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***Katz's* Imperfect Circle: An Empirical Study of Reasonable Expectations of Privacy**

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KATZ'S IMPERFECT CIRCLE: AN EMPIRICAL STUDY OF REASONABLE EXPECTATIONS OF PRIVACY

*Tonja Jacobi** & *Christopher Brett Jaeger***

Abstract

Under *Katz v. United States*, the Fourth Amendment restricts government actions that infringe upon expectations of privacy that society recognizes as reasonable. This foundational test has long been criticized as circular, both because courts can shape the very expectations they seek to identify through their decisions and because governments can manipulate those expectations to expand the reach of their own power. But how do members of society decide what expectations are reasonable, and how do judges ascertain those expectations? And are expectations of privacy malleable even without deliberate manipulation?

This Article shows that the circularity critique is both understated and overstated. We identify six different potential elements of Katzian circularity, some of which have never been examined—particularly those relating to the stickiness of precedent concerning changing technology. To test the import of these circularity elements, we conducted two empirical studies, one survey and one experiment. We found that individuals' beliefs about whether expectations of privacy are reasonable are highly influenced by data about what others think. Telling a person that a majority (versus a minority) of people believe a privacy right exists significantly increases their belief in that right to privacy. We also found evidence that people tend to view the investigative uses of new technologies as particularly violative of privacy expectations. Yet, we found little evidence beliefs are influenced by legal precedent or government action—with one important exception. It seems court decisions do not commonly *shape* society's expectations, nor do they *reflect* society's expectations.

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The larger problem is that judges are likely to conflate society's expectations with their own expectations. We show how turning the reasonable expectation of privacy inquiry into one hinging on scientifically-based research, rather than on judges' unsound intuitions, would better fulfill *Katz's* mandate and reflect societal consensus on these most fundamental constitutional principles. Altogether, this Article comprehensively charts the theoretical possibilities of Katzian circularity, empirically shows why and how the problem is likely to arise, and supplies a solution.

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INTRODUCTION

The Fourth Amendment only constrains state action when police conduct a search or seizure.¹ *Katz v. United States*² defines a search or seizure as occurring when state actors intrude upon an individual's subjective expectation of privacy *and* society recognizes that expectation of privacy as reasonable.³ Thus, courts' assessments of societal expectations determine whether the Fourth Amendment protects people against government surveillance of their "trips to the psychiatrist, the plastic surgeon, the abortion clinic, the AIDS treatment center, the strip club, [or] the criminal defense attorney."⁴ In the more than half a century since the *Katz* test was articulated, scholars and judges alike have expressed concern that it is circular in two ways.⁵ First, either the legislative or executive branches of government could manipulate societal expectations, thus making permissible

1. U.S. CONST. amend. IV.

2. 89 U.S. 347 (1967).

3. *See id.* at 360–61 (Harlan, J., concurring).

4. *United States v. Jones*, 565 U.S. 400, 415 (2012) (Sotomayor, J., concurring). Additionally, *Jones* reintroduced the trespass test, which now augments the *Katz* test. *Id.* at 409 ("[T]he *Katz* reasonable-expectation-of-privacy test has been *added to*, not *substituted for*, the common-law trespassory test."). We show that trespass also inevitably rests on defining expectations of privacy. *See infra* Section III.A.

5. *See, e.g.*, Jim Harper, *Reforming Fourth Amendment Privacy Doctrine*, 57 AM. U. L. REV. 1381, 1388 (2008) (explaining that the *Katz* test "is simply an invitation for judges to import their personal views and alter the actual rule set down in the case"); *infra* Section I.B.

previously impermissible intrusions, and, second, judicial decisions could change the expectations on which judicial analysis is based.⁶ This Article shows that this circularity concern is understated in some ways—particularly pertaining to changing technology—and overstated in others.

It is understated because there are more ways that *Katz* could be circular than generally discussed in the literature or recognized by the courts. We identify six means by which the reasonable expectation of privacy test can be circular. The concern is overstated because we find, empirically, little evidence of the two forms of Katzian circularity that scholars and judges focus on. However, we do find empirical evidence of other, previously underappreciated forms of circularity. Thus, *Katz* is circular—and expectations are subject to influence—but not completely and not in the ways that have been feared.

Katzian circularity problems arise because *Katz* never made clear how judges should ascertain what expectations of privacy are considered reasonable within society.⁷ Generally, judges simply declare what expectations exist—or point to dubious evidence that they exist, such as information at the front of telephone books that they assume people read, understand, and use to shape their expectations.⁸ Unanswered are fundamental questions: How do members of society—and judges—determine whether an expectation of privacy is reasonable? And what are those assessments based on: Their own subjective expectations? The law? Their own view of what the law *should* be? Their assessment of what people who look like them expect? And is this influenced by scientific survey evidence of what other people think? This Article begins to answer these questions.

In Part I, we delve into the logic of *Katz* and the six ways in which it is circular, many of which have never been discussed in the literature. We identify three categories of circularity—circularity arising from judicial influence, from executive and legislative influence, and from the stickiness of precedent pertaining to changing technology—each of which has two aspects. First, there are two *judicial self-reflection circularity problems*: (1a) judges may simply be reflecting their own

6. See *infra* Section I.B.

7. See *infra* Section I.A.

8. See *Smith v. Maryland*, 442 U.S. 735, 742–43 (1979). For criticism, see Justice Thurgood Marshall’s dissent, *id.* at 748–49 (Marshall, J., dissenting) (“[T]he Court posits that individuals somehow infer from the long-distance listings on their phone bills, and from the cryptic assurances of ‘help’ in tracing obscene calls included in ‘most’ phone books, that pen registers are regularly used for recording local calls.”).

expectations, or indeed their normative preferences, when they claim to be identifying existing societal expectations and (1b) judicial declarations could influence citizens' future expectations, shaping what they claim to be reflecting. Second, there are two *government manipulation circularity problems*: (2a) executive and legislative actors can manipulate objective societal expectations through well publicized, intrusive actions and (2b) governments can exploit lower individual subjective expectations of particular groups. Both types of government manipulation circularity can lead to under-protection of individual rights: of all members of society (2a) or of specific groups (2b), such as racial minorities with particularly bad experiences with the police. Third, there are two *judicial ossification of expectations feedback loops*: (3a) court rulings become entrenched beyond their relevance, stunting development of technologies that police would otherwise use to respond to criminal activity and (3b) court rulings prevent police from making use of what becomes common technology available to the public. Both types of ossification can lead to overprotection of individual rights.

Each potential problem of Katzian circularity will arise only if, to some extent, people's expectations are malleable. Part I also describes relevant social science research indicating that opinions about peripheral, situation-specific issues are subject to influence even in how questions are framed and, thus, why we expect privacy expectations about given applications of law may be malleable.⁹

Part II presents two novel empirical studies, an experiment and a survey, which probe the extent to which privacy expectations are malleable and the ways in which that malleability leads to Katzian circularity. Both studies assess whether expectations of privacy shift based on different forms of information. Through the experiment, we test whether and how information about social science studies can shape expectations. We show that survey evidence about others' privacy views influences participants' own views, indicating that privacy expectations are indeed malleable. Thus, our experiment shows why Katzian circularity may occur—because of the malleability of expectations.

9. See *infra* Section I.E.

Our survey examines which aspects of circularity actually arise.¹⁰ We evaluate whether judicial determinations and government actions shape expectations, asking about common police practices and comparing our results to those of the seminal study in the area conducted thirty years ago by Professors Christopher Slobogin and Joseph E. Schumacher¹¹ and to those of others who have replicated and expanded on that influential study in the intervening years.¹² We find strong support for 1a of the *judicial self-reflection circularity problem*: just as Slobogin and Schumacher found in 1993, there continues to be little correlation between what the Supreme Court deems to be society's reasonable expectations of privacy and society's actual expectations. But we find little support for 1b of the *judicial self-reflection circularity problem*: societal views have not moved toward Supreme Court precedent in the intervening decades.¹³ Together, these findings suggest that judges reflect their own privacy expectations or preferences, rather than societal expectations, but that judges' decisions have little effect on subsequent societal expectations.

We also find little support for the two *government manipulation circularity problems*, with one exception. The only common government action that appears to have lowered privacy expectations since 1993 is a significant downward shift in whether people think being stopped on the street by the police for ten minutes is intrusive. Given the combination of the increased use of street stops by police and the attention to the violence and tragic results that sometimes occur during these stops, this downward shift may indicate that the *government manipulation circularity problem* can occur, but only in extreme and well-publicized circumstances.¹⁴ Finally, we find

10. For methodological reasons, discussed *infra* Part II, we present the survey before the experiment. In short, we use survey evidence of participants' general attitudes about privacy as a variable in the experiment to confirm that the results of our experiment are not conditional on baseline privacy attitudes.

11. See generally Christopher Slobogin & Joseph E. Schumacher, *Reasonable Expectations of Privacy and Autonomy in Fourth Amendment Cases: An Empirical Look at "Understandings Recognized and Permitted by Society,"* 42 DUKE L.J. 727, 732 (1993) ("[T]he results strongly suggest that some of the Court's decisions regarding the threshold of the Fourth Amendment and the warrant and probable cause requirements do not reflect societal understandings.").

12. See *infra* Section I.E.2.

13. See *infra* Section II.B.

14. For example, one pollster found the percent of registered voters who see police violence against the public as a problem increased from 73% to 75% since the

preliminary evidence of the least well-recognized aspect of Katzian circularity, *judicial ossification of expectations feedback loops*. Participants view investigative techniques that involve modern technologies to be, on average, more intrusive than those using older technologies. Ironically, the two feedback loops are the most clearly circular aspects of Katzian logic,¹⁵ yet, until now, they have not been discussed.

In Part III, we consider what can be done to solve or at least mitigate the problems we have identified. A common response to Katzian circularity is that its doctrinal rival, trespass, can solve the problem by avoiding *Katz's* reliance on societal expectations.¹⁶ We show that this and other doctrinal solutions are illusory: an assessment of societal expectations is inherent, albeit more masked, in each of these alternatives, and thus they do not avoid circularity problems.¹⁷ Likewise, an institutional solution—turning the assessment over to juries instead of judges—is also undesirable because juries are prone to biases similar to those of judges and are unlikely to be nationally representative, a central tenet of Fourth Amendment jurisprudence.¹⁸

We propose, instead, that social science evidence offers the best solution to the problems of circularity. Scientifically ascertaining what society's expectations are, rather than

national protests that arose out of the murder of George Floyd in May 2020. See Eli Yokley, *Most Voters See Police Violence as a Problem — and Common Against Black Americans*, MORNING CONSULT (Feb. 1, 2023, 6:00 AM), <https://pro.morningconsult.com/articles/most-voters-see-police-violence-as-problem> [https://perma.cc/G9VQ-JA T8]. Compare MORNING CONSULT & POLITICO, NATIONAL TRACKING POLL #2006105 JUNE 19–24, 2020 CROSSTABULATION RESULTS, 154–59 (2020), https://pro-assets.morningconsult.com/wp-uploads/2020/07/23074709/2006105_crosstabs_POLICING_STACKED_RVs_STACKED_v4_LM.pdf [https://perma.cc/ZKZ3-G97R], with MORNING CONSULT & POLITICO, NATIONAL TRACKING POLL #2301147 JANUARY 27–29, 2023 CROSSTABULATION RESULTS, 128–30 (2023), https://pro-assets.morningconsult.com/wp-uploads/2023/02/03104933/2301147_crosstabs_POLITICO_RVs_v1_02-01-23_HD.pdf [https://perma.cc/L9BJ-5VBK].

15. Katzian circularity is a term of art, and some of the other elements are more properly labeled endogeneity.

16. See, e.g., *Carpenter v. United States*, 585 U.S. 296, 397–98 (2018) (Gorsuch, J., dissenting) (arguing that trespass solves the many problems of *Katz*); see *infra* Section III.A.1.

17. See *infra* Section III.A.

18. See, e.g., *Atwater v. City of Lago Vista*, 532 U.S. 318, 346–48 (2001); *Virginia v. Moore*, 553 U.S. 164, 171–72 (2008); see discussion *infra* Section III.B.

allowing judges to intuit a vibe,¹⁹ addresses *judicial self-reflection* (1a and 1b), aligning law with the expectations it claims to encapsulate. It also allows for judicial assessments of expectations to be updated, avoiding the problems of *ossification* (3a and 3b). And it can help identify, if not solve, *government manipulation of expectations* (2a and 2b); if social science surveys have been conducted on a particular issue over time, they can provide evidence that expectations have changed due to government action. We show that lay privacy expectations are quite responsive to social science evidence; it would be paradoxical if judges refuse to let such evidence inform their declarations about those lay privacy expectations. Altogether, then, this Article provides a more comprehensive theoretical basis for the ways in which Katzian circularity can manifest, shows why and how the problem arises, and supplies a potential solution.

I. WHAT TO EXPECT WHEN SOCIETY IS EXPECTING

This Article probes the dual questions of how individual members of society form expectations of privacy and how decisionmakers—notably judges—assess those expectations to determine whether society in general has a reasonable expectation of privacy in a particular matter. This Part introduces *Katz*'s reasonable expectation of privacy test and the Katzian circularity problem. It identifies six permutations of Katzian circularity, only some of which have received attention from scholars or the courts. It then shows that the various attempts to defend *Katz* from this circularity critique are all fundamentally flawed. Finally, it explains why we expect circularity to arise at all: because of the inherent malleability in the expectations that courts attempt to ascertain.

A. *The Reasonable Expectation of Privacy Test*

The primary test for whether a search or seizure has occurred comes from *Katz v. United States*.²⁰ FBI agents attached an electronic listening and recording device to the outside of a public telephone booth that Charles Katz regularly

19. See THE CASTLE (Working Dog Productions 1997); see also @thecomputerdude24, *The Castle – The Vibe*, YOUTUBE (Mar. 17, 2017), <https://www.youtube.com/watch?v=nMuh33BMZYY> [<https://perma.cc/RHG5-MZR6>] (Question: “What section of the Constitution has been breached?” Answer: “Section? What section? There is no one section; it’s just the vibe of the thing.”).

20. 389 U.S. 347, 351–52 (1967).

used to make illicit wagers.²¹ Under the trespass test used prior to *Katz*, the analysis of whether a search had occurred depended on (a) whether the telephone booth was a constitutionally protected area, which in turn hinged on whether the area was one recognized in common law as protected by the law of trespass, and (b) whether the attachment of the listening device constituted a trespass, which in turn hinged on how physically intrusive the attachment of the device was.²² In rejecting trespass analysis, the *Katz* Court acknowledged that “[w]hat a person knowingly exposes to the public” is not constitutionally protected, but it emphasized that, nonetheless, “what [a person] seeks to preserve as private, even in an area accessible to the public, may be constitutionally protected.”²³

The Court determined that, by closing the door and paying the toll, Mr. Katz made the ordinarily public telephone booth temporarily private, so he was entitled to expect privacy in his conversation.²⁴ As Justice John Marshall Harlan II wrote in his now-famous concurrence: “As the Court’s opinion states, ‘the Fourth Amendment protects people, not places.’ The question, however, is what protection it affords to those people.”²⁵ To answer this question, Justice Harlan set out what became accepted as the new test for whether a search or seizure has occurred: the Fourth Amendment only applies to protect things or conduct for which there exists both an objective expectation of privacy that society recognizes as reasonable and an actual, subjective expectation of privacy held by the relevant person.²⁶ Unfortunately, this test leaves many questions unanswered. Most importantly, for our purposes: how do judges ascertain what expectations of privacy society recognizes as reasonable?²⁷

21. *Id.* at 348.

22. *Id.* at 349–50; *Olmstead v. United States*, 277 U.S. 438, 464, 466 (1928), *overruled by Katz*, 389 U.S. at 347. *Compare* *Goldman v. United States*, 316 U.S. 129, 135 (1942) (finding that electronic surveillance accomplished without physical penetration does not violate the Fourth Amendment), *overruled by Katz*, 389 U.S. at 347, *with* *Silverman v. United States*, 365 U.S. 505, 509–12 (1961) (holding that electronic surveillance that did penetrate the premises violated the Fourth Amendment).

23. *Katz*, 389 U.S. at 351–52.

24. *Id.*; *id.* at 361 (Harlan, J., concurring).

25. *Id.* at 361 (Harlan, J., concurring).

26. *Id.*

27. Many scholars have noted that in establishing the reasonable expectation of privacy test, the “Court failed to establish specific benchmarks of privacy,” which

B. Katz's Circularity Problems

Katz does not provide a clear framework for how judges are supposed to identify societal expectations of privacy. But the reverse is equally an open question: how do societal expectations of privacy come to exist? In particular, a natural question is whether an individual's expectations, or society's collective expectations, hinge on what the law tells them is an acceptable action for the police to take without judicial oversight. That is, do societal expectations of privacy come to mirror the law?

This potential circularity has been widely recognized as a problem.²⁸ Per Justice Anthony Kennedy: "we all know it's circular, that if we say there is a reasonable expectation, then there is."²⁹ Per Judge Richard Posner: "it is circular to say that there is no invasion of privacy unless the individual whose privacy is invaded had a reasonable expectation of privacy; whether he will or will not have such an expectation will depend on what the legal rule is."³⁰ Indeed, Justice Antonin Scalia used the fact that the *Katz* test is circular³¹ to lay the groundwork for resuscitating the trespass test as an alternative route to ascertaining whether a search or seizure occurred.³² Even Justice Harlan recognized the circularity of his own

created methodological ambiguity as to how the question should be answered. *See, e.g.,* Kiel Brennan-Marquez & Stephen E. Henderson, *Fourth Amendment Anxiety*, 55 AM. CRIM. L. REV. 1, 33–34 (2018).

28. Numerous judges, including Supreme Court Justices, as well as leading scholars, have recognized the problem of Katzian circularity. *See* Matthew B. Kugler & Lior J. Strahilevitz, *The Myth of Fourth Amendment Circularity*, 84 U. CHI. L. REV. 1747, 1748 (2017) (describing Katzian circularity as the rare issue over which "nearly everyone—left, right, and center—agrees").

29. Transcript of Oral Argument at 12, *City of Los Angeles v. Patel*, 576 U.S. 409 (2015) (No. 13-1175).

30. Richard A. Posner, *The Uncertain Protection of Privacy by the Supreme Court*, 1979 SUP. CT. REV. 173, 188 (1979).

31. *Minnesota v. Carter*, 525 U.S. 83, 97 (1998) (Scalia, J., concurring) ("In my view, the only thing the past three decades have established about the *Katz* test . . . is that, unsurprisingly, [subjective expectations of privacy that society recognizes as reasonable] bear an uncanny resemblance to those expectations of privacy that this Court considers reasonable.").

32. *Kyllo v. United States*, 533 U.S. 27, 34 (2001) ("While it may be difficult to refine *Katz* . . . there is a ready criterion, with roots deep in the common law, of the minimal expectation of privacy that *exists*, and that is acknowledged to be *reasonable*."). Justice Scalia succeeded in his endeavor to resuscitate the trespass test in *United States v. Jones*, 565 U.S. 400, 407 (2012) (reinstating the historic focus of the Fourth Amendment on whether a government trespass upon protected areas has occurred). However, the trespass test also has problems, including being unable to avoid *Katz*-like expectation analysis. *See infra* Section III.A.

formulation of the reasonable expectation of privacy test when he wrote in dissent in *United States v. White*³³: “Our expectations, and the risks we assume, are in large part reflections of laws that translate into rules the customs and values of the past and present.”³⁴

What each of these judges is describing is the extent to which courts, in their rulings, can shape the very expectations that society has, which in turn is what the courts are attempting to determine. We call this the problem of *judicial self-reflection circularity*. It is a serious enough problem that even the author of the reasonable expectation of privacy test came, within just a few years, to doubt its usefulness and propriety.³⁵

A second aspect of *judicial self-reflection circularity* is discussed less frequently but is perhaps even more problematic. It may be tempting for judges to (consciously or unconsciously) operationalize *Katz's* inquiry by treating *their own* privacy expectations as a stand-in for those of reasonable members of society.³⁶ Justice Samuel Alito summarizes the problem in this way: “The *Katz* expectation-of-privacy test . . . involves a degree of circularity, and judges are apt to confuse their own expectations of privacy with those of the hypothetical reasonable person to which the *Katz* test looks.”³⁷ This confusion may prove particularly troubling because there are good reasons to suspect that judges’ privacy expectations likely do *not* mirror those of most laypeople.³⁸

These judicially created forms of circularity are not the only aspects of *Katzian* circularity—other forms of circularity are created by the role of the other branches of government in shaping expectations. If cultural norms determine

33. 401 U.S. 745 (1971).

34. *Id.* at 786 (Harlan, J., dissenting).

35. *See id.*

36. There is reason to believe judges are prone to do exactly this. Mark D. Aliche & Stephanie H. Weigel, *The Reasonable Person Standard: Psychological and Legal Perspectives*, 17 ANN. REV. L. & SOC. SCI. 123, 134 (2021) (describing how “people seem to elevate their own opinions and values over those of the [reasonably prudent person]”); Lindsey Barrett, *Model(ing) Privacy: Empirical Approaches to Privacy Law & Governance*, 35 SANTA CLARA HIGH TECH. L.J. 1, 5–6 (2018).

37. *Jones*, 565 U.S. at 427 (Alito, J., concurring); *see also* Raff Donelson, *The Real Problem with Katz Circularity*, 65 ST. LOUIS U. L.J. 809, 812 (2021) (discussing “doctrinal circularity” arising from expectations of privacy based on judges’ “own unfettered normative judgment about what is reasonable”); Brian J. Serr, *Great Expectations of Privacy: A New Model for Fourth Amendment Protection*, 73 MINN. L. REV. 583, 593 (1989) (“*Katz's* expectations of privacy were ‘reasonable’ from a societal standpoint because Justice Harlan deemed them to be reasonable.”).

38. *See infra* Section I.E.2.

expectations, and those norms can be influenced by government, then *Katz* enables the very body that the Constitution is meant to control—the governing coalition between the executive and the legislature—to determine the contours of the limits of what the Constitution will tolerate. As Dean Erwin Chemerinsky has said, “The government seemingly can deny privacy just by letting people know in advance not to expect any.”³⁹ Likewise, Professor Anthony Amsterdam hypothesized that “the government could diminish each person’s subjective expectation of privacy merely by announcing half hourly on television that . . . we were all forthwith being placed under comprehensive electronic surveillance.”⁴⁰ In these ways, the government can lower both subjective and objective expectations of privacy. We call this the problem of *government manipulation circularity*.

Government manipulation circularity can result in the Fourth Amendment being under-protective because a government can manipulate the rules to allow itself greater leeway in searching and seizing citizens. For instance, in *Katz*, the majority described the “vital role that the public telephone has come to play in private communication.”⁴¹ One might wonder, then, whether a government seeking more expansive power would have an incentive to get rid of phone booths or fail to fix and replace broken ones over time.⁴² To take a more modern example, in 2013, Edward Snowden revealed that the National Security Administration (NSA) had been gathering and surveilling emails, phone calls, text messages, and other electronic communications of U.S. citizens, utilizing section 702 of the Foreign Intelligence Surveillance Act, as amended in 2008.⁴³ The revelation of the secret program was unlawful, and

39. Erwin Chemerinsky, *Rediscovering Brandeis’s Right to Privacy*, 45 *BRANDEIS L.J.* 643, 650 (2007).

40. Anthony G. Amsterdam, *Perspectives on the Fourth Amendment*, 58 *MINN. L. REV.* 349, 384 (1974).

41. *Katz v. United States*, 389 U.S. 347, 352 (1967).

42. This arguably contributed to the loss of public phone booths throughout the United States. See Renée Reizman, *What Killed the Pay Phone?*, *ATLANTIC* (Feb. 2, 2017), <https://www.theatlantic.com/technology/archive/2017/02/object-lesson-phone-booth/515385/> [https://perma.cc/DRL8-8GUC].

43. FISA Amendments Act of 2008, Pub. L. No. 110-261, sec. 101, § 702, 122 Stat. 2436, 2438–48 (codified at 50 U.S.C. § 1881a); Timothy B. Lee, *Here’s Everything We Know About PRISM to Date*, *WASH. POST* (June 12, 2013), <https://www.washingtonpost.com/news/wonk/wp/2013/06/12/heres-everything-we-know-about-prism-to-date/> [https://perma.cc/X9AZ-UTHP].

Snowden was charged with espionage.⁴⁴ However, under *Katz*, Snowden's revelation could advantage the government: the program went from being secret to being extremely well-known and publicly debated;⁴⁵ accordingly, it is now difficult for any individual to claim that they have a reasonable expectation of privacy in those electronic communications. The very revelation of the program could have given the government greater power to search without a warrant, if these actions are no longer searches in the constitutional sense, due to the lack of reasonable expectation of privacy in the information searched.⁴⁶ In this way, the government has an incentive to make known its most intrusive activities, so as to deliberately lower societal expectations of privacy, and consequently, under *Katz*, diminish society's legal protections.

C. An Associated Problem: Feedback Loops

Due to the governmental manipulation circularity problem in *Katz*, the Fourth Amendment can be under-protective. However, *Katzian* circularity can also create problems of overprotection. This is because *Katz* can interfere with adaptation over time, which can stymie the government's ability to respond to crime.

With changes in technology, particularly communication technology, police and criminals are often engaged in a game of

44. See, e.g., Ellen Nakashima, *Activists Press Obama to Pardon Edward Snowden*, WASH. POST (Sept. 14, 2016), https://www.washingtonpost.com/world/national-security/activists-press-obama-to-pardon-edward-snowden/2016/09/14/56d27c28-7a9d-11e6-ac8e-cf8e0dd91dc7_story.html?utm_term=.703b8913213d&tid=a_inl_manual [https://perma.cc/R7C9-TCAE].

45. Ellen Nakashima, *NSA Halts Controversial Email Collection Practice to Preserve Larger Surveillance Program*, WASH. POST (Apr. 28, 2017), https://www.washingtonpost.com/world/national-security/nsa-halts-controversial-email-collection-practice-to-preserve-larger-surveillance-program/2017/04/28/e2ddf9a0-2c3f-11e7-be51-b3fc6ff7faee_story.html [https://perma.cc/7DU3-S9WA].

46. Professors Marc Langheinrich and Florian Schaub show that prior to the Snowden revelations, "comprehensive surveillance of online behavior was considered a possibility by security experts" but was not an established fact; subsequently, "searches for privacy-sensitive terms declined significantly both in Wikipedia and Google Search after the extent of U.S. government surveillance became public." MARC LANGHEINRICH & FLORIAN SCHAUB, *PRIVACY IN MOBILE AND PERVASIVE COMPUTING* 79 (2018) (citations omitted). Professor Robert Power comments that the "fact that privacy and government investigative powers are now part of the national discourse, television documentaries, newspaper editorials, and even radio talk show blather is a good sign," but, at the same time, this "public awareness . . . may itself erode privacy, at least as a matter of constitutional law." Robert C. Power, *Changing Expectations of Privacy and the Fourth Amendment*, 16 WIDENER L.J. 43, 46 (2006).

innovation and counter-innovation—as police develop a tracking technology to collect information, such as cell-site information data, criminals develop countermeasures, such as using burner phones.⁴⁷ But when the Supreme Court gets involved in the analysis, it can interfere with the ability of the police to counter-innovate. This is particularly so due to a judicial addendum to the *Katz* test developed in *Kyllo v. United States*.⁴⁸ *Kyllo* concerned thermal imaging of a home; in ruling that police were prohibited from using such technology to determine heat sources internal to a home, the Court stressed two elements: (1) that the technology revealed information about the inside of the home and (2) that the technology was not available for “general public use” at the time of the investigation.⁴⁹

The majority did not define what constitutes general public use; as Justice John Paul Stevens pointed out in dissent: the contours of the *Kyllo* rule are “uncertain because its protection apparently dissipates as soon as the relevant technology is ‘in general public use.’ Yet how much use is general public use is not even hinted at by the Court’s opinion.”⁵⁰ Accordingly, this addition to the reasonable expectation of privacy test is as ambiguous in application as the original *Katz* test. Even more fundamental, the dissent argued that there is a logical problem with the general public use criterion, even if it were better defined: “[P]utting aside its lack of clarity, this criterion is somewhat perverse because it seems likely that the threat to privacy will grow, rather than recede, as the use of intrusive equipment becomes more readily available.”⁵¹

Justice Stevens’s concern that a greater threat will come from common, everyday technology than from unusual technology has been vindicated. The ease of access to technology such as cameras has, since *Kyllo*, enabled mass surveillance—such as through the government installing

47. See Tonja Jacobi & Jonah Kind, *Criminal Innovation and the Warrant Requirement: Reconsidering the Rights-Police Efficiency Trade-off*, 56 WM. & MARY L. REV. 759, 765–67 (2015) (describing how judicial determinations can interfere with law enforcement’s use of new technologies).

48. 533 U.S. 27 (2001).

49. *Id.* at 34 (“We think that obtaining by sense-enhancing technology any information regarding the interior of the home . . . constitutes a search—at least where (as here) the technology in question is not in general public use.”).

50. *Id.* at 47 (Stevens, J., dissenting).

51. *Id.*

cameras on every street corner.⁵² But the dissent errs in assuming that the intrusive equipment will continue to become “more readily available” because Katzian circularity may hinder its spread.

The *Kyllo* rule may hamstring the development of crime-fighting technology: even if the technology *would have* become commonplace without the Court’s ruling, it might not do so *because of* the Court’s ruling. And *even if* the technology does become commonplace despite the Court’s ruling, the ruling itself may prevent the police from *using* technology available to common people. For instance, thermal imaging devices are now common enough that they are available as add-ons to smartphones.⁵³ Your neighbors may regularly use these devices to check out heat sources in your home, yet *Kyllo* prohibits police from doing so. It is a basic principle of criminal procedure jurisprudence that whether a search or seizure occurs depends on expectations that people have in regard to the conduct of others generally, rather than specifically pertaining to the police.⁵⁴ Yet, once there has been a judicial ruling on those expectations, different rules can apply to the police and others, with police forced to lag behind the rest of society when it comes

52. See, e.g., Mary Anne Franks, *Democratic Surveillance*, 30 HARV. J.L. & TECH. 425, 429–30 (2017) (describing “mass surveillance” and the everyday technology that makes it possible, particularly common conveniences such as cell phones, social media applications, and search engines, which “function as huge information reservoirs for the government”); Michael W. Price, *Rethinking Privacy: Fourth Amendment “Papers” and the Third-Party Doctrine*, 8 J. NAT’L SEC. LAW & POL’Y 247, 262 (2016) (arguing that the government’s effect on shifting privacy expectations—what we call the *government manipulation circularity problem*—is “compounded by advancements in technology that allow widespread information sharing”); Bert-Jaap Koops & Ronald Leenes, ‘Code’ and the Slow Erosion of Privacy, 12 MICH. TELECOMMS. & TECH. L. REV. 115, 176 (2005) (arguing that technology “partly shapes what can be deemed ‘necessary in a democratic society’ when it comes to deciding what privacy violations are acceptable” and that, in the “vast majority of technologies developed and used in real life, its influence is to the detriment of privacy”).

53. See, e.g., *FLIR IR Smart Phone Adapter*, 70, -4 Degrees to 752 Degrees F, Fixed Focus, ZORO, <https://www.zoro.com/flir-ir-smart-phone-adapter-70-mk-fixed-flir-one-pro-android/i/G1460580/> [<https://perma.cc/F68T-48LB>].

54. See, e.g., *Florida v. Jardines*, 569 U.S. 1, 22 (2013) (Alito, J., dissenting) (quoting *State v. Cada*, 923 P.2d 469, 477 (Idaho Ct. App. 1996)) (“[P]olice officers restricting their activity to [areas to which the public is impliedly invited] are permitted the same intrusion and the same level of observation as would be expected from a reasonably respectful citizen.”); *United States v. White*, 401 U.S. 745, 749 (1971) (“[H]owever strongly a defendant may trust an apparent colleague, his expectations in this respect are not protected by the Fourth Amendment when it turns out that the colleague is a government agent.”).

to potentially crime-fighting technology.⁵⁵ Police can still use this technology, but they must first obtain a warrant; this may be normatively attractive to some, but police are not supposed to need a warrant if an action is not a search, so this addendum puts the doctrine out of whack with Fourth Amendment principles.⁵⁶ We call this the problem of *judicial ossification of expectations*. It is a spinoff effect of circularity: a judicial assessment of reasonable expectations, once made, may prevent the law from reflecting changes in actual societal expectations.

The Court itself has recognized the danger of “embarrass[ing] the future”⁵⁷—that is, of being immediately obsolete in its determinations due to failing to anticipate future directions of technology. For instance, in *United States v. Jones*,⁵⁸ the Court hinged its analysis on the physical intrusion, and thus trespass, of a GPS device being attached to a car,⁵⁹ even though by 2012, when the Court heard oral argument in the case, Justice Elena Kagan pointed out that such a ruling could become almost immediately obsolete by GPS devices being installed by manufacturers.⁶⁰

The essential problem of *judicial ossification of expectations* is that the Court necessarily addresses technology at a certain moment in time, and technology is constantly changing;⁶¹ at the same time, the Court is attempting to assess social norms, but social norms are also changing, including in response to changing technology. *Katz* makes the definition of

55. Perhaps ironically, the Court in *Kyllo* made its ruling with an eye toward changing technology, saying: “While the technology used in the present case was relatively crude, the rule we adopt must take account of more sophisticated systems that are already in use or in development.” 533 U.S. at 35–36.

56. Possibly for this reason, even Justice Scalia seemed to move away from this element of *Kyllo* in finding installation of a GPS-monitoring device to be a search, with no mention of how common its use. *United States v. Jones*, 565 U.S. 400, 404 (2012).

57. *Nw. Airlines, Inc. v. Minnesota*, 322 U.S. 292, 300 (1944) (“[With] more subtle and complicated technological facilities that are on the horizon . . . we ought not to embarrass the future by judicial answers which at best can deal only in a truncated way with problems sufficiently difficult even for legislative statesmanship.”).

58. 565 U.S. 400 (2012).

59. *Id.* at 404–05.

60. Transcript of Oral Argument at 46, *Jones*, 565 U.S. at 400 (No. 10-1259) (“Suppose that in the future all cars are going to have GPS tracking systems and the police could essentially hack into such a system without committing the trespass.”).

61. Moore’s Law holds that the capacity of semiconductors, vital to computing, will double every two years, a prediction that has been so accurate as to be considered a law of physics, even though it is technically not. See, e.g., Robert R. Schaller, *Moore’s Law: Past, Present and Future*, 34 IEEE SPECTRUM, June 1997, at 52, 53.

constitutional rights dependent on cultural norms, but the Court has no way of updating its rulings to reflect those constantly changing social norms and the expectations they inspire.

For instance, the Supreme Court ruled in *Samson v. California*⁶² that searches of parolees can be conducted without any suspicion because the existence of extremely stringent parole conditions “diminish[es] or eliminate[s]” any reasonable expectation of privacy, thus justifying the search.⁶³ Having decided that government can act, the Court essentially sets all future expectations of privacy of parolees; there cannot logically be a subsequent ruling to say that in these circumstances, parolees *do* have expectations of privacy, because those very expectations are defined by *Samson*—that is, the norms that the Court claims to be reflecting become ossified. Then, those expectations that the Court itself shaped come to be re-reflected in subsequent court opinions.⁶⁴ This is potentially even more pernicious than parolee expectations being set by court decisions because ossification can occur without parolees’ expectations even changing: subsequent courts simply take judicial notice of prior declarations of parolees’ expectations, basing further determinations of expectations on those declarations, not the expectations themselves. Thus, the fiction of the law builds upon itself.

The Supreme Court has recognized the circularity that can arise from the judicial ossification problem and corrected course. In *New York v. Belton*,⁶⁵ the Supreme Court addressed whether the passenger compartment of an automobile was covered by the search-incident-to-arrest exception,⁶⁶ in which

62. 547 U.S. 843 (2006).

63. *Id.* at 847. This statement was both the ruling and the justification for the ruling—that is, Justice Clarence Thomas’s majority opinion starts with the conclusion that parole conditions could be so stringent and then asks the circular question of whether a parolee can therefore have any expectation of privacy, given knowledge of those conditions. Instead, the Court could have asked whether ex-prisoners have any privacy rights such that conditions permitting intrusive searches of ex-prisoners, once released, could not be justified. Thus, not only is Katzian analysis prone to circularity. Courts can lean into that circularity, rather than attempt to mitigate it, to avoid difficult questions.

64. *See, e.g.*, *United States v. Caya*, 956 F.3d 498, 503–04 (7th Cir. 2020) (upholding as constitutional a search of a person under extended release who did not consent to such search). For more on this, see Tonja Jacobi & Addie Maguire, *Searches Without Suspicion: Avoiding a Four Million Person Underclass*, 48 *BYU L. REV.* 1769, 1769–72 (2023).

65. 453 U.S. 454 (1981).

66. *Id.* at 455.

police officers are entitled to automatically search areas within reach of the arrestee.⁶⁷ The *Belton* Court embraced “the generalization that articles inside the relatively narrow compass of the passenger compartment of an automobile are in fact generally, even if not inevitably, within ‘the area into which an arrestee might reach in order to grab a weapon or evidentiary ite[m].’”⁶⁸ But twenty-three years later, Justice Scalia argued that because police officers, as part of standard procedure, handcuff and place an arrestee in the back of the squad car, and sometimes the squad car even leaves the scene, before the officers search the passenger compartment at their leisure, “[i]f it was ever true that the passenger compartment is ‘in fact generally, even if not inevitably,’ within the arrestee’s immediate control at the time of the search, it certainly is not true today.”⁶⁹ The practice of removing and handcuffing the suspect became commonplace because of the *Belton* ruling,⁷⁰ but because of that ruling, the empirical claim upon which the rule rested was no longer true. Justice Scalia did not use the terms judicial ossification or circularity, but he described that phenomenon exactly. Five years later, in *Arizona v. Gant*,⁷¹ a majority of the Court, explicitly recognizing Justice Scalia’s judicial ossification logic,⁷² reversed the presumption, requiring instead that an arrestee must in fact be unsecured and “within reaching distance of the passenger compartment at the time of the search.”⁷³ But *Gant* is the exception: the Court has not corrected the *judicial ossification of expectations problem* or the feedback effect it has on other circularity problems.⁷⁴

67. See *Chimel v. California*, 395 U.S. 752, 762–63 (1969) (“When an arrest is made, it is reasonable for the arresting officer to search the person arrested in order to remove any weapons . . . [T]he area into which an arrestee might reach in order to grab a weapon or evidentiary items must, of course, be governed by a like rule.”).

68. *Belton*, 453 U.S. at 460 (alteration in original) (quoting *Chimel*, 395 U.S. at 763).

69. *Thornton v. United States*, 541 U.S. 615, 628 (2004) (Scalia, J., concurring) (quoting *Belton*, 453 U.S. at 460).

70. See Myron Moskovitz, *A Rule in Search of a Reason: An Empirical Reexamination of Chimel and Belton*, 2002 WIS. L. REV. 657, 675–77.

71. 556 U.S. 332 (2009).

72. *Id.* at 335 (“[F]ollowing the suggestion in Justice Scalia’s opinion.”).

73. *Id.* at 343, 351.

74. Arguably, the Court made a similar correction in *Carpenter*, by refusing to apply the principles of the third-party doctrine to the use of historic cell-site location information, for all of the reasons given by the dissenters in prior third-party doctrine cases. *Carpenter v. United States*, 585 U.S. 296, 309 (2018). But the *Carpenter* Court denied it was doing that, saying it was simply “declin[ing] to extend” the third-party doctrine. *Id.*

Ordinarily, the Katzian circularity effect simply continues unabated.

In summary, we have catalogued multiple circularity concerns that *Katz's* reasonable expectation of privacy test could create:

1. *The judicial self-reflection circularity problem*, which has two aspects:

- a. judges are reflecting their own expectations or preferences when they claim to be identifying societal expectations; and
- b. judges, through their decisions, influence the very societal expectations they claim to be reflecting.

2. *The government manipulation circularity problem*, which has two aspects:

- a. Fourth Amendment rights can be under-protected because governments can manipulate societal expectations through more intrusive actions; and
- b. Fourth Amendment rights can be under-protected because governments can exploit lower individual subjective expectations within particular groups.

3. *The judicial ossification of expectations feedback loop*, which has two aspects:

- a. police responsiveness to criminal activity can be hampered (and Fourth Amendment rights can be overprotected) because court rulings themselves stymie innovation and technological development; and
- b. police responsiveness to criminal activity can be hampered (and Fourth Amendment rights can be overprotected) because court rulings themselves prevent police from making use of what becomes common technology available to the public.

Altogether, this makes six different forms of Katzian circularity, yet only three have been previously recognized by courts or scholars.

D. *Rebuttals of the Circularity Problem*

1. The Supreme Court's Response to the Circularity Problem

The Court has claimed to have solved the problem of Katzian circularity, but in fact it has only ever addressed the *government manipulation circularity problems* (2a and 2b). In *Smith v. Maryland*,⁷⁵ the Court acknowledged problems with both prongs of the reasonable expectation of privacy test in a footnote:

Situations can be imagined, of course, in which *Katz*' two-pronged inquiry would provide an inadequate index of Fourth Amendment protection. For example, if the Government were suddenly to announce on nationwide television that all homes henceforth would be subject to warrantless entry, individuals thereafter might not in fact entertain any actual expectation of privacy regarding their homes, papers, and effects. Similarly, if a refugee from a totalitarian country, unaware of this Nation's traditions, erroneously assumed that police were continuously monitoring his telephone conversations, a subjective expectation of privacy regarding the contents of his calls might be lacking as well.⁷⁶

The Court acknowledged that the government could manipulate objective expectations of society through particularly invasive conduct and could also exploit lower individual subjective expectations of privacy. Even in limiting itself to government manipulation, the Court understated the problem. The problem with the subjective prong of *Katz* is not limited to foreigners who do not understand American norms. Far more widespread is the problem of those who have had bad experiences with police or are part of a community that has had bad experiences with police. Most obviously, this applies to traditionally discriminated-against minorities, particularly African Americans, whom studies have shown have a higher likelihood of “[e]xperiencing or witnessing police brutality, hearing stories of friends who have experienced brutality, and

75. 442 U.S. 735 (1979).

76. *Id.* at 740 n.5.

having to worry about becoming a victim.”⁷⁷ These negative experiences adversely affect individuals’ psyches⁷⁸ and so could shape expectations of privacy of these victimized groups. As such, the *government manipulation circularity problem* may arise not only in the rare case where individuals have different expectations of privacy because they do not understand how police act in the United States but also where people understand too well and have well-founded fear of such intrusions. The Court claims to have a simple solution:

In such circumstances, where an individual’s subjective expectations had been “conditioned” by influences alien to well-recognized Fourth Amendment freedoms, those subjective expectations obviously could play no meaningful role in ascertaining what the scope of Fourth Amendment protection was. In determining whether a “legitimate expectation of privacy” existed in such cases, a normative inquiry would be proper.⁷⁹

The Court was saying that it will use fundamental principles of what is protected by the Fourth Amendment to determine whether unconstitutional conditioning of expectations has taken place. But this solution itself suffers from problems of circularity. The contours of the Fourth Amendment are, under

77. Sirry Alang, Donna McAlpine, Ellen McCreedy & Rachel Hardeman, *Police Brutality and Black Health: Setting the Agenda for Public Health Scholars*, 107 AM. J. PUB. HEALTH 662, 663 (2017); see Ronald Weitzer & Steven Tuch, *Rethinking Minority Attitudes Toward the Police* iv (June 26, 2004) (unpublished manuscript), <https://www.ncjrs.gov/pdffiles1/nij/grants/207145.pdf> [<https://perma.cc/HM2J-Q78T>] (“Citizen experiences with police officers strongly influence citizen attitudes Either personal or vicarious experience of police abuse increases citizens’ belief that police misconduct and racially biased policing occur.”); EMILY EKINS, CATO INST., POLICING IN AMERICA: UNDERSTANDING PUBLIC ATTITUDES TOWARD THE POLICE. RESULTS FROM A NATIONAL SURVEY 1 (2016), <https://www.cato.org/sites/cato.org/files/survey-reports/pdf/policing-in-america-august-1-2017.pdf> [<https://perma.cc/9VPU-DL3Q>] (“While 68% of white Americans have a favorable view of the police, only 40% of African Americans and 59% of Hispanics have a favorable view.”).

78. African Americans’ negative police experiences can even have a measurable public health impact due to the physical and psychological damage resulting to individuals and the community. See Alang, McAlpine, McCreedy & Hardeman, *supra* note 77.

79. *Smith*, 442 U.S. at 741 n.5. Note that this quote only addresses the conditioning of *subjective* expectations; the Court does not explicitly address how it would respond to the conditioning of *objective* expectations. However, this passage is best interpreted as being meant to apply to both types of conditioning. Together, these two quotes constitute the entirety of the Court’s solution to the circularity problem identified in *Smith*.

Katz, defined by those very expectations, so if such conditioning has occurred, the principles of the Fourth Amendment will reflect that. The Court's solution, therefore, could only potentially work when responding to sudden actions by governments. Gradual evolutions toward more intrusive actions by the State will receive different treatment.

This is not simply a theoretical concern. In application, lower courts have struggled to avoid the circularity that the Supreme Court claimed to have solved. For instance, the Fifth Circuit, in considering whether a warrantless search of a probationer was reasonable, took consideration of the fact that probation officers conduct these searches without warrants:

Thus, a probationer in Louisiana—where the courts have consistently approved the practice of searching probationers' homes based on reasonable suspicion—is just as aware of the decreased expectation of privacy that follows from probation as a probationer in a state with a *Griffin*-like [more protective] regulation in place.⁸⁰

In essence, because probation officers often conduct warrantless searches of probationers, probationers are on notice that they can have no expectation of privacy, and, accordingly, they do not have any expectation of privacy. Thus, the more intrusive the action of the state, the less protection the citizen receives, despite the Supreme Court's claims that such circularity problems have been solved.

2. Scholars' Dismissals of the Katzian Circularity Problem

There are scholars who assert that Katzian circularity is not a real problem. Whereas the Court has restricted itself to responding only to the second category of the circularity problem, the *government manipulation problem*, these commentators have focused on the first category of the circularity problem, the judicial self-reflection problem, almost to the exclusion of all others.⁸¹ Like the Court's unpersuasive

80. *United States v. Keith*, 375 F.3d 346, 347, 350 (5th Cir. 2004).

81. There are commentators who focus on the government manipulation aspect, but they tend to emphasize the danger, rather than dismiss it as an issue. For example, Professor Shaun Spencer argues that "societal expectations of privacy fluctuate in response to changing social practices. . . . [and so] privacy is susceptible to encroachment at the hands of large institutional actors who can control this marketplace by affecting social practices." Shaun B. Spencer, *Reasonable*

defense, dismissals by commentators are also largely unconvincing.

Scholars who dismiss the Katzian circularity problem fall into three broad categories. The first type of dismissal is resignation: it says circularity is unavoidable. For instance, Professor Mary Coombs states, "if we want to assess the reasonableness of the government's conduct in light of the claimant's expectations, some degree of circularity may be unavoidable."⁸² This may be true, but that does not mean that the circularity is not problematic, as the example of defining the rights of probationers illustrates. The point here is not that any other doctrine is preferable to *Katz*; it is simply that *Katz* has a very significant weakness that leaves it prone to distortion away from actual societal expectations.

The second type of dismissal is redirection: arguing that Katzian circularity is not so important because really the Court has always largely followed trespass and property law, even when it denied doing so. For instance, Professor Orin Kerr claims that "[f]or better or worse, the Supreme Court has been fairly consistent in its approach to the Fourth Amendment: both before and after *Katz*, Fourth Amendment protections have mostly matched the contours of real property law."⁸³ This defense has multiple problems. First, it is empirically dubious: it is directly at odds with what the Court said it was doing for fifty-five years and the Court's explicit denials that trespass was relevant to Fourth Amendment law (before it was resuscitated in *Jones*).⁸⁴ Second, it is extremely difficult to

Expectations and the Erosion of Privacy, 39 SAN DIEGO L. REV. 843, 844 (2002). Similarly, Professor Stephen Schulhofer critiques *Katz*, saying "[e]xisting expectations . . . are shaped by the police practices that the law allows," and, therefore, if the government can decide what is allowed, "we end up chasing ourselves in a circle." Price, *supra* note 52 (quoting STEPHEN J. SCHULHOFER, MORE ESSENTIAL THAN EVER: THE FOURTH AMENDMENT IN THE TWENTY-FIRST CENTURY 121 (2012)).

82. Mary I. Coombs, *Shared Privacy and the Fourth Amendment, or the Rights of Relationships*, 75 CALIF. L. REV. 1593, 1612 n.79 (1987).

83. Orin S. Kerr, *The Fourth Amendment and New Technologies: Constitutional Myths and the Case for Caution*, 102 MICH. L. REV. 801, 827 (2004); see also Peter Winn, *Katz and the Origins of the "Reasonable Expectation of Privacy" Test*, 40 MCGEORGE L. REV. 1, 8 (2009) ("[B]ecause Harlan's reasonable expectation of privacy test represents an essential continuity with prior law, the accusation of circularity misses the point.").

84. *Katz v. United States*, 389 U.S. 347, 353 (1967) ("But '[t]he premise that property interests control the right of the Government to search and seize has been discredited.' Thus, although a closely divided Court supposed in *Olmstead* that

reconcile trespass law with Fourth Amendment rules: most obviously, the open fields doctrine is in direct contradiction with property notions of trespass.⁸⁵ Third, Kerr's claim is a fairly tepid defense of the circularity critique. It suggests that while the test the Court articulates may be circular, in fact the Justices are really doing something else, so we can all relax. This hardly brings clarity to the jurisprudence, nor confidence to the Rule of Law.

The final type of dismissal is minimization: claiming that the problem has been exaggerated. Professors Matthew Kugler and Lior Strahilevitz conducted a survey to test whether *Katz* has a *judicial self-reflection circularity problem*.⁸⁶ They measured public sentiment regarding whether police need to get a warrant to search a cell phone shortly before, shortly after, one year after, and two years after the *Riley* case determined that a warrant is ordinarily required.⁸⁷ They found that *Riley* had a significant effect on expectations immediately after being announced (among those who knew of it) but that, in the long term, expectations returned to the baseline.⁸⁸ From this they conclude that “the circularity of reasonable expectations of privacy is a myth.”⁸⁹

But showing there is little lasting impact—even where there is a significant immediate impact—of one individual case hardly proves that Katzian circularity is a “myth.” Even with Kugler and Strahilevitz's single-case methodology, they only tested one aspect of the circularity problem: whether court

surveillance without any trespass and without the seizure of any material object fell outside the ambit of the Constitution, we have since departed from the narrow view on which that decision rested.” (quoting *Warden, Md. Penitentiary v. Hayden*, 387 U.S. 294, 304 (1967))).

85. As it pertains to real property, trespass is defined in part as where a person “intentionally: (a) enters land in the possession of the other, or causes a thing or a third person to do so” regardless of whether any harm is done with that entry. RESTATEMENT (SECOND) OF TORTS § 158 (AM. L. INST. 1965). By contrast, the Fourth Amendment deems that any unauthorized entry onto open fields, even if part of the person's real property or land, even if owned in fee simple, is not recognized as a constitutional violation. *See Hester v. United States*, 265 U.S. 57, 59 (1924) (“[T]he special protection accorded by the Fourth Amendment to the people in their ‘persons, houses, papers, and effects,’ is not extended to the open fields.”); *Oliver v. United States*, 466 U.S. 170, 177 (1984) (“[T]he government's intrusion upon the open fields is not one of those ‘unreasonable searches’ proscribed by the text of the Fourth Amendment.”).

86. Kugler & Strahilevitz, *supra* note 28, at 1751.

87. *Id.* at 1777.

88. *Id.* at 1781.

89. *Id.* at 1750.

pronouncements shape expectations (problem 1b). They did not test how courts ascertain those societal expectations (problem 1a). And they did not test the two other types of circularity problems at all: government manipulation or judicial ossification. Accordingly, Kugler and Strahilevitz's minimization of the circularity problem goes beyond their evidence. Ultimately, Kugler and Strahilevitz's findings show that one single case *can* dramatically affect people's expectations of privacy on an issue; the fact that the effect did not last for years hardly shows that there is not a Katzian circularity problem.

Further, there is empirical evidence of the flipside of the *judicial self-reflection circularity problem* (1a). As discussed in Section I.E.2, Slobogin and Schumacher find clear disconnects between judicial pronouncements of societal expectations and the actual societal views that courts claim to reflect.⁹⁰ This suggests that courts may not really be ascertaining societal expectations of privacy, but rather imposing their own views and calling them society's views.

E. *Beyond Manipulation: What Shapes Expectations?*

Katzian analysis assumes that people in society maintain clear, stable expectations about privacy. Katzian circularity can arise if those expectations are not stable, but are instead malleable. In this Section, we show there is good reason to expect that expectations are malleable and, thus, that Katzian circularity problems are likely to arise in fact—a hypothesis we test in Part II. Further, we show that judges' assessments of societal expectations are unlikely to be any more reliable.

1. Evidence of the Malleability of Expectations

In the social science literature, research indicates that many opinions are malleable, fluctuating with additional information, shifting circumstances, or even small changes in manner of presentation.⁹¹ For example, issue frames—“alternative definitions, constructions, or depictions of a policy

90. Slobogin & Schumacher, *supra* note 11, at 738–42.

91. MICHAEL HANNON & JEROEN DE RIDDER, *The Point of Political Belief*, in THE ROUTLEDGE HANDBOOK OF POL. EPISTEMOLOGY 156, 163 (2021) (“[T]he majority of people lack stable, consistent, meaningful beliefs about political issues.”); Paul M. Sniderman & Sean M. Theriault, *The Structure of Political Argument and the Logic of Issue Framing*, in STUDIES IN PUBLIC OPINION 135 (2004) (“How citizens think about a public issue, it now is widely if not universally agreed, depends on how it is framed.”).

problem”—have been shown to substantially affect opinions in various contexts.⁹² In one study, all participants were told that a group with very extreme political views wanted to hold a public rally to express its ideas.⁹³ Half were asked, “*Given the importance of free speech* would you be in favor of or opposed to allowing this group to hold the rally?”⁹⁴ The other half were asked, “*Given the risk of violence* would you be in favor of or opposed to allowing this group to hold the rally?”⁹⁵ Approximately 85% favored allowing the rally with the former framing, versus only 45% with the latter.⁹⁶ Similar research shows that responses to opinion questions are often shaped by the *order* in which the questions are asked.⁹⁷

Such findings do not mean that people do not believe in anything; studies also show that core beliefs and opinions remain relatively stable within individuals.⁹⁸ But there is strong evidence that many peripheral or situation-specific beliefs and opinions can be influenced by contextual factors.

There is little reason to think that our beliefs about privacy expectations are core beliefs, clearly defined in our minds and waiting for us to consult them when asked. If they are like other non-core beliefs and opinions, then the expectations of privacy that courts discern are prone to variation, including due to the provision of just small amounts of information or the way an issue is framed. Accordingly, the problem of Katzian circularity need not arise only from governmental actors taking massive intrusive actions, such as the NSA surveillance program; it takes just a nudge.

At least one Supreme Court Justice has recognized malleability as part of the problem of Katzian circularity. As Justice Alito has recognized:

[T]he *Katz* test rests on the assumption that this hypothetical reasonable person has a well-developed and stable set of privacy expectations. But technology can change those expectations. Dramatic

92. Thomas E. Nelson & Zoe M. Oxley, *Issue Framing Effects on Belief Importance and Opinion*, 61 J. POL. 1040, 1041 (1999).

93. Sniderman & Theriault, *supra* note 91, at 151.

94. *Id.*

95. *Id.*

96. *Id.* at 152.

97. David W. Moore, *Measuring New Types of Question-Order Effects: Additive and Subtractive*, 66 PUB. OP. Q. 80, 81–83 (2002).

98. See, e.g., John T. Jost, *The End of the End of Ideology*, 61 AM. PSYCH. 651, 654 (2006) (distinguishing between “core (stable) and peripheral (potentially malleable) aspects of ideological belief systems”).

technological change may lead to periods in which popular expectations are in flux and may ultimately produce significant changes in popular attitudes.⁹⁹

Accordingly, in Part II, we test how malleable individuals' expectations are to influence. But, of course, judges are people, too, so we next turn to the question of whether judges are likely to be equally subject to this malleability.

2. Are Judges Getting It Right or Wrong?

If judges engaging in Katzian analysis genuinely aim to ascertain and reflect societal expectations of privacy, they face a difficult task. If in ascertaining society's expectations of privacy, judges are equally subject to malleability in their expectations, then malleability of expectations is a greater problem than the foregoing analysis suggests. This is because any malleability that judges are subject to could manifest in two potentially reinforcing ways: first, as individuals with malleable expectations, and second, as decisionmakers attempting to ascertain others' malleable expectations. But perhaps judges have special skills that enable them to see through the problem of malleability of individual expectations and ascertain the true core of social expectations, mitigating the problem. However, judges may lack such special skills or may even be particularly bad at ascertaining expectations, due to particular additional cognitive biases to which judges are subject. This Section considers these vying possibilities and shows that there are cognitive biases and perspectival limitations that could make it especially hard for judges to accurately assess society's expectations.

Studies do not indicate that judges have a special power to identify societal expectations. Instead, they show that societal expectations are often at odds with judicial pronouncements of those expectations, meaning that "courts often misjudge what 'society' is prepared to embrace as a reasonable expectation of privacy."¹⁰⁰ In the first, and still most influential, study of the discord between societal expectations and judicial pronouncements thereof, Slobogin and Schumacher (1993) asked 217 participants about their perceptions of the intrusiveness of government investigative methods.¹⁰¹ They

99. *United States v. Jones*, 565 U.S. 400, 427 (2012) (Alito, J., concurring).

100. Henry F. Fradella, Weston J. Morrow, Ryan G. Fischer & Connie Ireland, *Quantifying Katz: Empirically Measuring "Reasonable Expectations of Privacy" in the Fourth Amendment Context*, 38 AM. J. CRIM. L. 289, 372 (2011).

101. Slobogin & Schumacher, *supra* note 11.

found that ordinary people rank the different intrusions in roughly similar order to the Supreme Court, for example with enforced surgery considered far more intrusive than a search of a jail cell.¹⁰² However, the results in absolute terms are far less supportive of Supreme Court Justices' ability to ascertain societal expectations; many Court holdings that certain actions did not implicate privacy interests were at odds with the public's view of such actions as very intrusive.¹⁰³ For instance, while the Court has concluded that various police undercover activities and police access to bank records are not subject to Fourth Amendment protections,¹⁰⁴ Slobogin and Schumacher found that people considered these actions highly intrusive.¹⁰⁵

Several scholars have updated and extended the Slobogin–Schumacher study. Professor Matthew Tokson surveyed seventy-one law students who regularly used the internet, to “assess attitudes about the invasiveness of various potential privacy harms.”¹⁰⁶ He found that “Internet users distinguish between exposure to human beings and exposure to automated systems.”¹⁰⁷ Respondents gave very high invasiveness rankings (between 9.0 to 9.8 out of 10) to scenarios where actual people viewed their bank records or listened in on their cell phone conversations, but they gave very low rankings (2.0 out of 10) for disclosures made to automated systems, such as anti-spam software automatically blocking a spam e-mail without scanning.¹⁰⁸ This human/technology distinction is at odds with numerous decisions by the Supreme Court, most notably *Smith v. Maryland*'s holding that “there is no legally relevant difference between disclosure of one's personal information to a

102. *Id.* at 739.

103. *Id.* at 740.

104. *See, e.g.,* *Hoffa v. United States*, 385 U.S. 293, 311 (1966) (“[T]he use of secret informers is not *per se* unconstitutional.”); *On Lee v. United States*, 343 U.S. 747, 758 (1952) (holding that the testimony of informers, however suspect their character, may raise questions of credibility but does not reach the Fourth Amendment); *United States v. White*, 401 U.S. 745, 751 (1971) (holding that recordings of conversations made by an agent or transmissions received by an agent to whom the defendant is talking do not violate the Fourth Amendment); *United States v. Miller*, 425 U.S. 435, 443 (1976) (explaining that “[t]he [bank] depositor takes the risk, in revealing his affairs to another, that the information will be conveyed by that person to the Government,” and thus there is no expectation of privacy in bank records).

105. Slobogin & Schumacher, *supra* note 11, at 740.

106. Matthew Tokson, *Automation and the Fourth Amendment*, 96 IOWA L. REV. 581, 622 (2011).

107. *Id.* at 624.

108. *Id.* at 624–25.

third party's automated systems and disclosure to a human being.”¹⁰⁹ On this more contemporary issue, Tokson's findings are consistent with Slobogin and Schumacher's conclusion that the Supreme Court is not an accurate assessor of societal expectations.

Likewise, Professors Henry Fradella, Weston Morrow, Ryan Fischer, and Connie Ireland expanded on the Slobogin–Schumacher study with more participants (589) and updated methods.¹¹⁰ Asking questions about different fact patterns mimicking precedents, they found that “respondents concurred with precedent providing Fourth Amendment protection to bodily privacy while generally disagreeing with cases which upheld invasions of bodily privacy as ‘reasonable.’”¹¹¹ They also found that expectations of privacy concerning property “run contrary to the overwhelming number of Fourth Amendment warrant exceptions.”¹¹² Similarly, Professors Bernard Chao, Catherine Durso, Ian Farrell, and Christopher Robertson asked 1,200 participants about the intrusiveness of eighteen different investigative actions, finding that their “results for many of the [actions] conflict with the Supreme Court's historical judgments on the same police conduct.”¹¹³ These findings suggest that the Court underestimates society's expectations of privacy. Professors Jeremy Blumenthal, Meera Adya, and Jacqueline Mogle also expanded upon the Slobogin–Schumacher study, identifying multiple “dimensions that

109. *Id.* at 600. For discussion of the human/technology distinction in the Fourth Amendment context, see Christopher Brett Jaeger & Daniel T. Levin, *If Asimo Thinks, Does Roomba Feel? The Legal Implications of Attributing Agency to Technology*, 5 J. HUM.-ROBOT INTERACTION 3, 15–16 (2016) (arguing that interpretation of a defendant's reasonable expectations of privacy in information disclosed to an in-home robot depends in part “on the set of attributions . . . ma[d]e to the robot”).

110. Fradella, Morrow, Fischer & Ireland, *supra* note 100, at 342, 346.

111. *Id.* at 343–45, 352–53, 362.

112. *Id.* at 363–64.

113. Bernard Chao, Catherine Durso, Ian Farrell & Christopher Robertson, *Why Courts Fail to Protect Privacy: Race, Age, Bias, and Technology*, 106 CALIF. L. REV. 263, 294, 300–01, 307 (2018); *see also* Christine S. Scott-Hayward, Henry F. Fradella & Ryan G. Fischer, *Does Privacy Require Secrecy? Societal Expectations of Privacy in the Digital Age*, 43 AM. J. CRIM. L. 19, 52 (2015) (finding that, in tension with much of the pre-*Carpenter* precedent at the time, most of their sample of 1,198 participants thought that law enforcement should be required to obtain a warrant to access cell-site location information and cell phone geo-location data).

laypeople use in evaluating ‘privacy.’”¹¹⁴ They argued that most Fourth Amendment judicial opinions make “explicit psychological assumptions about perceptions and expectations of privacy, assumptions that are not necessarily supported by empirical findings.”¹¹⁵ Further, they found that there are considerations that laypeople consider significant, such as the seriousness of the crime, that the Court does not consider.¹¹⁶ Blumenthal, Adya, and Mogle conclude that without considering such factors, “there will be an important disconnect between black-letter law and lay perceptions.”¹¹⁷

Finally, Professor Marc McAllister tested Justice Sonia Sotomayor’s hypothesis in her concurring opinion in *United States v. Jones*,¹¹⁸ where she “doubted whether *today’s* society would accept the warrantless disclosure of a list of every Web site they had visited, the e-mail addresses with which they have corresponded, and the phone numbers they have dialed.”¹¹⁹ McAllister surveyed 216 participants for their views on whether a warrant should be required in such circumstances and found, as predicted by Justice Sotomayor, that 63% percent of participants believed a warrant should be required,¹²⁰ which he concluded contradicts the voluntary-assumption-of-risk doctrine.¹²¹

Study after study has shown that there is discord between cases that are based on judges’ assessment of societal expectations of privacy and social science assessments of actual societal expectations of privacy. It seems, then, that judges are not somehow overcoming the ambiguity of societal expectations but are failing to correctly ascertain those expectations.

Studies that examine whether judges have particular cognitive biases may help explain why precedent on social expectations is so misaligned with actual expectations. Slobogin

114. Jeremy A. Blumenthal, Meera Adya & Jacqueline Mogle, *The Multiple Dimensions of Privacy: Testing Lay “Expectations of Privacy,”* 11 U. PA. J. CONST. L. 331, 333 (2009).

115. *Id.* at 332.

116. *Id.* at 353.

117. *Id.*

118. 565 U.S. 400, 417–18 (2012) (Sotomayor, J., concurring).

119. Marc C. McAllister, *The Fourth Amendment and New Technologies: The Misapplication of Analogical Reasoning*, 36 S. ILL. U. L.J. 475, 481 (2012).

120. *Id.* at 512.

121. *Id.* at 520 (finding that 86.1% of respondents “disagreed with the proposition that whenever a defendant exposes his otherwise private information to a third party, such as a cell phone company, the defendant has knowingly exposed that same information to law enforcement”).

and Schumacher hypothesized, and found evidence supporting, multiple different explanations for why judges may be unable to accurately gauge societal expectations.¹²² First, judges may be subject to the cognitive bias of “*distancing*”—due to the judicial selection process, judges are unlikely to have personal experience with police intrusions, and they might undervalue the intrusiveness of searches that happen to other people.¹²³ Slobogin and Schumacher tested this by differentiating between respondents’ assessment of intrusions described as occurring to the respondent themselves (the first-person condition) and those presented as occurring to someone else (the third-person condition).¹²⁴ Intrusions presented in the first-person condition were perceived as more intrusive than those presented in the third-person, and because judges generally, and appellate judges and Supreme Court Justices particularly, are likely to analyze cases in the third-person, it is unsurprising that their conclusions are skewed.¹²⁵

Second, judges may be uniquely prone to a kind of confirmation bias. Police action may be seen as justified for two reasons: *knowledge bias*, whereby judges underestimate the intrusiveness of a search because they have knowledge of the reasons police were doing the search, and *hindsight bias*, because judges ordinarily see cases only in which searches are successful and evidence is found, so they come to undervalue the innocent person’s sense of invasion.¹²⁶ Slobogin and Schumacher found evidence of both of these cognitive biases: respondents consistently find actions less intrusive when they are told the motivation for the search and that there is evidence that the search was successful.¹²⁷

Augmenting Slobogin and Schumacher’s analysis of cognitive biases, Tokson noted that “judges are well-informed socioeconomic elites who are likely to systematically

122. Slobogin & Schumacher, *supra* note 11.

123. *Id.* at 734, 760.

124. *Id.* at 759; see also Jacquelyn Burkell, *Deciding for Ourselves: Some Thoughts on the Psychology of Assessing Reasonable Expectations of Privacy*, 50 CANADIAN J. CRIMINOLOGY & CRIM. JUST. 307, 311–13, 318 (2008) (discussing hindsight and selection bias).

125. Slobogin & Schumacher, *supra* note 11, at 759–60; Chao, Durso, Farrell & Robertson, *supra* note 113, at 299 (finding first-person bias also).

126. Slobogin & Schumacher, *supra* note 11, at 734.

127. *Id.* at 759. This result was also supported by findings of Chao, Durso, Farrell, & Robertson, *supra* note 113, at 298, and Blumenthal, Adya, & Mogle, *supra* note 114, at 353. See generally Burkell, *supra* note 124 (discussing empirical literature on perceptions of intrusiveness).

overestimate societal knowledge.”¹²⁸ Similarly, Professor Lindsey Barrett argued that the “judiciary is also more likely to be aware of technological risks, less likely to have had personal interactions with the criminal justice system, and likely to overestimate the average person’s understanding of how privacy and surveillance works.”¹²⁹ Accordingly, judges themselves may have non-representative expectations of privacy, and they may ascribe such expectations to the public.¹³⁰

Moreover, judges are likely to socialize and work with other similarly unrepresentative individuals. Their unrepresentative peers are likely to reflect back their own unrepresentative views, contributing to an echo chamber effect whereby judges’ unrepresentative expectations are self-reinforcing.¹³¹

II. TWO EMPIRICAL TESTS OF THE SIX POTENTIAL FORMS OF KATZIAN CIRCULARITY

Under *Katz*, whether government action runs afoul of the Fourth Amendment depends on whether it violates privacy expectations viewed as reasonable by society.¹³² But are societal views about privacy stable or malleable? If they are malleable, what types of information influence them? To investigate these open empirical questions, we designed and conducted two studies, a survey and an experiment. Together, the studies address the impact of two potential influences on societal privacy views frequently discussed in the Fourth Amendment literature: (1) law and policy and (2) social scientific data.

Study One is a survey examining the relationship between judicial precedent and policing policies on one hand and societal privacy expectations on the other. Precedent regarding many of

128. Matthew Tokson, *Knowledge and Fourth Amendment Privacy*, 111 NW. U. L. REV. 139, 172 (2016).

129. Barrett, *supra* note 36, at 6.

130. *Id.*

131. See Petter Törnberg, *Echo Chambers and Viral Misinformation: Modeling Fake News as Complex Contagion*, 13 PLOS ONE, no. 9, 2018, at 1, 1, <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0203958> [<https://perma.cc/LTP7-RQBK>] (showing that social networks exacerbate the spread of misinformation due to an “echo chamber effect,” which “reinforce[s] existing perspective[s] and foster[s] confirmation biases”).

132. The test also hinges on whether a subjective expectation of privacy is held by the individual, but this element of the Katzian analysis is generally recognized as secondary, if not largely irrelevant. See generally Orin S. Kerr, *Katz Has Only One Step: The Irrelevance of Subjective Expectations*, 82 U. CHI L. REV. 113 (2015) (describing the subjective prong as a “phantom” doctrine).

the investigative techniques studied by Slobogin and Schumacher has accumulated and hardened over the thirty years since their seminal paper. Key decisions have informed policy changes and become (more) embedded in popular consciousness and police protocols. But have privacy expectations related to these investigative techniques shifted? Study One adapts Slobogin and Schumacher's methodology to assess how attitudes about privacy have changed (or not changed) since 1993. It also probes, indirectly, the risk of *ossification*, evaluating whether lay decisionmakers view investigative techniques involving newer technologies as more intrusive than older technologies. The study likely also has implications for judges because we have seen that judges are no less prone to cognitive biases. If judges are more likely to determine that an investigative use of a new technology runs afoul of the Fourth Amendment, that determination could shape future expectations related to the technology (particularly as police policies and additional precedents harden around the initial determination).

Study Two is an experiment probing to what extent social science data influences whether privacy expectations are viewed as reasonable. Comments from several scholars¹³³—and multiple Justices¹³⁴—suggest that social science evidence, such as polling and survey data, could usefully anchor Fourth Amendment analysis. But could such evidence instead influence privacy views? We address this question by first presenting participants with social science evidence about others' expectations of privacy and then measuring the extent to which that evidence influences whether our participants

133. David L. Faigman, *Scientific Realism in Constitutional Law*, 73 BROOK. L. REV. 1067, 1070 (2008); Chao, Durso, Farrell & Robertson, *supra* note 113, at 265–66; D. Benjamin Barros, *Legal Questions for the Psychology of Home*, 83 TUL. L. REV. 645, 645 (2009); Tracey L. Meares & Bernard E. Harcourt, *Foreword: Transparent Adjudication and Social Science Research in Constitutional Criminal Procedure*, 90 J. CRIM. L. & CRIMINOLOGY 733, 735 (2000).

134. *Illinois v. Wardlow*, 528 U.S. 119, 124–25 (2000) (“In reviewing the propriety of an officer’s conduct, courts do not have available empirical studies dealing with inferences from suspicious behavior, and this Court cannot reasonably demand scientific certainty when none exists. Thus, the reasonable suspicion determination must be based on commonsense judgments and inferences about human behavior.”). Transcript of Oral Argument at 43, *Brendlin v. California*, 551 U.S. 249 (2007) (No. 06-8120) (“So what do we do if we don’t know? I can follow my instinct. My instinct is he would feel he wasn’t free because the red light’s flashing. That’s just one person’s instinct. Or I could say, let’s look for some studies. They could have asked people about this, and there are none. . . . What should I do? . . . Look for more studies?”).

accept these expectations as reasonable. This inquiry offers an initial glimpse into how social science evidence might influence judges.¹³⁵ It also proffers a window through which to observe the malleability of lay privacy expectations and, more specifically, the relevance of information about others' beliefs to whether a member of society considers expectations of privacy reasonable.

One sample of participants completed Studies One and Two, in that order.¹³⁶ We recruited this sample through Amazon Mechanical Turk,¹³⁷ an online platform that researchers frequently use to secure participants for empirical studies.¹³⁸ Mechanical Turk has the advantage of drawing from a more representative group of participants than traditional student-based studies.¹³⁹ Further, studies indicate that the data

135. Decisionmaking research on judges suggests that their decisions may be shaped by many of the same inputs as decisions by laypeople. *See, e.g.*, Andrew J. Wistrich, Chris Guthrie & Jeffrey J. Rachlinski, *Can Judges Ignore Inadmissible Information? The Difficulty of Deliberately Disregarding*, 153 U. PA. L. REV. 1251, 1323 (2005); Chris Guthrie, Jeffrey J. Rachlinski & Andrew J. Wistrich, *Inside the Judicial Mind*, 86 CORNELL L. REV. 777, 784 (2001); Jeffrey A. Segal, Avani Mehta Sood & Benjamin Woodson, *The "Murder Scene Exception"—Myth or Reality? Empirically Testing the Influence of Crime Severity in Federal Search-and-Seizure Cases*, 105 VA. L. REV. 543, 553–56 (2019) (contending that judges may be influenced by these inputs, but “potentially less so than lay decision-makers”).

136. Study Two addresses the conceptually preliminary question of whether expectations are malleable and Study One addresses the conceptually subsequent question of how that malleability actually manifests. But we present Study One before Study Two because participants took Study One first and we use some of the Study One results to further test aspects of Study Two. *See infra notes* 192, 196, and accompanying text.

137. Specifically, the study was constructed using IBM's Qualtrics survey software, <https://www.qualtrics.com> [<https://perma.cc/UCR9-MZ4Z>]. Participants were recruited through Amazon Mechanical Turk, where they followed a link to the Qualtrics survey.

138. *See, e.g.*, Roseanna Sommers & Vanessa K. Bohns, *The Voluntariness of Voluntary Consent: Consent Searches and the Psychology of Compliance*, 128 YALE L.J. 1962, 1988 (2019); Avani Mehta Sood, *Attempted Justice: Misunderstanding and Bias in Psychological Constructions of Criminal Attempt*, 71 STAN. L. REV. 593, 614 (2019).

139. *See, e.g.*, Krin Irvine, David Hoffman & Tess Wilkinson-Ryan, *Law and Psychology Grows Up, Goes Online, and Replicates*, 15 J. EMPIRICAL LEGAL STUD. 320, 326 (2018); Adam J. Berinsky, Gregory A. Huber & Gabriel S. Lenz, *Evaluating Online Labor Markets for Experimental Research: Amazon.com's Mechanical Turk*, 20 POL. ANALYSIS 351, 366 (2012); Jeremy Kees, Christopher Berry, Scott Burton & Kim Sheehan, *An Analysis of Data Quality: Professional Panels, Student Subject Pools, and Amazon's Mechanical Turk*, 46 J. ADVERT. 141, 152 (2017).

collected through Mechanical Turk is as reliable as data collected with traditional recruitment methods.¹⁴⁰

We initially recruited 150 participants. To ensure genuine participation by separate individuals who were paying attention, 32 responses were excluded pursuant to a priori exclusion criteria.¹⁴¹ The final sample consisted of 118 English-speaking U.S. residents. Power analyses indicated that the final sample size of 118 participants provided ample power for our study designs.¹⁴² 72 participants were male and 46 were female. Their ages ranged from 23 years to 70 years, with an average age of 42.14 years. Seventy-seven participants reported having at least a college degree; 17 of those 77 had additional higher-level degrees.

Participants completed a consent form, then viewed general instructions. The instructions stated that participants would be asked about their privacy beliefs, stressing that the study sought their *personal* beliefs and *not* what they think others

140. Irvine, Hoffman & Wilkinson-Ryan, *supra* note 139, at 322 (finding that participants on Mechanical Turk “are significantly more attentive than subjects in other subject pools”).

141. First, because we wanted to be certain that no participants took the study more than once, we excluded any responses that came from (1) the same Mechanical Turk ID as a prior or contemporaneous response [one response excluded], (2) the same geographic location as a prior or contemporaneous response [twenty-three responses excluded], or (3) the same IP address as a prior or contemporaneous response [zero responses excluded]. Second, because we wanted to exclude participants who did not pay attention to study materials, we excluded participants who missed two of three basic attention check questions [eight participants excluded].

142. Compared to between-participants study designs, which often require large numbers of participants, within-participants designs require fewer participants to detect effects. *See, e.g.,* Amanda K. Montoya, *Selecting a Within-or Between-Subject Design for Mediation: Validity, Causality, and Statistical Power*, 58 MULTIVARIATE BEHAV. RSCH. 616, 624 (2023) (“The ability for within-subject designs to detect effects with greater precision than between-subject designs is well-documented.”). For our focal study, Study Two, power analysis suggested a sample of at least fourteen participants to achieve .8 power for detecting effect sizes of $f=.335$ within participants’ repeated-measure responses. We selected an effect size of $f=.335$ for this analysis because it approximates the smallest effect sizes observed in previous research on how information about others influences lay reasonableness determinations. *See* Christopher Brett Jaeger, *The Empirical Reasonable Person*, 72 ALA. L. REV. 887, 931 (2021). For Study One, retrospective power analysis also indicated that our sample size was more than sufficient. The median effect size we observed in Study One was $d=.519$. Our sample of 118 participants gave us an achieved power of .94 (over the customary threshold of .8) for detecting differences of an effect size of $d=.519$ between our findings and Slobogin and Schumacher’s earlier findings (with a Bonferroni-corrected alpha of .0033). Power analyses were conducted using G*Power software (version 3.1.9.7).

think or what they think the law is. The instructions explained that the first set of questions they encountered (Study One) would ask them to rate the intrusiveness of certain methods of police investigation and that a second set of questions (Study Two) would ask them to rate the degree to which they think people have a reasonable expectation of privacy in certain types of information. Participants were told to assume any facts presented to them were true and to answer questions accordingly. To facilitate comprehension, participants were required to answer a question about the general instructions correctly before moving on to Study One.

After completing both studies, participants answered attention check questions¹⁴³ and provided basic demographic information. Participants took an average of 14.2 minutes to complete both studies.¹⁴⁴ Participants were compensated for their time. Procedures specific to Studies One and Two, and the results of those studies, are detailed in Sections II.A and II.B, respectively. Section II.C provides a global summary and discusses key findings.

A. Study One: The Survey

As previously discussed, many scholars and jurists worry that judicial precedent and government policies may shape the societal expectations on which Fourth Amendment analysis rests. Yet prior empirical studies—including Slobogin and Schumacher’s seminal 1993 study—have revealed discrete categories of investigative conduct for which lay views differed greatly from those implied by law.¹⁴⁵ We add to this empirical literature by interrogating whether privacy attitudes have come into closer alignment with Fourth Amendment precedent and government practices as the relevant law and policies have aged and hardened, testing some of Slobogin and Schumacher’s scenarios with a contemporary survey and a less student-heavy

143. The attention checks asked which of four concepts or phrases did *not* appear in the scenarios participants read. Consistent with our a priori exclusion criteria, we excluded eight participants who failed to answer two of three attention checks correctly. *See supra* note 141.

144. If this seems short, consider studies showing that judges spend much less time considering warrant applications. Jessica Miller, *New Data Show Utah Judges are Often Spending Less Than Three Minutes Viewing Warrants Before Approval*, SALT LAKE TRIB. (July 9, 2018, 9:20 AM), <https://www.sltrib.com/news/2018/07/09/new-data-shows-utah/> [<https://perma.cc/K79E-ANEB>] (“[N]early 60 percent [of warrants] were given the green light in less than three [minutes], and 3 percent were approved in under 30 seconds.”).

145. Slobogin & Schumacher, *supra* note 11, at 739–40.

sample of participants. Our results align closely with Slobogin and Schumacher, suggesting that societal views have not moved to closer reflect Supreme Court precedent over time—with one noteworthy exception. Our results also provide preliminary evidence that participants view investigative techniques that involve modern technologies as more intrusive, consistent with the ossification theory.

1. Method

Study One consisted of a survey largely adapted from the Slobogin–Schumacher study. The Study One instructions asked participants to read twenty brief scenarios describing methods that police use or might use to search for evidence of a crime and then to rate how intrusive they found those methods. The instructions specified that, for purposes of the study, “intrusive” police methods are those that invade the “privacy or autonomy” of the person being investigated.¹⁴⁶ Participants were instructed to assume that the person being investigated in each scenario (i) was innocent and (ii) did not consent to the police methods used, as in the Slobogin–Schumacher study.¹⁴⁷

After participants correctly answered an instruction comprehension check, they saw a new screen containing the same Study One instructions and the twenty scenarios. All twenty scenarios were presented on the same scrollable screen, along with the instructions, allowing participants to freely revisit the instructions and their answers to prior scenarios.

The twenty scenarios ranged from four to twenty-five words. All are presented in their entirety in Table 1 below. Just as in the Slobogin–Schumacher study, participants rated each scenario on a scale from “0 = Not At All Intrusive” to “100 = Extremely Intrusive.”¹⁴⁸ Fifteen of the twenty scenarios were adapted directly from the Slobogin–Schumacher study (labeled the “S&S Scenarios” in column 1 of Table 1). We also included five new scenarios that involve more modern technology (labeled the “J&J Scenarios” in column 1 of Table 1). This allowed us to probe whether participants might find investigative techniques that involve newer technology more intrusive.

146. Similarly, Slobogin and Schumacher told participants that their ratings should reflect “the extent to which they considered each method an ‘invasion of privacy or autonomy.’” *Id.* at 736.

147. *Id.*

148. *Id.*

2. Hypotheses

As discussed, Slobogin and Schumacher showed that, thirty years ago, lay people's expectations of privacy differed considerably from the Supreme Court's characterization of those expectations in multiple doctrinal realms.¹⁴⁹ If we were to find similar results now, despite the intervening decades and our older, less student-driven sample, this would indicate the ongoing effect of Katzian circularity problem 1a, *judicial self-reflection*.

We were particularly interested in whether our results would differ from Slobogin and Schumacher's results with respect to two "barometer" scenarios: (i) "[p]olice using person's workplace secretary as an undercover agent" and (ii) "[p]olice perusing person's bank records." Slobogin and Schumacher identified these scenarios as prime examples of disagreement between Supreme Court holdings and lay privacy views.¹⁵⁰ Supreme Court precedent establishes that these techniques do not violate reasonable expectations of privacy and therefore do not raise Fourth Amendment problems—one always "takes the risk, in revealing his affairs to another, that the information will be conveyed by that person to the Government."¹⁵¹ Yet, Slobogin and Schumacher's participants rated these two scenarios among the most intrusive, scoring them higher than investigative methods that are subject to greater Fourth Amendment protection, such as searches of a car.¹⁵² Given that the law on these fronts has not changed meaningfully since 1993,¹⁵³ these two scenarios are also useful barometers in our study. If stable judicial precedent and investigative practices grounded in that precedent influence societal expectations of privacy, then lay expectations should shift toward precedent over time. Thus, if our participants rated these two scenarios as less intrusive than Slobogin and Schumacher's participants did, it would support the hypothesis that judicial precedent influences societal expectations—implicating *judicial self-reflection circularity* 1b.

Additionally, Study One affords a window into the potential risk of *judicial ossification*, 3a and 3b.¹⁵⁴ Ossification is a risk

149. *Supra* Section I.E.2.

150. Slobogin & Schumacher, *supra* note 11, at 740.

151. *United States v. Miller*, 425 U.S. 435, 443 (1976).

152. Slobogin & Schumacher, *supra* note 11, at 740.

153. *See United States v. Jones*, 565 U.S. 400, 417 (2012) (Sotomayor, J., concurring) (suggesting that the third-party doctrine needs to be updated).

154. *See supra* Section I.C.

where decisionmakers find investigative techniques that leverage new technologies more intrusive than those that do not, because judicial decisions made about technologies while they are new could influence expectations about those technologies moving forward. If our participants tend to assume newer technologies are more intrusive, then we would expect participants to find the J&J Scenarios, on average, more intrusive than the S&S Scenarios. In particular, two of our new J&J Scenarios directly update two S&S Scenarios. Slobogin and Schumacher asked participants to rate the intrusiveness of police “flying 400 yards above backyard in helicopter” and of “fingerprinting in back of police car.”¹⁵⁵ The equivalent J&J Scenarios with more modern technologies are “Police flying a drone 400 yards above a person’s fenced backyard with camera recording the ground” and “Police checking a person’s fingerprints with a portable fingerprint scanner.”

3. Analyses and Results

Table 1 summarizes the means and standard deviations of the intrusiveness ratings for all twenty scenarios. For the fifteen S&S Scenarios, we list the corresponding intrusiveness ratings from Slobogin and Schumacher as well as *t*-tests comparing their results to ours (with a measure of effect size, Cohen’s *d*, reported for each comparison).¹⁵⁶

Table 1. *Summaries of the intrusiveness ratings for the twenty scenarios in Study One*

	Scenario	J&J Mean (SD) [Rank]	S&S Mean ¹⁵⁷ (SD) [Rank]	t-value	p-value	Cohen’s d
1 ^{SS}	Police inspecting exterior of car in public lot	35.98 (30.83) [15]	19.46 (21.98) [15]	5.68	<.001***	.617
2 ^{SS}	Police questioning person on public	46.40 (28.30) [14]	69.45 (33.16) [5]	-6.39	<.001***	.748

155. Slobogin & Schumacher, *supra* note 11, at 762–63.

156. With respect to Cohen’s *d*, researchers in the social sciences typically consider differences of .2 standard deviations (*d*=.2) to be “small,” differences of .5 standard deviations to be “medium-sized,” and differences of .8 standard deviations to be “large.” See, e.g., Marnie E. Rice & Grant T. Harris, *Comparing Effect Sizes in Follow-Up Studies: ROC Area, Cohen’s d, and r*, 29 L. & HUM. BEHAV. 615, 617 (2005).

157. Slobogin & Schumacher, *supra* note 11, at 738–39.

	sidewalk for 10 minutes					
3 ^{ss}	Police dog sniffing person's body	57.14 (26.90) [13]	58.33 (31.58) [10]	-0.35	=.729	.041
4 ^{ss}	Police going through garbage in opaque bags at curbside	57.65 (30.50) [12]	44.95 (30.85) [12]	3.61	<.001***	.414
5 ^{ss}	Police following pedestrian in police car	58.52 (25.80) [11]	32.73 (39.85) [14]	7.16	<.001***	.768
6 ^{ss}	Police stopping all drivers at roadblock to view occupants of cars	59.45 (27.09) [10]	37.06 (29.55) [13]	6.82	<.001***	.631
7 ^{ss}	Police watching person in his or her front yard from afar with binoculars	66.78 (28.11) [9]	68.63 (24.34) [7]	-0.70	=.486	.070
8 ^{ss}	Police obtaining person's voiceprint	70.78 (27.19) [8]	48.21 (31.74) [11]	6.53	<.001***	.764
9 ^{ss}	Police looking in trunk of car on public street	71.17 (21.98) [7]	67.2 (31.77) [8]	1.21	=.228	.145
10 ^{ss}	Police searching a sixth-grader's locker	73.93 (24.06) [6]	60.32 (28.26) [9]	4.43	<.001***	.519
11 ^{ss}	Police using person's workplace secretary as undercover agent	84.03 (17.92) [5]	68.98 (32.32) [6]	4.68	<.001***	.576
12 ^{ss}	Police following person to a urinal at his workplace and listening	84.50 (20.06) [4]	72.49 (26.43) [3]	4.31	<.001***	.512

	for sounds of urination					
13 ^{SS}	Police perusing person's bank records	86.43 (17.52) [3]	71.60 (24.81) [4]	5.76	<.001***	.691
14 ^{SS}	Police searching person's bedroom	87.28 (16.42) [2]	85.23 (18.45) [2]	1.01	=.314	.117
15 ^{SS}	Police reading person's personal diary	91.31 (14.85) [1]	85.56 (20.73) [1]	2.66	=.008	.319
16 ^{JJ}	Police officers wear special "smart" glasses that use facial recognition software to automatically check if nearby people match wanted lists, be-on-the-lookout lists, etc.	60.91 (31.56)				
17 ^{JJ}	Police checking person's fingerprints with portable fingerprint scanner	63.41 (28.11)				
18 ^{JJ}	Police checking person's retinas with portable retina scanner	78.61 (23.23)				
19 ^{JJ*}	Police flying a drone 400 yards above person's fenced backyard with camera recording the	80.61 (21.87)				

	ground					
20 ^{JJ}	Police covertly placing small electronic microphone on person's office desk	89.00 (17.29)				

Results are ordered from least intrusive to most intrusive first for S&S Scenarios and then the J&J Scenarios. Relative rankings of all fifteen S&S Scenarios, both in our study and in Slobogin and Schumacher's 1993 study, are reported in brackets. Scenarios denoted in bold in the left-hand column have been deemed by the Supreme Court to involve no expectation of privacy that society considers reasonable. Indications of statistically significant differences are based on a Bonferroni-adjusted alpha of .0033 (which we computed by dividing the standard alpha value of .05 by 15).

As expected, the mean intrusiveness ratings for the fifteen S&S Scenarios in our study correlated closely with those observed in the original study.¹⁵⁸ The *rankings* of the scenarios by perceived intrusiveness were also closely correlated,¹⁵⁹ as summarized in Table 1.

None of the J&J Scenarios in Table 1 have been directly addressed by the Supreme Court, but the Court has deemed 8 of the 15 S&S Scenarios to involve no reasonable expectation of privacy. These eight, bolded in the left-most column, are scenarios 1, 3, 4, 5, 7, 8, 11, and 13.

The first thing to note is that there is no clear relationship between the level of intrusiveness that people perceive in a particular action and the Supreme Court's recognition of it as impinging on a reasonable expectation of privacy.¹⁶⁰ Police techniques ranging in intrusiveness assessments of 36 out of 100 (scenario 1, inspecting the outside of a person's vehicle) to 86 out of 100 (scenario 13, perusing a person's bank records)

158. $r=.768$, $p < .001$. This reflects the Pearson correlation coefficient between the average intrusiveness ratings of the fifteen S&S Scenarios in our study and the corresponding ratings in Slobogin and Schumacher's study.

159. $P=.761$, $p < .001$. This reflects Spearman's rho correlation coefficient between the rankings of scenario by intrusiveness rating in our study and those in Slobogin and Schumacher's study.

160. The point-biserial correlations between participants' mean intrusiveness ratings for a scenario, on one hand, and whether the Supreme Court has ruled the scenario does not involve a reasonable expectation of privacy, on the other, was statistically insignificant, $r=.28$, $p=.32$.

have been approved by the Court, without any requirement of a warrant, probable cause, or indeed any level of suspicion.

Further, scenarios 2, 6, 9, 10, and 12 all either require lower levels of suspicion than probable cause for police to conduct them—at least under some circumstances—or have not been addressed directly, but analogous cases suggest a lowered expectation or no expectation of privacy. For instance, whether scenario 12, following a person and listening for sounds of urination in a workplace bathroom, requires any level of suspicion depends on whether the police are justified in being in the workplace bathroom: if they are, then no warrant, probable cause, or even reasonable suspicion is required.¹⁶¹ The only two S&S Scenarios that always require probable cause are scenarios 14 and 15, searching a person's bedroom and searching a person's diary, respectively. These two scenarios received the highest levels of intrusiveness rankings; however, participants rated these two scenarios, on average, only a few points higher on the intrusiveness rating than the two barometer cases, scenarios 11 and 13, which do not require any suspicion or a warrant.

Thus, the first conclusion that we can draw from Table 1 is that there continues to be little correlation between what the Supreme Court deems to be society's reasonable expectations of privacy and society's impressions of the same, as Slobogin and Schumacher found thirty years ago. This provides support for Katzian circularity 1a, one half of the *judicial self-reflection circularity problem*: that judges are simply reflecting their own expectations or preferences when they claim to be identifying society's expectations. However, we found little support for Katzian circularity 1b, the other half of the *judicial self-reflection circularity problem*: we see little evidence that participants' privacy views have moved into closer alignment with precedent over time.

Interestingly, the average intrusiveness ratings in our study were significantly higher than those in the Slobogin–Schumacher study—over nine points higher when comparing the shared S&S Scenarios.¹⁶² There are many possible

161. *Coolidge v. New Hampshire*, 403 U.S. 443, 465–66 (1971) (noting that no warrant or probable cause is required when police are lawfully present in a location and observe evidence in plain view).

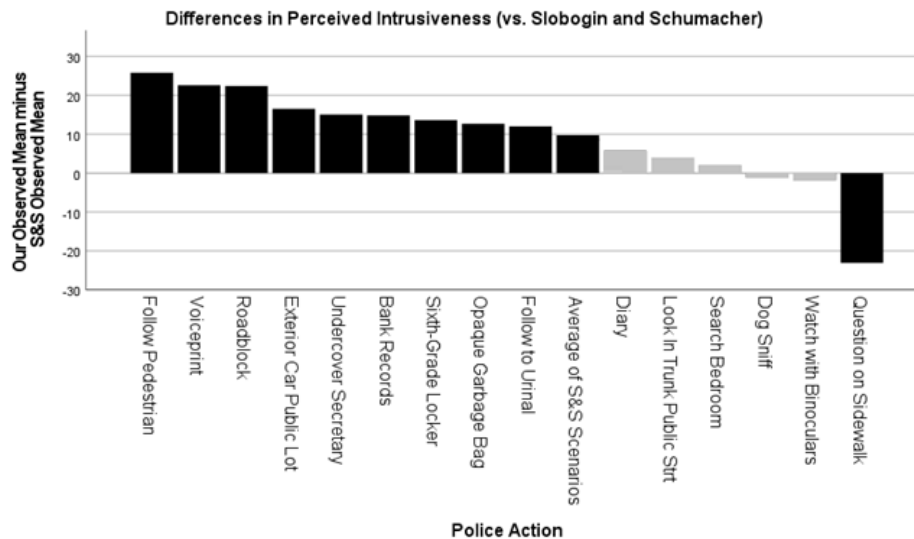
162. Our participants' mean intrusiveness rating for the S&S Scenarios was 68.76 (SD=24.38), which was 9.41 points higher than Slobogin and Schumacher's participants' mean intrusiveness rating for the S&S Scenarios (59.35, SD=28.90), a statistically significant difference, $t(333)=3.00$, $p=.0029$, $d=.350$.

explanations for this difference. On one hand, it may reflect meaningful social changes—deeper privacy concerns in an increasingly technological society or increased skepticism of investigative techniques at a moment when police reform is a burning political issue.¹⁶³ On the other hand, it may simply reflect differences in sample. Slobogin and Schumacher’s participants were primarily students, while our participants were older and more likely to have “real world” experience. Further, our sample was recruited through Amazon Mechanical Turk, which may attract participants who are particularly privacy conscious. Another possible explanation is context. Slobogin and Schumacher’s participants completed the S&S Scenarios along with thirty-five other scenarios; our participants completed the S&S Scenarios along with our five new J&J Scenarios. Whatever the reason, despite holding similar views of the *relative* intrusiveness of investigative techniques, our participants rated ten of fifteen techniques as significantly *more* intrusive than Slobogin and Schumacher’s participants did¹⁶⁴ and only one as significantly less intrusive. Figure 1 shows the differences between the mean ratings in our study and the mean ratings in their study. This defies the expectation of circularity 1b, judicial influence on expectations.

163. See *supra* notes 153–54.

164. An eleventh scenario—the “Diary” scenario—was also rated higher by our participants, $t(333)=2.66$, $p=.008$, but the .008 p-value is insignificant due to a conservative Bonferroni correction for repeated comparisons (which left the adjusted alpha for statistical significance at .003).

Figure 1. *Average intrusiveness rating, Study One minus Slobogin and Schumacher*



Bars shaded in black reflect statistically significant differences.

We found no evidence that participants' views of the two "barometer" scenarios—undercover secretary and perusing bank records—have shifted toward closer alignment with Supreme Court precedent over time. To the contrary, both the raw ratings of these scenarios¹⁶⁵ and their relative rankings¹⁶⁶ suggest that, if anything, our participants found them *more* intrusive than the Slobogin–Schumacher study participants did in 1993. These ratings did not, overall, provide support for the notion that judicial precedent affects societal expectations of privacy; this suggests that the *judicial self-reflection circularity problem 1b*—which receives the vast majority of circularity concern expressed by judges¹⁶⁷—is not ordinarily a major problem with *Katz*. Given the increasing conservatism of the Supreme Court since the Slobogin–Schumacher study was

165. Our participant ratings were greater than Slobogin & Schumacher's participant ratings (indicating greater perceived intrusiveness) for both the undercover secretary scenario (J&J mean=84.03; S&S mean=68.98) and the perusing bank records scenario (J&J mean=86.43; S&S mean=71.60), *see* Table 1.

166. Our participants ranked both the undercover secretary scenario (J&J rank=5; S&S rank=6) and the perusing bank records scenario (J&J rank=3; S&S rank=4) as more intrusive relative to the other scenarios than Slobogin & Schumacher's participants, *see* Table 1.

167. *See supra* Section I.D.1.

conducted in 1993,¹⁶⁸ if Katzian circularity problem 1b were in effect, then we would expect that society's privacy expectations, if anything, would decrease over time. The fact that assessments of intrusiveness seem instead to have increased casts further doubt on the 1b influence effect, even while the 1a self-reflection effect remains in evidence.

However, there is a noteworthy outlier in Figure 1 that could provide some support for the notion that judicial precedent or police protocols can affect societal expectations in some circumstances. While we generally observed significant increases in the intrusiveness ratings from the Slobogin–Schumacher study to ours, we did observe one significant *decrease* in intrusiveness rating. Our participants rated “[p]olice questioning person on public sidewalk for 10 minutes” as 23.05 points less intrusive on a scale from 0 to 100 than Slobogin and Schumacher’s participants did.¹⁶⁹ This scenario was the biggest mover in the rankings: rated fifth most intrusive of the fifteen S&S Scenarios in the original Slobogin–Schumacher study, it was rated fourteenth most intrusive in our study. We note that we did not make any *a priori* predictions about this scenario in particular, so interpreting it requires caution. However, we note one potentially sensible *post hoc* explanation of why *this* scenario was the outlier. Given the widespread street policing and “stop and frisk” policies that drew a lot of media attention¹⁷⁰—and controversy¹⁷¹—around the nation, people may have become used to the idea that ten

168. See, e.g., Stephen Jessee, Neil Malhotra & Maya Sen, *A Decade-Long Longitudinal Survey Shows That the Supreme Court is Now Much More Conservative Than the Public*, 119 PRO. NAT'L ACAD. SCI. 1, 1 (2022).

169. $t(333) = -6.39$, $p < .00001$.

170. See generally Shankar Vadantam, Tara Boyle, Renee Klahr, Maggie Penman & Jennifer Schmidt, *How a Theory of Crime and Policing Was Born, and Went Terribly Wrong*, NPR (Nov. 1, 2016, 12:00 AM), <https://www.npr.org/2016/11/01/500104506/broken-windows-policing-and-the-origins-of-stop-and-frisk-and-how-it-went-wrong> [<https://perma.cc/WQC6-PZDC>] (providing a brief history on “stop and frisk” policies and broken windows policing).

171. In *Floyd v. City of New York*, the Southern District of New York found that New York City had “violat[ed] plaintiffs’ Fourth and Fourteenth Amendment rights” through a pattern of “disproportionate and discriminatory stopping” of Black and Hispanic residents. 959 F. Supp. 2d 540, 562 (S.D.N.Y. 2013). Racial disparities in the impacts of stop-and-frisk policing were again brought to the fore during the Black Lives Matter protests in the summer of 2020. See, e.g., Audra D.S. Burch, Weiyi Cai, Gabriel Gianordoli, Morrigan McCarthy & Jugal K. Patel, *How Black Lives Matter Reached Every Corner of America*, N.Y. TIMES (June 13, 2020), <https://www.nytimes.com/interactive/2020/06/13/us/george-floyd-protests-cities-photos.html> [<https://perma.cc/JCM7-BG5V>].

minutes of engagement with a police officer does not impede a privacy interest. By contrast, most of the precedents that we find not to have an effect in shaping expectations receive little media and public attention. This interpretation is consistent with the notion that precedent shapes societal expectations—at least where that precedent leads to controversial policies and extensive media coverage.

These results mean that in terms of the second category of Katzian circularity problems, the two *government manipulation* effects, 2a and 2b, we have mixed results. Mostly, the fact that police routinely engage in numerous activities that a large majority of people consider to be intrusive does not seem to deflate people's assessment of the intrusiveness of those actions. Going through people's trash (rated, on average, 58 out of 100 in intrusiveness), following pedestrians on public streets (59), searching schoolchildren's lockers (74), and examining bank records (86), all without probable cause or a warrant, remain standard police techniques, yet are still considered highly intrusive. Police stopping individuals on the street for ten minutes is the only police action rated significantly less intrusive by our participants than by Slobogin and Schumacher's.

Finally, with respect to the third category of Katzian circularity problems, 3a and 3b, *judicial ossification*, our preliminary tests, consistent with our predictions, suggest that investigative techniques involving newer technologies are viewed as more intrusive than other techniques. Participants' intrusiveness ratings for the five J&J Scenarios were significantly higher than their ratings for the fifteen S&S Scenarios.¹⁷² Additionally, participants' average intrusiveness rating for our drone scenario was more than 40 points higher than the Slobogin–Schumacher participants' average intrusiveness rating for the Slobogin–Schumacher version

172. A paired-samples t-test revealed that participants' average intrusiveness rating for the J&J Scenarios (74.51) were significantly higher than their average intrusiveness ratings for the S&S Scenarios (68.76), $t(117)=4.82$, $p < .001$. This is concededly a very preliminary test, as participants may have found the J&J Scenarios more intrusive than the S&S Scenarios for reasons aside from the particular technologies involved. Future research might systematically examine how participants react to pairs of scenarios that vary only with respect to the technology involved—for example, identifying an individual in footage of a crowd via facial recognition software versus identifying an individual in footage of a crowd via human film review. See *infra* Section II.C.

involving a helicopter, a statistically significant difference.¹⁷³ The drone scenario ranked fifth most intrusive among our Study One scenarios; the helicopter version ranked in the bottom quintile of scenarios in the Slobogin–Schumacher study.¹⁷⁴ Together, these findings provide initial support for the idea that people consider investigative uses of newer technologies to be more intrusive. If courts, like our lay participants, view investigative use of newer technologies as particularly intrusive, it creates the potential for *judicial ossification*.¹⁷⁵

B. Study Two: The Experiment

Commentators have argued that courts should look to social science data to inform their Fourth Amendment analysis¹⁷⁶ where such data are available.¹⁷⁷ But, if such data are available, will they affect decisionmakers' views on privacy? Study Two probes this question through an original experiment. We tested whether individual beliefs of whether someone has a reasonable expectation of privacy in given information (such that police would need a warrant to access it) are influenced by social science evidence about *others'* beliefs. Participants responded to eight prompts, each of which described a different type of technologically stored information that police might seek. For each type of information, participants were told that “[s]tudies by social scientists have shown that” some (variable) proportion of people believe that police should need a warrant to access the information. We systematically varied these proportions, then measured the influence of this variation on participants' own beliefs. We found that the proportions had significant influence on participants' views about privacy. To the extent that judicial

173. $t(333)=12.70$, $p < .0001$. Participants' intrusiveness ratings of our portable fingerprint scanner scenario were also higher than the ratings of the corresponding fingerprinting S&S Scenario, though this difference fell short of statistical significance, $t(333)=1.75$, $p=.081$.

174. Slobogin & Schumacher, *supra* note 11, at 738.

175. See *infra* Section II.C for discussion of caveats.

176. E.g., Christopher Slobogin, *Proportionality, Privacy, and Public Opinion: A Reply to Kerr and Swire*, 94 MINN. L. REV. 1588, 1607 (2010) (“Honest judging would recognize that empirically derived privacy expectations are crucial in determining individual interests in Fourth Amendment cases.”); Slobogin & Schumacher, *supra* note 11, at 775 (arguing that polls should inform analysis “at least if community values remain the lynchpin of search and seizure jurisprudence”); see *infra* Part III.

177. Slobogin, *supra* note 176 (“In fairness to the courts and Professor Kerr, [facts about intrusiveness perceptions] are not easy to come by.”).

reasoning about privacy expectations parallels lay reasoning, our findings suggest that social scientific data would influence judges' Fourth Amendment analysis. But our findings also indicate that the expectations of lay members of society are sensitive to what others think, with just a single sentence summarizing purported social science evidence having moderate to large effects on participants' privacy expectations.¹⁷⁸ This shows that there is reason for concern that social expectations are malleable enough to create Katzian circularity problems.

1. Method

After completing Study One, participants viewed the Study Two instruction screen, which began:

In Part Two, you will read 8 scenarios involving emerging technologies.

Your job is to decide whether people have a **reasonable expectation of privacy** in the information captured by these technologies.

If people have a reasonable expectation of privacy, then the police and other government agents must generally obtain a warrant (a court order) to gather the information.

If people do not have a reasonable expectation of privacy, then the police and other government agents generally do not need to obtain a warrant (a court order) to gather the information.

Participants were reminded to assume that any facts presented in the scenarios were true. They were told that for each scenario, they would respond to two questions concerning whether people have a reasonable expectation of privacy in the type of information at issue. Participants were required to

178. Partial eta squared (η^2), a measure of effect size for analysis of variance (ANOVA), reflects "the proportion of total variation attributable to [a] factor, partialling out (excluding) other factors from the total nonerror variation." Charles A. Pierce, Richard A. Block & Herman Aguinis, *Cautionary Note on Reporting Eta-Squared Values from Multifactor ANOVA Designs*, 64 EDUC. & PSYCH. MEASUREMENT 916, 918 (2004). Rules of thumb for interpreting partial eta squared suggest that a value of .0099 reflects a small effect, .0588 indicates a medium effect, and .1379 reflects a large effect. John T.E. Richardson, *Eta Squared and Partial Eta Squared as Measures of Effect Size in Educational Research*, 6 ED. RSCH. REV. 135, 142 (2011) (citing JACOB COHEN, STATISTICAL POWER ANALYSIS FOR THE BEHAVIORAL SCIENCES (1969)). Here, we observed $\eta^2=.11$.

correctly answer a comprehension check question about Study Two's instructions before proceeding.

After passing the comprehension check, participants read and responded to the eight scenarios, presented in random order.¹⁷⁹ Each scenario appeared on its own screen, which included the text of the scenario and the two critical questions. All scenarios consisted of two short paragraphs in the same basic pattern. The first paragraph stated that it is becoming common for people to use a particular emerging technology and described information stored by that technology. The second paragraph consisted of a single sentence summarizing (hypothetical) social science data about the proportion of people who believe police should need a warrant to access the technologically stored information.

The presentation of the social scientific data varied in two ways, corresponding to the two independent variables¹⁸⁰ in our experiment. First, and most importantly, we varied the proportion of the public who believe that police should need a warrant across four levels. We refer to this variable as "Proportion." Second, we varied whether the relevant proportion was framed numerically, as a precise percentage (e.g., "23% of people believe . . ."), or framed in more general language (e.g., "a significant minority of people believe . . ."). We refer to this variable as "Framing." There are eight possible combinations of Proportion and Framing, summarized in Table 2. For each participant, each possible combination of Proportion and Framing was randomly assigned to one (and only one) of the eight scenarios. For example, the cell phone GPS scenario presented with the smallest Proportion and numeric Framing read as follows:

It is becoming common for personal cellular phones to come equipped with activated GPS location technology. Logs of cellular phone GPS coordinates are stored by cellular phone companies.

Studies by social scientists have shown that 23% of people believe that police should need a warrant (a

179. The order was randomized with IBM's Qualtrics, <https://www.qualtrics.com> [<https://perma.cc/UCR9-MZ4Z>].

180. "Independent variables . . . can be conceptualized as input factors [or] treatment conditions" that are manipulated by the experimenter to measure their influence on the dependent variable. GLENN GAMST, LAWRENCE S. MEYERS & A. J. GUARINO, *ANALYSIS OF VARIANCE DESIGNS: A CONCEPTUAL AND COMPUTATIONAL APPROACH WITH SPSS AND SAS* § 1.3.3 (2008).

court order) in order to access the information stored in these cell phone GPS logs.

The full text of each of the eight scenarios is included in the Appendix.¹⁸¹ Participants saw each of these eight possible combinations of Proportion and Framing in (exactly) one of the eight scenarios they viewed.

Table 2. *Summary: Eight versions of social scientific data given to participants in a scenario*

Proportion	Framing	
	Numeric	Linguistic
1 (Smallest)	23%	a significant minority
2	51%	a majority
3	74%	a supermajority
4 (Largest)	89%	An overwhelming majority

Beneath each scenario, the participants saw the two critical questions. The first critical question asked whether people have a reasonable expectation of privacy in information stored by the relevant technology (such that police would require a warrant to access it). Participants could choose either “yes” or “no.” The second critical question asked participants to rate their belief about whether people have a reasonable expectation of privacy in the stored information on a scale from 0 (“Clearly No Expectation of Privacy”) to 100 (“Clear Expectation of Privacy”).¹⁸² These two responses served as our dependent variables—the outcomes we compared across our experimental conditions.¹⁸³

After answering both questions, participants clicked a forward button to proceed to the next scenario. Participants could not navigate back to previous screens, and therefore, in Study Two, they were unable to return to prior scenarios to change their responses. Once participants responded to all

181. *See infra* app.

182. Participants used a graphical slider (with an initial position of 50) with one end labeled “0=Clearly No Expectation of Privacy” and the other labeled “100=Clear Expectation of Privacy.”

183. *See, e.g.,* GAMST, MEYERS & GUARINO, *supra* note 180, § 1.3.2 (“[A] useful way to conceptualize [dependent variables] is as outcome variables or outcome measures.” (italics omitted)). In experimental techniques, researchers are investigating whether manipulating the independent variable affects the dependent variable. *Id.* § 1.3.4.

eight scenarios, they completed some attention check and demographic questions.

2. Hypotheses

Study Two was designed to test two specific hypotheses. First and most importantly, building on prior arguments by Slobogin and Schumacher and others about the relevance of social scientific data to the inquiry as to reasonable expectations of privacy under the Fourth Amendment,¹⁸⁴ we anticipated that the social scientific evidence included in our scenarios would affect participants' assessments of privacy expectations. Specifically, we expected that our manipulation of Proportion would have a significant effect: the larger the Proportion presented for a scenario, the more likely participants would be to say privacy expectations are reasonable for that scenario and the higher participants would rate the scenario on the 100-point scale from "0=Clearly No Expectation of Privacy" to "100=Clear Expectation of Privacy." Second, we were interested in whether Framing would also have a significant effect on participants' views. We hypothesized that social scientific evidence framed numerically (in percentages) would have greater influence on participants' privacy views than social scientific evidence framed linguistically, based on the belief that quantification enhances credibility and persuasiveness.¹⁸⁵ Because Framing did not make any difference in our studies, all graphs presented in this section collapse across Framing conditions.¹⁸⁶ Both of these hypotheses test the broader idea that expectations of privacy are malleable, which underlies all six potential forms of Katzian circularity.

3. Analyses and Results

Consistent with our primary hypothesis, our Proportion manipulation affected participants' responses to both critical privacy questions. Specifically, when the social science evidence indicated that a higher proportion of people believed police

184. See *supra* note 176 and accompanying text.

185. Per a quote attributed to Lord Kelvin, when you cannot express your idea in numbers, "your knowledge is of a meager and unsatisfactory kind." Richard F. Yalch & Rebecca Elmore-Yalch, *The Effect of Numbers on the Route to Persuasion*, 11 J. CONSUMER RSCH. 522, 523 (1984). Yet, many studies have found no benefits to presenting information in numbers rather than words. *Id.*

186. See *infra* note 189 (describing that the same pattern of results emerged when Proportion was framed numerically as when it was framed linguistically).

should need a warrant to access the relevant information, our participants were more likely to say that people have a reasonable expectation of privacy in that information (see Figure 2)¹⁸⁷ and rated those privacy expectations higher on the 100-point scale (see Figure 3).¹⁸⁸ Framing had no effect on participants' responses,¹⁸⁹ with the same pattern of results emerging whether Proportion information was framed numerically or linguistically.¹⁹⁰

187. With respect to participants' binary responses, we conducted a generalized estimating equation, or "GEE," analysis, using the independent variables (Proportion and Framing) to predict participants' binary decision as to whether people have a reasonable expectation of privacy in data stored by the relevant technology. GEE is akin to regression and can be conducted with repeated-measures data. See, e.g., Paolo Ghisletta & Dario Spini, *An Introduction to Generalized Estimating Equations and an Application to Assess Selectivity Effects in a Longitudinal Study on Very Old Individuals*, 29 J. EDUC. & BEHAV. STAT. 421, 421–22 (2004). Our GEE analysis revealed that Proportion influenced participants' binary responses regarding expectations of privacy, $\chi^2(3)=17.834$, $p < .001$.

188. $F(3, 351)=14.52$, $p < .001$, $\eta^2=.110$.

189. Framing did not have any effect on participants' binary responses, $\chi^2(1)=.151$, $p=.698$, and there was no interaction between Proportion and Framing, $\chi^2(3)=.311$, $p=.958$. Similarly, Framing did not have any effect on participants' responses on the 100-point scale, $F(1, 117)=.053$, $p=.818$, $\eta^2=.000$, and there was no interaction between Proportion and Framing, $F(3, 351)=.378$, $p=.769$, $\eta^2=.003$. Some may wonder whether the significant relationship between Proportion and participants' expectations of privacy is a byproduct of our repeated-measures design. Each participant responded to eight scenarios; perhaps the changes in Proportion information captured participants' attention, causing them to compare that information across scenarios and perhaps letting those comparisons drive their responses. To rule out this possibility, we compiled a dataset that included only participants' 100-point scale responses for the first scenario they encountered in Study Two. We then analyzed the effect of Proportion and Framing on only these responses using a two-way ANOVA. These analyses revealed the same pattern of results as our primary analyses: Proportion significantly affected participants' responses ($F(3, 110)=4.205$, $p=.007$, $\eta^2=.103$). Framing had no effect, and there were no significant interactions.

190. Running separate one-way ANOVAs for the numeric ($F(3, 351)=6.929$, $p < .001$, $\eta^2=.056$) and linguistic ($F(3,351)=6.275$, $p < .001$, $\eta^2=.051$) framings revealed that Proportion had significant and similar effects however it was presented. For scenarios framed numerically, participants' mean response to the 23% Proportion condition on the 100-point scale was 65.407, which was significantly less than the mean response of 73.534 in the 51% condition ($p=.016$, Cohen's $d=.29$), the mean response of 77.110 in the 74% condition ($p < .001$, $d=.41$), and the mean response of 78.669 in the 88% condition ($p < .001$, $d=.47$). The differences among the 51% condition, 74% condition, and 88% condition were not significant (all p 's $\geq .107$). Similarly, for scenarios framed linguistically, participants' mean response to the Substantial Minority condition was 65.331, significantly less than the mean response of 75.178 in the Majority condition ($p=.005$, $d=.32$), the mean response of

Figure 2 depicts the influence of our Proportion manipulation on participants' binary responses as to whether people have a reasonable expectation of privacy, and Figure 3 displays their responses on a scale from 0 ("Clearly No Expectation of Privacy") to 100 ("Clear Expectation of Privacy"). The y-axis of Figure 2 shows the percentage of participants who responded "yes" when asked whether participants had a reasonable expectation of privacy in information stored by the relevant technology (such that police would need a warrant to access it). The x-axis shows the four levels of our Proportion manipulation, proceeding from the lowest level on the left (either "a substantial minority" or "23%" of people believe there is a reasonable expectation of privacy in such information) to the highest level on the right (either "an overwhelming majority" or "89%" of people). The bars around each point show the 95% confidence interval—results outside of this interval are statistically significant at the 0.05 level. Moving from left to right, as hypothesized, as the size of the proportion of society that is purported to have an expectation of privacy increases, the likelihood that participants say people have a reasonable expectation generally increases. Figure 3 is similar, but the y-axis relates to the second (100-point scale) privacy question that participants answered.

79.500 in the Supermajority condition ($p < .001$, $d = .47$), and the mean response of 76.195 in the Overwhelming Majority condition ($p = .004$, $d = .35$). The differences among the Majority, Supermajority, and Overwhelming Majority conditions were not significant (all p 's $\geq .195$).

Figure 2. *Probability of responding that a person has a reasonable expectation of privacy, by Proportion condition*

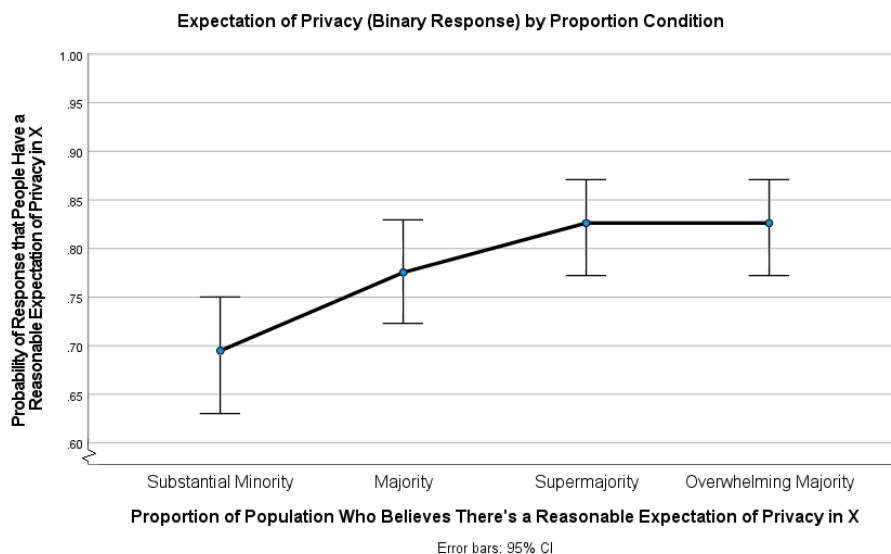
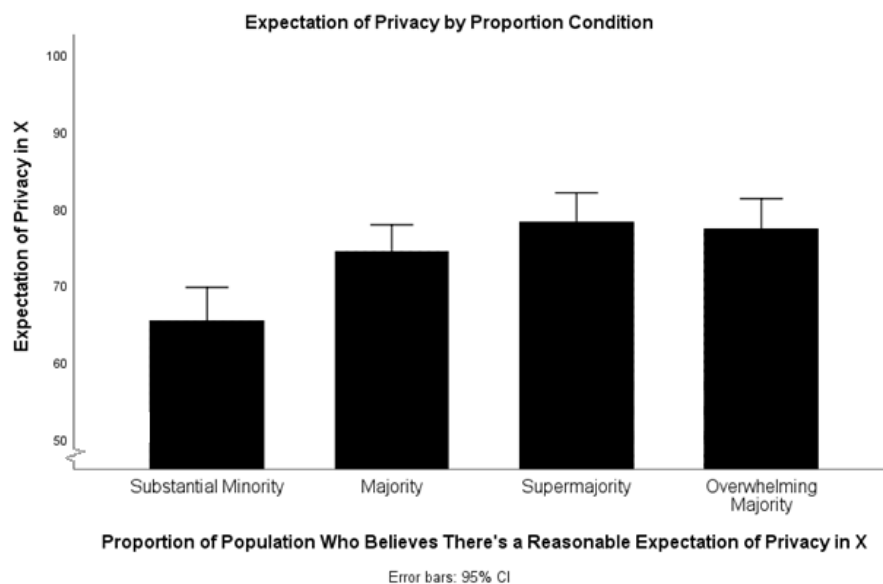


Figure 3. *Participants' 100-point expectation of privacy ratings, by Proportion condition*



The 100-point scale is from “0=Clearly No Expectation of Privacy” to “100=Clear Expectation of Privacy”

Pairwise comparisons indicate that the effect of our Proportion manipulation was driven by the difference between majority beliefs and minority beliefs. Specifically, scenarios for which only “a significant minority” or “23%” of others believed police should need a warrant elicited lesser privacy expectations from our participants than other scenarios, but participants did not differentiate among the other three levels of Proportion (majority/51%, supermajority/74%, overwhelming majority/89%).¹⁹¹ This suggests that participants’ perception of people having a reasonable expectation of privacy on an issue largely reflects majoritarian views—their beliefs are highly influenced by whether a majority supports a particular view, but the size of the majority adds little to that belief.

Because the same participants completed Studies One and Two, it was possible for us to analyze participants’ responses to Study Two while controlling for their general attitudes about privacy (as reflected by their average “intrusiveness” ratings in Study One).¹⁹² The link we observed between Proportion information and participants’ views of privacy expectations was consistent, whether participants were more or less predisposed to be protective of privacy.

Table 3 summarizes participants’ privacy views for each of the eight technology scenarios in Study Two. We did not set out to study differences between these scenarios—we had no a

191. With respect to participants’ binary responses, pairwise comparisons within the GEE model reveal precisely the same pattern. Participants in the Substantial Minority condition reported a reasonable expectation of privacy 70% of the time, which was significantly less than 78% of the time in the Majority condition ($p=.037$), 83% of the time in the Supermajority condition ($p < .001$), and 83% of the time in the Overwhelming Majority condition ($p < .001$). There were no significant differences among the Majority, Supermajority, and Overwhelming Majority conditions (all p ’s $> .09$). With respect to the responses on the 100-point scale from “0=Clearly No Expectation of Privacy” to “100=Clear Expectation of Privacy,” the mean response in the Substantial Minority Proportion condition was 65.369, which was significantly less than the mean response of 74.356 in the Majority condition ($p=.002$, Cohen’s $d=.31$), the mean response of 78.305 in the Supermajority condition ($p < .001$, $d=.44$), and the mean response of 77.432 in the Overwhelming Majority condition ($p < .001$, $d=.41$). The differences among the Majority, Supermajority, and Overwhelming Majority conditions were not significant (all p ’s $> .306$).

192. When we added participants’ mean-centered intrusiveness ratings from Study One as a covariate in our model for Study Two, the effect of Proportion on participants’ binary responses ($\chi^2(3)=18.777$, $p < .001$) and 100-point scale responses ($F(3, 348)=14.637$, $p < .001$, $\eta^2=.112$) remained virtually unchanged. Participants’ Study One intrusiveness ratings were also a significant predictor of Study Two binary responses ($\chi^2(1)=6.361$, $p=.012$) and 100-point scale responses ($F(1, 116)=19.781$, $p < .001$, $\eta^2=.146$). There were still no significant effects of Framing nor any interaction.

priori hypotheses about which scenarios participants would find most invasive. In other words, we viewed the scenarios as a simple stimulus rotation. However, it is possible to run our analyses using Scenario as a third predictor variable (along with Proportion and Framing). Doing so reveals that Scenario was a significant predictor—indeed, the strongest predictor of the three: participants' judgments about privacy expectations involved in our scenarios were influenced by the facts of the scenarios.¹⁹³ Importantly, Proportion remained a significant predictor in this model¹⁹⁴ (and Framing remained insignificant).¹⁹⁵ (Again, this pattern of findings remains unchanged if participants' Study One responses are included in the model as a covariate.¹⁹⁶) Table 3 summarizes participants' binary responses by Scenario and Proportion; Table 4 summarizes participants' 100-point scale responses by Scenario and Proportion. It is noteworthy that participants expected the least privacy in relation to data collected at large public venues—by facial recognition cameras and full body scanners.

Table 3. *Probability of responding that a person has a reasonable expectation of privacy, by Scenario and Proportion*

	Overall (across Proportion Conditions)	Significant Minority Proportion Condition	Majority Proportion Condition	Supermajority Proportion Condition	Overwhelming Majority Proportion Condition
Subdermal Implant Data	94%	96% n=27	90% n=30	94% n=32	97% n=29
Alexa Recording	92%	91% n=32	90% n=29	96% n=27	90% n=30
WearableTech Data	86%	85% n=26	86% n=29	80% n=30	91% n=33
Cell Phone GPS Data	86%	82% n=33	85% n=26	93% n=29	87% n=30

193. A GEE analysis revealed that Scenario is a significant predictor of participants' 100-point scale responses ($\chi^2(7)=151.861$, $p < .001$).

194. $\chi^2(3)=46.248$, $p < .001$.

195. $\chi^2(1)=.027$, $p=.869$.

196. Running a GEE analysis that includes participants' mean intrusiveness rating in Study One as a covariate reveals the same pattern of results. Scenario ($\chi^2(7)=166.794$, $p < .001$) and Proportion ($\chi^2(3)=48.649$, $p < .001$) remain significant predictors of participants' 100-point scale responses in this model. Participants' Study One intrusiveness ratings were also a significant predictor of Study Two 100-point scale responses ($\chi^2(1)=17.274$, $p < .001$). Framing remains insignificant ($\chi^2(1)=.574$, $p=.449$).

Website User Logs	82%	73% n=30	75% n=32	93% n=29	89% n=27
Smart Scooter User GPS Logs	69%	45% n=29	85% n=27	70% n=30	75% n=32
Full Body Scanner Data (from Event Venues)	60%	45% n=29	60% n=30	67% n=33	69% n=26
Facial Recognition Data (from Event Venues)	56%	40% n=30	55% n=33	69% n=26	62% n=29
Overall (across Scenarios)	78%	69%	78%	83%	83%

Results are in response to a binary prompt.

Table 4. *Participants' expectation of privacy ratings, by Scenario and Proportion*

	Overall (across Proportion Conditions)	Significant Minority Proportion Condition	Majority Proportion Condition	Supermajority Proportion Condition	Overwhelming Majority Proportion Condition
Subdermal Implant Data	88.93 (16.59)	88.44 (13.78) n=27	88.30 (19.88) n=30	90.91 (16.46) n=32	87.86 (16.08) n=29
Alexa Recording	83.98 (21.34)	81.28 (22.36) n=32	81.17 (17.25) n=29	86.93 (19.13) n=27	86.93 (25.58) n=30
Wearable Tech Data	80.78 (25.07)	72.46 (29.85) n=26	86.52 (22.81) n=29	80.80 (26.53) n=30	82.27 (20.53) n=33
Cell Phone GPS Data	80.31 (23.74)	70.70 (27.03) n=33	79.69 (19.64) n=26	85.76 (20.81) n=29	86.13 (23.37) n=30
Website User Logs	75.07 (27.10)	64.57 (33.53) n=30	75.66 (26.10) n=32	80.10 (19.86) n=29	80.63 (25.03) n=27
Smart Scooter User GPS Logs	64.60 (28.87)	51.86 (29.38) n=29	70.52 (26.98) n=27	68.20 (32.31) n=30	67.78 (24.10) n=32
Full Body Scanner Data (from Event Venues)	58.92 (33.27)	42.38 (33.78) n=29	63.03 (30.93) n=30	64.76 (32.04) n=33	65.23 (32.48) n=26
Facial Recognition Data (from Event Venues)	58.33 (31.28)	51.70 (33.30) n=30	52.97 (27.63) n=33	69.50 (28.63) n=26	61.28 (33.61) n=29

Overall (across Scenarios)	73.87 (28.52)	65.37 (31.82)	74.36 (26.72)	78.31 (26.50)	77.43 (27.01)
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Standard deviations are in parentheses. The 100-point scale is from “0=Clearly No Expectation of Privacy” to “100=Clear Expectation of Privacy.”

Examining the bottom row of Tables 3 and 4 illustrates the effect of our Proportion variable. Generally, moving from left to right, as the size of the portion of society that is purported to have an expectation of privacy increases, participants' privacy expectations increase as well. Once again, the significant increase is in the difference between a minority Proportion and a majority Proportion. In sum, participants' beliefs about whether a person has an expectation of privacy in a particular scenario were based in part on whether participants were told that a majority of others believes that they do, indicating that participants' own privacy beliefs were influenced by information about others' beliefs.

C. Summary and Implications of Key Findings

Katz places the privacy views of lay members of society at the center of Fourth Amendment analysis. Yet, the *Katz* test creates the potential for those views to be shaped by the process of identifying, or misidentifying, those expectations. Our results show that this theoretical problem does manifest in reality, but not in the ways that most scholars and judges worry about.

Study One examined the influence of judicial precedent by investigating how lay expectations of privacy have changed (or not) since Slobogin and Schumacher's 1993 study, in contexts where law has not changed meaningfully. We found that, thirty years later, there remains a large disconnect between judicial proclamations of what society's expectations of privacy are and what the public itself perceives. This provides evidence of *judicial self-reflection circularity* 1a. However, we found little evidence of the oft-discussed worry that this would translate into *judicial self-reflection circularity* 1b, whereby lay views become more aligned with the law over time due to courts influencing the very expectations they are trying to reflect. Slobogin and Schumacher observed that the third-party doctrine represented a particularly big disconnect between Fourth Amendment jurisprudence and societal expectations of privacy: lay people expected protectable privacy interests in information disclosed to third parties (e.g., bank records and

communications with a secretary) where the Supreme Court had found none.¹⁹⁷ Thirty years later, this disconnect remains: with the exception of application to cell phones,¹⁹⁸ the law has remained the same, and lay views have not moved toward the law.

We also found little evidence of the *government manipulation* effect, 2a and 2b, as numerous police practices are still considered intrusive, despite common use. One exception to the pattern—indeed, the only investigative technique our participants rated as *significantly less* intrusive than Slobogin and Schumacher’s participants—involves “police questioning a person on a public sidewalk for 10 minutes.” Rated fifth most intrusive of the fifteen S&S Scenarios in 1993, our participants rated it *fourteenth* most intrusive. As we suggested above, this scenario may provide a real example of *judicial self-reflection circularity* in action—though we suspect this is less a product of the Supreme Court’s decision in *Terry v. Ohio*¹⁹⁹ than of the extraordinary cultural and media attention paid to stop-and-frisk and street policing policies since that decision—i.e., it is more likely a product of the *government manipulation* effect, whether intended or otherwise.²⁰⁰ Our study was not able to differentiate between the two aspects of the *government manipulation circularity problem*, 2a and 2b, but it could be an interesting extension to study the differences between different groups, particularly racial groups, which may have different subjective expectations of privacy in this area.²⁰¹

Study One also produced preliminary evidence of risks posed by *judicial ossification*. Participants in Study One generally rated J&J Scenarios involving investigative use of modern

197. Slobogin & Schumacher, *supra* note 11, at 740.

198. *Riley v. California*, 573 U.S. 373, 393, 403 (2014) (finding that, due to the “immense storage capacity” of modern cell phones, police officers must generally obtain a warrant before searching the contents of a phone); *Carpenter v. United States*, 585 U.S. 296, 310 n.3, 320 (2018) (discussing how searching historical cell-site records presents significant privacy concerns and requires a warrant if undertaken for more than seven days).

199. 392 U.S. 1 (1968).

200. The “broken windows” policy of intensely policing minor crime so as to discourage further crime is arguably an attempt to manipulate in this way. James Q. Wilson & George L. Kelling, *Broken Windows*, ATLANTIC (Mar. 1982), <https://www.theatlantic.com/magazine/archive/1982/03/broken-windows/304465/> [<https://perma.cc/KXM9-MDW6>].

201. *Cf.* Chao, Durse, Farrell & Robertson, *supra* note 113, at 294, 310–12 (reporting that “African American[] [participants] [we]re significantly more protective of their privacy” than white participants).

technologies (e.g., drones and portable retina scanners) as more intrusive than the original S&S Scenarios involving older technologies. If, similar to our lay participants (and consistent with *Kyllo*²⁰²), judges deciding cases are more likely to conclude that investigative use of a new technology runs afoul of society's reasonable expectations of privacy, then those cases may disincentivize police from using the relevant technologies even when they become common—and may further disincentivize investment in useful investigative technologies in the first instance.²⁰³ Yet, we note two caveats. First, this is the least direct of our tests, and results could be driven by the difficulty of updating a technology scenario—for instance, the different responses could be driven by specific feelings about drones, rather than by the more modern nature of drones compared to helicopters. Second, we have posited *judicial ossification* as a secondary effect—to the extent it affects societal behavior and, in particular, the behavior of people developing investigative technologies, it would be a byproduct of *judicial self-reflection circularity* 1b, a risk for which we found limited evidence. Thus, while Study One produced some preliminary evidence that the raw materials for *judicial ossification* (wariness of newer investigative technologies) are there, we saw little evidence of a mechanism for transforming those raw ingredients into societal effects outside of the legal system (in particular, *judicial ossification* 3a and 3b).

Study Two examined the malleability of lay judgments about reasonable expectations of privacy by presenting hypothetical social science evidence indicating that a certain Proportion of the population believed that police should need a warrant to access the information. That Proportion influenced participants' responses, whether relayed in precise percentages or narrative forms. This provides evidence that societal views concerning reasonable expectations of privacy are *malleable*. One may expect that people's distinct beliefs and experiences—their convictions about the role of government, their experiences with the justice system, their political affiliations, etc.—would leave little space for social science evidence to influence their privacy views. Yet, we found that a few words reporting social scientific evidence of *others'* beliefs about a scenario had a medium to large effect on whether *they* believed

202. 533 U.S. 27 (2001).

203. See *supra* Section I.C.

a reasonable expectation of privacy existed in that scenario.²⁰⁴ This malleability underlies all potential aspects of Katzian circularity.

It is important to note that the malleability we observed was not unconstrained. While the social science evidence affected participants' privacy views, it explained only about eleven percent (11%) of the otherwise unexplained variance in those views.²⁰⁵ Participants' baseline privacy attitudes (reflected by their mean intrusiveness ratings in Study One) explained a larger proportion of the variance in participants' Study Two responses than social science evidence did,²⁰⁶ suggesting some underlying stability in participants' privacy attitudes. Further, other factual features of the scenario participants were presented with—e.g., whether they were asked about privacy expectations in information stored in a subdermal implant or information stored by the company that rents a portable electric scooter—also had greater impact on participants' responses than social science information did. For instance, regardless of what they were told about others' beliefs, participants reported a greater expectation of privacy in information stored in a subdermal chip than for information stored by an electric scooter company.²⁰⁷ Although social science evidence meaningfully affected participants' privacy views, it did not totally overpower their baseline attitudes or the influence of the specific circumstances of the scenario. Further, malleability in response to social science information of the sort we provided participants is not the same as malleability in response to irrelevant details or arbitrary considerations. Participants were asked to evaluate whether someone has a *reasonable* expectation of privacy in information, and there is good reason to expect that judgments about what is *reasonable* will be (and should be) influenced by information about the beliefs and

204. In Study Two, $\eta^2=.11$ falls between estimates for medium effect sizes (.0588) and large effect sizes (.1379). Richardson, *supra* note 178, at 140.

205. See Pierce, Block & Aguinis, *supra* note 178 (explaining partial eta squared as a measure of effect size).

206. *Supra* note 191.

207. See *supra* Table 4. Even for participants responding to the “Substantial Minority” Proportion condition, the mean response to the subdermal chip scenario was 88.44 on our 100-point scale. Even for participants responding to the “Overwhelming Majority” Proportion condition, the mean response to the electric scooter scenario was 67.78 on our 100-point scale.

behaviors customary in society.²⁰⁸ Indeed, numerous scholars have explicitly called for this type of information to be incorporated in Fourth Amendment analysis.²⁰⁹

Study Two also suggests that, in evaluating social science evidence, people are particularly concerned with *majority* beliefs. Our participants were more inclined to believe that there was a reasonable expectation of privacy in information when they were told that a majority, supermajority, or overwhelming majority of people believed as such than when they were told that a substantial minority of people did. But participants were minimally affected by the difference between a majority, a supermajority, and an overwhelming majority.

Together, then, Study Two shows that malleability is a genuine aspect of people's expectations of privacy, thus creating the risk for Katzian circularity effects to occur. Study One shows how those effects actually manifest. To the extent that our results show that expectations can be malleable, they make it incumbent upon anybody engaging in social science survey work to carefully avoid shaping the expectations they are trying to measure. But done properly, our results also suggest that social science survey evidence could be a solution to the disconnect we, like Slobogin and Schumacher, found between society's expectations and the Court's claims regarding those expectations.

III. NORMATIVE IMPLICATIONS: USING SOCIAL SCIENCE TO SOLVE *KATZ'S* PROBLEM

So far, we have identified multiple previously unrecognized aspects of Katzian circularity and shown that some of those forms manifested in our studies, as did some—but not all—previously identified circularity issues. In this way, we have shown that Katzian circularity is a genuine problem. This Part provides a normative analysis as to whether and how we can solve, or at least mitigate, *Katz's* circularity problems.

First, we consider doctrinal alternatives to *Katz* and show that they offer a false promise: each proposed doctrinal alternative or addendum to *Katz* has the same problems of circularity. This is because each of the proposed alternatives or addendums ultimately leads back to an inquiry into privacy

208. See Jaeger, *supra* note 142, at 948; Christopher Brett Jaeger, *Reasonableness from an Experimental Jurisprudence Perspective*, in CAMBRIDGE HANDBOOK OF EXPERIMENTAL JURISPRUDENCE (Kevin Tobia ed., forthcoming); Kevin P. Tobia, *How People Judge What is Reasonable*, 70 ALA. L. REV. 293, 307 (2018).

209. See *supra* note 133.

expectations, and, thus, there is always the problem that those malleable expectations will diverge from, and be influenced by, court declarations and government actions. Next, we discuss a potential institutional solution: reallocating the inquiry into societal expectations of privacy from judges to juries. While this approach has some benefits, they are generally watered-down versions of the same benefits offered by social science evidence, and reallocation has considerable disadvantages. Finally, we consider whether social science evidence should be used to assess actual social expectations. We argue that looking to social science evidence can improve judges' assessment of society's expectations, which would both alleviate the disconnect that we confirm still exists between court proclamations of expectations and actual societal expectations as well as mitigate other aspects of circularity that we identified. Scholars have concluded that the disconnect between the expectations that society possesses and the doctrine purportedly based on those expectations "invites scrutiny of the legitimacy of judicial decision-making" regarding privacy rights.²¹⁰ We propose that this legitimacy gap could be filled by relying on scientific measures of society's expectations, rather than simply intuiting such expectations, which even Supreme Court Justices have acknowledged is likely to be inaccurate.²¹¹

A. Doctrinal Alternatives to Katz Do Not Avoid the Circularity Problem

1. Returning to Trespass Analysis Does Not Solve the Problem

Before *Katz*, the Supreme Court answered the question of whether a Fourth Amendment search had occurred by looking to trespass law;²¹² it now does so again in conjunction with Katzian analysis.²¹³ Some, including Justice Neil Gorsuch, have proposed jettisoning *Katz* as a solution to the circularity issues discussed in this Article:

210. Fradella, Morrow, Fischer & Ireland, *supra* note 100, at 293.

211. *United States v. Jones*, 565 U.S. 400, 427 (2012) (Alito, J., concurring).

212. *Olmstead v. United States*, 277 U.S. 438, 466 (1928) (finding that evidence secured by means of wiretapping does "not amount to a search or seizure within the meaning of the Fourth Amendment" because it does not involve "an actual physical invasion"), *overruled by Katz v. United States*, 389 U.S. 347 (1967).

213. *Jones*, 565 U.S. at 406–07 n.3 ("Where, as here, the Government obtains information by physically intruding on a constitutionally protected area, such a search has undoubtedly occurred."); *supra* Section I.A.

Even taken on its own terms, *Katz* has never been sufficiently justified. In fact, we still don't even know what its "reasonable *expectation* of privacy" test is. Is it supposed to pose an empirical question (what privacy expectations do people actually have) or a normative one (what expectations should they have)? . . . Politically insulated judges come armed with only the attorneys' briefs, a few law clerks, and their own idiosyncratic experiences. They are hardly the representative group you'd expect (or want) to be making empirical judgments for hundreds of millions of people. Unsurprisingly, too, judicial judgments often fail to reflect public views.²¹⁴

Justice Gorsuch is right that *Katz* has ambiguities and raises unrepresentativeness problems. But his solution is inapt for at least three reasons. First, the Court turned away from trespass analysis because it, too, had ill-defined edges.²¹⁵ Prior to *Katz*, courts facing Fourth Amendment questions made absurd distinctions, such as whether a government intrusion pierced²¹⁶ or merely touched²¹⁷ a wall, to determine if an action constituted a search. Second, a return to trespass would involve massive rewriting of Fourth Amendment doctrine, such as the

214. *Carpenter v. United States*, 585 U.S. 296, 392–93 (2018) (Gorsuch, J., dissenting). In response to an earlier draft of this Article, we were delighted to receive an email from Professor Laurence Tribe that speaks directly to the ambiguity highlighted by Justice Gorsuch. Email from Laurence H. Tribe, Carl M. Loeb Univ. Professor Emeritus, Harvard Law School, to authors (on file with authors). As a law clerk, Professor Tribe worked on Justice Potter Stewart's majority opinion in *Katz*. Professor Tribe's email, which we quote with his permission, explains that the *Katz* majority "knew that a normative vector would be required in order to break what might otherwise be a self-swallowing descriptive circle with respect to which expectations" are reasonable. *Id.* Per Professor Tribe, Justice Stewart's majority opinion signaled, or was intended to signal, that the First Amendment provided the requisite normative vector in the context of the *Katz* case, with the Court noting that people are "entitled to assume" that words spoken into a phonebooth mouthpiece are private because "[t]o read the Constitution more narrowly is to ignore the vital role that the public telephone has come to play in private communication." *Katz v. United States*, 389 U.S. 347, 352 (1967).

215. *Id.* at 353 ("[T]he reach of [the Fourth] Amendment cannot turn upon the presence or absence of a physical intrusion into any given enclosure.").

216. *See Silverman v. United States*, 365 U.S. 505, 509–10 (1961) (holding that the warrantless use of a "spike mike" to penetrate walls and eavesdrop was unconstitutional).

217. *See Goldman v. United States*, 316 U.S. 129, 134–35 (1942) (holding that the warrantless use of a detectaphone pressed up against the wall of an adjoining room and used to eavesdrop was constitutional), *overruled by Katz v. United States*, 389 U.S. 347 (1967).

open fields doctrine—a problem that trespass evangelists do not generally address.²¹⁸ Third, and even more fundamentally, even trespass analysis requires some analysis of society's expectations, even when leaning on property notions.

This can be seen in *Florida v. Jardines*,²¹⁹ one of the key cases that reinvigorated trespass analysis in search and seizure jurisprudence.²²⁰ The opinion of the Court could not avoid a detailed discussion of expectations of privacy. In defining the scope of the implied license to enter curtilage, which would render any entry onto a porch not a trespass, Justice Scalia reasoned that the purpose for which a trained narcotics detection dog was brought onto a porch was relevant:

But introducing a trained police dog to explore the area around the home in hopes of discovering incriminating evidence is something else. There is no customary invitation to do *that*. An invitation to engage in canine forensic investigation assuredly does not inhere in the very act of hanging a knocker. To find a visitor knocking on the door is routine (even if sometimes unwelcome); to spot that same visitor exploring the front path with a metal detector, or marching his bloodhound into the garden before saying hello and asking permission, would inspire most of us to—well, call the police. The scope of a license—express or implied—is limited not only to a particular area but also to a specific purpose. . . . Here, the background social norms that invite a visitor to the front door do not invite him there to conduct a search.²²¹

Even though Justice Scalia insisted that there was no need for Katzian analysis because the fact that there was a trespass

218. In *Jones*, Justice Scalia attempted to reconcile trespass analysis with prior cases that raised issues for trespass beyond open fields, notably *United States v. Knotts*, 460 U.S. 276 (1983), and *United States v. Karo*, 468 U.S. 705 (1984). *Jones*, 565 U.S. at 408–10. However, his efforts were ultimately unpersuasive and arguably involved mischaracterizing those cases. See Caren Myers Morrison, *The Drug Dealer, the Narc, and the Very Tiny Constable: Reflections on United States v. Jones*, 3 CALIF. L. REV. CIR. 113, 118–19 (2012) (critiquing the attempts to explain the cases' different decisions in terms consistent with trespass as “seem[ing] to deliberately ignore the more salient difference between the cases”).

219. 569 U.S. 1 (2013).

220. *Id.* at 7 (“Since the officers’ investigation took place in a constitutionally protected area, we turn to the question of whether it was accomplished through an unlicensed physical intrusion.”).

221. *Id.* at 9.

answered the question,²²² the opinion engaged in the very kind of expectation-based analysis that *Katz* requires—defining what is expected at the front door of a house and explaining whether the behavior that occurred was what an ordinary person would consider covered by the implied license to approach their front door. That is, what constitutes a trespass depends on societal expectations of what is permissible and impermissible when approaching a house. Those expectations are subject to circularity, whether they feed into a direct *Katz* test or do so indirectly via trespass law. Accordingly, trespass analysis does not avoid having to ascertain, somehow, societal expectations, with all the circularity contained in that process.

2. Other Solutions Have Similar Flaws

Beyond reverting to trespass, some scholars have argued that there are other methods to prevent judges from inserting their own views into Fourth Amendment analysis. However, these other methods are also prone to circularity.

Some have argued that defining the scope of the Fourth Amendment through common-law principles can remedy *Katz's* “contradictions and indeterminacy.”²²³ The argument is essentially that the common law provides a “repository of societal information regarding subjective expectations of privacy that are inherently accepted as reasonable by society” and thus avoids the necessity of ascertaining uncertain societal expectations directly or currently.²²⁴ But this argument has been well-rebutted by Professor Colin Shaff, who argues that the two common-law rights that the Court has tied to the Fourth Amendment include “protecting information about the interior of homes not otherwise available without physical

222. *Id.* at 11 (“That the officers learned what they learned only by physically intruding on Jardines’ property to gather evidence is enough to establish that a search occurred.”).

223. David A. Sklansky, *Back to the Future: Kyllo, Katz, and Common Law*, 72 MISS. L.J. 143, 161 (2002); *see also* *California v. Acevedo*, 500 U.S. 565, 583 (1991) (Scalia, J., concurring) (“[T]he ‘reasonableness’ requirement of the Fourth Amendment affords the protection that the common law afforded.”).

224. Colin Shaff, *Is the Court Allergic to Katz? Problems Posed by New Methods of Electronic Surveillance to the “Reasonable-Expectation-of Privacy” Test*, 23 S. CAL. INTERDISC. L.J. 409, 434 (2014); *see also* CHRISTOPHER SLOBOGIN, *VIRTUAL SEARCHES: REGULATING THE COVERT WORLD OF TECHNOLOGICAL POLICING* 51 (2022) (arguing that one source that can provide more “concrete guidance on society’s privacy expectations” is “positive law—law regarding matters such as property rights and contracts, passed by legislatures or long accepted by the courts, that might be said to reveal societal privacy preferences”).

intrusion and . . . preventing the government from physically occupying private property for the purpose of gathering information.”²²⁵ Shaff explains that tying these rights to the common law does not solve the circularity problem: if “the common law principles reflect only the societal values of the Court, they may not constitute accurate evidence of societal privacy expectations, especially as those expectations change in response to technological innovation.”²²⁶ Therefore, he warns, “the articulations of these common law principles may not be based on ‘expectations of privacy and autonomy [that] reflect realistic societal attitudes’ but rather on the privacy assessments and expectations of individual judges and Justices.”²²⁷ That is, common law does not solve the circularity problem either.

Scholars have suggested that, as an alternative, courts can “look to state and federal legislation as a source of information concerning the privacy expectations society accepts as reasonable.”²²⁸ For instance, Professor Orin Kerr calls for treating “statutes as relevant benchmarks for constitutional meaning.”²²⁹ Kerr argues that this does not inevitably lead to a ratcheting down of privacy protections because “statutory privacy protections have played [a role] in protecting privacy in developing technologies. . . . Today the rules governing law enforcement use of new technologies tend to be statutory rules, not constitutional ones.”²³⁰

But this defense of *Katz* is really no defense at all. Rather, it is a restatement of the problem of the *government manipulation circularity problem*. The fact that the government does not always seek to reduce constitutional rights does not mean that it can be trusted to define the boundaries of the constitutional provisions that limit its own powers.²³¹ Professor Jed Rubenfeld cites the example of *United States v. Payner*,²³² in which a

225. Shaff, *supra* note 224.

226. *Id.* at 435; *see also* SLOBOGIN, *supra* note 224, at 32 (“[N]either property law nor any of the other suggested Fourth Amendment thresholds are ultimately any more self-defining than ‘privacy.’”).

227. Shaff, *supra* note 224, at 434–35.

228. *Id.* at 438; *see also* Orin S. Kerr, *The Effect of Legislation on Fourth Amendment Protection*, 115 MICH. L. REV. 1117, 1127 (2017).

229. Kerr, *supra* note 228, at 1119–20.

230. Kerr, *supra* note 83, at 888.

231. Additionally, positive law varies widely from state to state, creating a problem of inconsistency, discussed *infra* Section III.B, in relation to the alternative of allowing juries to determine expectations of privacy.

232. 447 U.S. 727, 732 n.4 (1980).

statute requiring banking information to be reported was used as the basis to establish that a reasonable person lacks an expectation of privacy in their banking information, and he concluded that “this kind of reasoning could, if extended, allow statutes compelling individuals to submit to searches to be self-validating.”²³³

Just as defenders of *Katz* fail to explain why the circularity problem was not really a problem at all,²³⁴ those who prefer alternative methodologies similarly struggle to show how the courts can solve the circularity problem by relying on other, arguably more concrete, sources of law. But these defenses do not work because these other sources are not more concrete at all: they cannot help but refer back to expectations of privacy, they are contrary to the jurisprudence, and they can be even just a restatement of the problem itself.

B. *An Institutional Option: Juries Instead of Judges*

Several scholars have advocated for an intriguing approach to address *Katz's* judicial self-reflection problem: eliminating the opportunity for judges to reflect their own preferences by having jurors, not judges, decide which privacy expectations society accepts as reasonable.²³⁵

In most legal proceedings, judges handle questions of law, delegate questions of fact to the jury, and assign mixed questions of law and fact to the decisionmaker best equipped to decide the issue.²³⁶ Fourth Amendment cases deviate from this

233. Jed Rubenfeld, *The End of Privacy*, 61 STAN. L. REV. 101, 107 n.25 (2008). Rubenfeld considers this case to be an exception to the general rule that the Court does not fall prey to this trap.

234. *Supra* Section I.D.

235. *E.g.*, Melanie D. Wilson, *The Return of Reasonableness: Saving the Fourth Amendment from the Supreme Court*, 59 CASE W. RES. L. REV. 1, 3 (2008); Akhil Reed Amar, *Fourth Amendment First Principles*, 107 HARV. L. REV. 757, 761 (1994); Ronald J. Bacigal, *Putting the People Back into the Fourth Amendment*, 62 GEO. WASH. L. REV. 359, 363 (1994) [hereinafter Bacigal, *Putting the People Back*]; George C. Thomas III & Barry S. Pollack, *Saving Rights from a Remedy: A Societal View of the Fourth Amendment*, 73 B.U. L. REV. 147, 149 (1993); Ronald J. Bacigal, *A Case for Jury Determination of Search and Seizure Law*, 15 U. RICH. L. REV. 791, 792 (1981).

236. Stephen A. Weiner, *The Civil Jury Trial and the Law-Fact Distinction*, 54 CALIF. L. REV. 1867, 1867 (1966) (“The categories of ‘questions of law’ and ‘questions of fact’ have been the traditional touchstones by which courts have purported to allocate decision-making between judge and jury.”); *see also* Miller v. Fenton, 474 U.S. 104, 114 (1985) (“[Categorization of issues] has turned on a determination that, as a matter of the sound administration of justice, one judicial actor is better positioned than another to decide the issue in question.”).

general pattern, with judges regularly deciding factual questions and mixed questions that are arguably better suited for juries—including ascertaining society’s reasonable privacy expectations.²³⁷ Today, Fourth Amendment suppression decisions are always made by judges rather than juries²³⁸—though this has not always been the case.²³⁹ The judiciary’s assertion of dominion over Fourth Amendment issues has been justified on the basis that police need bright-line rules to guide their conduct in the field.²⁴⁰ But it is far from clear that judicial dominion has produced bright-line rules,²⁴¹ and even if it has, the need for bright-line rules is not equally urgent across all Fourth Amendment cases.

Professor Melanie D. Wilson distinguishes determinations of “police reasonableness” from determinations of “citizen reasonableness.”²⁴² Wilson states that judges are best positioned to decide Fourth Amendment issues that hinge on police reasonableness—issues that require courts to reason about and articulate how reasonable officers act.²⁴³ But she argues that jurors are best positioned to decide Fourth Amendment issues of citizen reasonableness—those that turn on inferences about citizen behaviors and thoughts.²⁴⁴ Determinations as to which expectations of privacy society considers reasonable fall into the *citizen* reasonableness category.²⁴⁵ A collection of jurors is better positioned to speak

237. See Wilson, *supra* note 235, at 10 (arguing that, in the Fourth Amendment context, “the Court has not adhered to its usual method of allocating issues between judges and juries”—deciding “*all* mixed questions, without considering whether a finder of fact could do a better job” and treating “some issues of pure fact, *de novo*, as if they were legal issues”).

238. *Steele v. United States*, 267 U.S. 505, 511 (1925) (“[T]he question of the competency of the evidence . . . by reason of the legality or otherwise of its seizure was . . . for the court and not for the jury.”).

239. See Bacigal, *Putting the People Back*, *supra* note 235, at 360 (“As represented by juries, colonial Americans were active participants in the tribunals that addressed early search and seizure law.”).

240. See Wilson, *supra* note 235, at 45 (“Because the policies in favor of providing bright-line guidance to law enforcement officers are at a zenith in situations where officers in the field must decide how to conform their actions to Fourth Amendment demands, a *de novo* appellate review is appropriate for those cases in which police conduct is evaluated for reasonableness.”).

241. See Bacigal, *Putting the People Back*, *supra* note 235, at 401 (“A realistic estimate of the consistency of current Fourth Amendment decisions might tip the scales in favor of the jury’s determination of search-and-seizure law.”).

242. See Wilson, *supra* note 235, at 43, 48.

243. *Id.* at 44.

244. *Id.* at 48–57.

245. *Id.* at 56–57.

to society's expectations of privacy than a judge.²⁴⁶ The jury is more representative of society and a more natural check on government power.²⁴⁷

However, a *Katz* jury would also have drawbacks. First, when empaneled and hearing evidence in a particular case, juries may not be "any more capable than judges at ignoring known outcomes [of searches], police objectives, and party characteristics."²⁴⁸ As discussed throughout this Article, expectations of privacy are malleable. The types of case-specific information to which a jury is typically privy (and which may be difficult to keep from a jury) "might distort its evaluation of reasonable expectations of privacy."²⁴⁹ For instance, even if jurors might be inclined to say that people have a reasonable expectation of privacy in personal phone records, they may be less inclined to find a reasonable expectation of privacy if they know police sought the records in an effort to protect a woman from phone harassment and that the records revealed that the defendant had dialed the woman's number.²⁵⁰

Second, the sample of society reflected in a jury would be geographically constrained. Even if juries accurately capture the expectations of their region, if expectations of privacy vary across regions, then *Katz* determinations in Texas may vary from *Katz* determinations in New York. While the jury's capacity for reflecting local values is often celebrated, the idea that a government action may constitute a "search" implicating the Fourth Amendment in Texas but not in New York is unsettling, with a real possibility of creating a race to the bottom that would require those concerned with privacy to have

246. See Erik Luna, *The Katz Jury*, 41 U.C. DAVIS L. REV. 839, 856 (2008) ("[J]uries would not be required to either guesstimate or mystically channel the expectations of society [because,] . . . [i]f jurors are drawn from a fair cross-section of the community[,] . . . their collective expectations, aggregated through a process of group decision-making, should represent those of society (or at least those of the relevant jurisdiction)."). If an individual juror has better than a fifty percent chance at correctly identifying societal expectations of privacy, the Condorcet Jury Theorem suggests that a group of jurors will have a better chance of correctly identifying societal expectations than any individual juror (or likely any individual judge) would. See generally Paul H. Edelman, *On Legal Interpretations of the Condorcet Jury Theorem*, 31 J. LEGAL STUD. 327 (2002) (discussing application of the Condorcet Jury Theorem in legal contexts).

247. Luna, *supra* note 246, at 853.

248. *Id.* at 861.

249. *Id.*

250. See, e.g., *Smith v. Maryland*, 442 U.S. 735, 737 (1979).

to move states to maintain privacy expectations. This is, after all, a national constitution we are interpreting.²⁵¹

Finally, jury determinations of fact do not have precedential value, meaning one would expect variation over time to jury determinations of societal expectations in addition to variation across jurisdictions. The goal of a Katzian inquiry should be to achieve meaningful, accurate inquiry into societal expectations while also aggregating those expectations at a geographically and intertemporally broad enough level to achieve consistent, nationally uniform results. Accordingly, social scientific inquiry—with the potential for larger and more nationally representative samples—offers a superior solution.

C. Courts Should Look to Social Science Evidence

The final option we consider is that courts could look to social science evidence to meaningfully inform what society's expectations are. In this Section, we argue that this is the best solution to the problem of circularity and amorphousness of expectations—but our results show why such social science must be done carefully. Because relying on survey evidence of expectations is, we believe, the best option, we more closely investigate this option. We first rebut the critiques of using such evidence. We then show that even though courts have expressed reluctance to rely on social science evidence, they, in fact, do it quite often, just selectively. We then describe why social science provides the best evidence of society's expectations and can considerably buttress Katzian analysis.

1. The Case Against Considering Social Science Fails to Understand Social Science

The Supreme Court, along with some commentators, has expressed reluctance to engage with social science generally, particularly in relation to assessing reasonable expectations of privacy.²⁵² But when examined closely, the bases for the objections are generally flawed.

251. See Wilson, *supra* note 235, at 56 (explaining that “[juries] will be less likely than appellate judges to render decisions reflecting a ‘national’ and uniform view of societal expectations” given the likely influence of “the unique flavor of the specific community and culture where the jury sits”).

252. See, e.g., Henry F. Fradella, *A Content Analysis of Federal Judicial Views of the Social Science “Researcher’s Black Arts”*, 35 RUTGERS L.J. 103, 109 (2003) (“[T]he Supreme Court has cautioned against the use of social science research in several contexts.”).

Chief Justice John Roberts famously referred to using computational analytics in aiding the line-drawing of voting district maps as “sociological gobbledygook,”²⁵³ even though such analysis is a well-established and rigorous field of political science, subject to extensive peer review. Chief Justice Roberts admitted that his skittishness on the topic “may be simply [his] educational background.”²⁵⁴ Yet, numerous scholars have echoed such concerns in relation to applying social science to determining social expectations of privacy—and like Chief Justice Roberts’s self-admitted unfamiliarity with social science, these scholarly criticisms also appear to be based on a failure to appreciate the complexity and rigor of social science techniques to deal with basic methodological problems.

For instance, Professor Daniel Solove critiqued using surveys to measure expectations: first, he argued that subgroups, such as racial or religious groupings, “may differ in their attitudes about privacy.”²⁵⁵ However, variation is a well-understood issue, and numerous mechanisms exist to control for such effects.²⁵⁶ Second, he argued that “surveys are deficient to measure reasonable expectations of privacy because people’s behavior often fails to match their stated preferences for privacy.”²⁵⁷ But that concerns a very different question from the one that the Court claims to be interested in: *Katz* analysis hinges on what society’s expectations *are*, not whether individuals or even society in general follow those expectations in their behavior.

Professor Lior Strahilevitz also argued that making “poll data decisive on the privacy question might be ill-advised.”²⁵⁸ First, he argued that poll results could “deviate substantially from actual, observed behavior,”²⁵⁹ but this is just a repetition

253. Transcript of Oral Argument at 40, *Gill v. Whitford*, 585 U.S. 48 (2018) (No. 16-1161) (“[T]he whole point is you’re taking these issues away from democracy and you’re throwing them into the courts pursuant to, and it may be simply my educational background, but I can only describe as sociological gobbledygook.”).

254. *Id.*

255. Daniel J. Solove, *Fourth Amendment Pragmatism*, 51 B.C. L. REV. 1511, 1522 (2010).

256. This is so foundational that it has a page on *Statistics How To*, which has the subtitle, *Within-Group Variation: Definition and Examples*, STAT. HOW TO, <https://www.statisticshowto.com/within-group-variation/> [<https://perma.cc/ERR8-4TQY>].

257. Solove, *supra* note 255.

258. Lior Jacob Strahilevitz, *A Social Networks Theory of Privacy*, 72 U. CHI. L. REV. 919, 935 (2005).

259. *Id.* at 935–36.

of Solove's second critique, subject to the same response. Second, Strahilevitz suggested that "poll responses can be manipulated rather easily based on the way in which a particular question is framed."²⁶⁰ Results, indeed, can vary with framing, but the conclusion not to use social science does not follow. Once again, this critique overlooks extensive social science work on how to avoid framing surveys in a leading manner.²⁶¹ The impact of framing should lead us not to avoid social science and give up on the most objective indicia of social expectations available, but rather to more rigorously follow the extensive research on how to avoid the pitfalls of framing problems and conduct surveys well. Finally, Strahilevitz added that a "public opinion" standard for evaluating reasonable expectations of privacy . . . necessarily introduces circularity into the law."²⁶² But recall that Strahilevitz is one of the two authors who claimed to have "busted the myth" of Katzian circularity because one case failed to show one of the six aspects of circularity in the long run.²⁶³ It is implausible to say that Katzian analysis lacks circularity, but if we introduced some empirical basis for the inputs into its analysis, it would be circular.

A final scholarly critique we address comes from Professor Shaun Spencer.²⁶⁴ Spencer argued that because expectations of privacy could "vary from state to state, presumably reflecting the different customs or norms in each state," survey evidence is at odds with the Supreme Court's insistence that Fourth Amendment privacy questions must "discern (or declare) the

260. *Id.* at 937.

261. These methods include how to avoid framing problems in the way the survey is designed, *see, e.g.*, Dan Pilat & Sekoul Krastev, *Why Do Our Decisions Depend on How Options are Presented to Us? Framing Effect, Explained*, DECISION LAB, <https://thedecisionlab.com/biases/framing-effect> [https://perma.cc/NN2Z-SVFN] (describing what the framing effect is and suggesting strategies on how to avoid it); ROBERT A. PETERSON, *CONSTRUCTING EFFECTIVE QUESTIONNAIRES* 45–60 (2000) (discussing how to construct and word questions to avoid influencing answers); I-CHANT A. CHIANG, RAJIV S. JHANGIANI & PAUL C. PRICE, *RESEARCH METHODS IN PSYCHOLOGY* 184–91 (2d ed. 2015) (suggesting ways to structure effective survey questionnaires), as well as means of correcting for framing problems after the survey has already been conducted, *see, e.g.*, Jacob Goldin & Daniel Reck, *The Analysis of Survey Data with Framing Effects*, 73 *AM. STATISTICIAN* 264, 264 (2018) (describing framing effects as "a well-known difficulty" in proposing a new solution in addition to describing existing solutions that can be applied after the survey is conducted).

262. Strahilevitz, *supra* note 258, at 936.

263. *Supra* Part I.

264. Spencer, *supra* note 81, at 850–51.

values and expectations of the national community.”²⁶⁵ But there are two problems with this critique, one theoretical and one empirical. First, the Supreme Court itself is inconsistent on this issue. Although there are Fourth Amendment cases where the Court cites the need for consistent national standards,²⁶⁶ there are also many areas where the Court has embraced such variation. For instance, the application of inventory search exception analysis depends on the police procedure not in each state but in each department in each county.²⁶⁷ Second, and even more problematic, if there is variation by state, that underlying variation will exist whether social scientists measure it or not. So, if the Court is simply intuiting social expectations, even if it were to do so accurately—which is unlikely for the reasons described throughout this Article—it would simply be reading out that variation when it declared the national expectation of privacy. This would likely lead to a larger accuracy gulf than use of social scientific evidence, because social scientists have techniques to account for underlying variation in aggregating data.²⁶⁸

Ultimately, the case against using social science to determine society’s expectations is largely based on a misunderstanding of the capacity of social science to solve basic problems, such as variation in the underlying preferences of different groups being surveyed and the framing of questions to manipulate answers. Scholars in fields as diverse as economics, sociology, political science, and law have over many decades developed tools to solve these problems. Social science done

265. *Id.* at 850.

266. *See, e.g.,* *Virginia v. Moore*, 553 U.S. 164, 167, 176 (2008) (finding a search following arrest contrary to state law nonetheless permissible and describing as “strange” the idea that stricter rules would apply to states “solely because the States have passed” more stringent search and seizure laws).

267. *See* *Colorado v. Bertine*, 479 U.S. 367, 374 (1987) (“[R]easonable police regulations relating to inventory procedures administered in good faith satisfy the Fourth Amendment.”). For a critique, see Tonja Jacobi & Elliot Louthen, *The Corrosive Effect of Inevitable Discovery on the Fourth Amendment*, 171 U. PENN. L. REV. 1, 55–58 (2022) (arguing that reliance on police standards, which are based on police manuals written by police departments, leaves the definition of Fourth Amendment rights in the hands of those whom the Constitution is meant to constrain).

268. As have scientists in other fields. *See, e.g.,* Andrew M. Sayer & Kirk D. Knobelspiesse, *How Should We Aggregate Data? Methods Accounting for the Numerical Distributions, with an Assessment of Aerosol Optical Depth*, 19 ATMOSPHERIC CHEMISTRY PHYSICS 15029–31 (2019) (describing logging techniques for solving such variation).

badly is dangerous. But social science done well offers the best solution to the problem of Katzian circularity.

2. Courts Increasingly Use Social Science Evidence, With Good Reason

The Supreme Court has at times indicated reluctance to rely on social science evidence.²⁶⁹ However, there are numerous instances in which courts, including the Supreme Court, have relied on social science, in the Fourth Amendment context and others.²⁷⁰ As early as 1907, in *Muller v. Oregon*,²⁷¹ the Supreme Court relied on then-advocate Louis D. Brandeis's "substantial body of medical and social science research tending to show the debilitating effect on women of working long hours" to uphold Oregon's limits on the number of hours women could work.²⁷² And famously,²⁷³ in *Brown v. Board of Education*,²⁷⁴ Chief Justice Earl Warren's unanimous opinion for the Court relied heavily on sociological and psychological studies showing that racial segregation adversely affects black children.²⁷⁵ Studies show that there has been a "marked increase" in the number of social science studies both presented to and cited by the Court.²⁷⁶ In fact, social science is used in a variety of ways by courts: "to make law" (using social science as a "legislative fact"), "to decide the instant case" (using social science as an

269. See, e.g., Michael Heise, *Brown Undone?: The Future of Integration in Seattle After Plessy v. Seattle School District No. 1*, 31 SEATTLE U. L. REV. 863, 863 (2008) ("The Supreme Court continues to struggle with complex and uncertain social science evidence in constitutional cases. Ambivalence about the proper role such evidence should play in judicial decision making contributes to this struggle."); Fradella, Morrow, Fischer & Ireland, *supra* note 100, at 373 (describing the Court's "hostility to empirical research in the context of adjudicating constitutional claims relevant to criminal law and procedure").

270. The Washington Supreme Court held the Death-Penalty Law unconstitutional based in part on an empirical study showing disparate effects by race. *State v. Gregory*, 427 P.3d 621, 633–36 (Wash. 2018).

271. 208 U.S. 412 (1907).

272. John Monahan & Laurens Walker, *Social Authority: Obtaining, Evaluating, and Establishing Social Science in Law*, 134 U. PENN. L. REV. 477, 480 (1986).

273. See Amy Rublin, *The Role of Social Science in Judicial Decision Making: How Gay Rights Advocates Can Learn from Integration and Capital Punishment Case Law*, 19 DUKE J. GENDER L. & POL'Y 179, 189 (2011) (stating that footnote 11 of *Brown* "is considered to be the paragon of judicial acceptance of social science").

274. 347 U.S. 483 (1954).

275. See *id.* at 494–95 n.11.

276. Rublin, *supra* note 273, at 179; see Phoebe C. Ellsworth, *Unpleasant Facts: The Supreme Court's Response to Empirical Research on Capital Punishment*, in 24 CHALLENGING CAP. PUNISHMENT: LEGAL AND SOC. APPROACHES 177, 177–80 (Kenneth C. Haas & James A. Inciardi eds., 1988).

“adjudicative fact”), or “to construct a context in which to understand the issue” (using social science as “social frameworks”).²⁷⁷ Indeed, in the 2023 Term, Justice Gorsuch demanded an advocate explain why social science evidence had *not* been brought to the Court’s attention on the question of whether a codefendant’s out-of-court confessions can be dealt with through jury instructions, given that jury instructions are considered adequate to deal with the defendant’s own confession admitted for the purposes of impeachment.²⁷⁸

However, some scholars have critiqued the use of social science evidence by courts as simply adding gravitas to the position the judge wanted to adopt anyway.²⁷⁹ Others have noted that judges are not scientists and that “scientific evidence can be mischaracterized or misinterpreted in the hands of non-scientists.”²⁸⁰ This is certainly true, but the same has been said of judges’ lack of training in history and the misunderstandings and mischaracterizations that result,²⁸¹ and yet originalism has come to dominate constitutional reasoning in recent decades.²⁸²

Also, the use by courts of social science research on society’s expectations would become less prone to these criticisms if its use became standard practice, because the adversarial system would ensure that a side that was disadvantaged by dubious

277. Rublin, *supra* note 273, at 183; *see also* Donald N. Bersoff & David J. Glass, *The Not-So Weisman: The Supreme Court’s Continuing Misuse of Social Science Research*, 2 U. CHI. L. SCH. ROUNDTABLE 279, 293 (1995) (“The Court has (1) misused or misapplied data when it believes the data will enhance the persuasiveness of its opinions; (2) ignored or rejected data despite its assertion of empirically testable statements; and (3) disparaged data when the research does not support its views.”).

278. Transcript of Oral Argument at 22, *Samia v. United States*, 599 U.S. 635 (2023) (No. 22-196) (“[T]hat’s a functionalist argument that jurors can’t put this out of their mind, but they can put non-Mirandized confessions out of their mind. Do we have any social science to back that up, that distinction?”).

279. *See, e.g.*, Rublin, *supra* note 273, at 200.

280. Shawn Kolitch, Comment, *Constitutional Fact Finding and the Appropriate Use of Empirical Data in Constitutional Law*, 10 LEWIS & CLARK L. REV. 673, 698 (2006); *see also* Luke M. Milligan, *The Real Rules of “Search” Interpretations*, 21 WM. & MARY BILL RTS. J. 1, 26 (2012) (“[T]he Court is not adequately trained to incorporate the studies into its decisionmaking.”).

281. *See* Deepa Das Acevedo, *The Past as a Colonialist Resource*, 73 DUKE L.J. 1373, 1393–96 (2024) (describing the many critiques of originalism, including its lack of historical rigor).

282. *See* Brian A. Lichter & David P. Baltmanis, *Foreword: Original Ideas on Originalism*, 103 NW. U. L. REV. 491, 491 (2009) (“[O]riginalism now represents a dominant—perhaps the dominant—method of constitutional interpretation.”).

research could challenge such research or present its own.²⁸³ Also, given that the alternative—and current practice—is for judges to simply “sense” society’s expectations,²⁸⁴ social science can improve the process for judges who want to determine the facts on the ground. Only social science can provide any reality to the aspiration of objectivity in judges ascertaining society’s expectations.

Other scholars have recognized the potential of courts considering social science evidence on a broad range of legal issues that raise empirical questions. For instance, Professor Richard Redding pointed out that “empirical evidence may force legal decision makers to confront empirical realities, or at least to articulate more explicitly the normative rationale underlying legal decisions” and to distinguish normative issues from empirical issues.²⁸⁵ Professor David Faigman argued that “[a] constitution that is interpreted in disregard of a sound understanding of empirical realities is exceedingly unlikely to endure.”²⁸⁶ And in the criminal procedure context more specifically, scholars have argued that there is,²⁸⁷ and should

283. *But see generally* Rebecca Haw Allensworth, *Adversarial Economics in Antitrust Litigation: Losing Academic Consensus in the Battle of the Experts*, 106 NW. U. L. REV. 1261 (2012) (“[A]dversarial presentation of expert scientific evidence tends to obscure academic consensus.”). A related concern about the use of social science evidence relates to equity: many criminal defendants may not be able to afford to conduct polling as part of their defense. Yet a shift in the law on this front would likely lead to some regular polling on contested issues, as happens with other topics (e.g., regard for the Supreme Court and other political views), making relevant social science evidence more readily available. It may further enhance judicial awareness of—and perhaps even rules around—markers of reliability, validity, and the like in social science data. At the very least, there should be enough resources to undertake this type of analysis in cases that reach the Supreme Court when setting national law.

284. *See also* Tonja Jacobi, *The Subtle Unraveling of Federalism: The Illogic of Using State Legislation as Evidence of an Evolving National Consensus*, 84 N.C. L. REV. 1089, 1132, 1147, 1158 (2006) (critiquing the Court’s sensing of a national consensus on certain death penalty applications as entirely lacking methodological rigor).

285. Richard E. Redding, *Reconstructing Science Through Law*, 23 S. ILL. U. L.J. 585, 604 (1999).

286. Faigman, *supra* note 133, at 1101.

287. Steven L. Chanenson, *Get the Facts, Jack!—Empirical Research and the Changing Constitutional Landscape of Consent Searches*, 71 TENN. L. REV. 399, 443 (2004) (asserting that “[t]here is a growing view favoring empirical research” in the criminal procedure context).

be,²⁸⁸ growing support for the use of empirical research. As Professors Tracey Meares and Bernard Harcourt noted, “empirical evidence will [not] guarantee the right answers in criminal procedure cases,” but empirically informed judicial decisions “are more transparent in that they expressly articulate the grounds for factual assertions and, as a result, more clearly reflect the interpretive choices involved in criminal procedure decision-making.”²⁸⁹ And regarding the Fourth Amendment and Katzian analysis in particular, Professor Lindsey Barrett noted, “empirical research on privacy norms could help correct judges’ erroneous understanding of what a reasonable expectation of privacy is, and to consider how blunt precedents should be applied to new technology.”²⁹⁰

3. The Benefits of Social Science Evidence of Expectations in Particular

We agree with the benefits just described in using social science generally and in the criminal procedure context in particular. Importantly, we argue further that using social science could address each of the six circularity problems identified in Part I of this Article. First, and most directly, if judges could more accurately ascertain society’s expectations, it would be harder for them to substitute their own views of what those expectations are. Continuing to rely on their own intuitions in the face of evidence to the contrary would require deliberate manipulation of the reasonable expectations standard, a topic we turn to shortly below. But to the extent that judges are suffering from well-intended misapprehension (even if fueled by judicial condescension), rather than deliberately ignoring society’s expectations, knowing the facts will help. It will directly avoid circularity problem 1a, the

288. See Meares & Harcourt, *supra* note 133; Chao, Durso, Farrell & Robertson, *supra* note 113, at 273 (calling for social science and empirical analysis as an essential element in constitutional and criminal-procedure decisionmaking); SLOBOGIN, *supra* note 224 (arguing that an “even better source” for evaluating society’s privacy expectations is “survey data that straightforwardly asks citizens what their privacy expectations are vis-à-vis the government”).

289. Meares & Harcourt, *supra* note 133.

290. Barrett, *supra* note 36, at 9; see also Blumenthal, Adya & Mogle, *supra* note 114, at 332 (“The Court’s reliance on assumptions about individuals’ and society’s expectations, perceptions, and understandings of that nebulous notion of ‘privacy’ highlight the importance of empirical research into such understanding.”); Slobogin, *supra* note 176 (“Honest judging would recognize that empirically derived privacy expectations are crucial in determining individual interests in Fourth Amendment cases.”).

judicial self-reflection problem that judges are simply reflecting their own (non-representative) expectations rather than societal expectations. Currently, even well-intended judges who lack evidence are left to “bas[e] their decisions on their own intuitions about which expectations of privacy are reasonable,” undermining the goal of finding “objective” expectations of privacy.²⁹¹ This leaves judges in the “untenable position of subscribing to scientific realism as a foundational philosophy, but act[ing] as antirealists in crafting constitutional outcomes.”²⁹²

We found little evidence of Katzian problem 1b, the *judicial self-reflection* problem that judges’ decisions influence the social expectations they claim to be reflecting. But if we have underestimated, or if this becomes a problem subsequently, then solving Katzian problem 1a would help resolve its flipside, 1b. By helping judges reflect actual expectations, rather than inserting their own intuitions, the problem of influencing social expectations by the law being off-kilter would diminish over time.

We found only one potential example of the *government manipulation problem*, 2a and 2b: changes in societal views on police questioning of citizens on public sidewalks. But a more aggressive approach by future administrations could increase this problem. Having a potential solution, then, is vital. Social science evidence could clarify when state actors manipulate or unintentionally affect expectations. Social science is capable of showing not just what society’s expectations are at a given moment but how they change over time. Reliable survey evidence can show when governments are shaping expectations through their own expansive use of government power. For instance, recall the NSA example described in Part I: it was hypothesized that governments could deliberately reveal to the public that their emails were being read in order to lower expectations and thus legalize more intrusive governmental actions. Survey evidence could show if expectations regarding the privacy of one’s emails were changing through these manipulations.²⁹³ In this way, social science evidence could help address both the objective (2a) and the subjective (2b) aspects of government manipulation circularity.

291. Barros, *supra* note 133; see also Faigman, *supra* note 133.

292. Faigman, *supra* note 133.

293. Although this would require *ex ante* survey evidence of expectations existing before the government action.

A similar curative effect could arise if judges deliberately misuse social science evidence to achieve their preferred outcome (a more Machiavellian version of problem 1a). In the adversarial system, where both sides can present evidence, experts for each side can rebut the claims of the other. Additionally, dissenting or concurring judges can challenge not only judicial misstatements of law but also judicial misstatements of facts. A new study shows that, in criminal procedure cases before the Supreme Court, dissenting Justices do precisely this, challenging misstatements of facts, misrepresentations of the facts, omissions of relevant facts, and inclusion of irrelevant but potentially prejudicial facts by other Justices.²⁹⁴

Finally, judges would be able to use social science evidence to assess whether their prior opinions have become redundant, to avoid both aspects of the *judicial ossification problem*, 3a and 3b. The first ossification problem (3a) occurs when court rulings stymie innovation and technological development by the police. The second ossification problem (3b) arises when out-of-date court rulings prevent police from using common technology. By having the opportunity to reconsider prior rulings based on social science evidence of changed expectations, judges would be free to find that prior determinations no longer apply. This would permit police to use existing technology that has come into general use, mitigating problem 3b. Reconsidering out-of-date rules would also allow police to eventually update with new technology, mitigating problem 3a. Courts are capable of doing this—as discussed,²⁹⁵ the Supreme Court did it in *Arizona v. Gant* when it essentially admitted that its prior ruling in *New York v. Belton*²⁹⁶ had become entrenched not only in law (circularity problem 1b) but also in police practice (3a).²⁹⁷ The Court found that this changed the underlying facts on which the prior empirical claim, and the law upon which it

294. See Tonja Jacobi & Eryn Mascia, *Alternative Facts: The Strategy of Judicial Rhetoric*, 73 EMORY L.J. 363, 404 (2023).

295. *Supra* Section I.C.

296. 453 U.S. 454, 460 (1981) (“[A]rticles inside the relatively narrow compass of the passenger compartment of an automobile are in fact generally, even if not inevitably, within” reach of arrestees.).

297. *Arizona v. Gant*, 556 U.S. 332, 342–43 (2009); *Thornton v. United States*, 541 U.S. 615, 628 (2004) (Scalia, J., concurring) (describing the “popularity of the practice” of arresting, handcuffing, and placing a suspect in the back of the squad car, and sometimes even having the squad car then leave the scene, before undertaking the search allegedly based on safety of the officer during the search).

rested, was based.²⁹⁸ Thus, while courts may be reluctant to acknowledge that their own decisions may either become self-fulfilling or, even if correct when issued, become wrong as a downstream result of their own proclamations, *Gant* shows that courts can acknowledge it and that they should. Social science provides the most reliable means of aiding that realization.

CONCLUSION

Slobogin and Schumacher showed empirically that people expect more privacy than the Court typically recognizes,²⁹⁹ and we confirmed that this is still the case.³⁰⁰ But our proposal that the Court should rely on social science evidence to determine society's expectations, rather than the Justices' intuitions, will not always be expansive of the Fourth Amendment. For instance, it would have the reverse effect for *Carpenter v. United States*,³⁰¹ in which the Supreme Court held that the police needed a warrant to access historical cell-site location information because cell phones reveal so much private information that to not require a warrant would risk "Government encroachment of the sort the Framers, 'after consulting the lessons of history,' drafted the Fourth Amendment to prevent."³⁰² The quoted statement may be true, but in terms of expectations of privacy, it seems quite likely untrue that the ordinary person did not expect that their cell-site location information could be accessed by the police.³⁰³ Perhaps what was really going on in *Carpenter* was that the Court was addressing a different question: whether, if it decided differently, the result would be an unpalatable amount

298. *Gant*, 556 U.S. at 343 n.4 ("Because officers have many means of ensuring the safe arrest of vehicle occupants, it will be the rare case in which an officer is unable to fully effectuate an arrest so that a real possibility of access to the arrestee's vehicle remains.").

299. See Slobogin & Schumacher, *supra* note 11, at 739–42 (comparing survey results to Supreme Court decisions regarding police practices).

300. *Supra* Part II.

301. 558 U.S. 296 (2018).

302. *Id.* at 320 (quoting *United States v. Di Re*, 332 U.S. 581, 595 (1948)).

303. Tokson showed that people, in fact, often do not even know that their information is stored in this way. Tokson, *supra* note 106, at 620 ("Internet users have a poor understanding of data collection practices . . . they have little understanding of how extensive the data collection is or how their information is used for advertising purposes."). So, it is likely fiction to analyze their presumed expectations of the process police must follow in order to access it.

of surveillance.³⁰⁴ The Court was not really addressing what people actually expect, rather it was answering an unstated but clearly implicit normative question. And that may explain why courts are reluctant to embrace social science: because they want to be able to slip their own normative preferences into the analysis under the guise of legal doctrine.

There is some irony in the fact that judges are reluctant to let social science evidence inform their declarations about lay privacy expectations, while the lay expectations themselves are quite responsive to such evidence. The fact that lay privacy expectations are prone to influence shows why understanding Katzian circularity is important. It also shows the critical role of accurate measurement of expectations in resolving that circularity. There is a vital need for courts to turn to social science evidence of societal privacy expectations rather than rely on vibes or intuitions. Though we have provided evidence that judicial misstatements of expectations do not influence society's expectations nearly as much as the literature would suggest, they do, of course, contribute to the disconnect between societal expectations and Fourth Amendment law.

Importantly, we have highlighted the malleability of societal expectations of privacy. Expectations are influenced by statements of what *others* expect, whether accurate or not. For this reason, in an era of "alternative facts" and "fake news,"³⁰⁵ the potential for the manipulation of society's expectations of privacy is increasing exponentially. Yet, jettisoning *Katz* is not the answer: we have shown that other so-called solutions merely mask the role of making assessments of societal expectations and thus have the same potential for circularity. The best solution is for the law to accurately reflect what people actually expect. And the only way to do that is through accurately measuring what people expect and shaping the doctrine to reflect these expectations, rather than the other way around.

304. *Carpenter*, 558 U.S. at 311–12 (“[W]hen the Government tracks the location of a cell phone it achieves near perfect surveillance, as if it had attached an ankle monitor to the phone’s user.”).

305. See Amy Watson, *Share of People Who Have Ever Accidentally Shared Fake News or Information on Social Media in the United States as of December 2020*, STATISTA (Mar 21, 2023), <https://www.statista.com/statistics/657111/fake-news-sharing-online/> [<https://perma.cc/6JLW-KKRG>] (noting that 47% of Americans reported witnessing fake news in newspapers and magazines as of January 2019 and that 38.2% admitted to unknowingly sharing fake news or information on social media as of December 2020).

Appendix

The eight scenarios used in Study Two are printed below. All eight are presented as they appeared in the smallest Proportion condition with numeric Framing.

Subdermal Implant Data

It is becoming a common practice for people to have small electronic subdermal implants inserted under the skin of their wrists, which enable them to use their credit cards, access their front doors, pass money to each other electronically etc.

Studies by social scientists have shown that 23% of people believe that police should need a warrant (a court order) in order to access the information stored by these subdermal implants.

Full Body Scanner Data (from Event Venues)

It is becoming a common practice for large venues hosting sports and music events to require people in attendance to walk through full body scanners on their way into the event, similar to the full body scanners used at airports. Images from these body scans are stored in the scanner system.

Studies by social scientists have shown that 23% of people believe that police should need a warrant (a court order) in order to access the information stored by these full body scanners.

Facial Recognition Data (from Event Venues)

It is becoming a common practice for large venues hosting sports and music events to install cameras throughout their venues equipped with sophisticated facial recognition software. Data on attendees' faces, and when identifiable, their identities, are stored by the facial recognition cameras.

Studies by social scientists have shown that 23% of people believe that police should need a warrant (a court order) in order to access the information stored by these facial recognition cameras.

Website User Logs

It is becoming a common practice for website operators to store information about users' use of their websites (times accessed; pages visited; times spent on particular pages; etc.) in user logs.

Studies by social scientists have shown that 23% of people

believe that police should need a warrant (a court order) in order to access the information stored in these website user logs.

Cell Phone GPS Data

It is becoming common for personal cellular phones to come equipped with activated GPS location technology. Logs of cellular phone GPS coordinates are stored by cellular phone companies.

Studies by social scientists have shown that 23% of people believe that police should need a warrant (a court order) in order to access the information stored in these cell phone GPS logs.

Smart Scooter User GPS Logs

It is becoming common for people to use rentable forms of transportation, such as rentable electronic scooters. People can use cell phone applications associated with electronic scooters to rent an electronic scooter at one location and then, when they are done using it, leave the scooter at another location. The companies that provide the scooters keep records of the scooters' users and the scooters' GPS locations, so that it is possible to tell from the records who used a scooter in what location, and when.

Studies by social scientists have shown that 23% of people believe that police should need a warrant (a court order) in order to access the information stored in these electronic scooter records.

Alexa Recordings

It is becoming common for people to use in-home, voice-controlled electronic assistants such as Google Home and Amazon's Alexa for an assortment of functions, from playing music to operating the thermostat to answering questions. Because these devices are voice-controlled, they contain microphones that can capture sounds in the home, including the conversations of people in the home. The companies that provide the electronic assistants store these recordings.

Studies by social scientists have shown that 23% of people believe that police should need a warrant (a court order) in order to access stored information captured by these in-home, voice-controlled electronic assistants.

WearableTech Data

It is becoming a common practice for people to use wearable technologies, including smart sleeves, that record vital statistics and health information about the wearer (ex. heart rate, whether the wearer is awake/asleep, activity level, steps). The information is stored in an application associated with the wearable technology.

Studies by social scientists have shown that 23% of people believe that police should need a warrant (a court order) in order to access the information captured by wearable technologies such as smart sleeves.