

FORM OVER FUNCTION? POLE CAMERAS, *TUGGLE*, AND THE FOURTH AMENDMENT

Abstract: On July 14, 2021, in *United States v. Tuggle*, the United States Court of Appeals for the Seventh Circuit held that the warrantless use of pole cameras to continuously surveil a suspect for eighteen months did not constitute a Fourth Amendment search. In doing so, the Seventh Circuit contributed to a growing body of judicial disagreement about the proper approach to technology-enabled searches, mosaic theory, and the scope of the United States Supreme Court’s decision in *Carpenter v. United States*. This Comment argues that the approach in *Tuggle* is incorrect because it unnecessarily narrows *Carpenter* and relies on assumptions no longer relevant to technology-enabled searches.

INTRODUCTION

In his nearly thirty years as an Associate Justice of the United States Supreme Court, Antonin Scalia authored many of the Court’s most influential Fourth Amendment opinions.¹ Perhaps surprisingly, Scalia, by his own admission, hated Fourth Amendment cases because of their seemingly limitless iterations.² In 2021, in *United States v. Tuggle*, a drug distribution case centered on the small city of Mattoon, Illinois confronted the United States Court of Appeals for the Seventh Circuit with one such iteration at the crossroads of technology and societal expectations of privacy.³

¹ See *Antonin Scalia*, OYEZ, https://www.oyez.org/justices/antonin_scalia [<https://perma.cc/Z648-YCGJ>] (providing a biographical overview of Justice Scalia’s life and career); Jonathan Blanks, *Justice Scalia: Underappreciated Fourth Amendment Defender*, CATO INST.: CATO AT LIBERTY (Feb. 15, 2016), <https://www.cato.org/blog/justice-scalia-underappreciated-fourth-amendment-defender> [<https://perma.cc/DN9F-VREH>] (describing key Supreme Court Fourth Amendment opinions authored by Justice Scalia). Justice Scalia was appointed to the Supreme Court by President Ronald Reagan and unanimously confirmed by the Senate in 1986. *Antonin Scalia*, *supra*. He served on the Court until his death in 2016. *Id.*

² *Supreme Court Week: Supreme Court Justice Scalia*, C-SPAN (June 19, 2009), <https://www.c-span.org/video/?286079-1/supreme-court-justice-scalia> [<https://perma.cc/3BB3-58TY>] (“I just hate Fourth Amendment cases . . . [I]t’s almost a jury question, you know, whether this variation is an unreasonable search or seizure, variation 3,542 . . . I’ll write the opinion, but I don’t consider it a plum.”).

³ See *United States v. Tuggle*, 4 F.4th 505, 511–12 (7th Cir. 2021) (detailing the case’s factual background), *cert. denied*, 142 S. Ct. 1107 (2022). As of July 2021, Mattoon, Illinois had an estimated population of 16,805 residents. *Quick Facts: Mattoon, Illinois*, U.S. CENSUS BUREAU, <https://www.census.gov/quickfacts/mattooncityillinois> [<https://perma.cc/8EC7-P28W>] (Sept. 11, 2022).

Part I of this Comment examines the current state of Fourth Amendment law and the factual and procedural history of *United States v. Tuggle*.⁴ Part II discusses competing judicial approaches to the treatment of pole cameras under the Fourth Amendment.⁵ Part III argues that the Seventh Circuit's approach in *Tuggle* obfuscates the Supreme Court's Fourth Amendment precedent and that courts should instead adopt the approach recently offered in a concurrence by Chief Judge David Barron of the United States Court of Appeals for the First Circuit.⁶

I. WAITING FOR HERACLES: THE FOURTH AMENDMENT HYDRA⁷

The Fourth Amendment of the United States Constitution protects individuals from arbitrary and unreasonable searches and seizures of their property and persons.⁸ Increasing technological ubiquity and complexity pose significant challenges to defining the scope of Fourth Amendment protections.⁹ Subsection A of this Part discusses key Fourth Amendment cases that underpin

⁴ See *infra* notes 7–50 and accompanying text.

⁵ See *infra* notes 51–69 and accompanying text.

⁶ See *infra* notes 70–84 and accompanying text.

⁷ See Euripedes, *Heracles*, in 1 *THE COMPLETE GREEK DRAMA* 1017, 1049 (Whitney J. Oates & Eugene O'Neill, Jr. eds., E.P. Coleridge trans., 1938) (narrating a mythological drama in which Heracles describes slaying the hydra, a multi-headed creature whose heads regenerate after being cut off). Like attempts to slay the hydra, each application of the Fourth Amendment to novel situations generates new and unforeseen challenges in translating such applications to future cases. Cf. *Supreme Court Week*, *supra* note 2 (quoting Justice Scalia's description of Fourth Amendment cases); see, e.g., Matthew Tokson, *Blank Slates*, 59 B.C. L. REV. 591, 637 (2018) (noting the "tendency of new technologies to destabilize Fourth Amendment law"); Orin S. Kerr, *An Equilibrium-Adjustment Theory of the Fourth Amendment*, 125 HARV. L. REV. 476, 480 (2011) (theorizing that Fourth Amendment law evolves in accordance with new disruptions to the societally accepted balance of privacy and policing).

⁸ U.S. CONST. amend. IV. The Fourth Amendment's origins lie with historical state-level protections. Leonard W. Levy, *Origins of the Fourth Amendment*, 114 POL. SCI. Q. 79, 92–95 (1999). In June 1776, Article 10 of Virginia's Declaration of Rights became the first constitutional provision in America to deal specifically with searches and seizures. *Id.* at 92–93. The Fourth Amendment's drafters drew heavily on Article 14 of the Massachusetts Declaration of Rights, which was authored by John Adams and ratified in 1780. See *id.* at 94–95 (discussing the influence of the Massachusetts Declaration of Rights on the Fourth Amendment). Notably, the Fourth Amendment's drafters adopted Article 14's explicit recognition of a specific, protectable "right" against "unreasonable search, and seizures"—the latter being the first known use of the term. *Id.* at 95. Still, the congressional history of debate surrounding, and the linguistic evolution of, the Fourth Amendment is scant. See Thomas K. Clancy, *The Framers' Intent: John Adams, His Era, and the Fourth Amendment*, 86 IND. L.J. 979, 1047 (2011) (discussing changes made to James Madison's draft of the Fourth Amendment). A committee of representatives from each state with a congressional seat modestly narrowed the scope of James Madison's Fourth Amendment draft to include "persons, houses, papers, and effects," rather than "persons, houses, papers and other property." *Id.* at 1047–48 (emphasis added).

⁹ See LAURA HECHT-FELELLA, BRENNAN CTR. FOR JUST., *THE FOURTH AMENDMENT IN THE DIGITAL AGE* 3 (2021), <https://www.brennancenter.org/our-work/policy-solutions/fourth-amendment-digital-age> [<https://perma.cc/3FEG-ZAP5>] (detailing the Fourth Amendment concerns that emerge from the use of new technologies, including automated license plate readers, surveillance drones, and smart doorbells).

modern Fourth Amendment law.¹⁰ Subsection B introduces the mosaic theory approach to the Fourth Amendment.¹¹ Subsection C explains the facts of *United States v. Tuggle*.¹²

A. The Many Flavors of the Fourth Amendment

In 1967, in *Katz v. United States*, the Supreme Court held that, under the Court's construction of the Fourth Amendment, a wiretap constitutes a search.¹³ Justice Harlan's concurrence, rather than the majority's holding, has become *Katz*'s jurisprudential legacy.¹⁴ Justice Harlan established a two-prong test for determining if a particular activity constitutes a Fourth Amendment search: (1) whether the individual demonstrates an actual privacy expectation; and (2) whether society would view that expectation as reasonable.¹⁵

In 2012, in *United States v. Jones*, the Supreme Court established an additional Fourth Amendment test to run in parallel with *Katz*.¹⁶ Writing for the majority, Justice Scalia asserted that a Fourth Amendment violation occurs when the government intrudes physically on an area protected by the Constitution to gather information.¹⁷ *Jones* did not overrule *Katz*, but it did reassert the importance of the common law property lens through which the Court interpreted the Fourth Amendment pre-*Katz*.¹⁸

¹⁰ See *infra* notes 13–26 and accompanying text.

¹¹ See *infra* notes 27–38 and accompanying text.

¹² See *infra* notes 39–50 and accompanying text.

¹³ 389 U.S. 347, 352–53 (1967).

¹⁴ See Matthew B. Kugler & Lior Jacob Strahilevitz, *Actual Expectations of Privacy, Fourth Amendment Doctrine, and the Mosaic Theory*, 2015 SUP. CT. REV. 205, 213 (noting that Justice Harlan's concurrence is the more important focus of scholarly work on *Katz* and its progeny).

¹⁵ 389 U.S. at 361 (Harlan, J., concurring). Some scholarship suggests that, although *Katz* is nominally a two-prong test, courts rely on the objective prong—whether society would view as reasonable the asserted privacy expectation—to a far greater degree than the subjective prong. See, e.g., Orin S. Kerr, *Katz Has Only One Step: The Irrelevance of Subjective Expectations*, 82 U. CHI. L. REV. 113, 114–15 (2015) (arguing that, given the peripheral nature of the subjective prong in practice, the Supreme Court should clarify that *Katz* is properly applied as only having an objective test). In a study of 540 cases applying *Katz*, for example, courts in eighty percent of cases applied only the objective prong in their analysis. *Id.* at 117.

¹⁶ See *United States v. Jones*, 565 U.S. 400, 403–04, 406–07, 411 (2012) (holding that, when law enforcement attached a GPS device to a defendant's vehicle and tracked the vehicle's movements for twenty-eight days, officers engaged in a Fourth Amendment search).

¹⁷ See *id.* at 404–05 (tracing the throughline of property law as the animating factor in Fourth Amendment Supreme Court cases until *Katz* in 1967).

¹⁸ See *id.* at 406–07, 411 (clarifying that, although *Katz* was decided on the basis of reasonable privacy expectations rather than on the occurrence of a trespass, *Katz* did not reject the traditional grounding of the Fourth Amendment in property law); see, e.g., *Silverman v. United States*, 365 U.S. 505, 506–07, 509, 511 (1961) (finding a Fourth Amendment search where the government committed a trespass by affixing a microphone to the heating duct of the defendants' home); *Olmstead v. United States*, 277 U.S. 438, 457, 466 (1928) (declining to find a Fourth Amendment search where the Government placed a wiretapping device on telephone wires *outside* of the suspect's residence), *overruled by Katz*, 389 U.S. 347, and *Berger v. New York*, 388 U.S. 41 (1967). But see *Katz*, 389 U.S. at 353

The Supreme Court has repeatedly held that, under *Katz*'s second prong, an individual cannot claim a reasonable expectation of privacy with respect to activities the individual "knowingly exposes" to the outside world.¹⁹ In 2001, in *Kyllo v. United States*, the Supreme Court considered the boundaries of what law enforcement can reasonably claim an individual has "knowingly expos[ed]" under *Katz* when that individual is subjected to technological means of information-gathering.²⁰ In a 5-4 decision, the Supreme Court held in *Kyllo* that law enforcement agents engage in a search when they obtain information using technology that enhances the senses, is not commonly used by the general public, and grants explorative access that, in the past, would have required physical entry.²¹ When law enforcement agents use such technologies, they conduct a Fourth Amendment search requiring a warrant.²²

In 2018, in *Carpenter v. United States*, the Supreme Court held that law enforcement engaged in a search subject to the Fourth Amendment when it warrantlessly acquired 127 days of a defendant's cell-site location information

(asserting that *Olmstead* and the trespass theory of the Fourth Amendment on which it was based were no longer controlling).

¹⁹ See 389 U.S. at 351 (distinguishing public from private for the purposes of Fourth Amendment protections (first citing *Lewis v. United States*, 385 U.S. 206, 210 (1966); and then citing *United States v. Lee*, 274 U.S. 559, 563 (1927))); see also *Kyllo v. United States*, 533 U.S. 27, 31–32 (2001) (noting that, although warrantless searches violate the Fourth Amendment, visual observation of something in plain view is not a search in the first place); *California v. Greenwood*, 486 U.S. 35, 41 (1988) (finding it unreasonable to expect police officers to look away when they see criminal activity occurring in public view); *California v. Ciraolo*, 476 U.S. 207, 213 (1986) (noting that the Fourth Amendment does not compel law enforcement to avoid observing homes viewable on public ways).

²⁰ See *Kyllo*, 533 U.S. at 30–31, 33–35, 42 (considering whether law enforcement's collection of evidence using thermal imaging of a home violated a defendant's Fourth Amendment rights); *Katz*, 389 U.S. at 351 (stating that what is "knowingly expose[d]" by an individual to the outside world does not receive constitutional protection).

²¹ See *Kyllo*, 533 U.S. at 34–35, 40 (labelling the use of thermal imaging as a Fourth Amendment search and laying out the Court's evaluative standard for technology-involved searches). The thermal imaging devices at issue in *Kyllo* picked up on bands of higher heat near the suspect's garage roof and exterior wall. *Id.* at 29–30. Based in part on this information, law enforcement concluded that the suspect was using special lighting to aid the growth of marijuana plants in his home and obtained a search warrant for the premises. *Id.* at 30. The Court in *Kyllo* did not draw a clear line between what technologies are or are not "sense-enhancing," but the paradigmatic technologies addressed in *Kyllo* may be best understood as means of surveillance with significant targeting or intense usage capabilities. See JIM HARPER, NAT'L CONST. CTR., ADMINISTERING THE FOURTH AMENDMENT IN THE DIGITAL AGE 22–23 (2017), <https://constitutioncenter.org/media/files/harperfinal5.pdf> [<https://perma.cc/52Z3-RWBD>] (contrasting sight enhancement produced by eyeglasses and flashlights with that of facial recognition technology); *Kyllo*, 533 U.S. at 34 (emphasizing the potential impact of "sense-enhancing" technology on Fourth Amendment rights).

²² *Kyllo*, 533 U.S. at 40. The Supreme Court's approval of law enforcement's use of simple cameras, even when used in arguably atypical ways, predates *Kyllo*. See, e.g., *Dow Chem. Co. v. United States*, 476 U.S. 227, 238–39 (1986) (approving of law enforcement's use of aerial photography in public airspace to capture images of an industrial plant); *Ciraolo*, 476 U.S. at 209, 213–15 (approving of law enforcement's observation and photographing of a suspect's marijuana plants from a private plane flying at an altitude of one thousand feet in public airspace).

(CSLI).²³ *Carpenter* served as a modern outlet for the Court's concern in *Kyllo* about the impact of new technologies on Fourth Amendment rights, with the majority implying that technology-involved searches may be fundamentally different in kind, rather than merely different in degree, from analog searches.²⁴ *Carpenter*'s self-limiting language, however, renders its true scope unclear.²⁵ Cases involving law enforcement's use of pole cameras have proven to be particularly salient vehicles for this discourse.²⁶

²³ 138 S. Ct. 2206, 2217–19 (2018). A cell phone continuously seeks out cell tower signals. Stephanie Lacambra, *Cell Site Location Information: A Guide for Criminal Defense Attorneys*, ELEC. FRONTIER FOUND., https://www EFF.org/files/2019/03/28/csli_one-pager.pdf [<https://perma.cc/LBR3-Y96N>] (Mar. 28, 2019). When the cell phone connects to a cell tower, the phone's wireless carrier timestamps the connection to that specific tower and records its duration. *Id.* This data, known as cell-site location information (CSLI), effectively creates a roadmap of the phone user's historical whereabouts. *See id.* (describing the way in which CSLI data can be used to reconstruct or track a phone user's movements).

²⁴ *See Carpenter*, 138 S. Ct. at 2214, 2216, 2218–19 (citing *Kyllo*, 533 U.S. 27 (2001), and emphasizing the sweeping nature of information to which law enforcement can be privy when engaged in searches of or involving technology); *Kyllo*, 533 U.S. at 35–36 (cautioning against Fourth Amendment rules that cannot withstand technological change); *see also* *Riley v. California*, 573 U.S. 373, 385–86 (2014) (holding that police officers generally must get a warrant before searching the contents of a cell phone). When the Supreme Court released its decision in *Carpenter*, scholars and privacy advocates lauded the case as a significant win for digital privacy protections under the Fourth Amendment. *See, e.g.*, Andrew Guthrie Ferguson, *Future-Proofing the Fourth Amendment*, HARV. L. REV. BLOG (June 25, 2018), <https://blog.harvardlawreview.org/future-proofing-the-fourth-amendment/> [<https://perma.cc/R2T4-CJRS>] (viewing *Carpenter* as a signal of the Supreme Court's receptiveness to new, technology-cognizant approaches to the Fourth Amendment); Nathan Freed Wessler, *The Supreme Court's Groundbreaking Privacy Victory for the Digital Age*, ACLU (June 22, 2018), <https://www.aclu.org/news/privacy-technology/supreme-court-groundbreaking-privacy-victory-digital-age> [<https://perma.cc/P4XJ-79XS>] (describing *Carpenter* as “arguably the most consequential privacy decision of the digital age”). Note that the third-party doctrine is also implicated by the decision in *Carpenter* but is beyond the scope of this Comment. *See* 138 S. Ct. at 2261–63 (Gorsuch, J., dissenting) (questioning the continued prudence of the third-party doctrine); *id.* at 2261 (discussing the third-party doctrine, which states that there is no reasonable privacy expectation when an individual voluntarily provides information to a third party).

²⁵ *See Carpenter*, 138 S. Ct. at 2220 (describing its holding as narrow and disclaiming applications to CSLI adjacencies). Compare, *e.g.*, Paul Ohm, *The Many Revolutions of Carpenter*, 32 HARV. J.L. & TECH. 357, 361, 363–64 (2019) (arguing that *Carpenter* created a new multi-factor test for establishing a reasonable privacy expectation, with positive privacy implications for data collections of both location information and information from which location is inferable), with Chris Ott, *Insight: Cracking Open a Can of Worms: Why Carpenter v. United States May Not Be the Privacy Decision That Was Needed . . . or Wanted*, BLOOMBERG L. (July 9, 2018), <https://news.bloomberglaw.com/privacy-and-data-security/insight-cracking-open-a-can-of-worms-why-carpen-ter-v-united-states-may-not-be-the-privacy-decision-that-was-needed-or-wanted> [<https://perma.cc/A65M-KWFW>] (emphasizing the narrowness of the *Carpenter* decision and suggesting that *Carpenter*'s analysis is further limited by its basis in a technology that was no longer leading-edge by the time it reached the Supreme Court).

²⁶ *See, e.g.*, *United States v. Hay*, 601 F. Supp. 3d 943, 952–53 (D. Kan. 2022) (considering the scope of *Carpenter* in a Fourth Amendment challenge to long-term pole camera surveillance); *United States v. Edmonds*, 438 F. Supp. 3d 689, 693–94 (S.D. W. Va. 2020) (same); *United States v. Kelly*, 385 F. Supp. 3d 721, 725–27 (E.D. Wis. 2019) (same). A pole camera consists of a video camera mounted on a utility pole. M. Wesley Clark, *Pole Cameras and Surreptitious Surveillance*, F.B.I. L.

B. The Mosaic Theory

The use of new technologies in law enforcement investigations has given rise to potential new approaches to the Fourth Amendment.²⁷ Mosaic theory, as one such approach, first developed in the context of national security as a mechanism through which to deny Freedom of Information Act requests.²⁸ Mosaic theory encapsulates the idea that, although individual pieces of information may be inconsequential in isolation, the information gleaned from the aggregation of such pieces is of greater significance.²⁹

Although *United States v. Jones* was decided on different grounds, its procedural history is critical to mosaic theory's emergence as a potential Fourth Amendment framework.³⁰ In 2010, in *United States v. Maynard*, the United States Court of Appeals for the District of Columbia ported the mosaic theory into a Fourth Amendment context.³¹ The court reversed the defendant's conviction in *Maynard*, emphasizing that the prolonged nature of the GPS surveillance to which the defendant was subject was more akin to monitoring his

ENF'T BULL., Nov. 2009, at 23, 23. Pole cameras may be used when it is unrealistic for law enforcement to physically surveil a target. *Id.*

²⁷ See, e.g., Brief of Institute for Justice as Amicus Curiae in Support of Petitioner at 10, *Tuggle v. United States*, 142 S. Ct. 1107 (2022) (No. 21-541) (advocating for an "ordinary meaning test" to evaluate possible Fourth Amendment searches); Rachel Levinson-Waldman, *Hiding in Plain Sight: A Fourth Amendment Framework for Analyzing Government Surveillance in Public*, 66 EMORY L.J. 527, 530 (2017) (proposing a new six-factor framework that includes surveillance duration and the impact of a given surveillance method on non-legal barriers, as reflected in the surveillance method's cost).

²⁸ See Jace C. Gatewood, *District of Columbia Jones and the Mosaic Theory—In Search of a Public Right of Privacy: The Equilibrium Effect of the Mosaic Theory*, 92 NEB. L. REV. 504, 523–24 (2014) (tracing the early history of mosaic theory (citing generally David E. Pozen, Note, *The Mosaic Theory, National Security, and the Freedom of Information Act*, 115 YALE L.J. 628 (2005))). The Freedom of Information Act (FOIA), which took effect in 1966, codifies the public's presumptive right of access to government records, subject to nine categorical exceptions, and is a mechanism through which any person can obtain such records. Pub. L. No. 89-487, 80 Stat. 250 (codified as amended at 5 U.S.C. § 552); MEGHAN M. STUESSY, CONG. RSCH. SERV., R41933, THE FREEDOM OF INFORMATION ACT (FOIA): BACKGROUND, LEGISLATION, AND POLICY ISSUES 1, 4 (2015). In 1972, in *United States v. Marchetti*, mosaic theory was first asserted in the federal government's pursuit of an injunction to bar a former CIA agent's book publication. See 466 F.2d 1309, 1312–13, 1318 (4th Cir. 1972) (describing the former agent's writings, in which he related parts of his experience working for the CIA). Although the court granted the injunction based on the executive branch's secrecy right and the agent's secrecy agreement as an employee, it lent support to the mosaic theory in dicta. See *id.* at 1318 (pointing to the idea that, when contextualized by other relevant information, the author's references to the CIA and its processes could violate the CIA's secrecy requirements).

²⁹ See Gatewood, *supra* note 28, at 506–07 (defining mosaic theory).

³⁰ See *supra* notes 16–18 and accompanying text (explaining the majority holding and rationale in *United States v. Jones*, 565 U.S. 400 (2012), relative to *Katz v. United States*, 389 U.S. 347 (1967)).

³¹ See 615 F.3d 544, 562–63 (D.C. Cir. 2010) (drawing on cases that invoked mosaic theory to compare the respective impacts of short-term and prolonged surveillance), *aff'd in part sub nom. Jones*, 565 U.S. 400. The defendant appealed his conviction, arguing that law enforcement violated his Fourth Amendment rights by warrantlessly attaching a GPS monitor to his car and tracking his location around-the-clock over a four-week period. *Id.* at 555.

“way of life” than “a day in the life.”³² In 2012, on appeal and renamed as *Jones*, the Supreme Court affirmed *Maynard*’s conviction reversal on different grounds.³³ Still, the separate concurring opinions of Justices Sotomayor and Alito in *Jones* evoked mosaic theory reasoning.³⁴

In *Carpenter v. United States*, the Court recognized as reasonable an individual’s privacy expectation in one’s cumulative physical movements.³⁵ Writing for the majority, Chief Justice Roberts cited both Justice Sotomayor and Justice Alito’s concurrences in *Jones* but did not explicitly refer to the mosaic theory.³⁶ Without a clear signal from the Supreme Court on the prudence of applying mosaic theory in the Fourth Amendment context, lower courts have varied in their approaches.³⁷ Law enforcement’s use of pole cameras, in particular, has been a conduit for this debate in the courtroom.³⁸

³² See *id.* at 561–63, 568 (rejecting the government’s constructive public exposure argument and finding one’s privacy expectation in one’s cumulative movements to be objectively reasonable).

³³ See *Jones*, 565 U.S. at 405–07, 413 (affirming based on a common law trespass theory); *supra* notes 17–18 and accompanying text (locating *Jones* in common law property concepts).

³⁴ See *Jones*, 565 U.S. at 415–16 (Sotomayor, J., concurring) (discussing the unique privacy implications of the GPS surveillance at issue in *Jones*, particularly the aggregative nature of such surveillance); *id.* at 430 (Alito, J., concurring in the judgment) (arguing that societal expectations of privacy do not contemplate the type of all-encompassing surveillance accomplished by around-the-clock GPS monitoring). In her concurrence, Justice Sotomayor emphasized the highly specific and sweeping record of a target’s public movements created by GPS monitoring, even when such monitoring is used on a short-term basis. *Id.* at 415 (Sotomayor, J., concurring). Likewise, Justice Alito’s concurrence, which Justices Ginsburg, Breyer, and Kagan joined, noted the inherent “circularity” of the existing *Katz* standard. *Id.* at 427 (Alito, J., concurring in the judgment). Justice Alito also differentiated between short-term GPS monitoring that generally accords with societal privacy expectations and long-term GPS monitoring that runs afoul of such expectations. *Id.* at 430.

³⁵ See *Carpenter v. United States*, 138 S. Ct. 2206, 2217–18 (2018) (describing the incompatibility of society’s expectations of privacy with law enforcement access to comprehensive CSLI records without constitutional ramifications).

³⁶ See *id.* at 2217 (drawing on the *Jones* concurrences in support of its holding (first citing *Jones*, 565 U.S. at 430 (Alito, J., concurring in the judgment); and then citing *id.* at 415 (Sotomayor, J., concurring))). Despite this, some scholars interpret *Carpenter*’s majority opinion as at least an endorsement, if not an adoption, of mosaic theory. See, e.g., Ohm, *supra* note 25, at 373 (arguing that *Carpenter* renewed the application of mosaic theory posited in *Maynard*).

³⁷ See, e.g., *United States v. Diggs*, 385 F. Supp. 3d 648, 652 (N.D. Ill. 2019) (finding the use of GPS data to constitute a search based on a synthesis of *Carpenter* and the two concurrences in *Jones*); *Commonwealth v. McCarthy*, 142 N.E.3d 1090, 1102–03 (Mass. 2020) (describing *Katz* and mosaic theory as “wholly consistent” for Fourth Amendment purposes (citing *Katz v. United States*, 389 U.S. 347, 351 (1967))). But see, e.g., *United States v. Howard*, 426 F. Supp. 3d 1247, 1255–56 (M.D. Ala. 2019) (rejecting the application of mosaic theory, in part because of the lack of clarity around the relationship between the duration of a search and its constitutionality), *aff’d*, 858 F. App’x 331 (11th Cir. 2021); *State v. Muhammad*, 451 P.3d 1060, 1073 (Wash. 2019) (criticizing mosaic theory for its reliance on bespoke, and potentially arbitrary, analysis at the individual case level).

³⁸ See, e.g., *United States v. Houston*, 813 F.3d 282, 287–88 (6th Cir. 2016) (considering a Fourth Amendment challenge to long-term pole camera surveillance); *People v. Tafuya*, 494 P.3d 613, 623–24 (Colo. 2021) (same); *supra* note 26 (collecting cases and describing pole cameras).

C. Factual History of United States v. Tuggle

In 2013, the United States Department of Justice launched “Operation Frozen Tundra” to investigate drug trafficking activity in central Illinois.³⁹ In the course of the three-year program, law enforcement suspected Travis Tuggle of selling methamphetamine out of his home in Mattoon, Illinois.⁴⁰

Without obtaining a warrant, law enforcement agents installed three cameras around Tuggle’s residence to aid in their investigation.⁴¹ All three cameras were mounted on poles and affixed to public property.⁴² Officers could adjust them remotely and constantly record footage to view either as a live feed or in recorded format.⁴³ During the eighteen-month period in which Tuggle’s premises were surveilled, the pole cameras recorded Tuggle meeting with drug runners and suppliers approximately one hundred times.⁴⁴

Based largely on this footage, law enforcement obtained a search warrant for Tuggle’s residence.⁴⁵ A grand jury subsequently indicted Tuggle on one charge of conspiring to distribute methamphetamine and one charge of controlling a drug-involved location.⁴⁶ He entered a conditional guilty plea and was

³⁹ Order Denying Motion to Suppress at 1–2, *United States v. Tuggle*, No. 16-cr-20070-JES-JEH (C.D. Ill. July 31, 2018). “Operation Frozen Tundra” was an Organized Crime Drug Enforcement Task Force program on which federal, state, and local law enforcement agencies worked jointly. Press Release, U.S. Att’y’s Off. for Cent. Dist. Ill., Leaders of Coles County Meth Trafficking Network Sentenced to 30 Years in Prison (Feb. 26, 2020), <https://www.justice.gov/usao-cdil/pr/leader-coles-county-meth-trafficking-network-sentenced-30-years-prison> [<https://perma.cc/22QT-U5MN>].

⁴⁰ Brief of Appellant-Defendant at 2, *United States v. Tuggle*, 4 F.4th 505 (7th Cir. 2021) (No. 20-2352); Press Release, U.S. Att’y’s Off. for Cent. Dist. Ill., *supra* note 39.

⁴¹ *United States v. Tuggle*, 4 F.4th 505, 511 (7th Cir. 2021), *cert. denied*, 142 S. Ct. 1107 (2022).

⁴² *Id.* In *Tuggle*, law enforcement installed two cameras in August 2014 and December 2015, respectively, and trained them on the front of Tuggle’s home and driveway. *Id.* A third camera was installed in September 2015 and captured both the exterior of Tuggle’s residence and a nearby shed that his co-defendant, Joshua Vaultonburg, owned. *Id.*; Order Denying Motion to Suppress, *supra* note 39, at 2.

⁴³ *Tuggle*, 4 F.4th at 511. Although they were equipped with basic lighting, the cameras possessed neither audio nor more advanced recording capabilities, like thermal imaging. *Id.*

⁴⁴ Order Denying Motion to Suppress, *supra* note 39, at 3. Via the three pole cameras, law enforcement observed individuals carrying “tires, boxes, and bags,” among other items, into Tuggle’s home. *Id.* These individuals would later leave the home with “only the rims of tires, smaller sacks, and sometimes nothing at all.” *Id.* The cameras also recorded Tuggle bringing various items to Vaultonburg’s shed. *Id.*

⁴⁵ See *Tuggle*, 4 F.4th at 512 (describing the factual timeline of Tuggle’s case).

⁴⁶ *Id.* Tuggle was charged under 21 U.S.C. §§ 841(a)(1) and (b)(1)(A) and under 21 U.S.C. § 856(a)(1). *Id.*; see 21 U.S.C. § 841(a)(1) (criminalizing manufacturing, distributing, or dispensing a controlled substance or possession of such a substance with intent to do the same); *id.* § 841(b)(1)(A) (requiring a ten-year minimum sentence for violations involving fifty or more grams of methamphetamine or its derivatives); *id.* § 856(a)(1) (prohibiting an individual from knowingly controlling or utilizing a location to make, sell, or use a controlled substance). Tuggle trafficked “ice,” or crystal methamphetamine. Press Release, U.S. Att’y’s Off. for Cent. Dist. Ill., *supra* note 39. Also known colloquially as “glass” or “shards,” crystal methamphetamine is a highly pure and highly potent form of the drug that creates a longer, more addictive high for users than other forms of methamphetamine.

sentenced to 360 months of incarceration as to the first count and a concurrent 240 months of incarceration as to the second count.⁴⁷

Tuggle appealed his conviction, raising two arguments: (1) the Fourth Amendment facially precluded law enforcement's warrantless use of pole cameras; and (2) the warrantless surveillance of Tuggle's home over eighteen months violated the Fourth Amendment as contemplated by the mosaic theory.⁴⁸ The Seventh Circuit affirmed the district court's refusal to suppress the pole camera evidence but concluded its opinion with a warning about the trajectory of Fourth Amendment protections in light of evolving technological surveillance.⁴⁹ The Supreme Court denied Tuggle's petition for certiorari and, in doing so, left open both the narrow question of the constitutionality of pole camera surveillance and a more searching inquiry into *Carpenter*'s Fourth Amendment implications.⁵⁰

II. CONFLICTING APPROACHES TO *KATZ* AND *CARPENTER*

In *United States v. Tuggle*, the Seventh Circuit read *Carpenter v. United States* as largely limited to its facts.⁵¹ In 2022, however, in *United States v. Moore-Bush*, half of the United States Court of Appeals for the First Circuit endorsed an alternative application of *Carpenter* to the question of pole camera

What Is Ice (Crystal Meth) vs. Meth?, RECOVERY VILL., <https://www.therecoveryvillage.com/meth-addiction/difference-ice-meth/> [<https://perma.cc/T3H2-U3PL>] (July 27, 2022).

⁴⁷ *Tuggle*, 4 F.4th at 512. The conditional guilty plea, which Tuggle entered the day before his trial was set to begin, allowed Tuggle to “reserve[e] his right to appeal the court’s denials of his motions to suppress” evidence obtained from law enforcement pole camera use. *Id.*

⁴⁸ See *id.* at 513 (identifying the core arguments of Tuggle’s appeal).

⁴⁹ *Id.* at 529; see *id.* at 527 (considering the limitations of existing Fourth Amendment approaches). Drawing on a collection of the Supreme Court’s prior Fourth Amendment cases, the Seventh Circuit warned of the “precarious circularity” inherent in *Katz*’s reliance on societal expectations of privacy that are themselves shaped by the very technological means at issue in a *Katz* analysis. *Id.*

⁵⁰ *Tuggle v. United States*, 142 S. Ct. 1107, 1107 (2022) (denying certiorari); see *supra* notes 35–38 and accompanying text (examining the ambiguity of *Carpenter*’s holding and the lack of consensus about the Fourth Amendment implications of pole camera surveillance). For an empirical look at lower courts’ applications of *Carpenter* from 2018–2021, see generally Matthew Tokson, *The Aftermath of Carpenter: An Empirical Study of Fourth Amendment Law, 2018–2021*, 135 HARV. L. REV. 1790 (2022).

⁵¹ See *United States v. Tuggle*, 4 F.4th 505, 525–26 (7th Cir. 2021) (reading *Carpenter* as applicable only to the CSLI data at issue in that particular case), *cert. denied*, 142 S. Ct. 1107 (2022); *Carpenter v. United States*, 138 S. Ct. 2206, 2220 (2018) (describing the Court’s decision as “a narrow one”). The Seventh Circuit is not the only court to have elected a cabined reading of *Carpenter*. See, e.g., *United States v. Jarmon*, 14 F.4th 268, 272 (3d Cir. 2021) (declining to extend *Carpenter* to prison phone calls); *United States v. Trice*, 966 F.3d 506, 518–19 (6th Cir. 2020) (declining to find an unconstitutional search under *Carpenter* where law enforcement disguised a motion-sensor camera as a smoke detector to record entries into and exits from an apartment); *United States v. Kelly*, 385 F. Supp. 3d 721, 729–30 (E.D. Wis. 2019) (declining to find an unconstitutional search under *Carpenter* where law enforcement used both a video camera and a pole camera to surveil an apartment); *Zietzke v. United States*, 426 F. Supp. 3d 758, 768–69 (W.D. Wash. 2019) (declining to extend *Carpenter* to cryptocurrency records sought by the Internal Revenue Service).

use.⁵² Subsection A of this Part analyzes the *Tuggle* approach.⁵³ Subsection B analyzes Chief Judge Barron's concurring opinion in *Moore-Bush*.⁵⁴

A. The Seventh Circuit's Fourth Amendment Analysis

In declining to find an unconstitutional search in *Tuggle*, the Seventh Circuit first drew a connection between the unshielded state of *Tuggle*'s property and the well-recognized tenet that one cannot claim a reasonable privacy expectation under *Katz* in what one "knowingly exposes" to others.⁵⁵ The Seventh Circuit also regarded as dispositive the ubiquity of basic cameras in the general public, such that the pole cameras challenged in *Tuggle* did not run afoul of *Kyllo*'s cabining of warrantless technology use.⁵⁶

With respect to *Carpenter*, the Seventh Circuit distinguished between surveillance that captures the defendant's movements and surveillance that captures a lack of movement.⁵⁷ Whereas the former would implicate *Carpenter*'s recognition of the defendant's privacy expectation in the "whole" of his or her movements, the latter, at issue in *Tuggle*, provides insight only into a portion of this "whole" and is thus outside of *Carpenter*'s protection.⁵⁸ As fur-

⁵² See *United States v. Moore-Bush*, 36 F.4th 320, 321–22 (1st Cir. 2022) (en banc) (Barron, C.J., Thompson, J. & Kayatta, J., concurring). In *Moore-Bush*, the Bureau of Alcohol, Tobacco, Firearms and Explosives, without obtaining a warrant, used a camera affixed to a utility pole to continuously record the defendants' home for roughly eight months. *Id.* at 322–23. The First Circuit unanimously reversed the district court's order to suppress evidence obtained from this pole camera, but the judges did so on diametrically different grounds from one another. *Id.* at 321–22. Three judges reversed on the basis that law enforcement relied in good faith on a prior First Circuit decision but asserted that they would have otherwise prospectively overruled this prior decision and found a Fourth Amendment search. *Id.* at 320–22. The remaining three judges, writing in a separate concurrence, would not have found a Fourth Amendment search based on *Kyllo*. *Id.* at 361 (Lynch, J., Howard, J. & Gelpi, J., concurring) (citing *Kyllo v. United States*, 533 U.S. 27, 31–32 (2001)). In November 2022, one of the two appellants in *Moore-Bush* filed a petition for a writ of certiorari at the Supreme Court. Petition for Writ of Certiorari, *Moore v. United States*, No. 22-481 (U.S. Nov. 18, 2022).

⁵³ See *infra* notes 55–59 and accompanying text.

⁵⁴ See *infra* notes 60–69 and accompanying text.

⁵⁵ See *Tuggle*, 4 F.4th at 513–14 (quoting *United States v. Thompson*, 811 F.3d 944, 949 (7th Cir. 2016)) (drawing on *Katz* and its progeny to reinforce the idea that public observability negates Fourth Amendment protections). Per the Seventh Circuit, *Tuggle* could not claim under *Katz* that he possessed a privacy expectation that society at large would view as reasonable because he did not fence his property or take other measures to reduce observation of the areas around his home. *Id.*; see also *supra* note 19 and accompanying text (collecting cases).

⁵⁶ See *Tuggle*, 4 F.4th at 516 (applying *Kyllo*'s "general public use" standard to cameras (quoting *Kyllo v. United States*, 533 U.S. 27, 40 (2001))); see also *Kyllo*, 533 U.S. at 40 (identifying "general public use" of a technology as core to the analysis in determining the constitutionality of a technology-involved search).

⁵⁷ See *Tuggle*, 4 F.4th at 524 (distinguishing the pole camera footage from the information captured by the contested surveillance methods used in *Carpenter* and *Jones*).

⁵⁸ See *id.* at 524–25 (discussing the contrast between pole camera surveillance and the CSLI data collected in *Carpenter*). In introducing its analysis of *Carpenter*'s applicability to the questions at issue in *Tuggle*, the Seventh Circuit stated that it was not adopting mosaic theory. *Id.* at 524. Never-

ther support for declining to extend *Carpenter* to *Tuggle*, the Seventh Circuit pointed to *Carpenter*'s designation of camera use as the type of conventional surveillance to which *Carpenter* does not attach.⁵⁹

B. The Barron Concurrence's Fourth Amendment Analysis

Although cognizant of *Tuggle*, the Barron Concurrence in *Moore-Bush* reached the opposite conclusion.⁶⁰ Unlike the Seventh Circuit in *Tuggle*, the Barron Concurrence did not find convincing the argument that defendants' failure to shield their property from view necessarily vitiated their privacy expectations under *Katz*.⁶¹ Just as with CSLI data collection via cell phone use, there could be no realistic respite from, or avoidance of, pole camera surveillance targeting the home.⁶² Additionally, the Barron Concurrence declined to categorically exclude pole cameras from scrutiny under *Carpenter* or *Kyllo*, preferring instead to employ a use-based analysis of the technology at issue.⁶³

theless, the Seventh Circuit concluded that, even if the Circuit hypothetically *did* embrace mosaic theory, *Tuggle* would still not implicate *Carpenter*. See *id.* (rejecting the argument that the facts of *Tuggle* were sufficiently similar to *Carpenter* to justify application of the latter's mosaic theory reasoning).

⁵⁹ See *id.* at 526 (citing *Carpenter v. United States*, 138 S. Ct. 2206, 2220 (2018)). The Seventh Circuit asserted that, because a pole camera is a "conventional surveillance technique," whether or not a pole camera is equivalent to a security camera—which the *Carpenter* majority opinion named as a "conventional surveillance technique[e]"—is irrelevant. *Id.* at 526 (quoting *Carpenter*, 138 S. Ct. at 2220).

⁶⁰ See *United States v. Moore-Bush*, 36 F.4th 320, 321, 337, 356–57 (1st Cir. 2022) (Barron, C.J., Thompson, J. & Kayatta, J., concurring) (discussing the Seventh Circuit's decision in *Tuggle*).

⁶¹ Compare *id.* at 330, 335–36 (asserting that there is little value in looking to self-protective privacy measures as a compelling factor in assessing privacy expectations), with *supra* note 55 and accompanying text (discussing the Seventh Circuit's emphasis of *Tuggle*'s failure to shield his property in its privacy expectation analysis). The Barron Concurrence drew heavily on the history of elevated Fourth Amendment protections for the curtilage, defined as an adjoining area to a home. *Moore-Bush*, 36 F.4th at 335–36 (Barron, C.J., Thompson, J. & Kayatta, J., concurring); see *Curtilage*, BLACK'S LAW DICTIONARY (11th ed. 2019) (defining "curtilage" as "[t]he land or yard adjoining a house"). The Supreme Court has long viewed the curtilage as closely connected to the special protections of the home for Fourth Amendment purposes. See, e.g., *United States v. Dunn*, 480 U.S. 294, 300 (1987) (viewing the curtilage as sacrosanct because, like the home itself, the curtilage is also an area in which "intimate activit[ies]" take place (quoting *Oliver v. United States*, 466 U.S. 170, 180 (1984))); *California v. Ciraolo*, 476 U.S. 207, 213 (1986) (describing the curtilage as "intimately linked to the home, both physically and psychologically, where privacy expectations are most heightened").

⁶² See *Moore-Bush*, 36 F.4th at 347–48 (Barron, C.J., Thompson, J. & Kayatta, J., concurring) (noting that, like the creation of the CSLI in *Carpenter*, the creation of the camera footage in *Moore-Bush* was inevitable).

⁶³ See *id.* at 351 (suggesting that the way in which a technology is used, rather than the categorical type of technology employed, is the proper focus of scrutiny); *infra* note 79 and accompanying text (collecting cases contextually analyzing technology use).

In *Moore-Bush*, the Barron Concurrence disagreed with the Seventh Circuit's hesitance to employ mosaic theory in *Tuggle*.⁶⁴ In building the parallelism between *Carpenter* and *Moore-Bush*, the Barron Concurrence grounded its proposed approach in mosaic theory.⁶⁵ As the Barron Concurrence noted, the records created by both the CSLI in *Carpenter* and the pole cameras in *Moore-Bush* provided an intimate gaze into the lives of defendants over time, without limitation as to the type, amount, or relevance of information collected by either method.⁶⁶ No analog substitute could have feasibly revealed the same breadth of information, nor could it have so efficiently ported such information into an effortlessly searchable catalog.⁶⁷

The tension between the Seventh Circuit's opinion in *Tuggle* and the Barron Concurrence in *Moore-Bush* underscores the confusion surrounding the scope of Fourth Amendment protections relative to advances in law enforcement technology.⁶⁸ Without direction from the Supreme Court, lower courts

⁶⁴ See *Moore-Bush*, 36 F.4th at 357–58 (Barron, C.J., Thompson, J. & Kayatta, J., concurring) (questioning why lower federal courts must wait for an explicit Supreme Court holding on mosaic theory before applying it in constitutional cases); *United States v. Tuggle*, 4 F.4th 505, 519–20, 526 (7th Cir. 2021) (noting the lack of binding Supreme Court precedent requiring the application of mosaic theory and arguing that Congress is better positioned to address the challenges of demarcation associated with applying mosaic theory), *cert. denied*, 142 S. Ct. 1107 (2022).

⁶⁵ See *Moore-Bush*, 36 F.4th at 345–46 (Barron, C.J., Thompson, J. & Kayatta, J., concurring) (sharing *Carpenter*'s concern with the cumulative information gathered from long-term surveillance, which generates an intimate look at an individual's otherwise unknown activities).

⁶⁶ See *id.* at 345–46 (echoing Justice Sotomayor's concurrence in *Jones* as quoted in *Carpenter* (citing *Carpenter*, 138 S. Ct. at 2217)). In 2021, in *People v. Tafoya*, the Supreme Court of Colorado found a Fourth Amendment search where law enforcement warrantlessly surveilled a home with a pole camera for over three months. 494 P.3d at 623–24 (Colo. 2021). The Barron Concurrence largely echoed the *Tafoya* court's *Carpenter* analysis. See *Moore-Bush*, 36 F.4th at 356 (Barron, C.J., Thompson, J. & Kayatta, J., concurring) (citing *Tafoya*, 494 P.3d at 623, as support for its position); see also *Tafoya*, 494 P.3d at 622–23 (drawing heavily on mosaic theory reasoning and rejecting the prosecution's public exposure argument).

⁶⁷ See *Moore-Bush*, 36 F.4th at 347 (Barron, C.J., Thompson, J. & Kayatta, J. concurring) (emphasizing the volume and searchability of evidence derived from pole cameras, in contrast to that which can be obtained from traditional surveillance methods). The Barron Concurrence highlighted the comparative burden on time and resources inherent to tasking an officer with reviewing eight months of recordings stored on Video Home System (VHS) tapes. *Id.*

⁶⁸ See *id.* at 360 (articulating courts' difficulty in evaluating new technologies employed for surveillance purposes); *Tuggle*, 4 F.4th at 510 (acknowledging the limitations of *Katz* in addressing new surveillance technologies). In its amicus brief in support of *Tuggle*'s petition for certiorari by the Supreme Court, the Institute for Justice argued that the Seventh Circuit's decision in *Tuggle* demonstrates that "*Katz* is broken." See Brief of Institute for Justice as Amicus Curiae in Support of Petitioner, *supra* note 27, at 3, 6, 9 (arguing that neither modern nor historical conceptions of privacy have a refuge under *Katz* and its offspring because of their dependence on society's necessarily fluid understanding and acceptance of increasingly invasive technologies). In 2022, in *United States v. Dennis*, the Fifth Circuit rejected an appellant's *Carpenter*-based argument that the Department of Homeland Security violated his Fourth Amendment rights by using pole cameras to surveil the front and back of his properties for 70 days. See 41 F.4th 732, 738–41, 746 n.14 (5th Cir. 2022) (relying on the publicly viewable nature of the areas targeted by the pole cameras and citing both *Moore-Bush* and *Tuggle* in a footnote). The appellant in *Dennis* filed a petition for a writ of certiorari in January 2023. Petition for

face the difficult task of devising an approach to technology-based searches that is tethered to *Katz* but sensitive to its limitations in the face of pole cameras and more advanced technologies soon to come.⁶⁹

III. RETROFITTING THE FOURTH AMENDMENT FOR THE DIGITAL AGE

The Barron Concurrence in *United States v. Moore-Bush* lays out an approach to digital age surveillance that is both conscious of precedential limitations and faithful to the Fourth Amendment's objectives.⁷⁰ It does so by addressing three distinct, but interrelated, facets of *Katz v. United States* and its progeny: (1) a narrowing of what it means to "knowingly expose" information to the public in light of technological advancement; (2) the need for a functional, rather than categorical, analysis of technologies under *Kyllo v. United States*; and (3) the importance of mosaic theory as a counterweight to evolving

Writ of Certiorari, *Dennis v. United States*, No. 22-6473 (U.S. Jan. 6, 2023). Also in 2022, in *United States v. Mayo*, the United States District Court for the Southern District of Iowa did not reach the constitutional question in a Fourth Amendment pole camera challenge and ultimately decided based on the exclusionary rule's good faith exception. See No. 3:21-cr-00132-SMR-SBJ-1, 2022 WL 2817608, at *5–6 (S.D. Iowa July 19, 2022) (noting the contrasting approaches in *Tuggle* and *Moore-Bush* specifically and suggesting that the constitutionality of long-term, warrantless video surveillance rests on questionable grounds). In January 2023, in *United States v. Bean-Bousseau*, the United States District Court for the District of Massachusetts interpreted the Barron Concurrence in *Moore-Bush* as contemplating only surveillance of a home's front curtilage and declined to apply it where police, in possession of a warrant, placed a camera in the hallway of an apartment building to surveil visitors suspected of drug activity. See No. CR 21-10343-NMG, 2023 WL 35448, at *2–4 (D. Mass. Jan. 4, 2023) (analyzing defendants' motion to suppress evidence on Fourth Amendment grounds).

⁶⁹ See *supra* notes 55–59, 64 and accompanying text (discussing the core conflicts identified by the Seventh Circuit in applying *Katz* and its progeny to the pole cameras in *Tuggle*); see, e.g., Brief of the Cato Institute and Rutherford Institute as Amici Curiae in Support of Petitioner at 3, *Tuggle v. United States*, 142 S. Ct. 1107 (2022) (No. 21-541) (describing the reasonable privacy expectation test under *Katz* as forcing courts to "surmis[e] about broad sociological questions or mak[e] episodic judgments about technology and society in a rapidly changing technology environment"); Brief of the Center for Democracy & Technology as Amicus Curiae in Support of Appellees at 22–25, *United States v. Moore-Bush*, 36 F.4th 320 (1st Cir. 2022) (Nos. 19-1582, 19-1625, 19-583, 19-1626) (tracing potential iterations of pole cameras that would present even greater privacy concerns than those employed in *Moore-Bush*, including cameras equipped with analytics tools, artificial intelligence, and facial recognition capabilities).

⁷⁰ See *Moore-Bush*, 36 F.4th at 322 (Barron, C.J., Thompson, J. & Kayatta, J., concurring) (noting that the Fourth Amendment requires the judiciary to properly balance the right to privacy in the home and the need for a law-abiding community). Professor Orin S. Kerr argues that Fourth Amendment law evolves in accordance with "equilibrium-adjustment," a process through which the judiciary decides Fourth Amendment cases seeking to restore the balance of privacy interests and police power when new technology and social dynamics threaten to significantly change this balance. Kerr, *supra* note 7, at 480. Professor Matthew Tokson instead views the iterative process of judicially created Fourth Amendment tests as symptomatic of the Fourth Amendment's status as a "legal blank slate," a question of law that requires a legal test for resolution but lacks sufficient guidance from history and doctrine to guide the formation of such a test. See Tokson, *supra* note 7, at 593–94, 632 (pointing, for example, to the lack of known discourse about the scope of the Fourth Amendment from the Founding Era).

societal expectations of privacy.⁷¹ This Part addresses each of these factors in turn and argues that the Barron Concurrence's approach is preferable to that of the Seventh Circuit in *United States v. Tuggle*, which exposed the inadequacy of static conceptions of privacy and surveillance in the digital age.⁷²

The Seventh Circuit's conclusion in *Tuggle* that the defendant "knowingly exposed" areas of his home's curtilage to the public accords with the letter of the law, but not its spirit.⁷³ Precedential Supreme Court cases reject claims of a reasonable privacy expectation for information that any passerby could observe, but such cases, as the Barron Concurrence in *Moore-Bush* aptly underscored, conceived of a much different passerby than that which can realistically be analogized to a pole camera.⁷⁴ A typical defendant may be aware that activities in the curtilage of the home may be observed incidentally, but it would be folly to as-

⁷¹ See *supra* notes 60–69 and accompanying text (examining the Barron Concurrence).

⁷² See *supra* notes 55–59 and accompanying text (examining the Seventh Circuit's Fourth Amendment approach in *Tuggle*); see also Dana Khabbaz, *Unmanned Stakeouts: Pole-Camera Surveillance and Privacy After the Tuggle Cert Denial*, 132 YALE L.J. F. 105, 123 (2022), https://www.yalelawjournal.org/pdf/F7.KhabbazFinalDraftWEB_zvrgscyc.pdf [<https://perma.cc/XWS7-CEM6>] (calling on state courts and legislatures to enhance privacy protections in light of the Supreme Court's denial of certiorari to *Tuggle*); Recent Case, *United States v. Tuggle*, 4 F.4th 505 (7th Cir. 2021), 135 HARV. L. REV. 928, 933–34 (2022) (arguing that the Seventh Circuit failed to grasp in *Tuggle* an opportunity to strengthen privacy protections of individuals subject to the use of pole cameras); Brief of Amici Curiae Electronic Frontier Foundation et al. in Support of Petitioner at 6, 10 & 21, *Tuggle v. United States*, 142 S. Ct. 1107 (2022) (No. 21-541) (arguing that the combination of pole cameras' increased functionality and decreased cost eliminates practical limits to their surveillance usage in the absence of legal barriers and suggesting that the expense of erecting privacy barriers on one's property to avoid pole camera surveillance would make privacy a privilege enjoyed only by those with financial means); Brief of Amici Curiae the Reporters Committee for Freedom of the Press and 15 Media Organizations in Support of Petitioner at 4–5, *Tuggle v. United States*, 142 S. Ct. 1107 (2022) (No. 21-541) (arguing that the type of unrelenting, singularly-focused video surveillance in *Tuggle* will curtail First Amendment rights, including free press rights, unless the Fourth Amendment provides a shield).

⁷³ See *United States v. Tuggle*, 4 F.4th 505, 514 (7th Cir. 2021) (finding public exposure of the outside of the defendant's home because the area could be seen by the public), *cert. denied*, 142 S. Ct. 1107 (2022). *But see* *Carpenter v. United States*, 138 S. Ct. 2206, 2217 (2018) (asserting that individuals do not entirely give up their Fourth Amendment protections when they go out in public); *Katz v. United States*, 389 U.S. 347, 351–52 (1967) (stating that, even in a public space, an individual may be entitled to a constitutional privacy right); Brief of Institute for Justice as Amicus Curiae in Support of Petitioner, *supra* note 27, at 7–8 (viewing the result in *Tuggle* as a symptom of the more endemic issue that modern applications of *Katz* corrode the Fourth Amendment's guarantee of the "right to be secure" by inoculating expansive categories of intrusive surveillance from constitutional inquiry (quoting *Tuggle*, 4 F.4th at 526)); Scott Skinner-Thompson, *Performative Privacy*, 50 U.C. DAVIS L. REV. 1673, 1684–89 (2017) (discussing scholarly advocacy for recognition of a circumscribed privacy right in public via tort law and criminal procedure, but noting that such approaches are limited by their treatment of privacy as a necessary condition for other rights).

⁷⁴ *Moore-Bush*, 36 F.4th at 330 (Barron, C.J., Thompson, J. & Kayatta, J., concurring); see *supra* note 19 and accompanying text (describing precedential cases in which the Court asserted a lack of Fourth Amendment protection for that which has been publicly exposed). In 1987, in *United States v. Cuevas-Sanchez*, the Fifth Circuit described pole camera surveillance as "rais[ing] the spectre of the Orwellian state." 821 F.2d 248, 251 (5th Cir. 1987).

sume the typical defendant is, or should be, cognizant of an ever-watchful eye lurking just beyond the boundaries of his or her property.⁷⁵ The Barron Concurrence makes such a distinction and, in doing so, refrains from abridging defendants' Fourth Amendment rights based on an untenable analogy.⁷⁶

In *Tuggle*, the Seventh Circuit erred in concluding that, under a “straight-forward application of *Kyllo*,” a pole camera is not a technology requiring scrutiny.⁷⁷ Cameras are as quotidian as *Tuggle* asserts, but relying on ordinarieness alone does not hew closely enough to the protective purpose of the Fourth Amendment.⁷⁸ The Barron Concurrence advocates for a *Kyllo* analysis prioritizing function over form, such that future Fourth Amendment evaluations of technology-centric searches would not be constrained by sweeping generalizations of a given technology's intrusiveness.⁷⁹

⁷⁵ See *Moore-Bush*, 36 F.4th at 328–330, 330 n.10 (Barron, C.J., Thompson, J. & Kayatta, J., concurring) (challenging the analogy of a typical passerby to the uninterrupted collection of pole camera footage over an extended period). Professor Evan Caminker posits that the Court in *Carpenter* reformulated the Fourth Amendment question of public exposure, such that the appropriate public observer on which to base the inquiry is a “single-but-dedicated viewer” of a person's movements rather than various incidental observers viewing the person in discrete places and at different times. Evan Caminker, *Location Tracking and Digital Data: Can Carpenter Build a Stable Privacy Doctrine?*, 2018 SUP. CT. REV. 411, 437. Americans' attitudes toward privacy in their movements seems to support this shift—in response to a 2020 Harris poll, more than half of Americans disagreed either somewhat or strongly with the following statement: “The only people concerned about keeping their location data private are people who have something to hide.” See Byron Tau, *Most Americans Object to Government Tracking of Their Activities Through Cellphones*, WALL ST. J. (Nov. 25, 2020), <https://www.wsj.com/articles/most-americans-object-to-government-tracking-of-their-activities-through-cellphones-11606305601> [<https://perma.cc/52M6-VQLK>] (reporting findings from the 2020 poll).

⁷⁶ See *Moore-Bush*, 36 F.4th at 330 (Barron, C.J., Thompson, J. & Kayatta, J., concurring) (finding “little sense” in relying on such an analogy to discern the occurrence of a Fourth Amendment search in the context of pole cameras); *supra* note 75 and accompanying text (discussing changing notions of privacy that could inform Fourth Amendment analysis today).

⁷⁷ *Tuggle*, 4 F.4th at 516.

⁷⁸ See *id.* (relying on the ubiquity of cameras in present-day society and the Supreme Court's holdings in *Dow Chemical Company* and *Ciraolo*); see also Elly Cosgrove, *One Billion Surveillance Cameras Will Be Watching Around the World in 2021, a New Study Says*, CNBC (Dec. 6, 2019), <https://www.cnn.com/2019/12/06/one-billion-surveillance-cameras-will-be-watching-globally-in-2021.html> [<https://perma.cc/ME5W-WXFFV>] (referencing an IHS Markit study estimating that 770 million cameras used for surveillance were in operation globally in 2019); Ericsson, *Smartphone Subscriptions Worldwide 2016–2021, with Forecasts from 2022 to 2027*, STATISTA (Feb. 15, 2022), <https://www.statista.com/statistics/330695/number-of-smartphone-users-worldwide/> [<https://perma.cc/P7FJ-PRLN>] (reporting over six billion smartphone subscriptions worldwide as of 2021). In *Carpenter*, Chief Justice Roberts identified two core purposes of the Fourth Amendment: (1) securing “the privacies of life” against “arbitrary power” and (2) “plac[ing] obstacles in the way of a too permeating police surveillance.” 138 S. Ct. at 2214 (first quoting *Boyd v. United States*, 116 U.S. 616, 630 (1886); and then quoting *United States v. Di Re* 332 U.S. 581, 595 (1948)).

⁷⁹ See *Moore-Bush*, 36 F.4th at 351–52, 354–55 (Barron, C.J., Thompson, J. & Kayatta, J., concurring) (emphasizing that the circumstances of the camera usage at issue in *Moore-Bush* could not feasibly be construed as conventional). The Barron Concurrence drew on contextually disparate treatments of private conversation recordings and drug dogs to demonstrate the wisdom of a function-driven approach to *Kyllo*. *Id.* at 351–52. Compare *Katz v. United States*, 389 U.S. 347, 353 (1967)

The Seventh Circuit in *Tuggle* lamented *Katz*'s shortcomings in dealing with new technologies but declined to employ mosaic theory without explicit recognition from the Supreme Court.⁸⁰ As a practical matter, *Carpenter* can be understood as at least approving of, if not requiring or endorsing, a mosaic theory approach to the Fourth Amendment.⁸¹ Moreover, *Tuggle*'s emphasis on the distinction between a defendant's movements outside of the home and the defendant's presence in the home misunderstands *Carpenter*.⁸² As the Barron Concurrence observed in *Moore-Bush*, *Carpenter* fundamentally acknowledges that the amorphous and ever-changing boundaries of technology do not preclude the constancy of a reasonable notion of privacy in the "totality of the picture" of one's life.⁸³ The Barron Concurrence thus provides a Fourth Amendment approach better suited to the realities of the digital age.⁸⁴

CONCLUSION

In 2021, in *United States v. Tuggle*, the United States Court of Appeals for the Seventh Circuit held that law enforcement's warrantless pole camera surveillance of a defendant's home for eighteen months did not constitute a

(finding defendant's reasonable expectation of privacy was violated when law enforcement recorded his call in a phone booth), *with* *United States v. White*, 401 U.S. 745, 747, 751–53 (1971) (finding no reasonable expectation of privacy in the defendant's conversation with a person who was surreptitiously taping the conversation); *compare also* *Florida v. Jardines*, 569 U.S. 1, 11–12 (2013) (finding a Fourth Amendment search when a drug dog was used at the defendant's front door), *with* *United States v. Place*, 462 U.S. 696, 707 (1983) (declining to find a Fourth Amendment search when a drug dog was used at an airport).

⁸⁰ *Tuggle*, 4 F.4th at 519–20, 525–26, 528–29.

⁸¹ See *supra* notes 35–38 and accompanying text (examining *Carpenter* relative to the debate on whether mosaic theory is a viable analysis for Fourth Amendment cases).

⁸² See *Tuggle*, 4 F.4th at 524 (differentiating between capturing a defendant's movements, which may fall under *Carpenter*'s purview, and capturing a defendant's stationary moments); Recent Case, *supra* note 72, at 934–35 (critiquing *Tuggle*'s reliance on the categorical differences between video footage and GPS data, rather than on the similarity of the depth of information revealed by the two surveillance methods).

⁸³ See *Moore-Bush*, 36 F.4th at 334–35 (Barron, C.J., Thompson, J. & Kayatta, J., concurring) (collecting cases and underscoring that the reduced practical limitations on modern surveillance methods do not lessen the level of protection afforded by the Fourth Amendment). Post-*Carpenter*, scholars have argued for centering the inescapability of a given surveillance method—such as the pole cameras in *Tuggle*—in future Fourth Amendment analyses. See, e.g., Matthew Tokson, *Inescapable Surveillance*, 106 CORNELL L. REV. 409, 421–22 (2021) (collecting examples from academia); Ohm, *supra* note 25, at 369–70 (including the inescapability of a given surveillance method as a factor in his proposed test for Fourth Amendment law applications post-*Carpenter* (citing *Carpenter*, 138 S. Ct. at 2223)). Even in 1890, Samuel D. Warren and future Supreme Court Justice Louis D. Brandeis asserted that the constancy of privacy rights is best preserved by dynamic law. Samuel D. Warren & Louis D. Brandeis, *The Right to Privacy*, 4 HARV. L. REV. 193, 193 (1890); see also *Moore-Bush*, 36 F.4th at 335 (Barron, C.J., Thompson, J. & Kayatta, J., concurring) (citing Warren & Brandeis, *supra*, at 195).

⁸⁴ See *supra* notes 73–83 and accompanying text (contrasting the Fourth Amendment approach taken by the Seventh Circuit in *Tuggle* with the approach outlined by the Barron Concurrence in *Moore-Bush*).

Fourth Amendment search. In doing so, the Seventh Circuit furthered an unnecessarily narrow reading of the Supreme Court's decision in *Carpenter v. United States* and missed an important opportunity to better align *Katz v. United States* and its progeny with the realities of law enforcement's use of modern technologies. In comparison, the Barron Concurrence from the United States Court of Appeals for the First Circuit's decision in *United States v. Moore-Bush* outlines a preferable approach to the application of Fourth Amendment precedent to law enforcement's technology use in a search context. Absent Supreme Court guidance as to the prudence of *Tuggle*, lower courts should adopt the Barron Concurrence's approach when analyzing future Fourth Amendment cases.

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