Autobots, Decepticons, and Panopticons: The Transformative Nature of GPS Technology and the Fourth Amendment

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Abstract

Jeremy Bentham conceived of and constructed a prison designed to allow the guards to observe the prisoners without the prisoners knowledge of whether or not they are being watched. He called his prison a panopticon. Today, law enforcement uses GPS technology as a low cost, precise alternative to traditional surveillance. They attach a GPS device to a vehicle to track and chronicle a vehicle’s, and therefore an individual’s, movements for days, weeks, and even months. The result is to create a panopticon where those watched are not incarcerated criminals, but everyday citizens. The Fourth Amendment’s protections against unreasonable searches and seizures are the most logical restraint on law enforcement’s use of this technology, but federal courts have ruled that the use of GPS devices does not constitute a search invoking Fourth Amendment protections. While conceding that the use of GPS devices does not constitute a search under current doctrine, I argue that the attachment of a GPS device does constitute a seizure of the vehicle. When the police attach a GPS device to a vehicle, they convert it from a functional possession into an informant for the police, constantly announcing itself to law enforcement: “I am here.” This conversion of private property constitutes a seizure under a combination of First Amendment freedom of association and Fourth Amendment seizure principles.

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I. Introduction  

A getaway car squeals around a street corner on three wheels, followed closely by at least two police cruisers. Instead of giving hot pursuit, the police car slows down slightly and shoots a dart from the radiator that embeds itself into the getaway car. The police then retreat in the rearview of the getaway car. Unbeknownst to the “bad guys” their car has been transformed into a homing device, allowing law enforcement to track their movements remotely, without the fuss of a high profile, potentially dangerous high speed car chase. Law enforcement can simply arrive at the vehicle’s destination and apprehend any complicit individuals.

You would only be half wrong if you assume that this sequence is the product of Tinseltown. The Los Angeles Police Department has outfitted some of their cruisers with Global Positioning System (“GPS”) darts in order to eliminate high speed chases as well as the casualties and property damage they entail. The echoes of George Orwell’s Big Brother are unmistakable. This is the most creative, and at last report, only an experimental application of a GPS device in law enforcement.

In a more common application of GPS technology, law enforcement attaches a GPS device to a vehicle when it is parked in a public space. They do so without the owner’s knowledge or, more importantly, a warrant from a “neutral and detached magistrate.” These devices enable perfect tracking, twenty-four hours a day, for weeks, months, or years at a time at only a nominal cost. Surreptitiously, your participation in a political rally is noted; your trip to the abortion clinic, recorded; your weekly visits to the psychiatrist, revealed.

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3 *See* United States v. Garcia, 474 F.3d 994, 995 (7th Cir. 2007); *See also* People v. Weaver, 12 N.Y.3d 433, (N.Y. 2009).
4 U.S. Const. amend. IV. For a fuller discussion, see infra Part VI.
Indeed, using multiple devices against one target, the police can easily compile a comprehensive dossier regarding your individual choices. Consequently, they could learn not only where you are and where you will be, but what you have taken with you. The devices cost very little, both to purchase and to monitor, enabling law enforcement to track the movements of large groups of people. Law enforcement can then mine that data to create a vivid, detailed digest of your life and dossier of acquaintances.

Currently, only a lack of imagination restrains law enforcement’s application of this technology. As presently interpreted by the Supreme Court, the Constitution does not limit the Government’s ability to place a GPS device on your person, your vehicle, your running shoes, or your backpack or purse.

The Fourth Amendment is the most natural Constitutional protection for individual privacy in the face of unprecedented government intrusion into previously personal and sacrosanct zones. The Fourth Amendment protects privacy, property, and liberty by prohibiting “unreasonable searches and seizures” of “persons, houses, papers, and effects,” but federal courts have been reluctant to extend its protections to inhibit the use of GPS devices. It is no surprise that the protections afforded by the Fourth Amendment lag behind advancements in technology.

The Fourth Amendment has always played the proverbial tortoise to technology’s hare. Both began at the starting line as “bricks and mortar” concepts, grounded in the real world. Technology quickly bounded ahead to an early lead, first with the invention of the telegraph and telephone, then with internet and satellite technology creating not only virtual worlds, but permitting virtual access to the real world. Meanwhile, the Supreme Court’s interpretation of the Fourth Amendment plods along, slowly assessing the changes that wrought by technology, and just as surely, creating doctrine to address it.

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6 *Katz v. United States*, 389 U.S. 347, 351 (1967) (“That Amendment protects individual privacy against certain kinds of governmental intrusion . . .”); *Kyllo v. United States*, 533 U.S. 27, 34 (2001) (“To withdraw protection of this minimum expectation would be to permit police technology to erode the privacy guaranteed by the Fourth Amendment.”); *Garcia*, 474 F.3d at 998 (finding that the Fourth Amendment required “choices between privacy and security.”).
7 U.S. Const. amend. IV.
8 Hopefully, the Court can one day anticipate the impact of emerging technologies and craft doctrine to anticipate the corresponding shift in surveillance techniques.
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The Fourth Amendment protects privacy, yet its relevance with respect to emerging technologies is debated, doubted, and circumscribed. On one hand, some argue that the Fourth Amendment has lost all relevance in the modern world. Consequently, they argue that only legislative remedies are available to protect privacy against increasingly efficient government surveillance. On the other, some argue that the current doctrine takes a simplistic, binary, and ultimately untenable view of privacy effectively rendering the Fourth Amendment ineffective as a guarantor of privacy. There is no reason to suggest, however, either that the concept of privacy is dead, or that technology has somehow rendered Fourth Amendment privacy protections obsolete. New technologies enable but certainly do not require enhanced and pervasive government surveillance. Indeed, there are a host of legitimate, productive, and even frivolous uses of GPS technology. Yet, even those who maintain that the Supreme Court’s vision of the Fourth Amendment is robust enough to address emerging technologies address only half of the Amendment – the search prong.

Ostensibly, the Fourth Amendment protects against unreasonable searches and seizures equally, but the vast majority of court decisions and scholarship concerning the Fourth Amendment revolve around the issues pertaining to searches. Because most seizures follow a search, the seizure

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9 See Kerr, 102 Mich. L. Rev. at 806.
10 Kerr, 102 Mich. L. Rev. at 806.
14 GPS devices are now applied to solve problems large and small, important and trivial. They can be used to get directions in your car (http://www.garmin.com/garmin/cms/us/ontheroad/nuviseries) and on your phone (http://www.apple.com/iphone/iphone-3gs/maps-compass.html). GPS devices are also used to find coffee shops and other public places (http://www.waymarking.com/) as well as your pets (http://www.nytimes.com/2009/04/23/technology/personaltech/23pogue.html), golf balls (http://www.computerworld.com/s/article/9023359/Six_innovative_uses_for_GPS_during_your_business_day?taxonomyId=16&pageTitle=1), and buried treasure (http://www.geocaching.com/).
prong of the Amendment has received little scholarly or judicial notice.\textsuperscript{16} This is particularly true of the law and scholarship surrounding the Fourth Amendment’s treatment of emerging technologies.\textsuperscript{17}

The use of GPS devices confounds this disparity. Law enforcement is increasingly turning to GPS surveillance as a fundamental part of their investigations to take advantage of the acute accuracy and minimal cost. The Supreme Court’s interpretation of the Fourth Amendment is robust enough to curtail the use of GPS devices. This Article will make two arguments: first, it will demonstrate why search doctrine alone cannot address the issues raised by the use of GPS devices, and second, it will illustrate how the seizure prong of the Fourth Amendment requires law enforcement to obtain a warrant before attaching a GPS device to a vehicle. It may initially be counterintuitive to classify the use of GPS devices as a Fourth Amendment seizure. But in a legal realm where even “a search is not a search,”\textsuperscript{18} cognitive dissonance is inevitable.

In so doing, this Article will take a significant step towards formulating a conception of the Fourth Amendment and emerging technologies from both a search and seizure perspective. At the same time, it will extend the analytic framework enabling the Fourth Amendment to remain the ultimate arbiter at the nexus of privacy, security, technology, and government surveillance. After Part II of the Article outlines a brief history of the Fourth Amendment, Part III will explore the evolution of both search and seizure doctrine. This Article will then, in Part IV, proceed to examine why, under existing Fourth Amendment jurisprudence, it will be difficult to categorize use of GPS devices as a search. In Part V, the Article will examine GPS technology in light of seizure law, concluding that it provides a better response to the applications of GPS technology than does search doctrine. Ultimately, this Article establishes that the Constitution requires law enforcement to obtain a warrant before using GPS technology.

II. A Brief History of the Fourth Amendment

Like so many of the protections enshrined in the Bill of Rights, the Fourth Amendment is a product of the excesses of British hegemony preceding the American Revolution.\textsuperscript{19} The paradigmatic case of \textit{Wilkes v. Wood}\textsuperscript{20} illustrates how British authorities regularly ignored their own

\begin{itemize}
\item \textsuperscript{17} Ohm, 2008 Stan. Tech. L. Rev. at 14.
\item \textsuperscript{18} \textit{Kyllo}, 533 U.S. at 27.
\item \textsuperscript{19} The warrant requirement was a response to abuses by British Executive officials. See Akhil Reed Amar, Fourth Amendment First Principles, 107 Harvard L. Rev. 757, 772 (1994).
\item \textsuperscript{20} See \textit{Stanford v. Texas}, 379 U.S. 476, 483-484 (1965) for the relationship between \textit{Wilkes} and the other paradigmatic search and seizure case, \textit{Entick v. Carrington}.
\end{itemize}
maxim that “Every man's house is his castle.”

John Wilkes was a member of Parliament who, in 1763, wrote and published the North Briton Number 45, a pamphlet criticizing King George III for his speech praising the Treaty of Paris ending the Seven Years' War. Secretary of State Lord Halifax issued a warrant authorizing officers to “search for the authors, printers, and publishers of seditious and treasonable paper.” The warrant was a general warrant, specifying no names. It simply authorized the officers to seize and detain anyone they suspected of complicity in the publication of the pamphlet. These officers took their mission to heart, arresting forty-nine people in three days, including the printer, who led them to Wilkes. When the officers attempted to arrest him, however, Wilkes resisted. The officers forcibly seized him and proceeded to search his house, first searching, then seizing his papers and effects. After being imprisoned in the Tower of London, Wilkes won his release on habeas corpus grounds and successfully sued the Crown for damages. The American colonies celebrated his cause, particularly in their opposition to writs of assistance – general warrants permitting the bearer to enter any house or other place to search for and seize "prohibited and uncustomed" goods. Wilkes' case served as the catalyst for the Constitutional protections against these and other abuses by governmental authorities.

21 5 Coke's Rep. 91a, 77 Eng. Rep. 194 (K.B. 1604). One of the most forceful expressions of the maxim was that of William Pitt in Parliament in 1763: "The poorest man may in his cottage bid defiance to all the force of the crown. It may be frail--its roof may shake--the wind may blow through it--the storm may enter, the rain may enter--but the King of England cannot enter--all his force dares not cross the threshold of the ruined tenement."

22 Amar, 107 Harvard L. Rev. at 772 n. 54.


24 Amar, 107 Harvard L. Rev. at 772 n. 54. 


26 Amar, 107 Harvard L. Rev. at 772 n. 54.


29 Amar, 107 Harvard L. Rev. at 772 n. 54 (“The Wilkes case was a cause célèbre in the colonies, where “Wilkes and Liberty” became a rallying cry for all those who hated government oppression. Americans across the continent named cities, counties, and even children in honor of Wilkes and the libertarian judge, Lord Camden. Witness, for example, Camden, New Jersey; Camden, South Carolina; Wilkes-Barre, Pennsylvania; Wilkes County, Georgia; Wilkes County, North Carolina; and of course, John Wilkes Booth.”).

30 http://caselaw.lp.findlaw.com/data/constitution/amendment04/

31 Amar, 107 Harvard L. Rev. at 772 n. 53 (“Wilkes -- and not the 1761 Boston writs of assistance controversy, which went almost unnoticed in debates over the federal Constitution and Bill of Rights -- was the paradigm search and seizure case for Americans.”)
Fast forward to 1928 when only physical invasion of a protected space triggered Fourth Amendment protections. In 1928, the Supreme Court considered *Olmstead v. United States* which, for the first time, raised the specter of technology which could conduct surveillance without breaching physical boundaries. Law enforcement used a variety of surveillance technologies to monitor the high technology of the era – the telephone. In *Olmstead*, federal agents used wiretaps to uncover a bootlegging operation spearheaded by Roy Olmstead.\(^{32}\) Olmstead appealed his sentence on Fourth and Fifth Amendment grounds after being tried and convicted of conspiracy to violate the National Prohibition Act. The Court ruled that because “was no entry of the houses or offices of the defendants,” the police conducted neither a search nor a seizure.\(^{33}\)

The Court later reaffirmed the logic supporting the *Olmstead* decision in both *Silverman v. United States*\(^{34}\) and *Goldman v. United States*.\(^{35}\) Like *Olmstead*, *Goldman* did not involve trespass or physical penetration of a space. To achieve the surveillance, federal agents used a detectaphone, a device which, when pressed against a wall, allows the user to overhear the conversation in the next room. Based heavily on *Olmstead*, the Court found no Fourth Amendment violation in light of the lack of trespass or physical invasion.\(^{36}\) By contrast, in *Silverman*, the Court ruled that use of a spike mike which amplified conversations of individuals in an illegal gambling establishment triggered Fourth Amendment concerns.\(^{37}\) The officers inserted the spike mike “under a baseboard in a second-floor room of the vacant house . . . [and] the spike made contact with a heating duct serving the house occupied.”\(^{38}\) Thus, the officers tripped the physical invasion trigger of the Fourth Amendment.

Collectively, these cases reveal a Court unwilling to adapt Constitutional protections in the face of evolving and intrusive technologies. Their decisions steadfastly ignore or overlook technical

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\(^{32}\) It also disclosed "a conspiracy of amazing magnitude" to engage in bootlegging, involving the employment of some fifty persons, use of sea vessels for transportation, an underground storage facility in Seattle, and the maintenance of a central office fully equipped with executives, bookkeepers, salesmen, and an attorney. According to the record, even in a bad month, the sales amounted to some $176,000; the grand total for a year probably came out to some $2,000,000. *Olmstead v. U.S.*, 277 U.S. 438, 456-57 (1928).

\(^{33}\) *Olmstead*, 277 U.S. at 464.

\(^{34}\) 365 U.S. 505 (1961).

\(^{35}\) 316 U.S. 129 (1942).

\(^{36}\) *Goldman*, 316 U.S. 129.

\(^{37}\) The spike mike would capture only what “an eavesdropper, hidden in the hall, the bedroom, or the closet, might have heard.” *Silverman*, 365 U.S. at 507.

\(^{38}\) *Silverman*, 365 U.S. at 506.
advances in favor of the blind application of legal principles. While Olmstead ignores the implications of telephonic technology,\textsuperscript{39} the Silverman court explicitly ignores the overwhelming evidence that enhanced technology and the enhanced surveillance it enables makes it possible to eavesdrop on conversations without having to resort to traditional “bricks and mortar” trespass.\textsuperscript{40} In the face of prescient dissenting opinions,\textsuperscript{41} the Court insists on an increasingly obsolete conception of the Fourth Amendment focused on physical spaces. This conception threatened to render its essential protections archaic in a modern and increasingly virtual world. The Court would finally concede the impact of emerging technology on the Fourth Amendment paradigm in \textit{Katz v. United States} where they prioritized the privacy interests of “people, not places.”\textsuperscript{42}

Katz was a gambling man, and the police, based on their information, were aware of Katz’s illicit activities. They knew that he used a particular telephone in a particular telephone booth to make his wagers. Armed with this knowledge, they attached an electronic listening and recording device to the outside of the public telephone booth from which he had placed his calls. This electronic surveillance resulted in an eight count indictment and conviction for interstate gambling.

While the parties briefed the issue of whether law enforcement had penetrated a constitutionally protected area, the Court “decline[d] to adopt this formulation of the issues.”\textsuperscript{43} In a doctrinal shift, the Court brushed aside the “eroded”\textsuperscript{44} underpinnings of Olmstead and Goldman. Instead, the majority, without articulating a clear test, established that law enforcement had indeed violated Katz’s Fourth Amendment rights. The Court has since adopted the test Justice Harlan proposed in his concurrence: “first that a person have exhibited an actual (subjective) expectation of

\textsuperscript{39} See, generally, Olmstead, 277 U.S. 438.

\textsuperscript{40} The Court recited several “frightening paraphernalia” used for surveillance only to state that they did not need to “contemplate the Fourth Amendment implications . . . which the vaunted marvels of an electronic age may visit upon human society.” Silverman, 365 U.S. at 507.

\textsuperscript{41} In Olmstead, Justice Brandeis famously wrote that the framers sought to protect Americans in “their beliefs, their thoughts, their emotions, and their sensations. They conferred, as against the government, the right to be let alone as the most comprehensive of rights and the right most valued by civilized men. To protect that right, every unjustifiable intrusion by the government upon the privacy of the individual, whatever the means employed, must be deemed a violation of the Fourth Amendment.” 277 U.S. at 478-79. Similarly, Justice Douglass lamented that irrespective of “physical penetration” the “intimacies of the home were tapped, recorded or revealed.” Silverman, 365 U.S. at 512.

\textsuperscript{42} Katz, 398 U.S. at 351.

\textsuperscript{43} Katz, 398 U.S. at 350.

\textsuperscript{44} Katz, 398 U.S. at 355.
privacy and, second, that the expectation be one that society is prepared to recognize as reasonable.”

III. An Exploration of Modern Search and Seizure Doctrine

The Fourth Amendment, at its most basic, establishes a procedural requirement. It does not prohibit searches and seizures altogether, only those searches and seizures that are unreasonable. Where warrants are concerned, it requires law enforcement to provide an oath, reasonable cause, and particularity with respect to the areas law enforcement seeks to search or the contraband they seek to seize. Of the six fundamental questions (who, what, when, where, why, how), the Fourth Amendment is most concerned with how. It asks of law enforcement: How did you obtain the proffered evidence?

A. The Search Prong of the Modern Fourth Amendment

The Supreme Court has interpreted the Amendment to presumptively bar searches conducted without a warrant. While there are problems with this approach, a warrant forces the police to make a record before rather than after a search. A search, however, is not always a search, and has become a term of art. The first issue becomes defining which searches implicate the Fourth Amendment, thereby activating the warrant requirement. Originally, as we have seen, the police only conducted a search when their actions involved trespass or physical penetration of a protected space such as a home or office.

More recently, commentators and the Court alike have struggled to articulate a precise definition of searches implicating Fourth Amendment concerns. The inability to define a search has

45 See Katz, 398 U.S. at 361.
46 U.S. Const. amend. IV (“The right of the people to be secure in their persons, houses, papers, and effects, against unreasonable searches and seizures, shall not be violated, and no Warrants shall issue, but upon probable cause, supported by Oath or affirmation, and particularly describing the place to be searched, and the persons or things to be seized.”).
47 U.S. Const. amend. IV.
49 Garcia, 474 F.3d at 996 (“Although the framers of the Fourth Amendment were more fearful that the warrant would protect the police from the citizen's tort suit through operation of the doctrine of official immunity than hopeful that the warrant would protect the citizen against the police, and although the effective neutrality and independence of magistrates in ex parte proceedings for the issuance of search warrants may be doubted . . .”) (internal citations omitted).
50 See Garcia, 474 F.3d at 996.
51 Kyllo v. U.S., 533 U.S. at 27.
led to erratic and sometimes contradictory interpretations of the Amendment.\textsuperscript{52} Indeed, even the author of the current jurisprudential test, Justice Harlan, later expressed reservations regarding the test he developed.\textsuperscript{53} Consistent themes do emerge from the caselaw which, in turn, inform the contours of the search definition.

1. \textbf{Testing Subjective Expectations and Objective Reasonableness}

First, the Court looks to evidence that an individual has manifested a subjective desire “to preserve something as private.”\textsuperscript{54} In assessing subjective expectations, the Court considers the manner in which a person used a particular location and whether precautions customarily taken by those seeking privacy were taken.\textsuperscript{55} A sincere desire for privacy, however, is not enough. Because a personal desire for privacy may be “conditioned”\textsuperscript{56} by influences alien to established Fourth Amendment boundaries, the Court has observed an objective component to the test.\textsuperscript{57}

The objective element of the test considers whether or not society is prepared to accept the subjective desire at issue as reasonable.\textsuperscript{58} As might be expected, the Court places more emphasis on the objective, rather than subjective prong of the inquiry. At the same time, the Court has not “explicitly defined the precise factors that render a subjective expectation objectively reasonable.”\textsuperscript{59}

\begin{itemize}
\item \textsuperscript{52} Justice Scalia is but one example. In a concurring opinion he described the two pronged test as a “fuzzy” standard which is both “self-indulgent” and “unhelpful.” \textit{Minnesota v. Carter}, 525 U.S. 83, 91-92 (1998). Three years later, writing for the majority, he rebuts charges that the test is “circular, and hence subjective and unpredictable” and forcefully advocates the idea that the test protects the “expectation of privacy” enshrined in the Fourth Amendment. \textit{Kyllo}, 533 U.S. at 34.
\item \textsuperscript{53} In \textit{U.S. v. White} Justice Harlan criticized the Court’s application of the phrase as a misunderstanding of his \textit{Katz} concurrence: “Since it is the task of the law to form and project, as well as mirror and reflect, we should not, as judges, merely recite the expectations and risks without examining the desirability of saddling them upon society. The critical question, therefore, is whether under our system of government, as reflected in the Constitution, we should impose on our citizens the risks of the electronic listener or observer without at least the protection of a warrant requirement.”
\item \textsuperscript{54} \textit{Smith v. Maryland}, 442 U.S. 775, 740 (1979) quoting \textit{Katz}, 398 U.S. at 353.
\item \textsuperscript{55} Using an opaque bag and placing it above a seat demonstrates a subjective expectation of privacy in the contents of the bag. \textit{Bond v. U.S.}, 529 U.S. 334, 338-9. In contrast, the Court found that it was not “entirely clear” whether erecting a 10 foot fence “manifested merely a hope that no one would observe his unlawful gardening pursuits.” \textit{California v. Ciraolo}, 476 U.S. 207, 211-12 (1986).
\item \textsuperscript{56} \textit{Smith}, 442 U.S. at 740 n. 5.
\item \textsuperscript{57} Indeed, some argue that the subjective part of the test is misplaced. Anthony G. Amsterdam, \textit{Perspectives on the Fourth Amendment}, 58 Minn. L. Rev. 349, 384 (“An actual, subjective expectation of privacy obviously has no place in a statement of what \textit{Katz} held or in a theory of what the Fourth Amendment protects.”)
\item \textsuperscript{58} Hutchins, 55 UCLA L. Rev. at 429-30.
\item \textsuperscript{59} Hutchins, 55 UCLA L. Rev. at 429.
\end{itemize}
For some, this reluctance indicates that the Court is simply substituting words for analysis and objectivity. A survey of the Court’s decisions, however, does provide some practical guidance. The Court has considered how an individual uses a certain location, as well as whether “precautions customarily taken by those seeking privacy” were taken and whether the framers contemplated the particular type of intrusion. Furthermore, in its analysis of enhanced surveillance techniques, the Court inquires as to the intrusiveness of law enforcement’s encroachment into personal zones. Two types of intrusiveness are relevant to the Court’s inquiry.

i. What Type of Information Does the Technology Provide?

Just as the Fourth Amendment asks how law enforcement obtained its evidence, the Court, in its treatment of enhanced surveillance technologies, asks how the technology works. The Court has delineated two types of technologies based on its jurisprudence. On one hand, the Court has categorized as “sense augmenting,” any technology that reveals information that could theoretically be attained using any of the five human senses. This technology typically falls into the category of a mechanical substitute or enhancement of human senses. On the other hand, the Court has designated as “extrasensory,” technology that provides details that the human senses alone could not deduce.

Two decisions illustrate the Court’s treatment of sense augmenting technology. First, in Smith, the Court permitted law enforcement use of a pen register, which they described as mere sense augmentation. The Court explained that a device “disclos[ing] only the telephone numbers that have been dialed” did not indicate that a search had occurred. It reasoned that “[t]he switching equipment that processed those numbers is merely the modern counterpart of the operator who, in an earlier day, personally completed calls for the subscriber.” Because the pen register disclosed neither the content of the telephone call nor the identities of the parties, or even “whether the call was even completed,” the Court concluded that the search did not implicate the Fourth Amendment.

60 White, 401 U.S. at 786 (Harlan, J., dissenting); See also, Dorothy J. Glancy, Privacy on the Open Road, 30 Ohio N.U. L. Rev. 295, 329 (2004).
62 Hutchins, 55 UCLA L. Rev. at 429 n. 116.
63 Hutchins, 55 UCLA L. Rev. at 429 n. 117.
64 Hutchins, 55 UCLA L. Rev. at 431.
65 Smith, 442 U.S. at 741.
66 Smith, 442 U.S. at 745.
67 Smith, 442 U.S. at 745.
Later, in *United States v. Knotts*, the Court considered a technology unrelated to telephony. There, the Court classified as sense augmenting a beeper placed in a barrel of chloroform later sold to the defendant. The beeper in question was a relatively unsophisticated tracking device emitting a weak radio signal, enabling law enforcement to follow it using a receiver.\(^{68}\) The beeper did not actually telegraph its location, only the relative distance between the receiver and the beeper. The signal became stronger when closer to the beeper and weaker when further away.\(^{69}\) During its analysis of the objective prong of the *Katz* two part test, the Court evaluated the intrusiveness of the beeper. At several points, the Court noted that the beeper did not reveal information not otherwise discoverable through unaided observation.\(^{70}\) The Court also analogized use of the beeper to “the following of an automobile on public streets and highways.”\(^{71}\) Consequently, the Court concluded that use of the beeper constituted sense augmenting technology which did not qualify as a search for Fourth Amendment purposes.

When faced with cases involving the use of extrasensory technology, the Court has generally chosen to protect privacy. Indeed, the caselaw suggests that that extrasensory surveillance is almost per se prohibited without a warrant.\(^{72}\) The *Kyllo* case stands in contrast to the Court's generally permissive attitude towards sense augmenting technology. In *Kyllo*, federal agents suspected that Kyllo was growing marijuana in his home using high intensity lamps necessary for indoor marijuana growth.\(^{73}\) Using a thermal imaging device, the agents scanned the outer walls of Kyllo's home for differences in the amount of heat emanating from different parts of the house. The device indicated that there was more heat emanating from the garage and side wall than from other areas of the house. Based on this information, the agents secured a warrant and searched the home, finding marijuana plants. At trial, Kyllo moved to suppress the evidence and the issue of whether the use of a thermal imaging device constituted a search eventually reached the Supreme Court.

The Court dismissed the argument that the thermal imager did not reveal any information of the house’s interior\(^{74}\) before concluding that the imager constitutes an extrasensory device.\(^{75}\) By

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\(^{68}\) *Garcia*, 474 F.3d at 998.


\(^{70}\) *Knotts*, 460 U.S. at 282.

\(^{71}\) *Knotts*, 460 U.S. at 281.

\(^{72}\) Hutchins, 55 UCLA L. Rev. at 433.

\(^{73}\) *See, generally, Kyllo*, 533 U.S. 27.

\(^{74}\) *Kyllo*, 533 U.S. at 34-35 n. 2

\(^{75}\) *See Kyllo*, 533 U.S. at 38 n. 5; *See also, Hutchins*, 55 UCLA L. Rev. at 437 n. 151 (noting that Kyllo observes that that the thermal imager detected “infrared radiation, which virtually all objects emit
contrast, the dissenters found that use of the imager did not constitute a search only after finding that it was a sense augmenting device. Despite the Court’s ostensible rejection of formalistic application of the Fourth Amendment, both the majority and dissent opted for slightly mechanical interpretations. For both, their analysis ended after categorizing the technology as either sense augmenting or extrasensory.

ii. How Much Information Does the Technology Expose?

In addition to the type of technology used, the Court has consistently considered the quantity of information revealed by surveillance technology. In Katz, the Court was guided by degree of intrusion associated with eavesdropping. The device broadcasted not only the volume or number dialed, but the words uttered into the mouthpiece. In contrast, the Court declined to extend Fourth Amendment protections when faced with a lesser intrusion in similar circumstances. The quantity of information revealed by the beeper in Knotts was also considered by the Court. In addition to the considerations regarding the type of intrusion, the Court noted that the type of surveillance practiced by law enforcement vis a vis beeper technology did not constitute “dragnet surveillance.” The Court cautioned that its opinion should not be read to authorize “twenty-four hour surveillance of any citizen . . . without judicial knowledge or supervision.”

Similarly, in Dow Chemical v. United States the Court considered whether aerial photography of an industrial plant constituted an unreasonable search. After quickly concluding that the photography revealed nothing more than a mild augmentation of “a simple flyover with naked eye observation”, the Court considered the amount of detail contained in the photographs. The Court reasoned that because “no objects as small as ½ inch in diameter, such as a class ring, for example” were identifiable, no “serious privacy concerns” were raised. Based on considerations of both type and quantity of information revealed, the Court concluded that the search did not but which is not visible to the naked eye” and disputes the dissent’s description of the thermal imager as a sense-augmenting device by noting that “on the night of January 16, 1992, no outside observer could have discerned the relative heat of Kyllo’s home without thermal imaging”).

76 Katz, 398 U.S. at 351; Kyllo, 533 U.S. at 35.
77 Katz, 398 U.S. at 351.
78 Consider Smith which noted that a pen register revealed “neither the purport of the communication between the caller and the recipient of the call, their identities, nor whether the call was even completed.” 442 U.S. at 741.
79 Knotts, 460 U.S. at 284.
81 Dow Chemical Co., 476 U.S. at 234.
82 Dow Chemical Co., 476 U.S. at 238 n. 5.
implicate the Fourth Amendment. The Court cautioned, however, that emerging technologies providing more detail may indeed trigger Fourth Amendment concerns.

These cases demonstrate both the Supreme Court’s careful consideration of the quantity of information revealed by emerging surveillance technology and the interplay between considerations of quantity and type of intrusiveness. Both *Knotts* and *Dow Chemical* involve sense augmenting technology typically unfettered by Fourth Amendment restrictions. In both cases, the Court indicates there are limits to the use of even sense augmenting technology. That limit is calibrated by the quantity of information revealed.

Therefore, for the Fourth Amendment to apply, an individual’s exhibited desire to keep something private must be coordinated with a societal interest in keeping it private. Where law enforcement leverages enhanced surveillance techniques the Court will consider the type and quantity of intrusion when determining society’s interest in keeping something private. It is also instructive to assess how lower federal courts and state courts have grappled with issues of GPS technology.

**B. State and Lower Federal Court Decisions Regarding the Use of GPS Technology**

To date, three federal courts and four state supreme courts have directly addressed the issue, with four courts finding that use of GPS technology is not a search (the Wisconsin State Supreme Court joined the three federal courts)\(^83\) and three courts finding the opposite.\(^84\) These cases provide some insight into how the Supreme Court might eventually rule on a case involving GPS technology.

For example, in *Morton v. Nassau County Police Dept.*, law enforcement was investigating a series of burglaries. The Nassau County police placed a GPS transmitter on a vehicle whose description and license plate matched that of a vehicle that had been seen at the scene of several of the burglaries.\(^85\) A person of interest, Richard Lacey (“Lacey”), later drove that car to a location that later reported a burglary.\(^86\) Lacey moved to suppress the evidence obtained from the GPS device.\(^87\) The court rejected his motion largely on the basis of the sweeping proposition in *Knotts* that “[a]
person traveling in an automobile on public thoroughfares has no reasonable expectation of privacy in his movements from one place to another. The court did so despite language in *Knotts* limiting the scope of its decision. The *Knotts* Court specifically excludes warrantless “twenty four hour surveillance of any citizen” or the use of “dragnet type law enforcement practices” from its holding. The Northern District of New York in *U.S. v. Moran* conducts a similarly shallow analysis, following *Knotts* without reservation.

Of course, not all courts have ignored the limiting language in *Knotts* or the differences between beeper and GPS technology. In *U.S. v. Garcia*, Judge Posner briefly considers the technological advancement underlying GPS only to conclude that it represents a modest improvement over beeper technology. Brushing past those concerns, he concludes that because there is no evidence that law enforcement is, in fact, engaging in mass surveillance, the use of GPS technology by law enforcement “who have a suspect in their sights” raises no Constitutional concerns.

These courts typically ignore the difference between GPS and beeper technology, accepting that one tracking technology is analogous to another. They consider only the fruits of the technology rather than the methodology of procurement. The state court decisions, on the other hand, consider the issue more thoroughly than their federal counterparts. Unfortunately, their analysis can be of limited value because it is rooted in state rather than Fourth Amendment law.

The Washington Supreme Court first considered the issue of GPS technology in *State v. Jackson*. This case involved an individual, William Bradley Jackson, suspected of the disappearance of his daughter Valiree. Jackson reported that Valiree missing on the morning of October 18, 1999. After conducting an investigation of the home and Valiree’s bedroom, the police believed that Jackson may have been involved with his daughter’s disappearance and informed him of their suspicions. They later obtained a 10 day warrant to attach GPS devices to two of Jackson’s vehicles. The devices eventually led authorities to Valiree’s body, which was buried in a remote area of the forest. Jackson was later convicted of murder by a jury.

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88 Morton, 2007 WL 4264569 at *3 (citing *Knotts*, 460 U.S. at 281.).
89 *Knotts*, 460 U.S. at 283-84.
90 The court in *Moran* simply cites *Knotts* for the proposition that the defendant had no reasonable expectation of privacy on public thoroughfares. 349 F. Supp. 2d 425, 467 (N.D.N.Y. 2005).
91 *Garcia*, 474 F.3d at 998.
92 *Garcia*, 474 F.3d at 997.
The Washington Supreme Court considered the appellate court’s decision that “installation and use of GPS devices on vehicles did not constitute a search or seizure” under the Washington State Constitution. The court recognized that observing items exposed to the public did not constitute a search even if “particularly intrusive method[s] of viewing” were used. The court continued, noting that the “nature and extent of the information obtained” was relevant when considering whether an expectation of privacy is reasonable. Despite relying on state law and precedent, the Jackson Court considered both of the intrusiveness factors implicit in Fourth Amendment analysis, concluding that the intrusion of GPS devices was sufficient to merit warrant protection.

The most recent decision involving GPS devices is more instructive because its reasoning relies on the Fourth Amendment jurisprudence. New York recently considered the issue in People v. Weaver. There, police attached a GPS device, for no discernable reason, to the defendant’s vehicle. Evidence from the GPS device was used to show that the defendant was present at a K-Mart around the time it was burgled. A jury later convicted the defendant of burgling the K-Mart based in part on the GPS evidence.

The court rested its decision to classify use of the GPS device as a search on many arguments. First, it found that GPS technology differed significantly from “primitive” beeper technology. Skipping over the subjective requirement, the court then cited several cases asserting the existence of a reasonable expectation of privacy on the open road. Finally, the court references both intrusiveness factors, concluding that GPS devices contain “sophisticated and powerful technology” which provides more than a mere enhancement of human sensory capacity.” In other words, the court concludes that GPS devices provide a fantastic quantity of information that would not otherwise be available to the five human senses. Despite considering the case primarily under Fourth Amendment jurisprudence, the court admits that federal law in this area is not settled and

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93 Jackson, 150 Wash.2d at 259.
94 Jackson, 150 Wash.2d at 261.
95 Jackson, 150 Wash.2d at 261.
96 The Jackson court concluded that GPS was extrasensory because it provides a technological substitute for visual tracking, 150 Wash.2d at 262.
97 Weaver, 12 N.Y.3d at 440.
98 Weaver, 12 N.Y.3d at 440.
99 Weaver, 12 N.Y.3d at 440.
100 Weaver, 12 N.Y.3d at 444.
has not been addressed by the majority of federal courts. It therefore rests its decision is on state rather than federal law.

State and federal courts could hardly approach GPS technology differently. Federal courts, constrained by the Supreme Court’s decision in *Knotts*, typically conduct superficial analyses proclaiming that use of GPS technology does not constitute a search. Alternatively, the majority of state courts conduct a more searching analysis of the issue, establishing that use of GPS technology without a warrant constitutes a search.

Of course, a court could conclude that the use of GPS technology requires Constitutional oversight. Any such conclusion, however, must be faithful to precedent and consider the intrusiveness of the technology at issue. Under the existing analytic framework, courts should consider whether GPS and beeper technology differ both in type and quantity of information they provide. As a result, the courts conducting a superficial analysis contribute primarily to the weight of the precedent rather than the weight of the analysis evaluating GPS technology.

C. The Modern Seizure Clause

In terms of Fourth Amendment jurisprudence, seizures are the bridesmaids to search’s bride.101 Defendants typically challenge the search itself, rather than the seizure of items taken during the search. Seizures themselves are typically the by-product of a prior search, after all, how else would law enforcement stumble upon the contraband?102 As a result, the seizure jurisprudence is far less developed than the search jurisprudence. Nevertheless, the two prongs of the Fourth Amendment protect the same interests: privacy, property, and liberty.103 Despite the perception that search typically protects primarily privacy104 and seizure protects primarily property and liberty,105

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101 U.S. v. Jacobsen, 466 U.S. 109, 114 n. 5 (1983) (“While the concept of a seizure of property is not much discussed in our cases, the definition follows from the definition of seizure of a person.”); U.S. v. Place, 462 U.S. 696, 700-01 (1983) (recognizing that “in the context of personal property, and particularly containers, the Fourth Amendment challenge is typically to the subsequent search of the container rather than to its initial seizure by the authorities.”).


103 Texas v. Brown, 460 U.S. 730, 747 (1983) (“The Amendment protects two different interests of the citizen – the interest in retaining possession of property and the interest in maintaining personal privacy.”); see also Terry v. Ohio, 392 U.S. 1, 8-9 (1968); See Antonio Yanez Jr., Ayeni v. Mottola and the Implications of Characterizing Videotaping as a Fourth Amendment Seizure, 61 Brook. L. Rev. 507, 510 (listing privacy, liberty, and property as the “central focus of the Fourth Amendment.”).

104 Jacobsen, 466 U.S. at 113.

105 Jacobsen, 466 U.S. at 113.
significant overlap exists between the two. Indeed, both are instrumental at enforcing the Fourth Amendment’s safeguards.\textsuperscript{106}

Like searches, seizures of personal property without a warrant are considered per se unreasonable, and the question of Fourth Amendment protection turns on the definition of seizure.\textsuperscript{107} Like search, the term seizure has become a term of art.

Here, however, the similarities end. For the most part, the courts have articulated and applied a singular, coherent definition for what constitutes a seizure. As is the case with most Constitutional issues, there is some discussion and tension regarding the test and its scope, but seizure does not arouse the same level of interpretive difficulties, passion, or commentary as the search prong.

A “seizure” of property occurs when there is some meaningful interference with an individual’s possessory interests in that property.\textsuperscript{108} Application of this standard reveals the analytic framework pertinent to the seizure analysis. The Court conducts a three part test to determine first whether a seizure occurred and whether that seizure was reasonable.

\textbf{1. There Must Be a Possessory Interest At Stake}

First, the Court requires that a possessory interest be at stake. For example, in \textit{Jacobsen}, Federal Express employees noticed white powder spilling out of a damaged package.\textsuperscript{109} They notified DEA officials who, after conducting a field test on a trace amount of it, determined that the powder was cocaine.\textsuperscript{110} The DEA agents obtained a warrant and arrested the individuals at the recipient’s residence.\textsuperscript{111} At trial, the defendants challenged several aspects of the DEA’s conduct; most important to the seizure analysis was their challenge to the field test of the powder.\textsuperscript{112} The Court found that the DEA’s actions implicated a property interest – the defendants had a property interest in the white powder.

Despite the requirement of a possessory interest, the Court is mindful that seizures can impact any of the interests protected by the Fourth Amendment: liberty, privacy, or property. \textit{United States v. Place} is an example of the Court recognizing that the liberty interest, coupled with a nominal

\begin{footnotesize}
107 \textit{Place}, 462 U.S. at 708-09.
108 \textit{Jacobsen}, 466 U.S. at 113 (citations omitted).
109 \textit{Jacobsen}, 466 U.S. at 111.
110 \textit{Jacobsen}, 466 U.S. at 111-12.
111 \textit{Jacobsen}, 466 U.S. at 112.
112 \textit{Jacobsen}, 466 U.S. at 122-23.
\end{footnotesize}
possessory interest, can trigger seizure concerns.\textsuperscript{113} In \textit{Place}, DEA officials detained an airline passenger for 90 minutes while they conducted a “sniff test” on his luggage. The Court found that the detention “effectively restrained the [passenger] because he is subjected to the possible disruption of his travel plans in order to remain with luggage or arrange for its return.”\textsuperscript{114} The Court found that this detention and resulting infringement on liberty interests constituted a seizure of the individual.

\textbf{i. The Possessory Interest Is Not Limited to Tangible Items}

Traditionally, seizure denies physical possession or enjoyment of a physical item to all others. In other words, seizure is typically concerned with the actual seizure of a physical item.\textsuperscript{115} The Supreme Court has, on occasion, recognized that Fourth Amendment seizure law also recognizes that individuals have a possessory interest in intangible items such as their words. In \textit{Berger v. State of N.Y.}, the Court ruled that the recording of a human voice is a seizure for Fourth Amendment purposes.\textsuperscript{116} It goes without saying that any possessory interest one has in one’s voice is intangible. The language of the majority opinion makes it clear that the wiretaps constitute both a seizure and a search.\textsuperscript{117} The Court reaffirmed their stance in \textit{Katz}, stating that “[T]he Fourth Amendment governs not only the seizure of tangible items, but extends as well to the recording of oral statements . . . .”\textsuperscript{118} The Court unambiguously stated that “the Government’s activities in electronically listening to and recording the petitioner’s words violated the privacy upon which he justifiably relied while using the telephone booth and thus constituted a search and seizure within the meaning of the Fourth Amendment.”\textsuperscript{119}

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\item \textsuperscript{113} \textit{Place}, 462 U.S. at 708-09.
\item \textsuperscript{114} \textit{Place}, 462 U.S. at 708.
\item \textsuperscript{115} Ohm, 2008 Stan. Tech. L. Rev. 2-9 (noting that the Court consistently interprets the seizure clause to protect “only physical property rights and to regulate only the deprivation of tangible things.”).
\item \textsuperscript{116} \textit{Berger v. State of N.Y.}, 388 U.S. 41 (1967).
\item \textsuperscript{117} \textit{Berger}, 388 U.S. at 59 (holding that “the statute’s failure to describe with particularity the conversations sought gives the officer a roving commission to ‘seize’ any and all conversations.) See Ohm, 2008 Stan. Tech. L. Rev. at 18.
\item \textsuperscript{118} \textit{Katz}, 389 U.S. at 353.
\item \textsuperscript{119} \textit{Katz}, 389 U.S. at 353; Professor Ohm discredits the argument that the Court “was speaking about the Fourth Amendment \textit{writ large}, without focusing on a search and seizure as two separate acts” by juxtaposing the majority opinions in \textit{Berger} and \textit{Katz} with Justice Black’s dissenting opinions in those respective cases which “specifically raise arguments against finding these acts to be seizures. See Ohm, 2008 Stan. Tech. L. Rev. at 21 (“In \textit{Berger}, Justice Black opined that ‘[i]t simply requires and imaginative transformation of the English language to say that conversations can be searched and words seized.’ In \textit{Katz}, Justice Black argued that ‘the language of the second clause indicates that he

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Additionally, Federal appellate courts have acknowledged that intangible privacy interests are also protected under the seizure prong. Both the Second and D.C. Circuits have observed this right in the context of considering photographs as seizures.\textsuperscript{120} \textit{Ayeni I} is particularly instructive. There, law enforcement officials attempted to execute a warrant against Babatunde Ayendi for credit card fraud. The agents were accompanied at all times by a CBS television crew. The crew filmed every second of the intrusion from the agents “push[ing] [Mrs. Ayeni] in the chest” to her interrogation at the hands of the agents to the crying of Ayeni’s son.\textsuperscript{121} The Second Circuit ruled that the “video and sound recordings were seizures under the Fourth Amendment”\textsuperscript{122} because they seized “images and sounds of the Ayeni home, and of the Ayenis themselves,” broadcasting them “for public viewing by television audiences across the country.” The language of the court indicates that they recognized the serious privacy interest in the sanctity of the home and the individuals themselves infringed by the seizure of the images and sounds of their homes and persons.

These outliers notwithstanding, courts traditionally have been reluctant to extend Fourth Amendment seizure protections to intangible or virtual property.\textsuperscript{123}

\textbf{2. The Government Must Interfere With the Interest}

After identifying the interest at stake, the Court considers whether the government has interfered with that interest. The government has interfered with a possessory interest when they exert “dominion and control” over it.\textsuperscript{124} In \textit{Jacobsen}, DEA agents took a trace amount of the white powder out of the package and then tested it. By manipulating the powder, the agents exerted dominion and control over the powder. This test of the powder “convert[ed] . . . a temporary deprivation of possessory interests into a permanent one.”\textsuperscript{125} A permanent deprivation, however, is not always necessary. In \textit{Place}, a deprivation of liberty for 90 minutes was sufficient.\textsuperscript{126}

\textsuperscript{120} \textit{Ayeni v. Mottola}, 35 F.3d 680, 688-89 (2nd Cir. 1994) (abrogated on other grounds) (\textit{Ayeni I}); \textit{Ayeni v. CBS Inc.}, 848 F. Supp. 362, 367 (E.D.N.Y. 1994) (\textit{Ayeni II}); \textit{U.S. v. Villegas}, 899 F.2d 1324, 1334 - 1335 (2nd Cir. 1990); \textit{U.S. v. Johnson}, 452 F.2d 1363, 1371 (D.C.Cir. 1971); \textit{but see Bills v. Aseltine}, 958 F.2d 697, 707 (Sixth Cir. 1992) (holding that taking photographs is not a seizure.).

\textsuperscript{121} \textit{Ayeni I}, 35 F.3d at 683.

\textsuperscript{122} \textit{Ayeni I}, 35 F.3d at 688 (internal quotes omitted).

\textsuperscript{123} Ohm, Stan. Tech. L. Rev. at 2.

\textsuperscript{124} \textit{Jacobsen}, 466 U.S. at 121.


\textsuperscript{126} \textit{Place}, 462 U.S. at 709-10 (The court noted that they have “never approved a seizure of the person for the prolonged 90-minute period involved here.”).
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Furthermore, even deprivation of the interest is not required. In United States v. Va Lerie, the Eight Circuit, after a careful consideration of the Supreme Court’s jurisprudence, concluded that the seizure standard also prohibited the “government’s conversion of an individual’s private property.” The Va Lerie court was careful to distinguish conversion from mere trespass as requiring “an intent to exercise a dominion or control over the goods which is in fact inconsistent with the [owner’s] rights,” and noting that “[t]he gist of conversion is the interference with control of the [owner’s] property.”

3. The Court Balances the Intrusion Against the Governmental Interests

With both of the preceding questions answered in the affirmative, the Court then “balance[s] the nature and quality of the intrusion on the individual’s Fourth Amendment interests against the importance of the governmental interests alleged to justify the intrusion.” The Court conducted their most prominent balancing act in Terry v. Ohio. There, the Court described at least three governmental interests involved: effective crime prevention, investigating crime, and the need to ensure that a suspect is not armed. At the same time, the Court recognized that seizure of an individual was no “petty indignity” and represented a “serious intrusion on the sanctity of the person, which may inflict great indignity and arouse strong resentment.” Despite the intensity of the intrusion, the Court determined that its scope was brief, concluding that the weighty governmental interests balanced out the intrusion of the seizure. Nevertheless, the Court carefully calibrated its language to limit the scope of its own holding, emphasizing that each case turned on its own set of facts, while limiting the detention authority of an officer only to limited intrusions, and even then only when based on reasonable, articulable suspicion.

The Court has not circumscribed the factors they examine to determine the “nature and quality” of the intrusion, but the case law does indicate the factors that have guided the Court’s seizure inquiry in the past.

i. The Court Looks to the Intrusiveness of the Government’s Seizure

The first factor is the intrusiveness of the government’s seizure. As the Court noted in Place, “intrusion . . . occasioned by a seizure of one’s personal effects can vary both in its nature and

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128 Va Lerie, 424 F.3d at 703.
129 Jacobsen, 466 U.S. at 124-25 (citations omitted).
130 Terry v. Ohio, 392 U.S. 1, 22-23 (1967).
131 Terry, 392 U.S. at 17.
132 Terry, 392 U.S. at 30.
133 Terry, 392 U.S. at 30.
Moreover, seizures reasonable at inception “can become unreasonable if its manner of execution unreasonably infringes interests protected by the Fourth Amendment.” At the low end of the intrusion spectrum lies a dog sniff, which “does not require opening the luggage . . . does not expose non-contraband items that otherwise would remain hidden” and which only discloses the presence or absence of narcotics, a contraband item. Despite the fact that the sniff conveys information, the intrusiveness is limited, ensuring that the owner is not subject to embarrassment and inconvenience. Contrast a dog sniff to the seizure in Place where authorities intruded on both possessor and liberty interests. Law enforcement severely intruded on Place’s liberty interest by subjecting him to “the coercive atmosphere of a custodial environment.” Furthermore, the Court recognizes a spectrum when assessing the intrusion into possessor interests. The intrusion is less intrusive when the individual “has relinquished control to a third party and when the government confines its investigation to an “on-the-spot inquiry.” By contrast, when an individual retains control of their possession and the government transports their property elsewhere, the intrusiveness is more severe.

**ii. The Duration of the Seizure is Also germane to the Court’s Analysis**

The other salient factor in the Court’s balancing analysis is the duration of the seizure. In Place, a detention for 90 minutes was enough for the Court to conclude that the seizure was unreasonable. Indeed, the Court implies that the length of the detention itself provided sufficient grounds for finding the seizure unreasonable. In contrast, when faced with an interference with possessor interests, the Court has permitted delays of up to 29 hours. Brevity, however, is not always a determining factor. In Jacobsen, DEA officials “permanent[ly]” destroyed the white powder they were testing. Nevertheless, because the scope of the intrusion was so trivial, the Court concluded that the agent’s actions were reasonable.

134 Place, 462 U.S. at 706-07.
135 Jacobsen, 466 U.S. at 124-25.
136 Place, 462 U.S. at 707.
137 Place, 462 U.S. at 707.
138 Place, 462 U.S. at 708.
139 Place, 462 U.S. at 711.
140 Place, 462 U.S. at 709-10.
142 Jacobsen, 466 U.S. at 125.
143 Law enforcement took only a trace amount and the defendants conceded they would not have noticed the missing powder. Jacobsen, 466 U.S. at 125 n. 27.
So, in order for the Court to find that a Fourth Amendment seizure has occurred, it must find that the government meaningfully interfered with a protected interest. If such interference implicates the Fourth Amendment, the Court assess the reasonableness of the seizure. Primary in the Court’s analysis are 1) the interests of law enforcement in effecting the seizure and 2) the manner in which they do so. If the intrusiveness or scope of the seizure cannot be justified by law enforcement’s interests, the seizure is unreasonable.

4. Intersection of Fourth Amendment and First Amendment

The attachment of GPS devices, however, does not raise only Fourth Amendment concerns. GPS devices are used principally to track individuals, to uncover where they travel, and, using this information, to hopefully solve crimes. Sometimes, as in *Jackson*, they are used when police already have information that a crime occurred and are looking to the devices to fill in some information they do not have. Other times, as in *Garcia*, the police suspect that the individual will commit a crime. Police can then use the GPS device to establish whether a potential suspect was at the scene of the crime. But the devices are not intelligent, they are merely passive, relaying a set of coordinates or an address. To say that they reveal only locations is like saying a Google search reveals only links. The links are merely representative of the information contained by the website at the IP address to which the link sends the user. Similarly, the latitude and longitude provided by GPS devices represent more than a physical address. Locations are merely a proxy for the people and businesses they represent. Therefore, more than mere locations, GPS devices provide an index of known associates and associations, and an insight into the frequency of those associations. The attachment of a GPS device, then implicates fundamental First Amendment freedom of association concerns.

The Constitution protects freedom of association from intrusion by the state in two senses: 1) the Court has protected the “choice to enter into and maintain certain intimate human relationships;” and 2) the Court recognizes the right to engage in those activities protected by the First Amendment—speech, assembly, petition of the redress of grievances, and the exercise of religion. The government’s actions do not have to directly trigger First Amendment freedom of association concerns. The Court proscribes government action that has the effect of discouraging or potentially limiting the free exercise of First Amendment protections unintended to affect

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146 Additionally, the Court has not hesitated to restrict government action even where the “governmental action challenged may appear to be totally unrelated to protected liberties.”

First Amendment protections reach only Constitutionally protected speech and associations. The Court has, however, found that First Amendment protections with respect to the freedom to associate, however, are broad. Indeed, the First Amendment protects the right to “associate with others in pursuit of a wide variety of political, social, economic, educational, religious, and cultural ends.” The Court has unequivocally stated that the First Amendment protects the “formation and preservation of . . . highly personal relationships” from “unjustified interference by the State.” Moreover, the Court recognizes that “the constitutional shelter afforded such relationships reflects the realization that individuals draw much of their emotional enrichment from close ties with others.” Implicit in protecting these relationships is the “ability to independently define one’s identity that is central to the concept of liberty.”

Government infringement on these guaranteed freedoms can take “a number of forms.” Several of these forms are pertinent to the use of GPS devices. At a basic level, the use of GPS devices inevitably interferes with the formation and preservation of “highly personal relationships.” It threatens to reveal not only political and religious affiliations but also to undermine the “ability to independently define one’s identity.” More seriously, it threatens to forcibly disclose the fact of membership in a group. Most importantly, the use of GPS devices threatens to chill the fundamental First Amendment freedom to associate. Under constant threat of GPS surveillance individuals may be less likely to attend political rallies or undergo medical treatment such as psychological evaluation. Under the specter of relentless tracking, individuals may be less likely to engage in the religious and social associations the First Amendment expressly protects.

The point of this discussion is not that GPS devices inevitably trample on First Amendment concerns. Whether the use of a GPS devices implicates the right to association turns on the facts and circumstances of the individual case. It is irrelevant that there might be a narrow and wholly

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147 NAACP, 357 U.S. at 461.
149 U.S. Jaycees, 468 U.S. at 618.
151 U.S. Jaycees, 468 U.S. at 619 (citations omitted).
152 U.S. Jaycees, 468 U.S. at 622.
unrealistic case where the police affix a GPS device to a car whose owner uses it solely for criminal purposes. Most importantly, the use of GPS devices constantly and inevitably threatens to reveal and chill associations protected by the First Amendment: the “formation and preservation of highly personal relationships” or social, political, or religious associations that an individual seeks to protect from government scrutiny and interference. The use of GPS devices raises the concern that the information provided by these devices intrudes on First Amendment protections.

These First Amendment concerns fundamentally alter the Fourth Amendment inquiry.\(^{154}\) Where searches or seizure implicate both Fourth Amendment\(^{155}\) and the First Amendment, the Fourth Amendment is applied “with scrupulous exactitude.”\(^{156}\) In particular, the “Courts will scrutinize any large scale seizure of . . . materials presumptively protected under the First Amendment.”\(^{157}\)

Having evaluated the current state of both search and seizure doctrine, this Article will now consider whether the use of GPS devices falls under either category.

IV. The Challenges of Considering GPS Technology a Search Under the Fourth Amendment

The Supreme Court has not yet opined on the status of GPS technology. The case for considering the use of GPS technology a search ignores the assorted obstacles presented by both the jurisprudence and its application at both the federal and state level.

A. The Beeper Cases Are Not Analogous to the Use of GPS Devices

The first obstacle in considering the typical GPS case\(^{158}\) is to remove it from the ambit of *Knotts*. In *Knotts*, the police knew that Armstrong had purchased the ingredients to create illicit drugs. The police, with the consent of the seller of the ingredients, arranged to place a beeper in the container being sold to Armstrong. The beeper emitted a signal monitored by a receiver; the

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154 *Maryland v. Macon*, 472 U.S. 463, 468 (1985) (“The First Amendment imposes special constraints on searches for and seizures of presumptively protected material, and requires that the Fourth Amendment be applied with ‘scrupulous exactitude’ in such circumstances.”) (internal citations omitted.)

155 *Macon*, 472 U.S. at 468-69 (“Absent some action taken by government agents that can properly be classified as a search or seizure the Fourth Amendment rules designed to safeguard First Amendment freedoms do not apply.”) (internal quotation marks omitted).

156 *Stanford*, 379 U.S. at 485-86.


158 In this assessment, the author assume a typical fact pattern. There are many variations, but in general, the police suspect an individual of wrongdoing. The police then attach a GPS device to his vehicle when it is parked on public property. The police then either remotely track the vehicle or periodically download the information stored on the GPS device.
strength of the signal indicated the distance to the receiver. A stronger signal meant that the receiver was closer to the beeper and vice versa. When visual surveillance failed, the police used the beeper to find the vehicle. Knotts later moved to suppress the evidence based on the warrantless monitoring of the beeper, and the Supreme Court rejected his argument.

For obvious reasons, every court to consider the warrantless use of GPS devices begins its analysis with *Knotts*. Both involve leveraging technology to supplement surveillance of an individual’s movements in public spaces. Despite the striking similarities between the two, the language of *Knotts* suggests that it should not control the decision reached in a GPS case.

Most importantly, the Court warned that *Knotts* should not extend to precisely the scenario created by the use of GPS devices. Faced with the argument that *Knotts* would lead to “dragnet type law enforcement practices,” the Court distinguished between the type of surveillance conducted in *Knotts* and “twenty-four hour surveillance of any citizen of this country . . . without judicial knowledge or supervision.”159 GPS technology enables what beepers could not – the flawless, uninterrupted, and twenty-four hour tracking of a suspect. Even if the Court could not have anticipated this particular technology, they could anticipate the consequences of emerging technologies. The Court expressly declined to extend the holding of *Knotts* to that scenario.

Moreover, law enforcement’s use of GPS devices differs significantly from its use of beeper technology. The implementation of the various technologies varies as greatly as does the underlying technology itself.

Beeper technology is hardly more sophisticated than playing “Marco Polo.”160 The nature of beeper technology forces the police to physically follow the individuals they suspect of wrongdoing. The beeper does not transmit its actual location, it transmits only its location relative to the receiver. GPS technology, on the other hand, involves the simultaneous use of several satellites in order to pinpoint one’s location.161 Initially designed for military use, it has only recently been declassified and

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159 Judge Posner somehow ignores the language in *Knotts* explicitly limiting the holding to situations that do not involve twenty four hour surveillance of individuals while focusing on the language prohibiting dragnet procedures. *Garcia*, 474 F.3d at 999.

160 Marco Polo is a children’s game that takes place in a swimming pool. One player (the searcher), keeping his or her eyes closed, must try to tag the other players. The searcher can only sense where the other players are by sound, calling out “Marco!” The other players must respond with “Polo!” In this way, the searcher tries to follow the sounds to tag any of the other players.

161 For a comprehensive technical discussion of GPS technology, see Hutchins, 55 UCLA L. Rev. at 414.
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grows ever more accurate. The difference between the two is as stark as the difference between smoke signals and cellular technology for communication.

The implementation reflects the sophistication in the technologies. Beepers are pure tracking devices enabling only one thing – visual surveillance. Consequently beeper technology requires the police to engage in traditional surveillance to determine where their suspect was traveling. They must follow the suspect’s vehicle and observe where the suspect is traveling in order to use the beeper effectively. The use of beepers is necessarily limited by the number of police and amount of resources a law enforcement agency devotes to the particular case.

GPS technology, on the other hand, enables law enforcement to forego actual surveillance and track the movements of a suspect over long stretches of time. Rather than actively transmitting their location, GPS devices are passive, reading information from various satellites, in turn, facilitating a new perception of the world. Previously, law enforcement, using beeper technology, attempted to catch individuals during the commission of a crime. Now, they use GPS technology ex post, without any particularized suspicion. Unlike beepers, GPS devices empower around the clock surveillance unconstrained by resource or logistical limitations. Law enforcement incurs no extra burden from using one or one hundred or one thousand GPS devices.

The differences in the technology and implementation indicate that GPS devices are not tracking devices and should not be treated as such. For these reasons, the Court should recognize that the Knotts holding does not dispose of a GPS case. With this obstacle surmounted, the next challenge arises when considering the use of GPS technology under the Court’s two part Katz test.

B. There is No Reasonable Expectation of Privacy in One’s Movements Along Public Thoroughfares

1. An Individual Cannot Demonstrate a Subjective Desire for Privacy

The first consideration is an individual’s demonstrated subjective desire for privacy. It should be noted that the Court does not emphasize this prong of the test. That is, a demonstrated personal desire for privacy is not as important as the second, objective consideration. Despite its minor status, it must still exist and be discernable. This is problematic. It is difficult to imagine how

162 Weaver, 12 N.Y.3d at 441. (recognizing that “constant, relentless tracking of anything is now not merely possible but entirely practicable” using GPS devices); Jackson, 150 Wash.2d at 261-62 (“However, when a GPS device is attached to a vehicle, law enforcement officers do not in fact follow the vehicle. Thus, unlike binoculars or a flashlight, the GPS device does not merely augment the officers' senses, but rather provides a technological substitute for traditional visual tracking.”).

163 For example, the authorities in Weaver could not articulate any reason why they had attached a GPS device to Weaver’s car.
a car owner might express a subjective desire for privacy in the movements of their vehicle. Ironically, any evasive action a driver might take to shed surveillance can be presented as sufficient probable cause underlying a warrant permitting the very type of surveillance the driver sought to evade.

In *Katz*, the Court found that an individual exhibited a subjective desire for privacy after occupying a telephone booth and “shut[ting] the door behind him.”\(^\text{164}\) Responding to the Government’s argument that the booth itself was glass enabling passers by to see Katz, the Court stated that what Katz wanted to “exclude from the booth” not the eye, but the uninvited ear.

Consequently, merely shutting the door, in this situation, does not do the trick. For one, anyone can see through the glass, but that is irrelevant. Shutting the door does not exclude an uninvited eye from seeing where the car is going. It is unclear exactly how to show that one values privacy in the movements of a car that are, after all, open to the public. There is, of course, some difference between an expectation that one can be seen on the open road and an expectation that one will be followed on the open road. One does not beget the other. This, however, does not speak to subjective, but rather, objective concerns.

2. Society Does Not Recognize the Desire to Keep Private One's Movement's on Public Thoroughfares

The objective prong of the *Katz* two part test asks where society is willing to recognize the reasonableness of a desire to maintain something as private. Long before the advent of GPS devices and satellite surveillance, the Supreme Court recognized that individuals maintained a reasonable expectation of privacy in vehicles.\(^\text{165}\) Individuals, however, can expect a lesser expectation of privacy on the open road than they can in their homes or offices.\(^\text{166}\) Despite this general expectation of privacy that individuals enjoy on the open road the Court forcefully rejects the notion that an individual may have any reasonable expectation of privacy in their movements along public

\(^{164}\) *Katz*, 389 U.S. at 352.

\(^{165}\) *Adams v. Williams*, 407 U.S. 143, 146 (1972) (“An individual operating or traveling in an automobile does not lose all reasonable expectation of privacy simply because the automobile and its use are subject to government regulation…were the individual subject to unfettered governmental intrusion every time he entered an automobile, the security guaranteed by the Fourth Amendment would be seriously circumscribed.”); *Cardwell v. Lewis*, 417 U.S. 583, 590 (1974) (“The search of an automobile is far less intrusive on the rights protected by the Fourth Amendment than the search of one’s person or of a building.”); *Arizona v. Gant*, 556 U.S. ___, 2009 WL 1045962 (2009) (finding that the “privacy interest in [one’s] vehicle [while] less substantial than in his home . . . is nevertheless important and deserving of constitutional protection.”) (internal citations and quotation marks omitted).

\(^{166}\) *Cardwell*, 417 U.S. at 584; *South Dakota v. Opperman*, 428 U.S. 364, 367 (1976).
thoroughfares. The Court relies on the notion that because an individual voluntarily conveys the fact of whatever stops are made, they cannot claim privacy in the movements of the car.

i. GPS Devices Are Not Intrusive Enough

Privacy advocates look to the intrusiveness inquiry to save the analysis. They maintain that GPS technology represents an unprecedented encroachment into personal areas. It has the potential to compile a comprehensive profile of where you go, with whom you associate, and what you carry. On one hand, GPS devices provide an overwhelming amount of information. On the other, it is most readily classified as a sense-augmenting, rather than extrasensory, device.

Notwithstanding the judgments of the state courts to address the issue, GPS technology does not provide any information that is unavailable to the five human senses. While the device itself has little to do with vision, it does not provide information that the human eye could not itself perceive. A GPS device only reveals information that could have been attained through visual surveillance. The Supreme Court has indicated, through their decisions in Knotts and Karo, that they focus on whether the information could have theoretically been attained using only visual surveillance and not whether it is practically possible to have done so. It is, of course, theoretically
possible, for a police department to “hir[e] another 10 million police officers to tail every vehicle on the nation’s roads.”

We must also consider Dow Chemical in this analysis. In Dow Chemical, the Court stated that a sense augmenting technology might be unconstitutional if it provided too much detail. The amount of detail provided by GPS technology is truly stunning. It provides real time location information accurate to 10-15 centimeters. It is this quantity of information that leads some commentators to claim that it “merits defining use of the technology a search for purposes of the Fourth Amendment.” This claim ignores the differences between the quantity of information at stake in Dow Chemical and GPS use. In Dow Chemical, the Court implied that cameras providing more detail might implicate more serious privacy concerns. The added accuracy was critical because it provided more information to law enforcement. If we were to graph the relationship between accuracy and privacy with respect to aerial photography, it would demonstrate an inverse linear relationship. The more detail the cameras provided, the less privacy an individual would retain. Therefore cameras providing facial details erode privacy and cameras providing details as small as a class ring erode one’s sense of privacy even more.

By contrast, enhanced accuracy in GPS devices, after a certain point, do not implicate greater privacy concerns. Whether the devices are accurate to 10 centimeters, 1 meter, or 10 meters is largely irrelevant. Of course, some level of accuracy is necessary. That level of accuracy, however, is quite low. Beepers are both unsophisticated and imprecise and have been used successfully by law enforcement for years before the invention of GPS devices. Unlike the relationship between journey, and the possibility of discovery were closer tailing attempted, for the police to keep track of the suspect's peregrinations with only visual surveillance. Yet a look at the facts in Kam strongly suggests that what the Court there characterized as a search uncovered a fact—that the can was presently within the home—which could have otherwise been discovered (at least in the sense of the unrealistic approach followed in Knotts). Agents saw the vehicle known to be carrying the container come to the house for which they later obtained a warrant, and the agents also saw that vehicle depart later. What they did not see, however, was whether the can with the beeper was still in the rear bed of the pickup truck, apparently because (as the Court noted) “the agents did not maintain tight surveillance for fear of detection.”

Garcia, 474 F.3d at 998.

Dow Chemical Co., 476 U.S. at 238 (conceding that “surveillance of private property by using highly sophisticated surveillance equipment not generally available to the public, such as satellite technology, might be constitutionally proscribed absent a warrant” while finding that “the photographs [in the case] are not so revealing of intimate details as to raise constitutional concerns.”).


Hutchins, 55 UCLA L. Rev. at 459.
cameras and privacy, the relationship between GPS devices and privacy represents an upside down plateau. With accuracy on the x-axis and privacy on the y-axis, as accuracy increases, privacy decreases. It does so, however, only to a point. After this point, the marginal loss in privacy is quite low and the graph flattens as accuracy increases.

The Court will have their pick of arguments against classifying the use of GPS technology as a search. If they do not dispense with it perfunctorily under *Knotts*, they will struggle to discern a subjective expectation of privacy from the individual. Even if an individual were to somehow divine a way to exhibit a subjective expectation of privacy in the movements of his automobile, the Court will struggle to find this desire reflected in society. GPS technology provides detailed, intimate profiles of our lives, profiles that are inherently public. The information revealed by GPS devices allows law enforcement to passively track our movements with pinpoint accuracy, yet none of these actions implicate Constitutional concerns. Law enforcement simply becomes more efficient at activities they have conducted for millennia. This is the type of advancement that the Supreme Court has been loathe to obstruct.  

V. **The Use of GPS Devices Constitutes a Seizure**

Privacy advocates need not force consideration of GPS devices into a search paradigm. After all, the Fourth Amendment protects against both unreasonable searches and unreasonable seizures. And it is in the protections provided by the other side of the Fourth Amendment coin, the unheralded, unnoticed side – seizure – that warrantless use of GPS devices can be curtailed.

It should be noted that the Court in *Karo* has already that the attachment of a beeper did not constitute a seizure. Their cursory analysis reasoned that at most a technical trespass occurred which did not meaningfully interfere with anyone’s possessory interest in the vehicle. The following discussion illustrates the flaws in why this cursory analysis, echoed most recently by Judge Posner in *Garcia* (which failed to even state the seizure test). The majority’s analysis of this issue is strictly conclusory. Rather than explaining why attaching a beeper to a vehicle does not constitute a seizure, they simply state that it does not “impair[] any privacy interests.”  

The dissent presents a more forceful and coherent argument, recognizing that attachment of a beeper converts the vehicle into an informant for the police.

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178 *Garcia*, 474 F.3d at 997 (recognizing that the “meaning of fourth amendment must keep march with science.”) (citing *Katz*, 389 U.S. 347.).

179 *Karo*, 468 U.S. at 712.

180 See discussion infra.
Admittedly, it is somewhat counter-intuitive to classify the use of a GPS device a seizure under the Fourth Amendment. As Judge Posner succinctly articulates in *Garcia*:

“'The [GPS] device did not affect the car's driving qualities, did not draw power from the car's engine or battery, did not take up room that might otherwise have been occupied by passengers or packages, did not even alter the car's appearance, . . .’”

His observations, while accurate, fail on two related counts. First, they fail to acknowledge that Fourth Amendment seizure doctrine recognizes that law enforcement can seize intangible items. Additionally, they betray the application of the wrong seizure standard. While Judge Posner does not articulate precisely what test he is applying, his argument implies that use or enjoyment of an item must be impaired for a seizure to implicate the Fourth Amendment. In order to find a seizure, the Supreme Court only requires that the Government exercise dominion and control over an item, not that law enforcement impair the use or enjoyment of an item. Both failures have their roots in the same cause. For the most part, seizure, as understood by the Fourth Amendment, primarily revolved around the *actual* seizure of *physical* items. Where the actual seizure of physical items is concerned, exercising “dominion and control” over an item and impairing the “use and enjoyment” of property were one and the same. When a law enforcement officer seizes white powder suspected to be narcotics he or she simultaneously exercises dominion and control over it while denying use and enjoyment of it to the rightful owner.

The digital age has confounded this fundamental conception of seizure. Information previously stored physically in files and file cabinets is now stored electronically. Technology, then, enables the *virtual* seizure of *virtual* items. The seizure of a computer file does not deny its use or enjoyment to others, hence virtual seizure. The item is virtual because it is represented by bits rather than atoms. The use of GPS devices does not go quite so far. Instead, the use of GPS devices constitutes a *virtual* seizure (use of the car is not denied to the owner) of *physical* property (the vehicle itself). Something intangible is taken from a vehicle owner when a GPS device is placed on it — liberty and privacy. In this way, the use of a GPS device is not unlike copyright and plagiarism. Copyright vests ownership in words; the words themselves become property of their copyright owner. When the possessory interest in the copyright is violated, something intangible has been taken.

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181 *Garcia*, 474 F.3d at 996.
182 See infra Part III.C.1.i.
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Fortunately, the existing seizure jurisprudence is flexible enough to address the issues raised by GPS devices.

**A. There is a possessory interest at stake**

First, the Court requires that a possessory interest be at stake. It should be manifestly clear that an individual has a possessory interest in his vehicle. Moreover, the Supreme Court has indicated that the Fourth Amendment recognizes the virtual seizure of virtual items.\(^{185}\) A wiretap constitutes a virtual seizure (use of one’s voice is not denied to the individual) of a virtual item (one’s voice is not a physical object). Much like the CBS television crew in *Ayendi I*, GPS devices expose information that individuals rightly wish to keep private. This information includes religious affiliations, political leanings, and social relationships. As in *Ayendi I*, the use of GPS devices implicates the privacy of the individuals against whom it is used. In conjunction with the possessory right, then, the owner has a cognizable, privacy interest put at risk by the attachment of a GPS device. More importantly, law enforcement asserts dominion and control over a vehicle when they attach a GPS device to it.

**B. The Government Exerts Dominion and Control Over the Vehicle**

After establishing that Fourth Amendment interests are at stake, the Court requires the Government to have interfered with those interests. With respect to their use of GPS devices, the Government does so in two separate ways. First, as the *Jacobsen* Court explained, the Government interferes with a possessory interest when it exerts dominion and control over it.\(^{186}\) As *Jacobsen* illustrates, manipulation of an item constitutes dominion and control over it. Second, according to *Va Lerie*, the seizure standard prohibits the “government’s conversion of an individual’s private property.”\(^{187}\)

1. **The Attachment of a Foreign Object to One’s Property Interferes with the Owner’s Basic Possessory Rights**

Ownership of property implies the right of possession and control including the right to protect and defend such possession against the intrusion or trespass of others.\(^{188}\) The owner of

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\(^{185}\) See supra Part III.C.1.i.
\(^{186}\) See supra Part III.C.2.
\(^{187}\) *Va Lerie*, 424 F.3d at 702.
\(^{188}\) *Polytechnic Data Corp. v. Xerox Corp.*, 362 F. Supp. 1, 10 (N.D.Ill. 1973) (stating that the owner of property has “an absolute property right therein . . . including a right to prohibit the attachment of devices thereto, or to retain authority to decide whether such attachment shall be made.”); 63C Am. Jur. 2d Property Section 27 n. 50
property has the “right to exclude from it, all the world, including the government, and a concomitant right to use it exclusively for his own purposes.” That right includes the prerogative to prohibit the attachment of foreign devices to my property. The attachment of a GPS device to a car by law enforcement officials defeats that basic right.

2. Attachment of a GPS Device Constitutes Conversion

The intent to exercise dominion and control inconsistent with the owner’s rights differentiates conversion from trespass. When the Government attaches a GPS device to the car they transform it from a mode of transportation into a messenger, conscripted into the ranks of the government. More than a mere trespass, they are converting it from a functional possession into an informant for the police. The government infringes on the exclusionary property right by attaching an unwanted device to the vehicle. Contrary to the conclusory opinion in Karo the attachment of a GPS device does not constitute pure trespass. It is a conversion of an individual’s car into a homing beacon, constantly announcing itself to law enforcement: “I am here.”

The Second Restatement of Torts adds another element to the Eighth Circuit’s conception of conversion: the interfering actor “may justly be required to pay the other the full value of the chattel.” § 222A. In order to determine the seriousness of the interference the Second Restatement suggests looking to six factors: 1) the extent and duration of the actor's exercise of dominion or control; 2) the actor's intent to assert a right in fact inconsistent with the other's right of control; 3) the actor's good faith; 4) the extent and duration of the resulting interference with the other's right of control; 5) the harm done to the chattel; 6) the inconvenience and expense caused to the other.

The first five of these factors cut in favor of conversion. The extent and duration of the Government’s dominion and control and resulting interference with the owners right of control over the vehicle is of extended duration. Furthermore, the Supreme Court has recognized that law enforcement does indeed intend to assert a right inconsistent with the owner’s right of control when they attach objects to another’s vehicle. As for the fifth factor, there is economic harm done to the vehicle. There is little empirical research on the economic or market value of privacy, but the

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189 Karo, 468 U.S. at 729 (Stevens dissenting opinion).
190 Va Lerie, 424 F.3d at 703.
192 U.S. v. Moore, 562 F.2d 106, 112 (C.A.Mass. 1977) (“While a driver has no claim to be free from observation while driving in public, he properly can expect not to be carrying around an uninvited device that continuously signals his presence.”).
193 See infra Part V.C.
194 Karo, 468 U.S. at 712-13 (finding that attachment of a beeper is a trespass).
existing research suggests that privacy, especially information privacy, does indeed have a value. A simple example should illustrate the point. Imagine an auction in which two vehicles, identical in all respects except one, are being sold. The only difference between the two is that one of the vehicles has a Government monitored GPS device attached to it. It is difficult to imagine both selling for the same price. For some, a car equipped with a monitored GPS device would be worthless because of the value they place on privacy. The inconvenience and expense caused to the owner is debatable, but likely minimal.

C. Balancing Test

Moreover, under the definition articulated in the Court’s jurisprudence, this interference is not reasonable. The possessory interference is both highly intrusive and extended in duration. First, the owner of the vehicle has not diluted his possessory interest in his property by “relinquish[ing] control to a third party” as did Jacobsen when he gave his package to Federal Express. Moreover, unlike the dog sniff in Chadwick, the intrusion of a GPS device exposes more than simply incriminating information. It reveals an unparalleled quantity of information, both personal and mundane, private and public about the target. GPS devices enable the government to monitor an individual’s movements twenty-four hours a day, for weeks or months at a time. All movements are recorded – there is no filter for solely incriminating or criminal activity. Every move, every turn is recorded. Use of the GPS device perverts the fundamental concept of property which vests in its owner the right to exclude all others from it. The use of a GPS device is somewhat like the deprivation of property in Jacobsen where the deprivation was permanent. The Court there found the scope of the intrusion to be trivial because only a trace amount of the powder was destroyed. Here, however, law enforcement is not taking a trace amount of the car, they are converting the entire possession for their purposes.

196 Assuming, of course, that the GPS device cannot be removed or disabled.
197 Place, 462 U.S. at 705-06.
198 Jacobsen, 466 U.S. at 111.
199 The Jacobsen Court did not find that law enforcement had effected a seizure because they seized only a trace amount. Jacobsen, 466 U.S. at 125 n. 27.
As in Jacobsen the intrusion is extended in duration. Law enforcement can maintain their interference with an individual’s possessory interests in perpetuity. They use GPS devices to help gather evidence to solve crimes. One of two results is possible – either they solve the crime or they do not. If they solve the crime, either they have caught the individual they targeted with the GPS device (“Targeted Person”), or they caught someone else (“Actual Culprit”). Where the Actual Culprit is not the Targeted Person, law enforcement has no incentive to stop monitoring the Targeted Person. The device is a sunk cost and they can continue to gather information to use retroactively should there be another crime they have difficulty solving. The next time they have a whodunit on their hands, they can simply access location information for all the individuals they have under GPS surveillance and hope for a positive match. In the third and final scenario, if law enforcement cannot solve the crime, the GPS device will live on indefinitely, constantly transmitting information that authorities hope can aid them solve the puzzle. In two out of the three plausible scenarios, use of the GPS device is indefinite and potentially permanent.

Finally, no interest of law enforcement supports the continuous, uninterrupted seizure of personal property. The only law enforcement interest at stake is that in preventing and investigating crime. This interest, however, does not justify twenty-four hour seizure of individual’s vehicles who may not even be suspected of a crime. While law enforcement typically has a reason for following someone, they have not always acted so scrupulously. In New York, authorities were unable to articulate their reason for following Mr. Weaver.

In both Jacobsen and Terry, the ratio of government interest to intrusion was quite high. The Court was careful to note that the intrusion in both Terry and Jacobsen was low. By contrast the governmental interests – preventing and detecting crime and ensuring the safety of the officer in Terry – were quite high. Here, however, the governmental interest, while somewhat strong, pales in comparison to the level and length of intrusion into possessory interests.

In sum, even without the added scrutiny invited by the implication of First Amendment concerns, the attachment of a GPS device constitutes a seizure of the car. Law enforcement

200 Weaver, 12 N.Y.3d at 436 (“It is not clear from the record why defendant was placed under electronic surveillance.”).
201 Weaver, 12 N.Y.3d at 436.
202 Terry, 392 U.S. at 30 (“The policeman carefully restricted his search to what was appropriate to the discovery of the particular items which he sought.”); Jacobsen, 466 U.S. at 125 (“Conversely, because only a trace amount of material was involved, the loss of which appears to have gone unnoticed by defendant.”).
meaningfully interferes with possessory interests by converting the nature of the automobile from a provider of transportation into a government informant. On top of that, law enforcement must exert dominion and control over the vehicle, violating the fundamental ownership prerogative to exclude all others from one’s own property. This interference is both intrusive and constant. It provides a comprehensive dossier of a person’s interactions, travels, and associates and it does so continuously. The conversion is indefinite, but likely extended in duration, and potentially permanent. Finally, the governmental interest in preventing and detecting crime does not balance out the intrusiveness and duration, rendering the seizure unreasonable. The fact that the seizure implicates First Amendment concerns only strengthens the analysis.

VI. The Use of A GPS Device Should be Preauthorized by a Warrant

The text of the Fourth Amendment does not mandate that law enforcement obtain a warrant before conducting a search or seizure. The Fourth Amendment requires only that “[t]he right of the people to be secure in their persons, houses, papers, and effects, against unreasonable searches and seizures, shall not be violated . . . .” Nevertheless, the Court has interpreted reasonableness to require a warrant before law enforcement can conduct a search or seizure.

In *Johnson v. United States*, the Court overturned an opium user’s convictions after law enforcement searched her room without a warrant. The Court did so despite conceding that the presence of an odor that law enforcement officials recognized as burning opium probably furnished the agents with probable cause. Nevertheless, the Court ruled that an assessment of whether information known to officers is sufficient to justify intruding upon a defendant’s privacy is a decision to be made by a judicial officer, not the police officer on the ground. The Court clarified that the amendment's protections do not “deny law enforcement the support of the usual inferences which reasonable men draw from evidence.” Instead, the Court interprets the Amendment to require “that those inferences be drawn by a neutral and detached magistrate instead of being judged by the officer engaged in the often competitive enterprise of ferreting out crime.”

Therefore, a ruling that the use of GPS devices constitutes a Fourth Amendment seizure triggers the warrant requirement. While there are several “specifically established and well-delineated

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203 U.S. Const. amend. IV.
204 See *Katz*, 389 U.S. at 357 (observing that “searches conducted outside the judicial process, without prior approval by judge or magistrate, are per se unreasonable under the Fourth Amendment”).
206 *Johnson*, 333 U.S. at 14.
exceptions” to the warrant requirement, none apply to the most common use of GPS devices.\textsuperscript{207} Some of the following are exceptions the Court has recognized: the presence of exigent circumstances, such as the hot pursuit of a fleeing felon,\textsuperscript{208} investigating reasonably suspicious behavior and ensuring officer safety,\textsuperscript{209} consent searches,\textsuperscript{210} searches conducted incident to a valid arrest,\textsuperscript{211} searches of automobiles,\textsuperscript{212} and searches of items in plain view.\textsuperscript{213}

Each exception is animated by a particular purpose. With respect to investigatory stops and frisks, the Court “noted that officer safety was a critical basis for the exception, and required that any search be limited to only that exploration necessary to discover weapons.”\textsuperscript{214} Similarly, when discussing the exigent circumstances exception, the Court “reasoned that such an exception was necessary because of the dangers of evidence destruction or harm to the pursuing officers.”\textsuperscript{215}

In the case of GPS devices, there is little reason for an exception to the warrant requirement. Law enforcement already has to obtain and find time to attach a GPS device. There is no reason they could not obtain a warrant as well. In short, law enforcement should be required to obtain a warrant before tracking suspects using GPS devices attached to their vehicles.

\textbf{VII. Conclusion}

Jeremy Bentham described his panopticon as "a new mode of obtaining power of mind over mind, in a quantity hitherto without example."\textsuperscript{216} The use of GPS devices leverages technology to

\begin{itemize}
  \item \textsuperscript{207} \textit{Katz}, 389 U.S. at 357
  \item \textsuperscript{208} \textit{McDonald v. United States}, 335 U.S. 451, 456 (1948) (“[N]either the entry without warrant to search for the robber, nor the search for him without warrant was invalid. Under the circumstances of this case, the exigencies of the situation made that course imperative.”)
  \item \textsuperscript{209} \textit{Terry}, 392 U.S. at 27 (“[T]here must be a narrowly drawn authority to permit a reasonable search for weapons for the protection of the police officer, where he has reason to believe that he is dealing with an armed and dangerous individual, regardless of whether he has probable cause to arrest the individual for a crime.”).
  \item \textsuperscript{210} See \textit{Schneckloth v. Bustamonte}, 412 U.S. 218 (1973) (defining the state's burden for establishing consent to search).
  \item \textsuperscript{211} See \textit{Chimel v. California}, 395 U.S. 752 (1969) (holding that following arrest, an officer may search the arrestee's person and any areas within his immediate control for weapons or destructible evidence).
  \item \textsuperscript{212} See \textit{Carroll v. United States}, 267 U.S. 132, 154 (1925) (finding the warrantless stop and search of cars permissible where the police have “probable cause for believing that [the] vehicles are carrying contraband or illegal merchandise”).
  \item \textsuperscript{214} \textit{Terry}, 392 U.S. at 27.
  \item \textsuperscript{215} \textit{Cupp v. Murphy}, 412 U.S. 291, 302 (1973)
\end{itemize}
achieve the same result as a panopticon. The *Weaver* case aside, all indications are that law enforcement has been judicious in their deployment of GPS technology. Nevertheless, it defies logic to wait on the day that the Government “institute programs of mass surveillance of vehicular movements” as Judge Posner suggests. The irony of Judge Posner’s statement is that like the prisoners in a panopticon, the American people will not be aware that law enforcement is watching. In other words, there is little evidence to suggest that the public would be aware of mass surveillance even if it was taking place.

It is counter-intuitive to think of the attachment of a GPS device as a seizure rather than a search, but the dissonance is a result of the evolution of the Fourth Amendment search and seizure doctrines. The fact remains that the use of GPS devices constitutes a seizure under the prevailing definition of a seizure and not a search. Colloquially it may appear to be a search, but a searching legal examination reveals this initial perception to be a mirage unsupported by the current interpretation of the search prong of the Fourth Amendment. Under the prevailing interpretation of the seizure prong of the Fourth Amendment, the use of GPS devices does constitute a seizure, and law enforcement should be required to obtain a warrant before using them.