 771, 775 (N.H. 2011) ("We . . . conclude that a defendant has no reasonable expectation of privacy in subscriber information provided to an Internet service provider."); State v. Simmons, 27 A.3d 1065, 1068 (Vt. 2011) ("Vermont's Constitution affords no privacy protection in an internet service provider's subscriber address or use information disclosing noncontent data.").

[56] Orin S. Kerr, *Applying the Fourth Amendment to the Internet: A General Approach*, 62 STAN. L. REV. 1005, 1019 (2010).

[57] *Id.* at 1030 (footnote omitted).

pect's phone line to capture the numbers as she dials them from her phone. While enjoying the solitude of her own home, the suspect calls into her bank, dialing 1-800-4MY-BANK. The phone rings, and an automated voice says,

> Please enter your customer access number or social security number.

The suspect enters her six-digit customer access number, 012345. After a brief pause, the automated voice gives the following choices:

> For banking information press "1." For a representative, press "2."

The suspect dials "2." The suspect's conversation is then connected to a live voice. In the meantime, the pen register has recorded 1-800-4MY-BANK-012345-2. The content/no-content dichotomy predicts that the numbers 0-1-2-3-4-5-2 are phone numbers and therefore no-content information. Yet the suspect dialed 0-1-2-3-4-5-2 in response to prompts, just as she might answer questions in a conversation with a bank representative. This presents a Catch-22 for content/no-content proponents: either 0-1-2-3-4-5-2 is not content, which is plainly wrong, or it is content, which undermines the dichotomy. If it is content, then numbers are being classified by context rather than location or form.

The dichotomy also fails to value information as a reasonable person would, that is, based on its substance rather than merely its location. With the content/no-content approach, individuals have a reasonable expectation of informational privacy that will implicate Fourth Amendment scrutiny based solely on whether they seclude information. The dichotomy treats all information on the "inside" as equally valuable, and, likewise, all information on the "outside" as equally valueless. Thus, when the government intercepts content information—whether a cooking recipe or a criminal confession—the government will have equally intruded upon the seclusion of those effects. And while the analogy draws nicely on the existing protection afforded to sealed letters[58] entrusted to the post office,[59] whether in-

[58] Whether the comparison between electronic and traditional modes of communication is appropriate is outside the scope of this Article. Are emails like sealed letters, with only addresses visible to Internet service providers (ISP), or are they more like postcards, where both the address and content are visible to the world? In his amicus brief in *United States v. Bach*, Professor Kerr drew this conclusion:

> Unlike the traditional telephone network and postal mail system, however, the Internet does not treat content and non-content information differently. The content is not sealed; both content and non-content information are disclosed to the ISP in a steady stream of data. While a casual user may think of e-

formation is visible or invisible, tangible or intangible, or sealed or unsealed are all "distinctions without a difference" when it comes to the substantive secrecy of the information at issue.[60]

Kerr recognizes that this model has limitations but asks, "What other line is superior? What precisely are the realistic alternatives?"[61] Likewise, the Court has recognized that the dichotomy cannot explain whether and which details may be more intimate than others.[62] As Kerr himself acknowledges, "[C]ourts should focus on . . . information rather than the physical storage device that happens to contain it."[63] As it turns out, the Copyright Clause of the Constitution already guides us to do so.

II. PERSONS, PAPERS, AND THEIR EFFECTS

A. *Copyright and the Fourth Amendment*

Copyright law and its protection of the exclusive rights of authors have gone almost entirely unnoticed in Fourth Amendment scholarship. Article I, Section 8 of the Constitution empowers Congress "[t]o promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries."[64] These "exclusive Rights to . . . Writings" inform authors' reasonable expectations of privacy and provide a use-

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mail as the equivalent of sealed postal mail, in fact e-mail works more like a postcard: the content of the message is openly visible to the operators of the network.

Amicus Curiae Brief of Professor Orin S. Kerr in Support of the Appellant at 6, United States v. Bach, 310 F.3d 1063 (8th Cir. 2002) (No. 02-1238), 2002 WL 32139374 (citation omitted).

[59] *See, e.g.*, *Ex parte* Jackson, 96 U.S. 727, 733 (1877) (holding that letters and sealed packages "are as fully guarded from examination and inspection . . . as if they were retained by the parties forwarding them in their own domiciles").

[60] Olmstead v. United States, 277 U.S. 438, 475 (1928) (Brandeis, J., dissenting) (quoting Olmstead v. United States, 19 F.2d 843, 850 (9th Cir. 1927) (Rudkin, J., dissenting)).

[61] Kerr, *supra* note 56, at 1032.

[62] *See, e.g.*, Dow Chem. Co. v. United States, 476 U.S. 227, 238-39 (1986) (noting that aerial photographs taken by the EPA of a chemical plant were not "so revealing of intimate details as to raise constitutional concerns" but that a device capable of recording confidential discussions of chemical formulas would raise more serious questions).

[63] Orin S. Kerr, *Searches and Seizures in a Digital World*, 119 HARV. L. REV. 531, 556 (2005).

[64] U.S. CONST. art. I, § 8, cl. 8.

ful metaphor for understanding "[t]he right of the people to be secure in their . . . papers, and effects."[65]

The parallel between the two clauses pertains to the key possessive in each, which secures personal rights to individuals. The Fourth Amendment guarantees to the people the right "to be secure in their persons, houses, papers, and effects." And the Copyright Clause similarly guarantees to authors and inventors "the exclusive Right to their respective Writings and Discoveries." The first possessive has animated much of Fourth Amendment doctrine because courts turn to state property law to determine whether individuals can properly claim that the houses, papers, or effects searched were their own.[66] But the parallel possessive in the Copyright Clause has escaped notice in search and seizure doctrine. This Section demonstrates that intellectual property law analogously informs the reasonable expectation of privacy in writings or intangible effects.

The Court has held that the constitutionality of a search turns in part on whether one has a reasonable expectation of privacy in the place or thing searched.[67] Whether an expectation of privacy is reasonable or not has always turned on bodies of law outside of the Fourth Amendment.[68] Privacy expectations are reflected in laws or societal norms, so a reasonable expectation of privacy "must have a source outside of the Fourth Amendment, either by reference to concepts of real or personal property law or to understandings that are recognized and permitted by society."[69] And the most consistently recognized subjective and objective expectation of privacy is one that derives, at least in part, "from the right to exclude others from the property in question."[70]

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[65] *Id.* amend. IV.

[66] *See* Orin S. Kerr, *The Fourth Amendment and New Technologies: Constitutional Myths and the Case for Caution*, 102 MICH. L. REV. 801, 811 (2004) ("The Fourth Amendment rights track the right to exclude others under state property law.").

[67] *See supra* notes 26-28 and accompanying text.

[68] *See* United States v. Jones, 132 S. Ct. 945, 951 (2012) ("[O]ur very definition of 'reasonable expectation of privacy' . . . we have said [is] an expectation 'that has a source outside of the Fourth Amendment, either by reference to concepts of real or personal property law or to understanding that are recognized and permitted by society.'" (quoting Minnesota v. Carter, 525 U.S. 83, 88 (1988))).

[69] Rakas v. Illinois, 439 U.S. 128, 144 n.12 (1978).

[70] United States v. Lyons, 992 F.2d 1029, 1031 (10th Cir. 1993) (citing *Rakas*, 439 U.S. at 143 n.12).

It is state property law that establishes the right to exclude others.[71] Protection of the home, for example, receives the most stringent Fourth Amendment protection because of the attendant right to exclude others.[72] Lawful possession under state property law provides "an important consideration in determining whether a defendant had a legitimate expectation of privacy in the area searched."[73]

But real property law is not the only source of a right to exclude others. Intellectual property law likewise confers a right to exclude others to qualified individuals. Of course, the norms underlying the right to exclude others in real property law differ from the norms underlying that right in intellectual property law. Real property rights are designed to ensure the productive use of real property but also include a crucial privacy dimension for individuals by enabling them to exclude others from their physical space. Intellectual property law, by contrast, is generally understood as a mechanism to encourage the disclosure of inventions and writings to society, rather than a mechanism to secure the privacy of authors. Nevertheless, common law copyright historically included within it a strong privacy dimension, just as real property law does today. And safeguarding authors' secrecy promotes the progress of knowledge by giving authors an enclave to express, edit, and decide which expressions to share. Had J.K. Rowling lacked a right of nondisclosure in her privately kept expressions, for example, she would have had little recourse if someone had obtained and disclosed a summary of the finale before she published the final book in the *Harry Potter* series. The economic value of the series was enhanced by her privacy and ability to choose what, when, and whether to disclose her expressions.

Individuals have a cognizable Fourth Amendment interest when the government trespasses on real property, not because real property

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[71] *See* Kaiser Aetna v. United States, 444 U.S. 164, 179-80 (1979) (noting that the right to exclude is "one of the most essential sticks in the bundle of rights that are commonly characterized as property"); *see also id.* at 179-80 (relying on state property law in upholding a landowner's right to exclude against the government's attempt to impose a navigational servitude).

[72] *See, e.g.*, Payton v. New York, 445 U.S. 573, 585 (1980) ("[P]hysical entry of the home is the chief evil against which the Fourth Amendment was directed." (quoting United States v. U.S. Dist. Court, 407 U.S. 297, 313 (1972))); Mincey v. Arizona, 437 U.S. 385, 391 (1978) (holding that one does not forfeit her Fourth Amendment rights to her home by committing a crime); Alderman v. United States, 394 U.S. 165, 171-72 (1969) (linking property rights to the ability to raise a motion to exclude evidence based upon the Fourth Amendment).

[73] *Lyons*, 992 F.2d at 1031.

law includes a right to privacy but because property law includes a right to exclude others. In other words, the relevant analogy between real property and intellectual property in the Fourth Amendment is the individual's right to exclude others from the property intruded upon. Just as real property law informs searches that invade physical property, intellectual property law—particularly common law intellectual property law—may serve as a framework for assessing Fourth Amendment interests in the search of intellectual property.

At first glance, it may seem odd that the scope of Fourth Amendment interests might be partially contingent on the exercise of state power. But in fact, the scope of many constitutional rights is contingent on nonconstitutional bodies of law. For example, the Fifth Amendment prohibits both the deprivation of property without due process and the taking of private property without just compensation, but state law generally defines "property" for Fifth Amendment purposes.[74] This does not mean that state law is dispositive or that states can define these constitutional rights out of existence; ultimately the meaning of constitutional "property" is a federal question.[75] But within broad parameters, state law informs the scope of the constitutional right.

Likewise, in the Fourth Amendment context, nonconstitutional law informs the reasonableness of a search. The Court has tied Fourth Amendment interests to what society is prepared to recognize as reasonable.[76] The right to exclude others from property has until now served as the primary legal referent.[77] This is not to say that all Fourth

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[74] *See* RICHARD H. FALLON, JR. ET AL., HART AND WECHSLER'S THE FEDERAL COURTS AND THE FEDERAL SYSTEM 487 (6th ed. 2009) ("The cases take the view that, in general, the question whether a 'property' interest exists is governed by state law.").

[75] *Id.* at 488.

[76] *See supra* note 28 and accompanying text.

[77] *See* Kerr, *supra* note 66, at 809-10 ("[T]he basic contours of modern Fourth Amendment doctrine are largely keyed to property law. Although the phrase 'reasonable expectation of privacy' sounds mystical, in most (though not all) cases, an expectation of privacy becomes 'reasonable' only when it is backed by a right to exclude borrowed from real property law.").

Professor Christopher Slobogin has offered an intriguing proportionality principle of privacy in Fourth Amendment cases, using empirical results about what "society" finds invasive to define the lawful interests underlying privacy. *See* CHRISTOPHER SLOBOGIN, PRIVACY AT RISK: THE NEW GOVERNMENT SURVEILLANCE AND THE FOURTH AMENDMENT 33 (2007) (asserting that "some assessment of societal attitudes about the relative intrusiveness of police actions" should be part of the Fourth Amendment reasonableness analysis). Particularly when information lacks a referent as to "*how* private [those] . . . activities or records are," "surveys of the population should be considered relevant" in determining societal expectations of privacy. Christopher Slobogin, *Propor-*

Amendment cases turn on real property law, but only it is the primary source to which the Court has turned to inform reasonable expectations of privacy.

As it turns out, intellectual property may be the far more relevant source of law to inform searches and seizures of intangible property. Just as state property law informs the reasonableness of searches of "houses," intellectual property law provides important insights as to what constitutes unreasonable searches of "papers" and "effects."

1. There's a "Their" There

The possessive "their" serves an important function in both the Fourth Amendment and Copyright Clause. The Fourth Amendment guarantees "[t]he right of the people to be secure in *their* persons, houses, papers, and effects,"[78] thereby securing personal rights to individuals. The Copyright Clause of the U.S. Constitution similarly enables Congress to secure "to Authors and Inventors the exclusive Right to *their* respective Writings and Discoveries."[79] Congress has used this power to create intellectual property rights. A patent, for example, gives the patent holder a right to exclude others from making, selling, or using the patented invention.[80] Copyright law also contains a right to ex-

tionality, Privacy, and Public Opinion: A Reply to Kerr and Swire, 94 MINN. L. REV. 1588, 1592 (2010). This approach has great intuitive appeal, but it is difficult to see how courts could use it in practice to determine Fourth Amendment reasonableness. *See* Orin S. Kerr, *Do We Need a New Fourth Amendment?*, 107 MICH. L. REV. 951, 958-59 (2009) (arguing that since "[t]he more intrusive something is, the more it alters the world that existed before," people will sometimes fail to note that common police techniques, while not intrusive, threaten civil liberties). And while it may seem appealing to reach a democratic consensus on constitutional reasonableness, this approach is in tension with the countermajoritarian motif of the Bill of Rights. Professor Kerr, the leading scholar on cyber law and the Fourth Amendment, presciently focused on searches of electronic evidence and paved the way for current doctrine. From his extensive work in this area, he has concluded that no single model of Fourth Amendment reasonableness can accurately describe current doctrine and proposes four different models instead. *See* Orin S. Kerr, *Four Models of Fourth Amendment Protection*, 60 STAN. L. REV. 503, 506 (2007) (advancing a "probabilistic model," a "private facts model," a "positive law model," and a "policy model" to describe the Supreme Court's varying approaches to the Fourth Amendment).

[78] U.S. CONST. amend. IV (emphasis added).

[79] *Id.* art. I, § 8, cl. 8 (emphasis added).

[80] *See* 35 U.S.C. § 154(a)(1) (2006) ("Every patent shall contain . . . a grant . . . of the right to exclude others from making, using, offering for sale, or selling the invention . . . ."); Cont'l Paper Bag Co. v. E. Paper Bag Co., 210 U.S. 405, 429 (1908) ("[E]xclusion may be said to have been of the *very essence of the right conferred by the patent*, as it is the privilege of any owner of property to use or not use it, without question of motive."

clude,[81] which permits the copyright holder to simply deny others access to or the use of the copyrighted material.[82] In trade secret law, the right to exclude is crucial to the status of the information being protected as a secret.[83] That right makes it unlawful for others to uncover the secret in certain impermissible ways.[84] Even trademark law contains a limited right to exclude others[85] from appropriation and misuse of a trademark in the marketplace.[86]

The possessive "their" in the Fourth Amendment extends to each person a privacy interest in her own person, house, papers, and effects.

(emphasis added)); Mallinckrodt, Inc. v. Medipart, Inc., 976 F.2d 700, 703 (Fed. Cir. 1992) ("The enforceability of restrictions on the use of patented goods derives from the patent grant, which is in classical terms of property: the right to exclude.").

[81] *See, e.g.*, eBay Inc. v. MercExchange, L.L.C., 547 U.S. 388, 392 (2006) ("[A] copyright holder possesses 'the right to exclude others from using his property.'" (quoting Fox Film Corp. v. Doyal, 286 U.S. 123, 127 (1932))).

[82] *See, e.g.*, Authors Guild v. Google Inc., 770 F. Supp. 2d 666, 681 (S.D.N.Y. 2011) ("A copyright owner's right to exclude others from using his property is fundamental and beyond dispute. As counsel for Amazon argued: '[T]he law of the United States is a copyright owner may sit back, do nothing and enjoy his property rights untrammeled by others exploiting his works without permission.'" (alteration in original) (citation omitted) (citing *Fox Film Corp.*, 286 U.S. at 127)).

[83] *See, e.g.*, Ruckelshaus v. Monsanto Co., 467 U.S. 986, 1011 (1984) ("With respect to a trade secret, the right to exclude others is central to the very definition of the property interest. Once the data that constitute a trade secret are disclosed to others, or others are allowed to use those data, the holder of the trade secret has lost his property interest in the data.").

[84] But once a secret is uncovered, trade secret law provides less protection. *See* Kewanee Oil Co. v. Bicron Corp., 416 U.S. 470, 490 (1974) ("[T]rade secret law does not forbid the discovery of a trade secret by fair and honest means."); Bridgestone Ams. Holding, Inc. v. Mayberry, 878 N.E.2d 189, 192 n.3 (Ind. 2007) ("One of the biggest distinctions between a trade secret and ordinary property is the lack of a right to exclude others from a trade secret's use. Thus, trade secrets may be thought of as a weaker form of property.").

[85] *See, e.g.*, Mashantucket Pequot Tribe v. Redican, 403 F. Supp. 2d 184, 190 (D. Conn. 2005) ("The owner of a trademark may enforce the right to exclude others from using the trademark in an action for trademark infringement."); Ford Motor Co. v. Lloyd Design Corp, 184 F. Supp. 2d 665, 673 (E.D. Mich. 2002) ("To say one has a 'trademark' implies ownership and ownership implies the right to exclude others. If the law will not protect one's claim of right to exclude others from using an alleged trademark, then he does not own a 'trademark,' for that which all are free to use cannot be a trademark." (quoting 1 J. THOMAS MCCARTHY, MCCARTHY ON TRADEMARKS AND UNFAIR COMPETITION § 2:14 (4th ed. 2000))).

[86] *See, e.g.*, La Societe Anonyme des Parfums Le Galion v. Jean Patou, Inc., 495 F.2d 1265, 1271 (2d Cir. 1974) (Friendly, J.) ("[T]he right to exclusive use of a trademark derives from its appropriation and subsequent use in the marketplace. The user who first appropriates the mark obtains an enforceable right to exclude others from using it, as long as the initial appropriation and use are accompanied by an intention to continue exploiting the mark commercially . . . .").

"Their" is generally defined as meaning "[o]f, belonging, or pertaining to them."[87] Whether something is "theirs" depends on real and intellectual property law, which defines ownership of one's own self, houses, papers or effects. One's interests may be violated whether a search occurs in one's own home or that of another, but an individual will only be heard to complain when her own privacy interests have been violated. As Justice Scalia has explained, the Fourth Amendment ensures that "*each* person has the right to be secure against unreasonable searches and seizures in *his own* person, house, papers and effects."[88]

2. They're Authors

The Fourth Amendment has always protected the security of one's private papers.[89] Yet courts and scholars have overlooked the fact that papers include the protected writings authored by individuals and not just the papers in their keep. "Writings," as the Supreme Court has said in the copyright context, include "all forms of writing, printing, engravings, etchings, [etc.], by which the ideas in the mind of the author are given visible expression."[90] Such "writings" can be thought of as a special and distinct subset of Fourth Amendment "papers." From Lord Camden in *Entick*[91] to modern courts[92] and

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[87] 17 OXFORD ENGLISH DICTIONARY 888 (2d ed. 1989).

[88] Minnesota v. Carter, 525 U.S. 83, 92 (1988) (Scalia, J., concurring). Scalia discussed the founding-era materials confirming this interpretation of "their" as the understood meaning at the time. *Id.* He looked to similar provisions existing in state constitutions before the adoption of the Fourth Amendment and found that four had language similar to the Fourth Amendment, while two others avoided any ambiguity by "using the singular instead of the plural." *Id.*

[89] *See* Andrew Riggs Dunlap, Note, *Fixing the Fourth Amendment with Trade Secret Law: A Response to* Kyllo v. United States, 90 GEO. L.J. 2175, 2191 (2002) ("The Framers were . . . concerned with the security of private information. Accordingly, they included a citizen's 'papers' among those items protected by the Fourth Amendment . . . ." (footnote omitted)).

[90] Burrow-Giles Lithographic Co. v. Sarony, 111 U.S. 53, 58 (1884).

[91] *See* Entick v. Harrington, (1765) 19 How. St. Tr. 1029 (C.P.) 1066 (Eng.) (describing private papers as "the owner's . . . dearest property" and recognizing "more considerable damages" for a trespass due to "the secret nature" of papers).

[92] *See* Zurcher v. Stanford Daily, 436 U.S. 547, 580 n.7 (1978) (Stevens, J., dissenting) ("Private papers have been said to be little more than an extension of [the owner's] person, their seizure a particularly abrasive infringement of privacy, and their protection impelled by the moral and symbolic need to recognize and defend the private aspect of personality." (alteration in original) (quoting James A. McKenna, *The Constitutional Protection of Private Papers: The Role of a Hierarchical Fourth Amendment*, 53 IND. L.J. 55, 68-69 (1977)) (internal quotations marks omitted)).

scholars,[93] there is near unanimity that the Fourth Amendment safeguards papers not as "mere parchment[s]," but as "the words, figures, and images the citizen chose to record—his private information."[94]

The Supreme Court has defined "authors" as those "to whom anything owes its origin; originator; maker."[95] An author is one who creates some original expression[96] and fixes that expression in a medium that is capable of being "perceived, reproduced, or otherwise communicated."[97] Originality, including some "modicum of creativity," is the "touchstone" of copyright protection.[98] But the barrier to becoming a copyright author entitled to exclusive rights is quite low, and an author need not even intend to create an expressive work. Mere fortuity "caused by a hand jolted by 'a clap of thunder'" will suffice.[99]

Although writings are a subset of papers safeguarded by the Fourth Amendment, different possessory interests attach to writings than to mere parchments. Intellectual property law addresses this difference. Intellectual property law governs the exclusive rights in the substance of writings—the authors' expression—while property law governs the exclusive rights in mere parchment.

Just as the Fourth Amendment can protect an author's papers, so too can it safeguard her intangible "effects." Intangible effects can be very important, as Shakespeare's Claudius observed in *Hamlet*: "Of those effects for which I did the murder? My crown, mine own ambi-

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[93] *See* RICHARD A. POSNER, THE ECONOMICS OF JUSTICE 310-18 (1981) (arguing that the Fourth Amendment is best understood as protecting secrecy and that the Framers were concerned with the confidentiality of private communications).

[94] Dunlap, *supra* note 89, at 2191.

[95] *Burrow-Giles*, 111 U.S. at 58 (quoting JOSEPH E. WORCESTER, DICTIONARY OF THE ENGLISH LANGUAGE 99 (Boston, Hickling, Swan & Brewer 1860)).

[96] *See* Feist Publ'ns, Inc. v. Rural Tel. Serv. Co., 499 U.S. 340, 345 (1991) (defining "originality" in copyright to mean a work was "independently created by the author," rather than copied, and contains some "minimal degree of creativity").

[97] 17 U.S.C. § 101 (2006) (defining "fixed"). Neither fixation nor originality, however, is a significant barrier to copyright. "Fixation can be as simple as jotting one's thoughts on a notepad, hitting the 'record' button on an electronic device, or pressing a camera's shutter button." Laura A. Heymann, *How to Write a Life: Some Thoughts on Fixation and the Copyright/Privacy Divide*, 51 WM. & MARY L. REV. 825, 834 (2009). And originality requires only a minimal degree of creativity and admits of a wide range of work, from commercial advertisements to photography. *Id.*

[98] *Feist*, 499 U.S. at 346-47.

[99] Heymann, *supra* note 97, at 835 (quoting Alfred Bell & Co. v. Catalda Fine Arts, Inc., 191 F.2d 99, 105 (2d Cir. 1951)).

tion, and my queen."[100] Despite the Court's proclamation in *Olmstead* that the Fourth Amendment only protects tangible effects,[101] it has since recognized otherwise and extended Fourth Amendment safeguards to telephone conversations.[102] In the modern age, such intangible effects are often at least as important as tangible ones. Consider the electronic documents stored on a cloud server or in text messages and emails. Authorship and ownership exists in these effects just as much as in tangible printed papers. From when Shakespeare penned *Hamlet* in 1599 to the modern day, one's possessory effects have included intangible thoughts, ambitions, and expressions. Whether personal or impersonal, worn or carried about, or spoken aloud or written down, these intangible effects are secured by copyright and the Fourth Amendment.[103] I argue that even if thoughts are kept sacrosanct in the brain, they are intangible effects secured to individuals by the Fourth Amendments.

B. *The Right Legal Referent for the Right to Exclude*

Searches and seizures of mere parchments implicate a different privacy interest than searches of writings and intangible effects. Authors have a special privacy interest—a secrecy interest—in their own written expressions beyond their possessory interest in other papers, which a seclusion interest protects. Scott Turow, for example, may have the exact same seclusion interest in his dog-eared copy of a Michael Crichton paperback as he does in the physical pages of his own unpublished manuscript. But, in addition, he also has a qualitatively different secrecy interest in the content of his own manuscript, which he does not have

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[100] WILLIAM SHAKESPEARE, HAMLET, PRINCE OF DENMARK act 3, sc. 3, ll. 54-55 (c. 1599), *in* THE COMPLETE WORKS OF WILLIAM SHAKESPEARE 1006, 1031 (W.J. Craig ed., 1919).

[101] Olmstead v. United States, 277 U.S. 438, 466 (1928), *overruled by* Katz v. United States, 389 U.S. 347 (1967), *and* Berger v. New York, 388 U.S. 41 (1967); *see also supra* text accompanying notes 13-16.

[102] *See* Katz v. United States, 389 U.S. 347, 358-59 (1967); *see also supra* text accompanying notes 20-28.

[103] *See, e.g.*, Robbins v. California, 453 U.S. 420, 426 (1981) (plurality opinion) (noting that the Fourth Amendment protects property at all levels of personal importance to its owner, from diaries to dishpans), *overruled on other grounds by* United States v. Ross, 456 U.S. 798 (1982). Note though that the Fourth Amendment safeguards only one's lawful effects. *See* Haywood v. United States, 268 F. 795, 803 (7th Cir. 1920) ("It has never been deemed unreasonable to hunt for and take stolen property, smuggled goods, implements of crime, and the like.").

in his copy of Crichton's book.[104] Privacy as seclusion may indirectly protect secrecy, but an independent secrecy interest also exists. A secrecy interest limits access to or use of information, while a seclusion interest is concerned with having something left alone.[105] Because the paradigmatic governmental search involves trespass upon real property, reasonableness inquiries have until now focused primarily on physical intrusions into one's seclusion. And yet, at least two distinct privacy interests arise in Fourth Amendment cases—seclusion and secrecy. Although courts rarely make clear which of these privacy interests a case may implicate, the distinction between seclusion and secrecy can explain and justify the outcomes in a wide variety of cases.[106]

1. Property and the Intrusion upon Seclusion

Intrusion upon seclusion animates much of Fourth Amendment doctrine because lawful possession has traditionally been the foundation for analyzing expectations of privacy.[107] The interest in seclusion is the interest in restricting access to one's person or effects by withdrawing from society.[108] The seclusion interest includes the right to work in private, stay at home, store information out of sight, and conceal possessions so that they are beyond the detection of other people.[109] When roommates complain about a lack of privacy, they are speaking

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[104] For an example showing the enforcement of a form of this secrecy interest, see *infra* notes 144-51 and accompanying text.

[105] *See* POSNER, *supra* note 93, at 268-76 (distinguishing privacy as seclusion from privacy as secrecy); Posner, *supra* note 46, at 173-76 (same).

[106] In some bodily intrusion cases, courts have recognized separate interests both in physical intrusion upon bodily seclusion and in informational privacy in aspects of one's body. For example, in *People v. Adams*, 597 N.E.2d 574 (Ill. 1992), the court discussed the distinct individual interests that arise with warrantless and suspicionless HIV testing: "First, the drawing of the blood sample is itself an intrusion on the individual's bodily integrity. Second, the performance of the test on the sample also implicates fourth amendment interests." *Id.* at 579.

[107] *But see* William J. Stuntz, *Privacy's Problem and the Law of Criminal Procedure*, 93 MICH. L. REV. 1016, 1021-22 (1995) (arguing that "privacy-as-secrecy dominates the case law" and pointing to the "plain view" and seizure doctrines as examples of the trend).

[108] Richard A. Posner, *Privacy, Secrecy, and Reputation*, 28 BUFF. L. REV. 1, 3-4 (1979); *see also id.* ("An equivalent term is 'retirement' in its complex modern sense in which we speak of a person being 'retiring' and also of a person being 'retired.'").

[109] *See* POSNER, *supra* note 93, at 272-73 (listing a variety of situations that infringe on the seclusion interest in compromising one's "peace and quiet").

of privacy as seclusion.[110] Brandeis and Warren describe this type of privacy in *The Right to Privacy*.[111] The distinctive feature of the seclusion interest is that it does not depend on the type of information secluded or on its authorship.

In *Kyllo*, the Court found that using thermal imaging to detect heat emanating from a private home was a Fourth Amendment search because it intruded upon the occupants' seclusion in their home.[112] By treating physical privacy as paramount, the Court assigned equal value to every detail inside the home.[113] Justice Scalia opined, "The Fourth Amendment's protection of the home has never been tied to measurement of the quality or quantity of information obtained."[114] Instead, every physical intrusion upon seclusion in the home, "by even a fraction of an inch," is a Fourth Amendment search.[115] In the home, "*all* details are intimate details, because the entire area is held safe from prying government eyes."[116]

One could read this case to protect secrecy, since the Court was concerned that the search could reveal intimate personal information. And yet, while the protection of intimate details is often at the heart of Fourth Amendment privacy inquiries, courts often measure the intrusion upon such confidential details by the degree of the physical intrusion upon the space where the information was secluded. In other words, the method of measuring intrusion does not align with the purported emphasis on secrecy. A better way to describe the case law is as a misalignment between the interests sought to be protected—the information—and the use of physical intrusion to measure that invasion upon those interests.[117]

Likewise, in bodily intrusion cases, including forcible stomach pumping,[118] collection of hair,[119] blood,[120] urine,[121] tissue,[122] and breath

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[110] *See, e.g.*, Posner, *supra* note 108, at 3-4 (noting that this notion of privacy can be traced back to the seventeenth century as "withdrawal from the cares of public life through physical removal to a secluded garden or country estate").

[111] *Id.* at 5 & n.14; *see also supra* note 17.

[112] Kyllo v. United States, 533 U.S. 27, 40 (2001).

[113] *Id.* at 37.

[114] *Id.*

[115] *Id.* (quoting Silverman v. United States, 365 U.S. 505, 512 (1961)).

[116] *Id.*

[117] The approach of emphasizing physical intrusion over seclusion also explains the distinction between "plain view" and "open air" Fourth Amendment cases.

[118] *See, e.g.*, Rochin v. California, 342 U.S. 165, 173-74 (1952) (holding that pumping a nonconsenting suspect's stomach violated his due process rights, just as if officials

samples,[123] courts and scholars focus on the physical indignity to the body as the measure of intrusiveness of the search.[124] But they do not generally focus on the secrecy of the content of the information sought.

Nevertheless, since *Katz* Fourth Amendment law has also addressed the concealment of information.[125] Yet even in *Katz*, the Court ultimately focused on Katz's seclusion of himself in the phone booth and not on his interest in the substantive secrecy of his conversation.[126] Katz had secluded himself from the prying ears of others but not from their prying eyes, hiding his voice but not his physical presence.[127] By

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had forced him to give a coerced confession); *cf.* Winston v. Lee, 470 U.S. 753, 766 (1985) (ruling that officials cannot force a criminal suspect to undergo surgery with general anesthesia to remove a bullet that could provide evidence of guilt because such a procedure was too intrusive).

[119] *See, e.g.*, United States v. D'Amico, 408 F.2d 331, 332-33 (2d Cir. 1969) (per curiam) (finding that cutting the defendant's hair did not implicate his Fourth Amendment privacy interests).

[120] *See, e.g.*, Skinner v. Ry. Labor Execs.' Ass'n, 489 U.S. 602, 616 (1989) (ruling that mandatory blood tests for railway employees are Fourth Amendment searches because, "[i]n light of our society's concern for the security of one's person, it is obvious that [a] physical intrusion, penetrating beneath the skin, infringes an expectation of privacy that society is prepared to recognize as reasonable" (citations omitted)).

[121] *See, e.g.*, *id.* at 617 (noting that urine tests are also Fourth Amendment searches because "society has long recognized as reasonable" an expectation of privacy related to urine).

[122] *See, e.g.*, Cupp v. Murphy, 412 U.S. 291, 295 (1973) (holding that taking scrapings from under fingernails was a Fourth Amendment search because it went beyond mere "physical characteristics . . . constantly exposed to the public" (alteration in original) (quoting United States v. Dionisio, 40 U.S. 1, 14 (1973))).

[123] *See, e.g.*, *Skinner*, 489 U.S. at 625-26 (holding that breath tests are less physically intrusive than blood tests and "reveal the level of alcohol in the employee's bloodstream and nothing more . . . . [B]reath tests reveal no other facts in which the employee has a substantial privacy interest."). Although the Court did not elaborate on what else a blood test might show that would implicate a different privacy interest, it seemed to imply that there may be at least some secrecy interest, in addition to a seclusion interest, in the content of one's blood.

[124] *See, e.g.*, David C. Sarnacki, Comment, *Analyzing the Reasonableness of Bodily Intrusions*, 68 MARQ. L. REV. 130, 142-43 (1984) (arguing that in bodily intrusion cases, the "[d]egree of intrusiveness should be evaluated in terms of the nature of the test, the manner in which it is performed, and the availability of less intrusive alternatives" (footnotes omitted)).

[125] *See* Brian M. Hoffstadt, Arnold, *Digital Media, and the Resurrection of* Boyd, 81 S. CAL. L. REV. POSTSCRIPT 8, 12-13 (2008), http://weblaw.usc.edu/why/students/orgs/lawreview/documents/Hoffstadt_Brian_81_PS8.pdf (noting that *Katz* and its successors did not put much emphasis on the volume or nature of the information in question).

[126] *See* Katz v. United States, 389 U.S. 347, 352 (1967).

[127] *See id.* ("[W]hat [Katz] sought to exclude when he entered the booth was not the intruding eye—it was the uninvited ear.").

listening to his conversation, the police intruded upon the very seclusion that Katz had sought.[128]

In these concealed information cases, the Court has turned to real property law to evaluate the alleged expectation of privacy of the person searched. The right to exclude others is the strongest when officials search the home or body and weaker when the government searches property voluntarily and ordinarily exposed to the public.[129] An interest in excluding the government from tracking one's automobile, for example, is weaker than an interest in keeping the government out of one's own home. This distinction arises because one drives an automobile on public roads, thereby voluntarily exposing its movements to public view.

Importantly, the reasonableness of an intrusion upon seclusion depends on the *physical intrusiveness* of the search, not the content or authorship of the information sought or revealed. The more physically intrusive the search is, the greater justification the government will need to render it reasonable. But whether a search reveals a soccer ball or a sex tape, the seclusion interest invaded is one and the same. The place upon which law enforcement intruded and the manner and means used to accomplish the intrusion determine the reasonableness of the search.

2. Copyright and Privacy

We are accustomed to thinking of intellectual property law as a mechanism for securing the economic interests of authors and inventors. But just as real property law's right to exclude has an important Fourth Amendment privacy implication, the right to exclude in copyright law has also historically included a crucial privacy dimension. Property rights alone do not define Fourth Amendment privacy interests. A Fourth Amendment interest does not mean that *property law* recognizes privacy rights for lawful possessors of property, but rather that the Fourth Amendment confers a privacy interest based on a right to exclude others from the area being searched. Lawful possession is

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[128] *Id.*

[129] *See* Kerr, *supra* note 66, at 815-27 (arguing that after *Katz*, the Court continued to adhere to its earlier Fourth Amendment approach and still views potential Fourth Amendment violations through the lens of real property law more than a "new" privacy law).

therefore neither the starting nor the ending point of a Fourth Amendment inquiry.[130]

Copyright law accords authors a privacy interest in both the secrecy and seclusion of their writings. A mere possessor of intellectual property authored or owned by another has only one of these interests. Her rightful interest is in the seclusion—but not in the secrecy—of that expression. The Fourth Amendment safeguards the privacy of authors in their papers and their effects. It confers a privacy interest based on the possessor's right to exclude—a right copyright law recognizes for authors in their expressions.

The most basic principles of copyright predate the Copyright Clause and the Fourth Amendment. At common law, authors enjoyed a broad and exclusive interest in their own expressions. Common law copyright entitled authors to a broad right of nondisclosure of unpublished writing in order to keep their expressive effects concealed.[131]

Scholars have painstakingly detailed the individual interests protected by common law copyright.[132] Using the example of a private letter as a guide, Judge Jon Newman persuasively illustrated how the exclusive right of authors at common law protected the privacy of the sender and how copyright extended to all writers of letters whether those letters contained literary merit or not.[133] An author's right to exclude applied even if her writings were of the greatest public interest and importance. When Alan Cranston copied nearly verbatim an earlier and unabridged version of Adolf Hitler's *Mein Kampf* and disseminated it through Noram Publishing Company,[134] the Southern District of New York issued a temporary injunction to enjoin the infringing publishing company from selling the book, notwithstanding the fact that an "average person interested in world events, interested in Hitler to the extent of wondering what kind of a man he might be, interested

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[130] *See* United States v. Salvucci, 448 U.S. 83, 91-92 (1980) (finding that property rights are not dispositive, but rather only a factor in determining whether the Fourth Amendment provides protection).

[131] *See* Jon O. Newman, *Copyright Law and the Protection of Privacy*, 12 COLUM.-VLA J.L. & ARTS 459, 462-63 (1988) ("[C]ommon law copyright . . . , as developed in the courts of England, provided protection more enduring and more extensive than protection available for published writings." (footnote omitted)).

[132] *See, e.g.*, *id.*

[133] *Id.* at 464.

[134] Anthony O. Miller, *Court Halted Dime Edition of 'Mein Kampf': Cranston Tells How Hitler Sued Him and Won*, L.A. TIMES, Feb. 14, 1988, at 4, *available at* 1988 WLNR 1807433.

in reading about current events in which Hitler has been taking an active part," would want to read the infringing copy.[135]

Warren and Brandeis located their right to privacy in the common law copyright privilege of authors to exclude others from their unpublished writings.[136] Common law copyright gave authors an interest in their "private writings, not just to secure the opportunity for authors to enjoy their right of first publication—that is, the right to reap the economic benefit of their efforts—but also to provide protection for those who preferred not to publish at all."[137] Copyright protected the "production of the mind" as "property in every essential sense."[138]

The Copyright Act of 1976 preempted common law copyright with respect to "all legal or equitable rights that are equivalent to any of the exclusive rights within the general scope of copyright as specified by" the statute.[139] However, the statutory regime retained the common law protection of the right not to publish—the secrecy right of authors—irrespective of the economic value. The right of first publication in modern copyright law includes within it the right to keep information secret or not to publish at all.[140] The fact that an author is known to be using copyright to keep works unpublished, rather than publish them, does not undermine whether he is entitled to exclusive rights under copyright.[141] And while some have objected that the right not to pub-

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[135] Houghton Mifflin Co. v. Noram Publ'g Co., 28 F. Supp. 676, 678 (S.D.N.Y. 1939).

[136] *See supra* note 17 and accompanying text.

[137] Newman, *supra* note 131, at 466.

[138] Grigsby v. Breckinridge, 65 Ky. (2 Bush) 480, 485 (1867); *see also* Robert C. Post, *Rereading Warren and Brandeis: Privacy, Property, and Appropriation*, 41 CASE W. RES. L. REV. 647, 654 (1991) (discussing common law copyright and citing *Grigsby* as representing copyright's core principle that production of the mind is property).

[139] 17 U.S.C. § 301(a) (2006).

[140] *See* Hartman v. John D. Park & Sons Co., 145 F. 358, 362 (C.C.E.D. Ky. 1906) (recognizing "the right to secrecy which the owner of a secret process or an inventor or author who has not obtained a patent or copyright has before publication"), *rev'd on other grounds*, 153 F. 24 (6th Cir. 1907).

[141] *See* Chi. Bd. of Educ. v. Substance, Inc., 354 F.3d 624, 627 (7th Cir. 2003) ("[F]ederal copyright is now available for unpublished works that the author intends never to see the light of day."); Salinger v. Random House, Inc., 811 F.2d 90, 99 (2d Cir. 1987) (holding that the potential harm to the value of plaintiff's works "is not lessened by the fact that their author has disavowed any intention to publish them during his lifetime. . . . He is entitled to protect his *opportunity* to sell his letters . . . ."); Religious Tech. Ctr. v. Lerma, No. 95-1107, 1996 WL 633131, at *7-8 (E.D. Va. Oct. 4, 1996) (finding that fair use does not expand when the copyright owner has no intention of publishing the piece).

lish is contrary to the aims of copyright, this objection has not generally won doctrinal acceptance.[142]

J.D. Salinger made the most famous use of the privacy dimension of copyright law. When Ian Hamilton undertook to write Salinger's biography, Salinger refused to cooperate and informed Hamilton that he preferred that a biography not be written about him during his lifetime.[143] Hamilton proceeded anyway and dedicated three years to drafting a biography that he entitled *J.D. Salinger: A Writing Life*.[144]

Hamilton drew extensively from several of Salinger's unpublished letters written between 1939 and 1961 that had been donated by the recipients or their representatives to university libraries.[145] Most were written to Whit Burnett, Salinger's friend and an editor at *Story* magazine, but other recipients included Judge Learned Hand and Ernest Hemingway.[146] After Salinger objected to a draft that contained substantial direct quotations, Hamilton paraphrased large portions of many of these unpublished letters.[147] Salinger sued, arguing that Hamilton's use of his unpublished letters constituted copyright infringement. The Court of Appeals for the Second Circuit agreed, finding Hamilton's work to be close enough to the original letters, constituting infringement.[148] Hamilton unsuccessfully argued that the paraphrases and excerpts were fair use.[149] The Court of Appeals acknowledged that a biographer like Hamilton could report the facts contained within the letters, but Salinger nevertheless had the right to protect the expressive content of his unpublished writings for the term

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[142] *See, e.g.*, Harper & Row, Publishers, Inc. v. Nation Enters., 471 U.S. 539, 605 (1985) (Brennan, J., dissenting) (criticizing the majority for permitting Harper and Row to "monopolize information," and alleging that the majority jeopardized the "robust debate of public issues that is the 'essence of self-government'" (quoting Garrison v. Louisiana, 379 U.S. 64, 74-75 (1964))); *see also* Miranda Oshige McGowan, *Property's* Portrait of a Lady, 85 MINN. L. REV. 1037, 1113 (2001) ("[An author]'s right not to publish arguably frustrates the primary purpose of the copyright laws—making creative works available to society—by delaying publication of such a work at least until after the author's death, and perhaps 70 years longer if the heir does not want to publish the work. Nevertheless, it would be hard to argue that the copyright laws should be changed to make authors bring their works to market against their will.").

[143] *Salinger*, 811 F.2d at 92.

[144] *Id.*

[145] *Id.* at 92-93.

[146] *Id.*

[147] *Id.*

[148] *Id.* at 98.

[149] *Id.* at 94, 99.

of his copyright.[150] Unpublished works, the court explained, "normally enjoy complete protection against copying any protected expression."[151]

Similarly, in *Harper & Row, Publishers, Inc. v. Nation Enterprises*, the unpublished memoirs of President Gerald Ford were intercepted and partially excerpted in an unauthorized publication.[152] The Court signaled that an author's right of first publication will prevail against a claim of fair use, particularly where unpublished and undisclosed writings are concerned.[153] The same holds true when balancing Fourth Amendment societal interests against individual ones. Just as a claimant will not prevail on a fair use claim when she infringes the secrecy of an author's undisclosed writings, so too will only the most compelling of government interests justify intrusion upon secretly authored and secretly memorialized papers or effects.

Of course, the scope of Fourth Amendment protection of intellectual property is not entirely dependent on states' or Congress's policy choices in copyright. Just as states cannot abrogate the Takings Clause by a clever redefinition of "property,"[154] states and Congress cannot sport away Fourth Amendment protections for intellectual property by gerrymandering copyright law. Instead, a Fourth Amendment privacy interest for authors in their unpublished expressions aligns with the English common law approach of giving authors "nearly complete protection to [their] unpublished private writing, including its factual content."[155] Common law copyright included within it a much stronger dimension of privacy than modern copyright law, and that approach may better track societal expectations of privacy in individuals' writings and effects. Common law copyright closely corresponds to societal intuitions about secrecy of information, and this historical protection would better untangle expectations of privacy in informational effects.

In short, just as real property law generally informs Fourth Amendment interests when tangible property is intruded upon by a search, by

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[150] *Id.* at 100.

[151] *Id.* at 97.

[152] 471 U.S. 539, 542-43 (1985).

[153] *Id.* at 554-55. *But cf.* Birnbaum v. United States, 588 F.2d 319, 326-27 (2d Cir. 1978) (reversing a ruling that the plaintiffs' common law copyright in their private letters was infringed by the CIA when it opened and copied the contents of those letters and finding that the CIA's actions did not interfere with a right of first publication).

[154] *See supra* notes 74-75 and accompanying text.

[155] Newman, *supra* note 131, at 477.

analogy, intellectual property law provides an important metaphor for the Fourth Amendment's protection of intellectual property.

3. Intrusion upon Secrecy

A Fourth Amendment privacy interest arising from copyright interests differs from a privacy arising from real property law. The privacy interest in one's home, for example, is a seclusion interest that does not turn on what is being secluded. By contrast, copyright entitles authors to keep confidential the substantive content of their expressions. Secrecy can be preserved, at least in part, by seclusion or through nondisclosure of intimate, personal, or potentially embarrassing information.[156] But the *Salinger* case shows that even if the information is not secluded, a form of secrecy is still preserved. Although the recipients donated the parchment of Salinger's letters to libraries, Salinger's decision not to publish the letters strengthened his right to exclude Hamilton from broadly publishing the expressive content.[157] In the Fourth Amendment context, a government search or seizure of undisclosed writings and intangible effects—or of writings and effects shared only with an intended recipient—violates an author's expectation of privacy in her protected expressions.

Secrecy is a far more important privacy interest than seclusion in the information age. In modern searches, investigators need not break down doors, rummage through drawers, or invade one's peace and repose by even one fraction of an inch to obtain incriminating evidence.[158] Instead, the government can unobtrusively intercept information as it travels in electrical frequencies, electrical wires, radio frequency signals (e.g., Bluetooth or WiFi), or via the GSM family of protocols that communicate between cell phones and towers. The government can intercept unsecured information directly, and it can intercept secured information either from third-party service providers

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[156] *See* Daniel J. Solove, *Conceptualizing Privacy*, 90 CALIF. L. REV. 1087, 1105 (2002) ("One of the most common understandings of privacy is that is constitutes the secrecy of certain matters."); James J. Tomkovicz, *Beyond Secrecy for Secrecy's Sake: Toward an Expanded Vision of the Fourth Amendment Privacy Province*, 36 HASTINGS L.J. 645, 662 (1985) (broadening the traditional conceptualization of privacy to include the control of information).

[157] *See* Salinger v. Random House, Inc., 811 F.2d 90, 97 (finding that the unpublished nature of the letters weakened Hamilton's fair use defense).

[158] *See, e.g.*, United States v. Knotts, 460 U.S. 276, 285 (1983) (finding that using a beeper device to track a shipment to a person's home was not a search because it merely enabled what the naked eye could have seen).

or from the ultimate recipients.[159] And in the not-too-distant future, the government might have the ability to imperceptibly and noninvasively obtain information directly from a suspect's brain.[160]

Justice Douglas recognized that Fourth Amendment privacy concerns include a secrecy interest—or the right of nondisclosure of one's secrets.

> The personal effects and possessions of the individual . . . are sacrosanct . . . . Privacy involves the choice of the individual to disclose or to reveal what he believes, what he thinks, what he possesses. . . . Those who wrote the Bill of Rights believed that every individual needs both to communicate with others and to keep his affairs to himself. That dual aspect of privacy means that the individual should have the freedom to select for himself the time and circumstances when he will share his secrets with others and decide the extent of that sharing.[161]

And in at least a few cases, the Court has intuited the intellectual property dimension of the Fourth Amendment without saying so explicitly.[162] In *Walter v. United States*, for example, the Court addressed the warrantless search of the content of films that were obtained without any intrusion upon the owner's property.[163] Walter, the film owner, had shipped them across state lines in a secure package that was mistakenly delivered to a third party.[164] The third party opened the box and found individual film boxes that had suggestive drawings and explicit descriptions of the films. He then tendered the unwatched boxes of film to the FBI. Now in lawful possession of the boxes, the FBI agents watched the films to obtain evidence of their obscene content for use against the film owners in a criminal case.[165] A plurality of the Court found that, although the FBI had not intruded upon Walter's real property interests in the films, the agents nevertheless ran afoul of the Fourth Amendment by conducting the warrantless search of the

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[159] *See id.* at 282 ("Nothing in the Fourth Amendment prohibited the police from augmenting the sensory faculties bestowed upon them at birth with such enhancement as science and technology afforded them in this case.").

[160] *See* Farahany, *supra* note 8, at 379-89 (summarizing recent research that suggests that police "may soon be able to retrieve memories stored within the brain").

[161] Warden v. Hayden, 387 U.S. 294, 323 (1967) (Douglas, J., dissenting).

[162] *See, e.g.*, United States v. Miller, 425 U.S. 435, 442 (1976) ("We must examine the nature of the particular documents sought to be protected in order to determine whether there is a legitimate 'expectation of privacy' concerning their contents.").

[163] 447 U.S. 649, 653-54 (1980) (plurality opinion).

[164] *Id.* at 651-52.

[165] *Id.* at 652.

films' contents.[166] The agents had not violated Walter's property or seclusion interest, but the warrantless search unreasonably intruded upon his privacy interest in secrecy.[167]

The plurality found that, despite the physical unobtrusiveness of the search, there remained an "unfrustrated portion" of Walter's privacy interests subject to Fourth Amendment protection.[168] Walter had an interest in the secrecy of the video's contents, which he retained even after he sent them to a third-party recipient[169] and would have retained even if he had privately screened the films.[170] That interest is akin to the interests one retains in both the seclusion and secrecy of memorialized letters sent by postal mail or electronic messaging.[171] Walter's Fourth Amendment interest, like Salinger's copyright interest,[172] is like the distinctive interest of a copyright owner in the content of her work.

The best reading of *Walter* is that the Court recognized that individuals sometimes retain an interest in the secrecy of the substantive contents of their information. Particularly for expressive materials such as books, films, or private writings, that interest may be informed, at least in part, by intellectual property law. Yet the Court should have determined whether Walter was the *copyright* owner of the films seized. If so, then the secrecy interest the Court recognized would have aligned with a source of law that supports a right to exclude others from the substantive content of the films.

The Court has not always protected the substantive content of writings, and the doctrinal results can seem inconsistent. In *United States v. Miller*, the government had intercepted evidence against a suspect by directing his bank to make copies of all of his available checks and deposit slips.[173] The Court held that no Fourth Amendment interest had been frustrated by the government's investigational technique.[174] The checks were "not confidential communications but negotiable instru-

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[166] *Id.* at 659.

[167] *Id.* at 658-59.

[168] *Id.* at 659.

[169] *Id.* at 658-59.

[170] *Id.* at 662 (White, J., concurring).

[171] *See Ex parte* Jackson, 96 U.S. 727, 733 (1877) (recognizing "the secrecy of letters" and holding that the Fourth Amendment protects the contents of sealed packages but not the "outward form and weight").

[172] *See supra* notes 143-51, 157 and accompanying text.

[173] 425 U.S. 435, 437-38 (1976).

[174] *Id.* at 440.

ments to be used in commercial transactions."[175] The intellectual property metaphor here is instructive. The doctrine of joint authorship grants both authors full copyright interests in the work.[176] The banking papers the government searched at least in some sense were coauthored by both Miller and his bank.[177] While Miller may have conveyed the information to the bank to keep confidential, the interception did not intrude upon any privacy-as-secrecy interest Walter may have had.[178]

Although the result in *Miller* may seem inconsistent with *Walter*, when the cases are reexamined through the lens of intellectual property, they can be more easily reconciled. If Walter held a copyright in the films, then even when his shipment went astray he retained a secrecy interest. That interest must be weighed against societal ones to gauge the reasonableness of the warrantless search. This interpretation of *Walter* would be in accord with *Salinger*. Salinger retained an exclusive right to first publication of his letters, even after he mailed them to recipients.[179] By contrast, Miller's authorship in his checks and deposit slips would not be protected as a joint author of the same.[180]

Notice how the analysis in these two cases is simplified by an intellectual property law metaphor. The interest recognized in each case is analogous to the respective interests of the claimants as defined by intellectual property law. For both Walter and Miller, the Court implicitly addressed their respective interests in just this way. But had the Court explicitly invoked intellectual property law, the consistent link between the two cases would have been revealed.

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[175] *Id.* at 442.

[176] *See* 17 U.S.C. § 201(a) (2006); *see also id.* § 101 (defining "joint work").

[177] 425 U.S. at 442.

[178] *Id.* at 440.

[179] *See* Salinger v. Random House, Inc., 811 F.2d 90, 94-95 (2d Cir. 1987) (making the distinction between ownership of the physical letter and ownership of the copyright in the letter's content); *see also supra* note 140 and accompanying text.

[180] Even assuming the minimal standard for originality were met, *see supra* notes 96-99 and accompanying text, the information on the checks and deposit slips would not be protectable due to either its factual nature or the merger doctrine. *See, e.g.*, Morrissey v. Procter & Gamble Co., 379 F.2d 675, 678-79 (1st Cir. 1967) (declining to recognize a copyright when there are only a limited number of ways to express an idea).

III. THE SECRETS PROTECTED

Acknowledging the existence of a Fourth Amendment seclusion interest for all and an additional secrecy interest for authors explains many existing riddles in Fourth Amendment jurisprudence. In addition to papers and effects, this Part discusses both traditional and futuristic sense-enhanced searches along a spectrum of evidence and authorship. It demonstrates confusion in existing Fourth Amendment doctrine concerning the individual interests at stake and describes how the addition of intellectual property rights to inform the Fourth Amendment protection of individual interests better explains existing doctrine. Because the Fifth Amendment does not stand in isolation from the Fourth Amendment, and more often, these two protections run hand in hand,[181] the taxonomy in *Incriminating Thoughts*[182] also applies in the search and seizure context.

The taxonomy includes four categories of evidence: identifying, automatic, memorialized, and utterances.[183] Those four categories comprise a spectrum: from the first category to the last, an individual exerts increasingly more control over the creation of evidence.[184] The spectrum can also present a view of copyright, with stronger claims in the rightward categories. Thus, an individual has the strongest claim of authorship in uttered and memorialized evidence and the weakest claim of authorship in automatic or identifying evidence. Because memorialized and potentially recorded utterances are the proper subject of copyright protection, a court must balance the intrusion upon both the seclusion and the secrecy of the individual against the governmental interest in the evidence sought to decide if an unreasonable search or seizure has occurred

While descriptively robust, the normative shortcomings of the real property/intellectual property framework will be compounded by emerging technology. To illustrate those shortcomings, this Part also explores how the Fourth Amendment would apply in the following

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[181] *See* Boyd v. United States, 116 U.S. 616, 630 (1886) (observing that "the Fourth and Fifth Amendments run almost into each other" when someone's testimony or private papers are used against her).

[182] *See* Farahany, *supra* note 8, at 353-55 (introducing a new taxonomy to describe categories of evidence in lieu of the physical/testimonial dichotomy underpinning the privilege against self-incrimination); *see also id.* at 406 (leaving unanswered how the search and seizure of that same evidence would fare).

[183] *Id.* at 355.

[184] *Id.*

hypothetical—but not far-fetched[185]—investigation using brain searches. Suppose a police officer has stopped a motorist he believes to be intoxicated. Should the motorist remain silent, the policeman could nevertheless use neuroscience to glean information from the motorist during a brief and physically unobtrusive stop. Using a mobile biometric brain scanner, the officer would gain precise and reliable information about the motorist's identity. Scientists hypothesize that each person's brain has a unique neural fingerprint that would enable precise biometric identification by "reading" the electrical impulses emitted by the firing of neurons in the brain.[186] The officer could also bypass the need to have the motorist perform a breathalyzer test to assess her intoxication by directly measuring her brain's metabolism of glucose.[187] And rather than asking the motorist whether she had been drinking, the police could probe her brain for episodic memories of her evening. Scientists have made substantial headway in detecting memories stored in the brain and have already demonstrated detection of past faces, voices, or sounds and differentiated among specific episodic memories that a subject recalls.[188]

More directly, the police would be able to seek contemporaneous utterances by the motorist and use either on-the-spot brain-based lie detection techniques or more sophisticated techniques that seek to "decode" her contemporaneous, conscious, and unspoken thoughts.[189] Some of these warrantless probes of the brain are more reasonable than others, and we can tell the difference between them by determining when one has a secrecy interest in the contents of one's brain and when one has only a right to seclude oneself from others.

With respect to these more futuristic sense-enhanced searches, scholars have made sweeping claims that an individual has a "reasonable expectation of privacy in the details of what is in her head, even though the government doesn't have to invade the body to learn the information."[190] Others have disagreed, finding that because neuroimaging is noninvasive, such investigations are not unreasonable searches. The latter group believes that because a suspect can be

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[185] *See infra* notes 252-54 and accompanying text.

[186] Farahany, *supra* note 8, at 380.

[187] *See infra* note 250 and accompanying text.

[188] Farahany, *supra* note 8, at 379-84.

[189] *Id.* at 394-95.

[190] Michael S. Pardo, *Neuroscience Evidence, Legal Culture, and Criminal Procedure*, 33 AM. J. CRIM. L. 301, 325 (2006).

compelled to take similarly noninvasive blood and urine tests, "[t]here is no reason to think that similar circumstances would not likewise satisfy the Fourth Amendment's reasonableness requirement for neurological tests."[191] Both extremes ignore the subtle and nuanced challenges that cognitive neuroscience raises for Fourth Amendment law. What is in one's head is far more diverse than mental states or thoughts and also includes identifying and automatic processes.[192] Emerging neuroscience could enable the detection of simple static images that reveal present brain trauma, visceral reactions and behavioral disposition, simple and complex memories, and the present thoughts and visual imagery in the brain.[193] The intellectual property interests of individuals help better explain how such searches would fare in a Fourth Amendment analysis.

Although this Part illustrates how intellectual property law gives *descriptive* grounding to the secrecy interests protected by the Fourth Amendment, it also reveals another secret lurking just beneath current doctrine. Automatically generated evidence is an entire category of evidence that has become increasingly more detailed and available in the information age. Under existing doctrine, individuals enjoy no secrecy interest in this category of information. And because most of this information is in some sense voluntarily conveyed to third parties, the so-called "third-party" doctrine means that individuals here lack a seclusion interest as well.[194] A Fourth Amendment privacy interest tied only to real property and intellectual property law may fail to protect the kinds of information that society may reasonably expect to keep private.

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[191] Dov Fox, *Brain Imaging and the Bill of Rights: Memory Detection Technologies and American Criminal Justice*, 8 AM. J. BIOETHICS 34, 35 (2008). Other scholars who have considered bodily intrusions and the Fourth Amendment have likewise ignored substantive secrecy concerns and focused instead on the physical intrusiveness of the test. *See, e.g.*, Sarnacki, *supra* note 124, at 142-47 ("Degree of bodily intrusion should be evaluated in terms of the nature of the test, the manner in which it is performed, and the availability of less intrusive alternatives." (footnotes omitted)).

[192] *See* Farahany, *supra* note 8, at 380.

[193] *See id.* at 368-69, 375, 377-78, 380-84, 396-97.

[194] *Cf.* United States v. Jones, 132 S. Ct. 945, 957 (2012) (Sotomayor, J., concurring) (noting that the doctrine "is ill suited to the digital age, in which people reveal a great deal of information about themselves to third parties in the course of carrying out mundane tasks").

A. *Identifying*

Save for the hermit or recluse living her whole life in seclusion, an individual has no cognizable secrecy interest in identifying evidence. Identifying evidence includes information about an individual's characteristics and her physical likeness as well as static and descriptive information about the individual or about individuals with whom she associates.[195] It also includes a person's name, birth date, weight, height, clothing size, shoe size, blood type, and traces of shed DNA.[196] Such information may help connect a suspect with the known attributes of a criminal perpetrator,[197] but no legal basis currently exists for a Fourth Amendment secrecy interest in such evidence.

Intellectual property law sheds new light on why current doctrine does not afford individuals a *secrecy* interest in identifying evidence. Under intellectual property law, individuals are denied a secrecy interest not because they have abandoned that information, but because they neither authored nor originated it. Further, individuals have only a minimal interest in secluding identifying information because they regularly reveal their identifying characteristics to the world. Thus, without a claim of protected authorship, only their real property–based seclusion interest persists.

This framework, which recognizes seclusion and secrecy interests, describes current Fourth Amendment doctrine on identifying information better than existing frameworks do. Beginning with *Terry v. Ohio*,[198] the Court has held that upon probable cause it is reasonable for a police officer to require an individual to disclose her identity during a brief investigative stop.[199] Until *Hiibel v. Sixth Judicial District Court of Nevada*,[200] however, the Court had left open whether a suspect could be "arrested and prosecuted for refus[ing]" to disclose her identity during a stop based on reasonable suspicion.[201] The *Hiibel* Court re-

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[195] Farahany, *supra* note 8, at 368.

[196] *Id.*

[197] *Id.*

[198] 392 U.S. 1 (1968).

[199] *See* INS v. Delgado, 466 U.S. 210, 216 (1984) (plurality opinion) (holding that questioning factory workers did not amount to a Fourth Amendment search and seizure and stating that "police questioning, by itself, is unlikely to result in a Fourth Amendment violation" (citing Florida v. Royer, 460 U.S. 491 (1983), and Brown v. Texas, 443 U.S. 47 (1979))); *Terry*, 392 U.S. at 30 (holding that a police officer stopping and frisking a person based on the officer's suspicion does not violate the Fourth Amendment).

[200] 542 U.S. 177 (2004).

[201] *Id.* at 186-87 (citation omitted).

solved this question by holding that states may require a suspect to disclose her name during an investigative stop because the individual privacy interest in identity is negligible compared to the legitimate government interests promoted by the inquiry.[202] Intellectual property provides the missing legal grounding for the analysis. Hiibel did not author his name, so he lacked a legally cognizable interest under the Fourth Amendment in maintaining the secrecy of his identity.

Each time the Court has been presented with a case involving identifying information, it has assumed, but not explained, that individuals lack a secrecy interest in their identifying attributes.[203] The Court has held that compelling a suspect to provide physically identifying information—such as fingerprints[204] or voice exemplars[205]—is usually reasonable because such techniques intrude upon no cognizable individual interest. In a case deciding whether a grand jury subpoena requiring about twenty people to give voice exemplars for identification, the Court held that neither the seizure (which required that the person appear) nor the search (which used the search exemplar for identification) were unreasonable.[206] Although the Court could have focused on an individual interest in seclusion, it surmised that physical features, including vocal characteristics, are so frequently exposed to public view that no meaningful intrusion upon seclusion had oc-

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[202] *See id.* at 188 (noting that the "stop and identify" statute at issue in the case served the useful purpose of increasing the likelihood that a suspect would actually disclose his identity to a police officer).

[203] For example, the Court in *United States v. Dionisio*, 410 U.S. 1 (1973), noted that

> the Fourth Amendment provides no protection for what "a person knowingly exposes to the public, even in his own home or office . . . ." The physical characteristics of a person's voice, its tone and manner, as opposed to the content of a specific conversation, are constantly exposed to the public. . . . No person can have a reasonable expectation that others will not know the sound of his voice . . . .

Id. at 14 (first alteration in original) (citation omitted) (quoting Katz v. United States, 389 U.S. 347, 351 (1967)).

[204] *See* Davis v. Mississippi, 394 U.S. 721, 727 (1969) ("Detention for fingerprinting may constitute a much less serious intrusion upon personal security than other types of police searches and detentions. Fingerprinting involves none of the probing into an individual's private life and thoughts that marks an interrogation or search.").

[205] *See Dionisio*, 410 U.S. at 14 ("No person can have a reasonable expectation that others will not know the sound of his voice, any more than he can reasonably expect that his face will be a mystery to the world.").

[206] *Id.* at 13-18.

curred.[207] Courts have held similarly in other identification and location-determination cases, including the use of beepers to pinpoint location[208] and biometric information for identification.[209] In short, each of these cases focuses on a seclusion interest, but not a secrecy interest, in identifying information.

Lower courts grappling with the new territory of electronic searches of informational property have also held that individuals lack a secrecy interest in their identifying information. Courts have rejected Fourth Amendment interests in identifying information such as the to/from address fields in emails and other addressing and routing information.[210] In treating email address fields as identical to address information on postal envelopes, courts have extended protection to the content of emails, like letters, but not to the identities of the senders and the recipients.[211] These cases build upon the foundation of *Smith v. Maryland*, in which the Court held that the government's use of a pen register was not a Fourth Amendment search.[212] Framed in terms of seclusion, the Court found that when numbers are conveyed to a third party to connect a call, the caller fails to seclude the numbers dialed.[213]

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[207] *See id.* at 14 (describing the reasonable expectation that others will be familiar with one's physical features).

[208] *See* Recent Development, *Who Knows Where You've Been?: Privacy Concerns Regarding the Use of Cellular Phones as Personal Locators*, 18 HARV. J.L. & TECH. 307, 314-15 (2004) (describing *United States v. Forest*, 355 F.3d 942 (6th Cir. 2004), which held that pinpointing one's location or movement through one's beeper is not subject to a reasonable expectation of privacy).

[209] *See* Robin Feldman, *Considerations on the Emerging Implementation of Biometric Technology*, 25 HASTINGS COMM. & ENT. L.J. 653, 654, 668-69 (2003) (discussing the implications for individuals' privacy concerns of biometric data collection, "the science of identifying people based on their physiological and behavioral characteristics").

[210] *See* Quon v. Arch Wireless Operating Co., 529 F.3d 892, 905 (9th Cir. 2008) (holding that there is no legitimate expectation of privacy in the to/from addresses of text messages), *rev'd on other grounds sub nom.* City of Ontario v. Quon, 130 S. Ct. 2619 (2010); United States v. Forrester, 512 F.3d 500, 510 (9th Cir. 2008) (holding that Internet users do not have a legitimate expectation of privacy in email addresses or their history of visited websites); *see also* Smith v. Maryland, 442 U.S. 735, 743 (1979) (asserting that "it is too much to believe" that telephone users have a legitimate expectation of privacy in the numbers they dial, even if dialed inside the home).

[211] *See* United States v. Hernandez, 313 F.3d 1206, 1209-10 (9th Cir. 2002) ("Although a person has a legitimate interest that a mailed package will not be opened and searched en route, there can be no reasonable expectation that postal service employees will not handle the package or that they will not view its exterior . . . ." (citations omitted)).

[212] 442 U.S. at 742.

[213] *Id.* at 744.

Using the content/no-content dichotomy as its guide, the Court held that since pen registers do not acquire the contents of the phone call, they are distinguishable from listening devices like those in *Katz*.[214] Only the New Jersey Supreme Court has held that individuals have a reasonable expectation of privacy in the subscriber and automatically generated information that they provide to ISPs, but this decision was based on the expansive protections of personal information guarded by the New Jersey Constitution, not by the U.S. Constitution.[215]

Although courts have applied a content/no-content distinction to reach this result, an intellectual property metaphor provides a better guide. Consider bodily intrusion cases. Should we view the body as a container, and blood and cells as the content inside? If so, the content/no-content distinction would predict that a blood sample is protected while the external surfaces of the body are not. This outcome makes little sense and does not align with current doctrine.[216] An intellectual property framework, by contrast, does not depend on whether evidence is visible to the naked eye. Instead, because individuals have not authored the information, they lack a cognizable secrecy claim in their blood. The only relevant interest arises from seclusion, and so the method by which the government obtains the sample will thereby determine the reasonableness of its seizure.

Intellectual property law also recognizes that expression but not facts are subject to copyright protection because "facts do not owe their origin to an act of authorship."[217] Rather, "[t]he first person to find and report a particular fact has . . . merely discovered its existence."[218] As identifying information is a set of facts, a suspect can rarely, if ever, claim that such information contains original expressive content. Consequently, individuals have only a privacy interest in the

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[214] *Id.* at 741.

[215] *See* State v. Reid, 945 A.2d 26, 28 (N.J. 2008) ("We . . . hold that citizens have a reasonable expectation of privacy, protected by . . . the New Jersey Constitution, in the subscriber information they provide to Internet service providers . . . .").

[216] *See, e.g.*, Schmerber v. California, 384 U.S. 757, 771 (1966) (finding that the forced extraction of blood samples from a defendant after his arrest for driving under the influence was a reasonable method of measuring his blood alcohol level).

[217] Feist Publ'ns, Inc. v. Rural Tel. Serv. Co., 499 U.S. 340, 347 (1991).

[218] *Id.*; *see also id.* at 361 (noting that even if the compiler of a phonebook had "been the first to discover and report the names, towns, and telephone numbers of its subscribers," the information does not satisfy the originality requirement because it "existed before [the compiler] reported [it] and would have continued to exist if [the compiler] had never published a telephone directory").

seclusion of identifying information, but not in its secrecy. Thus, when seclusion has been abandoned, no viable privacy interest remains.

The intellectual property framework also guides how sense-enhanced brain-based searches of identifying information would fare in a way that the content/no-content dichotomy cannot. In the hypothetical motorist stop introduced above, the police know the identity of a sought-after terrorist, but not that of the motorist.[219] Should the motorist refuse to provide her identity, the police might nevertheless employ biometric technology to quickly and unobtrusively identify her. Biometric identification is an automated process that uses an individual's physical characteristics to identify her.[220] Biometric technology has already developed for facial recognition, fingerprinting, and iris scans.[221] Emerging techniques in neuroscience now enable identification of an individual based on her brainwave patterns.[222] There is some evidence that brainwave signals for each individual are unique—even between two people thinking about the same thing—and cannot be falsified.[223] Technology has already been developed that can record electroencephalographic (EEG) signals using a noninvasive helmet.[224] Police may one day be able to use this technology for on-the-spot iden-

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[219] *See supra* text accompanying notes 185-89.

[220] *See* SUBCOMM. ON BIOMETRICS, NAT'L SCI. & TECH. COUNCIL, PRIVACY & BIOMETRICS: BUILDING A CONCEPTUAL FOUNDATION 4 (2006), *available at* http://www.biometrics.gov/docs/privacy.pdf (defining biometrics as "automated methods of recognizing an individual based on measurable biological . . . and behavioral characteristics").

[221] *See id.* at 15-17 (describing existing technologies for such biometric methods).

[222] *See* Gelareh Mohammadi et al., *Person Identification By Using AR Model for EEG Signals*, 11 WORLD ACAD. OF SCI. ENGINEERING & TECH. 461, 463 (2005) (explaining that because brain waves "carr[y] genetic information," they can be used to determine a person's identity); *Fingerprints and Faces Can Be Faked, but Not Brain Patterns*, SCI. DAILY (Feb. 5, 2009), http://www.sciencedaily.com/releases/2009/02/090205101138.htm (describing emerging brain scan technology that, in the future, may be used to identify individuals); Will Knight, *Brain Activity Provides Novel Biometric Key*, NEW SCIENTIST (Jan. 16, 2007), http://www.newscientist.com/article/dn10963-brain-activity-provides-novel-biometric-key.html (summarizing the technology behind brain scans); A. Riera et al., *Unobtrusive Biometric System Based on Electroencephalogram Analysis*, EURASIP J. ON ADVANCES IN SIGNAL PROCESSING 6-7 (2008), http://asp.eurasipjournals.com/content/2008/1/143728 (showing that electroencephalogram recordings of the brain may be valuable for identification).

[223] C. Eswari & S.K. Ramya, *Biometrics Using Headgear to Scan Brainwaves*, 2011 PROC. NAT'L CONF. ON INNOVATIONS IN EMERGING TECH. 95, 95.

[224] *Id.* at 96.

tification by comparing a suspect's brainwave pattern with those in a database of brainwave patterns.[225]

That the police might use such technology to identify individuals is neither far off nor far-fetched. Already police forces across the country are rolling out a new investigative device that attaches to the back of an iPhone and enables police to do on-the-spot fingerprint scanning, facial recognition, and iris scanning.[226] This biometric technology merely adds to the vast array of identifying information that investigators can unobtrusively obtain, including static brain images, blood samples, and shed samples of DNA.[227]

Because an individual cannot claim authorship over her biometric data, seclusion is the only recognized privacy interest that these searches could implicate. When seclusion is the sole cognizable interest at stake, the physical intrusiveness of the search governs its reasonableness.[228] Taking a few hair clippings from a suspect in custody, for example, intrudes only minimally upon her seclusion.[229] But forcing a suspect to undergo surgery, by contrast, is unreasonable because it imposes significant potential physical harm on the individual.[230]

And yet, an individual does not bare her biometric brain activity to the world in the same way that she reveals her more visible identifying characteristics, so she cannot as easily be viewed as having abandoned an interest in secluding that information. But as other bodily intrusion cases have made plain, if the techniques involved subject the indi-

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[225] This hypothetical assumes that the biometric read-out provides no information other than the suspect's identity, or something as simple as "this person matches the suspect sought" or "this person does not match the suspect sought." If the device did more, such as reveal the suspect's substantive thoughts, additional Fourth Amendment interests would be implicated. *Cf., e.g.*, United States v. Place, 462 U.S. 696, 707 (1983) (holding that canine searches are not a search within the meaning of the Fourth Amendment because they are "limited both in the manner in which the information is obtained and in the content of the information revealed by the procedure").

[226] Emily Steel, *How a New Police Tool for Face Recognition Works*, WALL ST. J. DIGITS BLOG (July 13, 2011, 7:56 AM), http://blogs.wsj.com/digits/2011/07/13/how-a-new-police-tool-for-face-recognition-works.

[227] *See* Farahany, *supra* note 8, at 368-70.

[228] *See* Terry v. Ohio, 392 U.S. 1, 30-31 (1968) (holding that the Fourth Amendment permits "reasonable inquiries" to determine a suspect's identity).

[229] *See, e.g.*, United States v. D'Amico, 408 F.2d 331, 333 (2d Cir. 1969) (holding that taking a clipping of hair from a suspect in custody without a warrant is minimally intrusive and therefore is not an unreasonable seizure under the Fourth Amendment).

[230] *See* Winston v. Lee, 470 U.S. 753, 755-56 (1985) (holding that the surgical removal of a bullet from the suspect's body was unreasonable given the procedure's risks and the availability of other evidence of guilt).

vidual to minimal or no physical intrusion, the societal interest in the information sought may justify the warrantless use of biometric brain scanning. Individuals will thus have a cognizable seclusion—but not a secrecy—interest in their biometric brain evidence, just like their other identifying information.

B. *Automatic*

Likely the most important and also most underanalyzed question in Fourth Amendment jurisprudence is: What individual interests are protected when the police collect automatically generated evidence about an individual? Automatic evidence encompasses those actions and reactions that occur with little or no conscious control by the individual.[231] To date, scholars have lumped such automatic evidence with no-content information. As the hypothetical automated phone system example described above illustrates,[232] content/no-content does not accurately predict whether automatic information falls into one category or the other. This is particularly problematic in the information age because much of the information that investigators now seek to discover arises in the form of automated evidence. The information in email headers, an Internet browser's log of IP addresses, and the GPS triangulation of a person's movements all occur automatically as a by-product of an individual's voluntary activities.

In the electronic domain, user activity generates information automatically. Examples include Internet searches and communications, routing information attached to emails as they travel from one ISP to another, and automated information exchanged between one's computer and ISP, all of which produce substantial automatic logs. The portability of GPS technology and its integration into mobile devices and automobiles enables the triangulation and tracking of a person's location by querying her cell phone provider or mobile traffic provider. All of these processes occur automatically, without the conscious control, active manipulation, or even awareness of the user being tracked.

When it comes to automatically generated information, there is currently no coherent Fourth Amendment approach to disentangling the individual privacy interests at stake. In bodily intrusion cases concerning automatic bodily functions, for example, the Supreme Court

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[231] Farahany, *supra* note 8, at 372-73.

[232] *See supra* Section I.B.

has sometimes balanced individual interests in seclusion or secrecy against the legitimate advancement of societal needs.[233] Intrusion upon seclusion of the body occurs when testing penetrates "beneath the skin," and the "ensuing chemical analysis of the sample to obtain physiological data" intrudes upon substantive secrecy.[234] The beneath-the-skin analogy seems like the "content" part of the dichotomy. And yet breath-testing procedures, which generally require the suspect to expel a deep breath for chemical analysis, have also aroused the Court's intuition that the seclusion of the body has been infringed.[235] These interests are certainly not absolute ones, as the Court has found such procedures to be reasonable searches so long as the test is routine and minimally physically invasive.

Challenges to the constitutionality of automatic location-tracking devices have had similarly mixed results, though a more consistent focus on seclusion is beginning to emerge, particularly after *Jones*. In *United States v. Knotts*, for example, law enforcement officers installed a tracking beeper inside a container of chloroform with the manufacturer's consent and then used that beeper to track the movements of one of the defendants as he transported the container from one location to the next.[236] Because the warrantless beeper tracked the movement of the defendant's vehicle only through public streets, the Court found that no unreasonable search had occurred.[237] The defendant had abandoned his interest in secluding himself and the container by transporting it through public streets that any onlooker could observe. The police could simply have followed him, and that would not have been a search. In contrast, the Court in *United States v. Karo* held that the warrantless use of a tracking beeper was an unreasonable search because it had tracked Karo not only on public throughways but also while inside his own home.[238] Unlike driving on a public street, when

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[233] *Compare* Winston v. Lee, 470 U.S. 753, 766 (1985) (holding that compelling the surgical extraction of a bullet from an arrestee was unreasonable), *with* Schmerber v. California, 384 U.S. 757, 770-72 (1966) (holding that compelling an individual arrested for drunk driving to take a blood test was reasonable).

[234] Skinner v. Ry. Labor Execs.' Ass'n, 489 U.S. 602, 616 (1985); *see also id.* at 617 ("[C]hemical analysis of urine, like that of blood, can reveal a host of private medical facts about an employee, including whether he or she is epileptic, pregnant, or diabetic.").

[235] *See id.* at 618 ("Any limitation on an employee's freedom of movement that is necessary to obtain . . . breath samples . . . must be considered in assessing the intrusiveness of the searches effected by the Government[] . . . .").

[236] 460 U.S. 276, 278 (1983).

[237] *See id.* at 285.

[238] *See* 468 U.S. 705, 714 (1984).

Karo returned home, he had not abandoned his interest in seclusion. Thus, the warrantless tracking implicated a protected Fourth Amendment interest.

In *United States v. Jones*, the Supreme Court resolved conflicting perspectives among lower courts[239] on whether attaching a GPS tracking device to an automobile and tracking its movements constitutes a Fourth Amendment search.[240] The D.C. Circuit found that the twenty-four-hour surveillance of Jones's movements using a GPS device attached to his car was unreasonable.[241] In doing so, the D.C. Circuit focused on the intrusion upon the defendant's seclusion in his comings and goings, finding that he could not have expected to be tracked twenty-four hours a day for twenty-eight days straight.[242] The difference between occasional observation and constant and complete surveillance transformed what would otherwise have been a nominal intrusion to a complete one by revealing an "intimate picture of the subject's life that he expects no one to have."[243] The court found that the warrantless monitoring constituted a search,[244] and under the totality of the circumstances, was an unreasonable one.[245]

The Supreme Court, by contrast, focused only on whether a Fourth Amendment *search* had occurred. The government's theory was that no individual interest had been intruded upon by tracking Jones's movement through public throughways. The government had forfeited arguing that if a search occurred, the search was a reasonable one, so the Court did not resolve that question. Justice Sotomayor's concurrence intimates that had the Court reached that question, she

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[239] *See generally* Adam Koppel, Note, *Warranting a Warrant: Fourth Amendment Concerns Raised by Law Enforcement's Warrantless Use of GPS and Cellular Phone Tracking*, 64 U. MIAMI L. REV. 1061, 1072-79 (2010) (discussing the split in judicial authority on the constitutionality of warrantless tracking using GPS devices and cellular telephones).

[240] 132 S. Ct. 945, 948 (2012). The Seventh and Ninth Circuits had held that such actions do not constitute a Fourth Amendment search. *See* United States v. Pineda-Moreno, 591 F.3d 1212, 1216-17 (9th Cir. 2010), *vacated*, No. 10-7515, 2012 WL 538278 (U.S. 2012); United States v. Garcia, 474 F.3d 994, 996-998 (7th Cir. 2007). The D.C. Circuit disagreed, holding that use of a GPS device is a search under the Fourth Amendment. United States v. Maynard, 615 F.3d 544, 563-64 (D.C. Cir. 2010), *aff'd sub nom. Jones*, 132 S. Ct. 945.

[241] *Maynard*, 615 F.3d at 568.

[242] *See id.* at 563.

[243] *Id.*

[244] *Id.* at 563-64.

[245] *Id.* at 566-67.

would have found that the search to have been unreasonable. The majority opinion did not echo the same sentiment.

Does the intellectual property metaphor predict the resolution of this claim? By driving a car with a GPS device attached, Jones could not have claimed to have authored or originated expressive writings or intangible effects. While Jones did originate the logged movements, those movements do not amount to expressive content subject to copyright protection. Because Jones lacked a legally cognizable claim in the secrecy of his movements,[246] only intrusion upon his seclusion was at stake. And judicial review of such intrusions will focus on the physical invasiveness of the search,[247] which in GPS-tracking cases are usually quite minimal.[248] The private details of Jones's life concern an interest in secrecy, yet that interest is not protected by intellectual property law.

The concurring opinions in *Jones* emphasized that even more challenging cases stemming from the search of automatically generated information will arise.[249] Call logs from cell phones generate automatic tracking information, including information about the location, time of day, and duration of each call. The interface between individuals and the Internet will create even more constitutional conundrums. Every keystroke in a web browser sends detailed information to the host server apart from the expressive writings themselves, including the type of computer the user has as well as her operating system, web browser, and each IP address and URL she views.[250] These automated logs create a *transactional* history of every keystroke, every website, and potentially every moment of one's online daily life. From research questions concerning personal health to queries seeking relationship advice, IP addresses provide a window into what is in one's mind.

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[246] United States v. Jones, 132 S. Ct. 945, 951-52 (2012).

[247] *See id.* at 949 (stressing that the concept of a Fourth Amendment "search" includes physical intrusions by the government).

[248] *See id.* at 961 (Alito, J., concurring in the judgment) (noting that installation of a GPS device is "relatively minor" and "trivial").

[249] *See id.* at 955 (Sotomayor, J., concurring) ("With increasing regularity, the Government will be capable of duplicating the monitoring undertaken in this case by enlisting factory- or owner-installed vehicle tracking devices or GPS-enabled smartphones. In cases of electronic or other novel modes of surveillance that do not depend upon a physical invasion on property, the majority opinion's trespassory test may provide little guidance." (citation omitted)); *id.* at 963 (Alito, J., concurring in the judgment) (noting that the "availability and use" of location-tracking technology "will continue to shape the average person's expectations about the privacy of his or her daily movements").

[250] Junghoon Oh et al., *Advanced Evidence Collection and Analysis of Web Browser Activity*, 8 DIGITAL INVESTIGATION S62, S64-S66 (2011).

Emails also create such a trail as each server an email encounters adds yet another line of information to the email's header. These email headers reveal much more than the mere identity of the user; they also reveal the approximate location of the sender and her institutional affiliations. As courts grapple with the reasonableness of investigations seeking automatic evidence in the information age, the analogies to draw from are thin, and a rationale is needed to guide the courts as to whether an interest in seclusion, secrecy, or both apply.

The intellectual property metaphor helps predict how the Court might address this central conundrum of past and emerging Fourth Amendment law. An individual will rarely if ever have a legitimate claim to be a copyright author of automatically generated personal information. And real property law does not grant a privacy-as-secrecy interest to that information. What then, is her basis to exclude the government from the information? If anything, it must rest in secluding the information. But courts have posited that an individual abandons her interest in secluding information by using technology that voluntarily conveys that information to third parties.

More concerning still is that automatically generated information includes far more than just the digital traces left behind by using electronic devices. Individuals generate considerable information through the automatic functioning of their own bodies. Considering the intellectual property interests of the hypothetical stopped motorist discussed above predicts how a claim about secrecy concerning automatically generated bodily functions of the motorist might fare.[251] The police could one day bypass the use of breathalyzer or blood-alcohol tests by directly measuring the level of alcohol intoxication in the brain. Using positron emission tomography (PET), a form of brain imaging that provides an index of brain functioning, researchers have shown that the brain exhibits decreased brain glucose metabolism in patterns that roughly parallel the regional distribution of particular receptors for neurochemicals in the brain.[252] Newer neuroimaging techniques, such as functional magnetic resonance imaging (fMRI), can likewise detect both the level and nature of the impairment an individual experiences when intoxicated by drugs or

[251] *See supra* text accompanying notes 185-89.

[252] *See* Gene-Jack Wang et al., *Regional Brain Metabolism During Alcohol Intoxication*, 24 ALCOHOLISM: CLINICAL & EXPERIMENTAL RES. 822, 825-27 (2000) (discussing the effects of acute alcohol consumption on blood glucose metabolism in the brain).

alcohol.[253] By measuring changes in oxygenated and deoxygenated blood flow in the brain, scientists can measure the effects of intoxication on an alcohol- or drug-impaired motorist.[254] Today, the wide-scale adoption of such techniques would be cost-prohibitive and cumbersome, particularly since the required scanners are large and often immobile. But if Moore's law is any guide, one should expect both an exponential rate of improvement and an increased portability of neuroimaging devices in time.[255]

The hypothetical motorist again may have a claim to seclusion of this information. But she would lack any currently recognized cognizable Fourth Amendment claim concerning the glucose-metabolism or other automatic functioning in her brain. Like the search for brain-based biometric evidence discussed above, the intrusion upon her seclusion interest would be minimal at best because it would not be physically invasive and would therefore yield to a legitimate societal interest in the evidence sought. In short, current doctrine predicts that seclusion is the only cognizable interest that an individual can claim in automatically generated information. When it comes to searches of automatically generated information, the Fourth Amendment will provide minimal if any protection.

C. *Memorialized*

At the heart of many traditional and modern criminal investigations is the search for papers and effects that lead to the discovery of incriminating evidence. Memorialized evidence includes recorded papers and effects such as written documents, depictions, photographs, stored electronic records, or even encoded memories in the brain. Thoughts are recorded in memorialized writings, calendar notations, emails, text messages, recorded dictation, replies to electronic invitations, and more. Together, these memories create the authored pa-

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[253] *See, e.g.*, V.D. Calhoun et al., *Using Virtual Reality to Study Alcohol Intoxication Effects on the Neural Correlates of Simulated Driving*, 30 APPLIED PSYCHOPHYSIOLOGY & BIOFEEDBACK 285, 286-88 (2005) (providing a brief synopsis of previous work using functional magnetic resonance imaging to study the neural correlates of alcohol intoxication).

[254] *Id.* at 286.

[255] *See* Ian H. Stevenson & Konrad P. Kording, *How Advances in Neural Recording Affect Data Analysis*, 14 NATURE NEUROSCIENCE 139, 141-42 (2011) (noting that the number of single neurons that physiologists may simultaneously record doubles about every seven years, just as Moore's law predicts computer processing speed doubles every two years).

pers and effects to which a Fourth Amendment privacy interest in secrecy currently applies.

Individuals memorialize everyday activities in both tangible and intangible form. Whether written in a personal diary or encoded in the substructures of the brain, memories reflect the traces of everyday lives. These memories include people met, the timbre of voices heard, foods eaten, smells and sounds experienced, visual imagery encountered, and ideas imagined.

The information age puts new pressure on the interests implicated by an investigation for memorialized evidence. In Fourth Amendment cases concerning private papers, business records, email messages, and smartphone documents, courts often focus on whether a physical trespass occurred as the sole measure of the individual interest implicated by the search. At times, however, courts have acknowledged that "a private writing is only the barest extension of a private thought"[256] and have sometimes recognized an interest in its secrecy. But even then, courts have failed to explain why some information merits secrecy and other information does not. Until now, there has been no legal principle or referent to explain that difference.

It is well settled that individuals are protected against the unwarranted opening of their sealed letters and packages.[257] Lower courts have recognized a similar privacy interest in text messages vis-à-vis an individual and her service provider.[258] In *United States v. Finley*, for example, the Fifth Circuit held that when Finley used a cell phone given to him by his employer for his employment-related uses, he had a possessory interest in the phone and therefore a right to exclude others from reading his text messages and listening to his calls.[259] When the

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[256] Newman, *supra* note 131, at 471.

[257] *See, e.g.*, United States v. Jacobsen, 466 U.S. 109, 114 (1984) ("Letters and other sealed packages are in the general class of effects in which the public at large has a legitimate expectation of privacy . . . ."); *Ex parte* Jackson, 96 U.S. 727, 733 (1877) ("[A] distinction is to be made between different kinds of mail matter,—between what is intended to be kept free from inspection, such as letters, and sealed packages . . . [,] and what is open to inspection . . . .").

[258] *See* Quon v. Arch Wireless Operating Co., 529 F.3d 892, 905 (9th Cir. 2008) ("[U]sers do have a reasonable expectation of privacy in the content of their text messages vis-a-vis the service provider."), *rev'd on other grounds sub nom.* City of Ontario v. Quon, 130 S. Ct. 2619 (2010); United States v. Finley, 477 F.3d 250, 259 (5th Cir. 2007) (holding that the defendant had a reasonable expectation of privacy in the text messages on his cell phone and that he consequently had standing to challenge the search).

[259] *See* 477 F.3d at 259 ("Finley had a reasonable expectation of privacy in the call records and text messages on the cell phone . . . .").

Supreme Court recently addressed the reasonableness of a warrantless search of the text-message transcript log of a government-issued pager, the Court relied on a workplace exception to find the search constitutionally permissible.[260] The Court abstained from addressing the more far-reaching implications of interests in memorialized evidence and cautioned lower courts to tread carefully when dealing with the issue.[261]

Although courts have split over whether the privilege against self-incrimination will sometimes shield the use of private papers against a defendant,[262] with near uniformity they have held that the Fourth Amendment does not bar their ultimate discovery. At first, it seemed as if the Supreme Court would extend full Fourth Amendment protection to private papers and books,[263] but the Court has since concluded that the search for private papers implicates no greater interests than any other memorialized evidence.[264]

The Court has implicitly relied on an intellectual property law metaphor to deny suspects a secrecy interest in the writings authored by others. In *Fisher v. United States*, for example, the Court correctly intuited that authorship triggers a distinct Fourth Amendment interest without noticing the crucial linkage to copyright authorship, upholding a subpoena for papers prepared by a defendant's accountant.[265] No unreasonable search of the defendant had occurred because the papers were the accountant's, and the defendant was not their author.[266] Had the defendant been the author and the search directed at

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[260] *See Quon*, 130 S. Ct. at 2630 ("[W]hen conducted for a noninvestigatory, work-related purpose or for the investigation of work-related misconduct, a government employer's warrantless search is reasonable if it is justified at its inception and if the measures adopted are reasonably related to the objectives of the search and not excessively intrusive in light of the circumstances . . . ." (quoting O'Connor v. Ortega, 480 U.S. 709, 725-26 (1987)) (internal quotation marks omitted)).

[261] *See id.* at 2629 ("Prudence counsels caution before the facts in the instant case are used to establish far-reaching premises that define the existence, and extent, of privacy expectations enjoyed by employees when using employer-provided communication devices.").

[262] *See* Farahany, *supra* note 8, at 384-88.

[263] *See* Boyd v. United States, 116 U.S. 616, 633 (1886) ("[W]e have been unable to perceive that the seizure of a man's private books and papers to be used in evidence against him is substantially different from compelling him to be a witness against himself.").

[264] *See* Andresen v. Maryland, 427 U.S. 463, 474 (1976) (finding that there is no special interest justifying the protection of papers from search and seizure).

[265] 425 U.S. 391, 409 (1976).

[266] *See id.* (finding that the Fifth Amendment "privilege protects a person only against being incriminated by his own compelled testimonial communications").

tax records he himself had prepared, the Court implied that a privacy interest in secrecy might have applied.[267]

In *United States v. Miller*, the Court also implicitly focused on authorship in deciding whether secrecy applied, reasoning that "[o]n their face, the documents subpoenaed here are not respondent's 'private papers' . . . [but] pertain to transactions to which the bank was itself a party.'"[268] Neither Miller nor the bank could claim sole authorship of the memorialized records that the government had subpoenaed. As joint authors to the transactions, both parties had the right to disclose the transactional records to third parties. The same rationale holds true when the government subpoenas papers from a corporation that a corporate officer authored on the corporation's behalf. In such a case, the corporation is the aggrieved author and only it can claim that *its* privacy interest has been intruded upon in challenging the reasonableness of a search.[269] Likewise, Fourth Amendment complainants generally fail when the government seizes books and papers that the defendant neither authored nor owned.[270]

The Court's failure to acknowledge explicitly authors' intellectual property interest in Fourth Amendment cases explains its misguided

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[267] *See id.* at 414 ("Whether the Fifth Amendment would shield the taxpayer from producing his own tax records in his possession is a question not involved here, for the papers demanded here are not his 'private papers.'").

[268] United States v. Miller, 425 U.S. 435, 440-41 (1976) (quoting Cal. Bankers Ass'n v. Shultz, 416 U.S. 21, 48-49 (1974)).

[269] *See* Haywood v. United States, 268 F. 795, 804 (7th Cir. 1920) (holding that the individual authors of business documents could not object to the seizure of business documents because the author was the corporation, not the individuals).

[270] *See, e.g.*, Tsuie Shee v. Backus, 243 F. 551, 552-53 (9th Cir. 1917) (finding no violation of Fourth Amendment rights where the material seized was not owned by the defendant); Moy Wing Sun v. Prentis, 234 F. 24, 26 (7th Cir. 1916) (holding that petitioner's constitutional rights were not violated because the letters were not in his possession and he denied any claim to them); United States v. Silverthorne, 265 F. 853, 857 (W.D.N.Y. 1920) (explaining that the Fourth Amendment protects only individuals whose rights have been invaded by search or seizure). The owner may, however, object to such seizure. *See* Owens v. Way, 82 S.E. 132, 133 (Ga. 1914) ("The constitutional protection against unreasonable seizure of property would go for naught if it should be conceded that an arresting officer may arbitrarily possess himself of the property of a third person, solely upon the ground that it may be used as evidence against the defendant in the warrant."); Newberry v. Carpenter, 65 N.W. 530, 532 (Mich. 1895) ("No intimation is found in any statute of this state . . . that a prosecutor may cause to be seized the property of third parties, the possession, ownership, and use of which are not prohibited by law . . . and their private enclosures to be entered for that purpose. Such seizures are unwarranted, unreasonable, and prohibited by the constitution of the United States and of this state.").

reasoning in *Andresen v. Maryland*. After obtaining a warrant, investigators searched the defendant's office and seized papers, including "memoranda written in petitioner's handwriting."[271] These were defendant's private papers—not "corporate records"—generated by the defendant in the course of his personal legal business.[272] The Court found that "[t]here is no special sanctity in papers, as distinguished from other forms of property, to render them immune from search and seizure."[273] The Court altogether missed the important connection between copyright and the Fourth Amendment and thereby improperly focused only on the physical seclusion of Andresen's papers during the investigation. Finding the intrusion upon seclusion to have been minimal and also that "the petitioner was not treated discourteously during the search,"[274] the Court held that no unreasonable search and seizure had occurred.[275] It may have held differently if it had factored Andresen's secrecy interest in the papers that he authored into the reasonableness of the search.

Because the Court has overlooked the linkage between the secrecy interest and copyright authorship, lower courts have had virtually no guidance on how to weigh the individual interests at stake in government searches of private papers. Consequently, in cases like *DiGuiseppe v. Ward*, the Second Circuit found no privacy interest in the secrecy of a prisoner's diary.[276] After a sweep of a prison following a riot, a prison guard seized a prisoner's diary and read its contents.[277] The inmate made no claim that he intended to disseminate or publish the diary, so the court overlooked the copyright implications of the search and focused on First Amendment interests instead.[278] Reading the diary, the court found, did not intrude upon his "right to speak, nor, of course, upon his right to listen, to believe, or to associate."[279] And likening reading the diary to the inevitable intrusion upon seclusion that the search of the prison necessitated after the riot, the court ultimately held that no unreasonable intrusion upon the seclusion of the in-

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[271] *Id.* at 466, 469.

[272] *See id.* at 468 n.2 ("It is established that the privilege against self-incrimination may not be invoked with respect to corporate records.").

[273] *Id.* at 474 (quoting Gouled v. United States, 255 U.S. 298, 309 (1921)).

[274] *Id.* at 477.

[275] *Id.*

[276] *See* 698 F.2d 602, 605 (2d Cir. 1983).

[277] *Id.* at 603-04.

[278] *Id.* at 605.

[279] *Id.*

mate's papers had occurred.[280] Like the Court in *Andresen*, the court missed a crucial dimension of the prisoner's privacy interest at stake. Had the Second Circuit applied intellectual property as a relevant legal referent to the prisoner's privacy interest in his expressive writings, it would have recognized that the prisoner had both seclusion and secrecy interests in his diary. It would then have balanced the prisoner's secrecy and seclusion interests against the government's interest in the evidence sought and decided whether these intrusions rendered the search unreasonable.

Intellectual property provides an important metaphor to guide courts in deciding the reasonableness of an expectation of privacy in memorialized evidence. Authors have a statutory right to exclude others from their unpublished works, including their diaries, emails, text messages, and private papers. Of course, authors do not always keep their writings secret or secluded. Indeed, copyright law contemplates that authors can and should be incentivized to share their writings with others. When authors share with others, they may do so in a limited fashion—such as in the exchange of private letters or in the exchange of private communications with a priest or attorney. They might instead share broadly, by publishing their writings for anyone and everyone to see. Once they release their writings and effects to the world, their rights are similarly limited and circumscribed by copyright law.[281] The question of how strongly a secrecy interest applies in each of these contexts is a fruitful area to explore in future research.

When an author shares with others, she may demonstrate a willingness to forego some of her privacy interests in the seclusion and secrecy of her expressions. The more broadly she shares, the more telling her decision to forego the privacy interest she may have had.[282] Depending upon with whom and how the author shares, for example, the recipient may gain a possessory interest in the shared expression. That possessory interest grants the recipient the right to disclose what she has learned, although the right to publish—and the right to ex-

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[280] *Id.* Nevertheless, the court took pains to mention that the prison guard seemed uninterested in the contents of the diary and used it primarily to find information concerning the riots. *Id.*

[281] *See* Heymann, *supra* note 97, at 838 (noting how in both copyright and privacy law, wide distribution of an author's material leads to fewer rights for the author).

[282] *See* Newman, *supra* note 131, at 472 ("[T]he private writing of a private thought is entitled to protection in the name of privacy only so long as the writer maintains the writing within his or her grasp . . . .").

clude others from publishing—remains with the author.[283] This feature of intellectual property law could well provide important insights into Fourth Amendment cases, particularly when the government serves a subpoena on the recipient rather than the author of information.

And yet the secrecy interest that authors have in memorialized information should hold irrespective of whether the information has been stored in tangible form, electronically on a computer or a cloud server, or in memories in their brains. In the brain, memories are encoded by memory type, with each memory type mediated by different neural structures.[284] Memories are quite personal to the experience of an individual. Two individuals looking across a courtyard, for example, will focus on different aspects of the scene before them. The memories they encode of that moment will be personally created expressions of their own experiences.

It may already be possible to access memories in the brain, including simple recognition memory, recall of past voices and faces, or even detailed episodic memories in the conscious mind.[285] If the hypothetical motorist had been drinking before driving, for example, her experience and the timing, location, and sensory associations of that evening will have been stored within her brain. Episodic memory describes the class of neurological memories related to particular biographical episodes or life events. These memories include the content of the experience and the spatial and temporal context in which it occurred.[286] Such memories are formed when the brain bonds individual events to the specific temporal context in which the event took

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[283] *See* MELVILLE B. NIMMER & DAVID NIMMER, NIMMER ON COPYRIGHT § 5.04, at 5-56.15 (2011) ("[T]he general rule is that the author of a letter retains the ownership of the copyright or literary property contained therein while the recipient of the letter acquires ownership of the tangible physical property of the letter itself."); *see also In re* McCormick's Estate, 80 Pa. D. & C. 413, 417 (1952) (holding that the children of a deceased serviceman had a possessory interest in the letters that he sent to them while at war); Grigsby v. Breckinridge, 65 Ky. (2 Bush) 480, 486 (1867) (stating that the recipient of a private letter holds the general property rights in the letter, qualified only by the author's right to publish it or prevent its publication).

[284] Morris Moscovitch et al., *Functional Neuroanatomy of Remote Episodic, Semantic and Spatial Memory: A Unified Account Based on Multiple Trace Theory*, 207 J. ANATOMY 35, 38-39 (2005).

[285] *See* Farahany, *supra* note 8, at 379.

[286] Donna Rose Addis et al., *Age-Related Changes in the Episodic Simulation of Future Events*, 19 PSYCHOL. SCI. 33, 33 (2008).

place.[287] Through neuroimaging studies, it is now possible to detect and differentiate between specific memories in the brain,[288] including both the "what" and the "when" of those memories.[289] Using techniques such as fMRI, one can predict an individual's mental state by studying the patterns of blood-oxygen-level-dependent signals across her brain and decoding those patterns with multivariate pattern classification techniques.[290] Although portable and robust memory detection may never materialize and on-the-spot memory detection may be the musings of science fiction, these advancements nevertheless present an opportunity both to ask and answer when an investigation for memorialized evidence exceeds reasonable Fourth Amendment bounds.

With intellectual property as a metaphor, one has a secrecy interest in their brain-based memories if those memories contain expressive content. And because the expressive content must be intruded upon to glean any facts contained therein, common law copyright would extend a secrecy interest irrespective of a copyright fact/expression dichotomy. Indeed, the challenge for brain-based evidence may not be whether memories contain expressive content, but whether they are sufficiently "fixated" in the brain to warrant a copyright privilege to exclude others. Fixation is the legal moment at which constitutional authorship begins.[291] The Copyright Act of 1976 confers exclusive rights to copyright owners—the right to publish, to copy, and to distrib-

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[287] Yuji Naya & Wendy A. Suzuki, *Integrating What and When Across the Primate Medial Temporal Lobe*, 333 SCIENCE 773, 773 (2011).

[288] *See, e.g.*, Martin J. Chadwick et al., *Decoding Individual Episodic Memory Traces in the Human Hippocampus*, 20 CURRENT BIOLOGY 544, 545 (2010) ("Now that we have shown that it is possible to directly access information about individual episodic memories in the human hippocampus in vivo and noninvasively, this offers new opportunities to examine important properties of episodic memory, to explore possible functional topographies, and to examine neural computations within hippocampal subfields."); Jesse Rissman et al., *Detecting Individual Memories Through the Neural Decoding of Memory States and Past Experiences*, 107 PROC. NAT'L ACAD. SCI. 9849, 9852-53 (2010) ("If one's goal is to detect neural correlates of subjective remembering, the data provide novel evidence that, at least under the constrained experimental conditions assessed here, this could be achieved with high accuracy . . . .").

[289] *See* Naya & Suzuki, *supra* note 287, at 774 ("[O]ur data show that PRC neurons integrate time and item information by modulating their stimulus-selective response properties across temporally distinct stimulus presentations.").

[290] *See, e.g.*, Chadwick et al., *supra* note 288, at 544; Rissman et al., *supra* note 288, at 9849.

[291] *See* 17 U.S.C. § 102 (2006) ("Copyright protection subsists . . . in original works of authorship fixed in any tangible medium of expression, now known or later developed, from which they can be perceived, reproduced, or otherwise communicated, either directly or with the aid of a machine or device.").

ute writings—from the moment original expression has been fixed in a tangible medium.[292] Fixation is the act of preserving something, even if only temporarily, in a tangible medium of expression.[293] Whether that expression is a hasty text, a literary tome, or a memory recorded in the brain, once fixed, the expression is subject to federal copyright law.[294]

The statutory language concerning fixation makes plain a "difference between the work entitled to copyright protection and the material object in which the work is fixed."[295] Although some legal rights now attach to the latter, the former is the focal point of copyright protection. Fixation provides tangible evidence of the copyrightable expression, but it is the expression itself that is the subject of the copyright, and not the tangible good. Once the expression is reduced to tangible form, property rights can then attach, enabling authors to realize the economic incentives at the heart of copyright.[296] Where Fourth Amendment interests are concerned, however, the economic interests matter less than the privacy interests in first publication and the corollary right not to publish. In that context, whether fixed in external tangible form or fixed as memory in the brain, a Fourth Amendment privacy interest should exist in both modes of expression.

Cases concerning fixation in the information age are consistent with this approach. Courts have readily accorded copyright protection to the "electronic bits and bytes" of a software program, even though some other equipment, like a computer, and some other programs, like operating systems, are required to make them run.[297] Modern courts have embraced temporary fixation in software loaded into random-access memory (RAM) and video game displays that can be

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[292] As noted in *Harper & Row, Publishers, Inc. v. Nation Enterprises*, section 106 provides in pertinent part,

> Subject to sections 107 through 118, the owner of copyright under this title has the exclusive rights to do and authorize any of the following:
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> (1) to reproduce the copyrighted work in copies . . . ;
>
> (2) to prepare derivative works based upon the copyright work;
>
> (3) to distribute copies . . . of the copyrighted work to the public . . . .

471 U.S. 539, 546 n.1 (1985) (alterations in original) (quoting 17 U.S.C. § 106 (1982)).

[293] Heymann, *supra* note 97, at 829.

[294] *Id.* at 855-56.

[295] *Id.* at 848-49.

[296] *Id.* at 849.

[297] *Id.* at 850.

perceived only when the game is played.[298] In *MAI Systems Corp. v. Peak Computer, Inc.*, for example, the Ninth Circuit held that when a maintenance company loaded the software into RAM to "view the system error log and diagnose the problem with the computer," fixation was satisfied.[299] Other courts addressing software and temporary electronic fixation have held similarly, drawing from the language of the Copyright Act that the form, manner, and medium of fixation are unimportant.[300] These cases all suggest that even transient fixation is sufficient to evoke exclusive rights for authors. Whether flickering on a computer monitor or flickering in the brain, both can now be perceived and thus should come within the ambit of exclusive rights accorded to authors.

In short, fixation addresses a technical rather than substantive concern about protecting authored expression. That technical hurdle supposed it "impossible to 'copy' an 'idea,'" when it existed solely as "a conception in someone's mind."[301] But modern neuroimaging techniques may now enable the detection and reproduction of what exists in the mind just as easily as one perceives the bits and bytes inside a computer program.

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[298] *Id.*

[299] 991 F.2d 511, 518 (9th Cir. 1993); *see also* Heymann, *supra* note 97, at 850-51.

[300] *See, e.g.*, M. Kramer Mfg. Co. v. Andrews, 783 F.2d 421, 442-43 (4th Cir. 1986) (holding that video games and other computer programs stored on a disk or a read-only-memory device (ROM) are copyrightable). In another example, *Apple Computer, Inc. v. Franklin Computer Corp.*, 714 F.2d 1240, 1246-54 (3d Cir. 1983), the Third Circuit held that Apple's proprietary operating system, fixed in a ROM chip, is protected by copyright. The court rejected the arguments that a computer program is not protected when fixed in object code, that a computer program is not protected when fixed on a ROM chip rather than on a printout, and that an operating system program is not the proper subject of copyright. *Id.* Additionally, in *Tandy Corp. v. Personal Micro Computers, Inc.*, 524 F. Supp. 171, 173 (N.D. Cal. 1981), the court held that a computer program is a "work of authorship" subject to copyright, and a silicon chip upon which a program is imprinted is a "tangible medium of expression." The court based its decision in part on the legislative history of section 102(a) of the Copyright Act, which stated that "it makes no difference what the form, manner or medium of fixation may be—whether it is in words, numbers, notes, sounds, pictures or any other graphic or symbolic indicia, whether embodied in a physical object in written, printed, photographic, sculptural, punched, magnetic, or other stable form, and whether it is capable of perception directly or by means of any machine or device 'now known or later developed.'" *Id.* (quoting H.R. REP. NO. 94-1476, at 52 (1976)). *But cf.* Cartoon Network v. CSC Holdings, 536 F.3d 121, 126-30 (2d Cir. 2008) (holding that copies of a television program loaded into RAM for 1.2 seconds are held for only a "transitory duration" and thus are not fixed for purposes of the Copyright Act).

[301] Gund, Inc. v. Smile Int'l, Inc., 691 F. Supp. 642, 644 (E.D.N.Y. 1988), *aff'd*, 872 F.2d 102 (2d Cir. 1989).

When memorialized information is expressed on paper, a computer, a cell phone, or in the brain, there is a legal basis in intellectual property for authors to have an expectation of a privacy interest in secrecy. Consequently, whether unpublished and undisclosed, written or held in the mind, authors have a Fourth Amendment secrecy interest in their memorialized writings and their effects.

D. *Utterances*

Utterances are thoughts, visual images, words, or statements that are verbalized or recalled to the conscious mind, whether spoken aloud or ruminated on silently in the brain. Although this category of evidence is the primary focus of Fifth Amendment protections,[302] Fourth Amendment interests are also implicated when investigators seek to discover a suspect's verbal or silently pondered utterances.

Evoked and voluntary utterances implicate different constitutional interests. Evoked utterances arise by compelling a suspect to respond—either silently or aloud—to questions or prompts. Voluntary utterances are instead given freely and without government demand. Whereas voluntary divulgences are beyond the scope of Fifth Amendment privilege against self-incrimination because the utterances have not been compelled, only extraordinary societal justification or prosecutorial immunity will justify government compulsion of evoked utterances.[303]

Evoked utterances also implicate Fourth Amendment interests in seclusion of one's person, when a person is seized and forced to respond to government interrogations. Circumscribed by the Court's ruling in *Terry v. Ohio*,[304] the reasonableness of a warrantless stop and brief questioning by a government official based on reasonable suspicion will depend on the length of the detention and methods used to elicit answers.[305] In general, brief and minimally physically intrusive detentions do not raise Fourth Amendment concerns.[306] Here again the Fifth, but not the Fourth Amendment, holds the relevant protective interest of being safeguarded by the privilege against self-incrimination.

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[302] *See* Farahany, *supra* note 8, at 389.

[303] For a detailed description and discussion of these categories, see *id.* at 389-400.

[304] 392 U.S. 1, 29 (1968).

[305] *See, e.g.*, United States v. Esquivias, 416 F.3d 696, 700 (8th Cir. 2005) (outlining the factors relevant to assessing the reasonableness of a *Terry* stop).

[306] *See Terry*, 392 U.S. at 30.

When defendants challenge voluntary utterances that investigators have intercepted, courts have focused almost exclusively on the seclusion of those utterances. Yet a suspect knowingly risks abandoning such seclusion when she speaks aloud. In *Silverman v. United States*, for example, police officers described incriminating conversations they overheard by means of an electronic listening device.[307] They installed a "spike mike" several inches into the party wall of the criminal suspect's house, thereby trespassing upon his home.[308] The Court ignored the "frightening paraphernalia which the vaunted marvels of an electronic age may visit upon human society"[309] and instead focused only on the method of intrusion, holding that the "eavesdropping was accomplished by means of an unauthorized physical penetration."[310] The intrusion upon the seclusion of the home from prying ears was an unreasonable search.[311]

When the Court in *Katz v. United States* moved beyond trespass to privacy,[312] it similarly found that the interception of a telephone booth user's conversation was unreasonable.[313] In so holding, the Court reasoned that Katz had used the seclusion of the phone booth, and as such, he was "entitled to assume that the words he utter[ed] into the mouthpiece [would] not be broadcast to the world."[314]

And yet by uttering thoughts aloud to others, a conversant may assume the risk that his words will be repeated, recorded, and used against him. In *United States v. White*, a plurality of the Court held that a wired informant's transmission of a conversation to government agents implicated no Fourth Amendment interests.[315] It considered the individual interests at stake in intercepting voluntary utterances, and expressly declined to recognize a secrecy interest in such conver-

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[307] 365 U.S. 505, 506 (1961).

[308] *Id.*

[309] *Id.* at 509.

[310] *Id.*

[311] *Id.*

[312] 389 U.S. 347, 353 (1967).

[313] *Id.* at 359.

[314] *Id.* at 352.

[315] *See* 401 U.S. 745, 750 (1971) (plurality opinion) ("It would be a dubious service to the genuine liberties protected by the Fourth Amendment to make them bedfellows with spurious liberties improvised by farfetched analogies which would liken eavesdropping on a conversation, with the connivance of one of the parties, to an unreasonable search or seizure." (quoting On Lee v. United States, 343 U.S 747, 754 (1952))).

sations.[316] The Court held similarly in *United States v. Caceres*, where a majority repudiated the idea that any privacy exists in the voluntary utterances made to others, including government agents.[317] State and federal courts have used the same reasoning to find that eavesdropping or recording of conversations by a willing informant or undercover agent implicates no individual Fourth Amendment interests.[318] Courts have consequently approved the use of informant statements based on notes of conversations,[319] secret radio transmissions of conversations,[320] and the use of tape recorders[321] to share conversations with the government. These cases suggest that, where utterances are concerned, the only expectations of privacy that will be found reasonable are ones based in seclusion.

Intellectual property law provides new insight for why individuals have until now been denied a Fourth Amendment secrecy interest in their utterances. In general, one cannot claim copyright protection for an entirely unfixed conversation,[322] speech, or even performance

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[316] *Id.* at 752-53.

[317] 440 U.S. 741, 750-51 (1979).

[318] *See, e.g.*, United States v. Davis, 326 F.3d 361, 362 (2d Cir. 2003) ("It is firmly established that audio recordings, obtained without a warrant and through hidden recording devices by an invited guest, do not violate the Fourth Amendment."); Hoback v. State, 689 S.W.2d 569, 571 (Ark. 1985) ("The rule that an accused relies on a colleague at his own risk is well established. We have relied upon decisions of the United States Supreme Court in holding that recordings made with the consent of an informant are admissible."); State v. Grullon, 562 A.2d 481, 488 (Conn. 1989) ("Just as an undercover police agent, without having first obtained a warrant, may take notes reciting a conversation with a defendant, so the agent may simultaneously record the conversation or transmit it to recording equipment."); Snellgrove v. State, 569 N.E.2d 337, 339 (Ind. 1991) (adopting the view that "the Fourth Amendment provides no protection to the wrongdoer who mistakenly believes that a person to whom he voluntarily confides his wrongdoing will not reveal it" (citing Hoffa v. United States, 385 U.S. 293 (1966))).

[319] *See, e.g.*, United States v. Santillo, 507 F.2d 629, 631 (3d Cir. 1975) (rejecting a secrecy interest in a voluntary conversation because the "possibility of repetition is a well-known risk that the prudent man weighs before disclosing confidential information").

[320] *See, e.g.*, *White*, 401 U.S. at 751; Lee v. United States, 343 U.S. 747, 751-52 (1952); United States v. Butera, 677 F.2d 1376, 1380 (11th Cir. 1982); United States v. Ryan, 548 F.2d 782, 787-88 (9th Cir. 1976); United States v. Lippman, 492 F.2d 314, 318 (6th Cir. 1974); Ansley v. Stynchcombe, 480 F.2d 437, 441 (5th Cir. 1973).

[321] *See, e.g.*, Lopez v. United States, 373 U.S. 427, 437-38 (1963) (finding that when an individual converses with a government informant who records the conversation, he has voluntarily disclosed the contents of his mind, and thus there is no intrusion into a secluded area not accessible by the human eye or human ear).

[322] *See, e.g.*, Taggart v. WMAQ Channel 5 Chi., No. 00-4205, 2000 WL 1923322, at *4 (S.D. Ill. Oct. 30, 2000) (granting the defendants' motion to dismiss plaintiff's copy-

under the Copyright Act, with an exception for musical concerts.[323] For a speech or conversation to be sufficiently fixed to warrant copyright protection, it must be fixed with the consent of the performer.[324] Beyond that, the extent and the medium of fixation necessary to satisfy the statutory requirements of copyright are subjects of considerable debate. Courts have grappled with and rejected copyright protection for utterances such as words spoken on the telephone,[325] a spoken lecture,[326] a conversation between two individuals,[327] a live, unrecorded

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right claim to a news interview because the mere spoken words in an interview were not enough to generate a proprietary interest).

[323] *See* 1 RAYMOND T. NIMMER, INFORMATION LAW § 4:7, at 4-15 (2006) (stating that live broadcasts and performances are unequivocally ineligible for copyright protection because they are "transient works," and that copyright protection only extends to a "prior or simultaneous recording of the performance"); 3 THOMAS D. SELZ ET. AL., ENTERTAINMENT LAW: LEGAL CONCEPTS AND BUSINESS PRACTICES § 16:3, at 16-16 (3d ed. 2011) ("Unfixed works, such as unrecorded extemporaneous speeches and improvisational jazz solos, are not protected by federal copyright law, but may be protected by state law."); David Nimmer, *The End of Copyright*, 48 VAND. L. REV. 1385, 1409 (1995) ("One basic bedrock provision in the interpretation of [the Copyright and Patent Clause] has been that its reference to 'Writings' denotes fixation . . . . But no respectable interpretation of the word 'Writings' embraces an untaped performance of someone singing at Carnegie Hall."); *see also* 1 ALEXANDER LINDEY & MICHAEL LANDAU, LINDEY ON ENTERTAINMENT, PUBLISHING AND THE ARTS § 1:42.70, at 1-196.18 to .19 (3d ed. 2010) ("As part of the Uruguay Round Agreements Act . . . that brought the United States into the World Trade Organization . . . , Congress enacted [the first federal] civil and criminal statutes to protect against the unauthorized recording of live musical performances, and the unauthorized sale and distribution of [such] recordings . . . ." (footnotes omitted)).

[324] *See* Fleet v. CBS, Inc., 58 Cal. Rptr. 2d 645, 650 n.5 (Ct. App. 1996) ("A work is fixed in a tangible [form] of expression for purposes of the Act, only if recorded 'by or under the authority of the author.'" (quoting 17 U.S.C. § 101 (1994))).

[325] *See* Phillips v. Inc. Magazine, No. 86-5514, 1987 WL 8047, at *2 (E.D. Pa. Mar. 18, 1987) (upholding the idea that words spoken over a telephone are not fixed and therefore are not copyrightable unless recorded); *see also* Feldman v. Twentieth Century Fox Film Corp., 723 F. Supp. 2d 357, 364 (D. Mass. 2010) ("[C]opyright protection is only available for 'original works of authorship fixed in any tangible medium of expression.' Plaintiff's private telephone conversations, which are not 'fixed,' therefore, are not copyrightable." (citations omitted) (quoting 17 U.S.C. § 102 (2006))).

[326] *See* Fritz v. Arthur D. Little, Inc., 944 F. Supp. 95, 99-100 (D. Mass. 1996) (holding that a lecture extemporaneously created is not protected by copyright, although the same lecture fixed on paper would be protected).

[327] "[A] conversation between two individuals, however profound, is not fixed in a tangible medium and would therefore be ineligible for [federal] copyright protection. The audio recording of that same conversation is considered a fixed sound recording, and could therefore be protected." David A. Costa, Vernor v. Autodesk*: An Erosion of First Sale Rights*, 38 RUTGERS L. REC. 213, 214 (2011), http://lawrecord.com/files/38_Rutgers_L_Rec_213.pdf (footnote omitted).

movie pitch,[328] and choreography that has never been filmed or notated.[329] Courts may have intuited that individuals lack a secrecy interest in their utterances because they are not protected by any source of property law—real or intellectual.

Nevertheless, the emerging and future ability to detect utterances in the brain may challenge the fixation requirement in copyright,[330] which may then affect whether a Fourth Amendment secrecy interest should apply to utterances. In the hypothetical motorist stop, the police could evoke uttered responses from the motorist while she is held in brief detention during a *Terry*-like stop. Equipped with brain-based lie detection technology,[331] the police could ask if she had been drinking or was the terrorist they sought. Even if the motorist remained silent, neuroimaging technology could one day enable the police to gain accurate answers to their questions. And if researchers succeed in commercializing remote EEG detection technology, then the police could administer an on-the-spot brain-based lie detection test during interrogations. Using similar neuroimaging devices, the police could intercept and record the memories brought to her mind.

The police could even "eavesdrop" on the motorist's inward conversations. While stopped, the motorist might ruminate over her evening and consciously delight in her earlier drinking and misdeeds. If the police use sense-enhanced neuroimaging technology to intercept these ruminations, they may intrude upon both her secrecy and seclusion interests in her thoughts.

Courts and scholars in intellectual property law have begun to recognize that neuroscience may impact the concept of fixation in copyright law. In *Blue Pearl Music Corp. v. Bradford*, for example, the Third Circuit noted that copies of the musical work at issue could exist in the defendant "Mrs. Bradford's head."[332] One scholar used a hypothetical

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[328] *But see* Metrano v. Fox Broad. Co., No. 00-02279, 2000 WL 979664, at *4-5 (C.D. Cal. Apr. 24, 2000) (holding that the ideas presented in a live, unrecorded television pitch meeting were "fixed in a tangible medium of expression" by the accompanying "treatment, index cards and tapes," thus falling within the ambit of federal copyright law).

[329] "[C]horeography that has never been filmed or notated, an extemporaneous speech, 'original works of authorship' communicated solely through conversations or live broadcasts, and a dramatic sketch or musical composition improvised or developed from memory and without being recorded or written down," do not receive federal copyright protection. H.R. REP. NO. 94-1476, at 131 (1976).

[330] *See supra* text accompanying notes 291-301.

[331] *See supra* note 189 and accompanying text.

[332] 728 F.2d 603, 606 n.3 (3d Cir. 1984).

case of a musical or spoken performance given to an individual with photographic or otherwise perfect memory to argue that "[i]f the brain is a computer," then the person with perfect memory seeing the performance would fix it.[333] If copyright is meant to protect the expressive work of the author's brain and such expressive content can be reproduced directly from her brain, then neurological memory may satisfy the purpose and requirements of fixation. These interesting and emerging issues in copyright law may challenge whether and to what extent a Fourth Amendment privacy interest in secrecy attaches to uttered evidence.

Irrespective of how the debate over fixation resolves, there is a vast difference between audible voluntary utterances and silent utterances in the brain. When a suspect remains silent and chooses not to share her thoughts, she has not yielded any privacy interest in secluding her utterances. When balancing government interests against the fortress of seclusion around the brain, only extraordinary circumstances should justify an intrusion upon the seclusion of those utterances. This conclusion follows naturally from the oft-repeated claim that the Fourth Amendment is, at the least, a safeguard from the government "probing into an individual's private life and thoughts."[334]

IV. SECRET DETAILS

Recognizing authors' secrecy interest in their writings and intangible effects broadens the sources of privacy secured by the Fourth Amendment. Adding an intellectual property metaphor to the Court's privacy-as-property intrusion approach to the Fourth Amendment also provides descriptive robustness to explaining when the Court will recognize a secrecy interest instead of just a seclusion interest for a Fourth Amendment complainant. But while descriptively sound, the approach may fall short of protecting the kinds of secrets that individuals care deeply about in the information age. Indeed, much of the information that individuals may wish to keep secret involves the traces of their everyday and intimate activities—the until-now overlooked category of automatically generated information. The collection and

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[333] David Nimmer, *Brains and Other Paraphernalia of the Digital Age*, 10 HARV. J.L. & TECH. 1, 43 (1996).

[334] Davis v. Mississippi, 394 U.S. 721, 727 (1969); *see also id.* ("Fingerprinting involves none of the probing into an individual's private life and thoughts that marks an interrogation or search.").

use of such automatically generated information enables the government to obtain personally invasive, intimate details about individuals.

On the one hand, the Court's implicit reliance upon common law copyright protections has broadened the secrecy interest that individuals enjoy when determining whether violations of their Fourth Amendment interests have occurred. This holds normative appeal in that the originality and not just the labor of authors are recognized in such a system.[335] Moreover, a Fourth Amendment privacy interest in letters, casual correspondence, and personal musings gives individuals autonomy over their own personalities—a copy of which they manifested in their expressions.[336] When an author creates, "he does more than bring into the world a unique object having only exploitive possibilities; he projects into the world part of his personality and subjects it to the ravages of public use."[337] Fourth Amendment protection of such secrets safeguards individuals in the "[t]houghts, emotions, and sensations" that personality itself comprises.[338]

On the other hand, one might also think that an essential part of her personality is the ability to lead a private life as well as the ability to form personal relationships beyond the scrutiny of the government, including keeping secret one's comings and goings and movements throughout society, whether via the Internet or via automobile. This kind of secrecy concerning the intimate details of one's life, which could be reconstructed by aggregating automatically generated information, may be essential to personality and human flourishing.

It was this privacy interest that Justice Sotomayor focused on in her concurrence in *Jones* when she stated,

> Awareness that the Government may be watching chills associational and expressive freedoms. And the Government's unrestrained power to assemble data that reveal private aspects of identity is susceptible to abuse. The net result is that . . . making available at a relatively low cost such a

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[335] *See* Post, *supra* note 138, at 660 ("[W]hen pressed upon the exact nature of the labor involved in intellectual production, the common law was apt to speak . . . of originality as the true grounds of the title of the property." (internal quotation marks omitted)).

[336] *Id.* at 662. This idea resonates with the Hegelian personality theory and deontological justifications for legal protection. *See, e.g.*, Shyamkrishna Balganesh, *Copyright and Free Expression: Analyzing the Convergence of Conflicting Normative Frameworks*, 4 CHI.-KENT J. INTELL. PROP. L. 45, 56-63 (2004).

[337] Martin A. Roeder, *The Doctrine of Moral Right: A Study in the Law of Artists, Authors and Creators*, 53 HARV. L. REV. 554, 557 (1940).

[338] Warren & Brandeis, *supra* note 17, at 195.

> substantial quantum of intimate information about any person whom the Government, in its unfettered discretion, chooses to track . . . may "alter the relationship between citizen and government in a way that is inimical to democratic society."[339]

To determine the reasonableness of such searches, she would ask whether individuals expect that the government could use automatically generated information to "ascertain, more or less at will, their political and religious beliefs, sexual habits, and so on."[340] And yet she understood that such expectations of privacy would only be recognized by the Fourth Amendment if the Court departed from its traditional requirement that a property interest have been intruded upon for a Fourth Amendment search to have occurred.[341]

Justice Alito's suggestion that legislatures may be in the best position to secure informational privacy can be reconciled with Justice Sotomayor's concerns.[342] As Justice Scalia echoed in *Jones*, Fourth Amendment protections are tied to sources of law outside of the Constitution. Until now, the Court has explicitly relied on trespass upon real property interests to define the scope of those interests. This Article illustrates how the Court has also implicitly relied upon intellectual property law to do the same. Yet the Court has notably ignored other sources of state and federal law that may help align Fourth Amendment privacy interests to societal expectations of privacy. The Health Insurance Portability and Accountability Act of 1996, for example, accords to individuals a privacy interest in their health records,[343] even though such information is not the real or intellectual property of the individual. Other legislative enactments like the Genetic Information Non-Discrimination Act protect individual privacy in some

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[339] United States v. Jones, 132 S. Ct. 945, 956 (2012) (Sotomayor, J., concurring) (quoting United States v. Cuevas-Perez, 640 F.3d 272, 285 (7th Cir. 2011) (Flaum, J., concurring)).

[340] *Id.*

[341] *See id.* at 957 ("But whatever the societal expectations, they can attain constitutionally protected status only if our Fourth Amendment jurisprudence ceases to treat secrecy as a prerequisite for privacy. I would not assume that all information voluntarily disclosed to some member of the public for a limited purpose is, for that reason alone, disentitled to Fourth Amendment protection.").

[342] *Id.* at 962-64 (Alito, J., concurring in the judgment).

[343] *See* OFFICE FOR CIVIL RIGHTS, U.S. DEP'T OF HEALTH & HUMAN SERVS., SUMMARY OF THE HIPAA PRIVACY RULE 3-4 (2003), *available at* http://www.hhs.gov/ocr/privacy/hipaa/understanding/summary/privacysummary.pdf; Ken Terry, "*Patient Privacy—The New Threats,*" PHYSICIANS PRAC. (Mar. 1, 2009), http://www.physicianspractice.com/display/article/1462168/1588915.

forms of identifying information.[344] State tort laws protecting against the invasion of privacy, the Electronic Communications Privacy Act, and other existing legislative enactments may provide additional privacy guarantees.[345] Some of these legislative enactments are directed at identifying and memorialized information. If societal expectations of privacy demand protection for automatically generated information, new legislative enactments could afford privacy to individuals when the government seeks such information. These legislative enactments could serve as objective sources of expectations of privacy on which Courts could rely.

While the Fourth Amendment touchstone arose from intrusion upon real property, government intrusion upon the electronic and biological traces of criminal suspects have become the focus of modern Fourth Amendment complainants. To align the Fourth Amendment with societal expectations of privacy, the Court may need to ex-expand the sources of law to which it turns beyond real and intellectual property law. In the information age, personality may be tied more closely to automatically generated information than it was historically when physical seclusion could secure an individual against the prying eyes of others. Modern investigative techniques may violate one's personality and cause an individual more "mental pain and distress" than she would suffer from an intrusion upon the seclusion of her physical space.[346] At the heart of personality is an individual's decision as to whether her thoughts, activities, and associations should be private or shared with the world.[347] Perhaps Justice Alito was right to suggest that in the world of rapidly emerging technology, the legislature may be in the best position to protect the privacy of individuals. But when it does so, it provides a new source of law which should inform reasonable expectations of privacy in the Fourth Amendment.

CONCLUSION

Now that the government can search informational property without physically intruding on tangible property, the contours of individual

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[344] Elisa Becze, *Know Your Patients' Rights Under the Genetic Information Nondiscrimination Act,* ONS CONNECT, Aug. 2011, at 14, 14-15.

[345] *See* Scott Ness, iBrief, *The Anonymous Poster: How to Protect Internet Users' Privacy And Prevent Abuse*, 2010 DUKE L. & TECH. REV. 008, ¶¶ 9-20, http://www.law.duke.edu/journals/dltr/articles/pdf/2010dltr008.pdf.

[346] Post, *supra* note 138, at 650 (quoting Warren & Brandeis, *supra* note 17, at 196).

[347] *Id.* at 651-52.

interests at stake in modern searches and seizures are of paramount concern. Yet in an era where the government may unobtrusively intercept information from electronic files and communications, including some directly from suspects' brains, the individual interests protected by the Fourth Amendment could not be any murkier.

Asking who authored the information sought could solve the central conundrum plaguing descriptive accounts of Fourth Amendment doctrine. The answer tells us both whose privacy interests and what type of privacy interests are protected. Individuals have a cognizable right to nondisclosure of their information when information is properly viewed as "their" papers or effects. Common law and federal copyright law confer ownership and exclusive rights to authors, which include a right of first publication and a corollary right to nondisclosure. Until now, Fourth Amendment scholarship has ignored the relevance of these exclusive rights. But just as the right to exclude others from real property implicates Fourth Amendment privacy interests, so, too, do the exclusive rights of authors. Real property law secures to individuals a privacy interest in seclusion. Intellectual property law likewise secures to individuals a privacy interest in secrecy. This property/intellectual property framework aligns individual interest in secrecy with whether an individual authored or originated the information. And it respects the existing privacy interest of seclusion for information originated by others.

Together with *Incriminating Thoughts,* this Article provides a more complete description of the procedural protections available to criminal suspects.[348] The Fifth Amendment secures a privilege against compelled evoked utterances, while the Fourth Amendment protects individuals against intrusions upon memorialized and uttered information. Identifying information are facts in the world, which one discovers but not does originate. Automatic evidence arises as a byproduct of our everyday activities, but lacks expression by the person to whom it pertains. When a government investigation seeks information, the spectrum helps describe the categories of evidence afforded constitutional protection. For identifying and automatic evidence, the government must not unreasonably intrude upon an individual's seclusion. When memorialized and uttered evidence is sought, the government must also balance the secrecy interest of the individual.

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[348] *See* Farahany, *supra* note 8, at 407-08.

While descriptively robust, this account of Fourth Amendment jurisprudence reveals a disturbing secret lurking beneath the surface of existing doctrine. An individual can keep a secret only if the secret is theirs to keep. As such, individuals lack any cognizable interest in automatically generated information, which is the object of many modern government investigations. The government can obtain automatically generated information about individuals without intruding upon any individual property interests—be they real or intellectual. If real and intellectual property law are the only sources to which the Court will turn to inform reasonable expectations of privacy in the Fourth Amendment, then the very information that individuals wish to keep the most private may enjoy no constitutional guarantee.

Traditional property and intellectual property law provides little security to individuals in their persons, papers and effects when the secrets sought are stored electronically, are generated automatically, or are accessed directly from their brains. In *Jones,* Justice Alito posited that legislatures more easily than courts could secure privacy to individuals in an era of rapidly evolving technology. While undoubtedly true, when legislatures do so they create new sources of law upon which courts should rely to inform the individual interests at stake in government searches and seizures. This article illustrates how the Court has expanded beyond reliance on real property law to also use intellectual property law to inform individuals' expectations of privacy. To ensure the right of the people to be secure against unreasonable searches and seizures in the information age, the Court should expand further still to include laws that protect the informational secrets of individuals.