

Knowledge, Risk, and Wrongdoing: The Model Penal Code's Forgotten Answer to the Riddle of Objective Probability

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In criminal cases, courts routinely say that the lawfulness of an actor's conduct depends in part on the objective probability of harm associated with the conduct. The conventional wisdom among criminal law theorists, meanwhile, is that objective probabilities of the required sort do not even exist, much less determine the lawfulness of conduct. This Article sides with the courts. Drawing on a forgotten but central feature of the Model Penal Code, and on a parallel feature of the law of search and seizure, the Article argues that the answer to the riddle of objective probability lies in the difference between what the actor knows and what the actor merely believes. It argues that probabilities calculated on the basis of what the actor knows—on the basis of “the circumstances known to him,” in the Model Penal Code’s formulation—are not illusory, and moreover are objective in exactly the way that the criminal law appears to require. It argues, further, that the circumstances known to the actor encompass or imply everything essential to the actor’s perspective, and so provide a fair basis for determining the justifiability and lawfulness—if not the culpability—of the actor’s conduct.

INTRODUCTION

Criminal liability for offenses like implied-malice murder, reckless manslaughter, and negligent homicide often depends in part on how probable the proscribed

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outcome was.¹ Consider, for example, the case of Marjorie Knoller, who was convicted of implied-malice murder after her two Presa Canario dogs mauled a neighbor to death.² Knoller's liability for implied-malice murder hinged in part, the court said, on whether her conduct in keeping the dogs posed a "high probability of causing death."³ And consider the case of Sharan Ann Williams, who was convicted of "injury to a child" after her two children died in a house fire while her boyfriend was babysitting them.⁴ The jury concluded that Williams had been reckless in leaving her children with the boyfriend, whose home was without utilities and who often used candles for light.⁵ Williams's liability, like Knoller's, hinged in part on "the probability of the anticipated injury."⁶

What courts mean by "probability" in cases like these is actual, or objective, probability. In Knoller's case, for example, the California Supreme Court said that the required "high probability of causing death" is the "objective component" of implied-malice murder.⁷ And in Williams's

1. See GEORGE P. FLETCHER, RETHINKING CRIMINAL LAW § 4.3, at 259-60 (1978) (identifying the "likelihood of causing death under the circumstances" as a critical factor in addressing "the acceptability and culpability of risk-taking"); GLANVILLE WILLIAMS, CRIMINAL LAW: THE GENERAL PART § 26, at 62 (2d ed. 1961) (identifying "the degree of probability of the consequence" as a critical factor in liability for unintentional crimes); Herbert Wechsler & Jerome Michael, *A Rationale of the Law of Homicide: I*, 37 COLUM. L. REV. 701, 744 (1937) ("[T]he desirability of preventing a particular act because it may result in death, turns upon . . . the probability that death or serious injury will result.").

2. People v. Knoller, 158 P.3d 731, 732 (Cal. 2007).

3. *Id.* at 742.

4. Williams v. State, 235 S.W.3d 742, 750, 765-66 (Tex. Crim. App. 2007) (reversing jury's verdict and remanding for entry of a judgment of acquittal).

5. *Id.* at 749.

6. *Id.* at 752 n.24 (quoting *Transp. Ins. Co. v. Moriel*, 879 S.W.2d 10, 22 (Tex. 1994) ("Extreme risk is a function of both the magnitude and the probability of the anticipated injury" (quoting *Transp. Ins. Co.*, 879 S.W.2d at 22)).

7. *Knoller*, 158 P.3d at 742; see also, e.g., *Jeffries v. State*, 169 P.3d 913, 917 (Alaska 2007) ("[Implied-malice] murder is [reserved] for cases in which the objective risk of death or serious physical injury posed by the defendant's actions is 'very high.'"); Alan C. Michaels, Note, *Defining Unintended Murder*,

case, the Texas Court of Criminal Appeals said that the “probability and magnitude of the potential harm” to others—the component parts of risk, in other words⁸—are measured “objectively.”⁹ To be sure, this requirement of objective risk does not exhaust the content of manslaughter or implied-malice murder, or even criminally negligent homicide. All of these offenses have a culpability component that is distinct from the objective component.¹⁰ Nevertheless, the measurement of the actual or objective probability of harm—and, derivatively, of the actual or objective risk—usually is a critical part of the factfinder’s work in these cases.

85 COLUM. L. REV. 786, 791 nn.27 & 29 (1985) (identifying states where the courts look to “the actual degree of risk” in defining implied-malice murder).

8. See Sarah Green, *The Risk Pricing Principle: A Pragmatic Approach to Causation and Apportionment of Damages*, 4 L. PROBABILITY & RISK 159, 161 (2005) (“[R]isk has been . . . defined as the probability of harm occurring multiplied by the magnitude of the harm that might eventually occur.”).

9. *Williams*, 235 S.W.3d at 763; see also, e.g., *State v. Kistenmacher*, 436 N.W.2d 168, 171 (Neb. 1989) (holding that factfinder’s assessment of risk in manslaughter prosecution is “purely objective”); *State v. Ebinger*, 603 A.2d 924, 925 (N.H. 1992) (“Whether the defendant failed to become aware of a ‘substantial and unjustifiable risk’ is determined by an objective test, not by reference to the defendant’s subjective perception.”); *State v. Robinson*, 63 P.3d 105, 108 (Utah Ct. App. 2003) (holding in prosecution for manslaughter that “the magnitude of the risk itself . . . is an objective matter”); *State v. Brooks*, 658 A.2d 22, 26-27 (Vt. 1995) (holding that involuntary manslaughter statute requires “the jury to objectively assess the risk”).

10. See *Knoller*, 158 P.3d at 742 (citing *People v. Thomas*, 261 P.2d 1, 7 (Cal. 1953)) (explaining that in addition to objective risk, implied-malice murder requires that the defendant act without regard to human life); *Williams*, 235 S.W.3d at 752 n.24 (“Subjectively, the defendant must have actual awareness of the extreme risk created by his or her conduct.” (quoting *Transp. Ins. Co.*, 879 S.W.2d at 22)); see also George P. Fletcher, *The Theory of Criminal Negligence: A Comparative Analysis*, 119 U. PA. L. REV. 401, 429 (1971) (arguing that even criminal negligence has two dimensions: legality and culpability); Eric A. Johnson, *Mens Rea for Sexual Abuse: The Case for Defining the Acceptable Risk*, 99 J. CRIM. L. & CRIMINOLOGY 1, 42-43 (2009) (explaining culpability component of recklessness and criminal negligence and its relationship to the assessment of the risk); Paul H. Robinson, *Prohibited Risks and Culpable Disregard or Inattentiveness: Challenge and Confusion in the Formulation of Risk-Creation Offenses*, 4 THEORETICAL INQUIRIES L. 367, 367-69 (2003) (arguing that recklessness and negligence pose two distinct questions: [W]hether “the actor create[d] a risk the law prohibits” and whether the actor was sufficiently culpable to “deserve the condemnation of a criminal conviction”).

Or so the courts say. Criminal law theorists, on the other hand, have raised serious questions about whether the idea of objective probability, as invoked in the criminal cases, is even coherent.¹¹ The theorists' concerns about objective probability are basically two. The first is that courts cannot mean by "objective probability" what they seem to: namely, a probability calculated on the basis of *all* the objective facts as they existed at the moment of the defendant's criminal act.¹² If the finder of fact were to take into account *all* the objective facts—"all the forces by which nature [was] animated and the respective situation of the beings who compose[d] it"¹³—she always would arrive at a probability of either 1 or 0, depending on whether the harm actually had occurred or not.¹⁴ The world is deterministic at the macroscopic level, after all.¹⁵ Thus, in cases where the

11. See, e.g., LARRY ALEXANDER ET AL., CRIME AND CULPABILITY 29-31 (2009) (arguing that objective probabilities are "illusory," since, from an objective perspective, all events have a probability of either one or zero—leaving aside quantum events); Heidi M. Hurd & Michael S. Moore, *Negligence in the Air*, 3 THEORETICAL INQUIRIES L. 333, 358 (2002) ("Indeterministic microphysics to the side, there is no such thing as an objective risk; there are only risks to be perceived from certain epistemic vantage points."); Kenneth W. Simons, *Deontology, Negligence, Tort, and Crime*, 76 B.U. L. REV. 273, 290-91 (1996) ("[I]n the objective sense, a person creates a 'risk' of harm of either zero or one."); Peter Westen, *Impossibility Attempts: A Speculative Thesis*, 5 OHIO ST. J. CRIM. L. 523, 547 (2008) ("[I]t is incoherent to speak of *actual* past risks and threats regarding harms that we know *ex post* did not occur if we mean to be referring to the knowledge that we possess *ex post*.").

12. Courts sometimes insist that this is exactly what they mean by objective probability. See, e.g., People v. Maciel, 6 Cal. Rptr. 3d 628, 634 (Ct. App. 2003) (holding that relevant probabilities are calculated on the basis of "all the surrounding circumstances").

13. PIERRE SIMON & MARQUIS DE LAPLACE, A PHILOSOPHICAL ESSAY ON PROBABILITIES 4 (Frederick Wilson Truscott & Frederick Lincoln Emory, trans., Dover Publications, 1951) (1814).

14. David D. Friedman, *Impossibility, Subjective Probability, and Punishment for Attempts*, 20 J. LEGAL STUD. 179, 183 (1991); Heidi M. Hurd, *The Deontology of Negligence*, 76 B.U. L. REV. 249, 263 n.35 (1996); Alan C. Michaels, *Acceptance: The Missing Mental State*, 71 S. CAL. L. REV. 953, 972 n.65 (1998); Kenneth W. Simons, *Dimensions of Negligence in Criminal and Tort Law*, 3 THEORETICAL INQUIRIES L. 283, 300 n.39 (2002); Westen, *supra* note 11, at 544.

15. Hurd & Moore, *supra* note 11, at 358; see also BRIAN GREENE, THE ELEGANT UNIVERSE 93, 116 (2003) (explaining why the smallness of Planck's

proscribed harm actually had occurred, the finder of fact would have to infer that it was bound to occur—that the probability of harm was 1. So too, in cases where the harm had not occurred, the finder of fact would have to infer that the harm was bound not to occur. “To the omniscient observer,” as Paul Robinson has said, “there is no such thing as a risk, even *ex ante*.¹⁶

The only apparent alternative is to measure the probability of harm from the perspective of a less-than-omniscient “reasonable person,” who is hypothetically invested with knowledge of some but not all of the relevant facts.¹⁷ This reasonable-person-centered alternative is the object of the criminal law theorists’ second concern. The law, they argue, often makes use of the reasonable-person construct to help factfinders decide what kinds of conduct and thinking are appropriate to an underlying set of facts or beliefs.¹⁸ But a reasonable-person-centered theory of probability, in contrast, would rely on the reasonable person in generating the underlying facts and beliefs themselves,

constant has the effect of confining most quantum indeterminacy “to the microscopic realm”).

16. Robinson, *supra* note 10, at 386.

17. ALEXANDER ET AL., *supra* note 11, at 29 (“[T]he ‘objective’ approach . . . requires that we construct an artificial perspective containing some but not all information.”); see also R.A. DUFF, CRIMINAL ATTEMPTS 82, 195 (1996) (arguing that the only alternative to the subjective approach to risk is a reasonable-person approach, in which liability would “depend on what a reasonable person would have believed or expected, not on what the defendant (unreasonably) believed or expected”); Kenneth W. Simons, *Retributivism Refined—or Run Amok?*, 77 U. CHI. L. REV. 551, 573 n.35 (2010) (book review) (arguing that the logical alternative to objective risk is “the risk as perceived by a reasonable person in the shoes of the actor”); FLETCHER, *supra* note 1, §3.3.3, at 150 (assuming that the objective risk associated with a particular criminal attempt is measured from the perspective of “an objective observer”).

18. See Westen, *supra* note 11, at 545-46 (“[The reasonable-person standard] is a *normative* measure of what kinds of conduct, thinking, and emotions are normatively appropriate to such facts as obtain or are believed to obtain.”); see also Peter Westen, *Individualizing the Reasonable Person in Criminal Law*, 2 CRIM. L. & PHIL. 137, 138 (2008) (“[R]easonableness] is a normative measure of ways in which it is *right* for persons to think, feel or behave – or, at the very least, ways in which it is *not wrong* for them to do so.”).

from the ground up.¹⁹ In this role, as Larry Alexander has said, the reasonable-person construct is “indeterminate through and through.”²⁰ There is no non-arbitrary way of deciding what a reasonable person knows about, say, the dangers posed by Presa Canario dogs.

The implications of this twofold critique are potentially profound. If, indeed, the idea of objective probability is incoherent, then the criminal law requires modification in one of three ways. The first alternative would be to construct a non-probabilistic account of risk, as Peter Westen has done.²¹ The second would be to construct an account of objective wrongdoing that does not depend on risk, as Heidi Hurd has done.²² The third would be to collapse altogether the distinction between objective wrongdoing and subjective culpability, as Larry Alexander, Kimberly Kessler Ferzan, and Stephen Morse have done.²³ This last, and most radical, alternative would assign probabilities a role in the evaluation of the actor’s culpability.²⁴ But the probabilities at work in the culpability determination would be subjective, not objective. That is,

19. See Lawrence Crocker, *Justice in Criminal Liability: Decriminalizing Harmless Attempts*, 53 OHIO ST. L.J. 1057, 1099 (1992) (assigning idealized observer the role of defining “the ‘conditions of repetition’ under which the probability is to be generated”); DUFF, *supra* note 17, at 82 (“[A] ‘reasonable’ observer will know certain general facts about the world in which she and the defendant live.”).

20. Larry Alexander, *Inculpatory and Exculpatory Mistakes and the Fact/Law Distinction: An Essay in Memory of Myke Bayles*, 12 L. & PHIL. 33, 67 (1993).

21. See Peter Westen, *Resulting Harms and Objective Risks as Constraints on Punishment*, 29 L. & PHIL. 401, 412-13 (2010) (“[A]n alternative concept of ‘risk’ and ‘danger’ exists that is *neither* probabilistic *nor* factual.”).

22. See Hurd, *supra* note 14, at 262-63 (summarizing the view that risk is ineligible to serve as the touchstone of wrongdoing and that wrongdoing instead “consists in causally-complex actions”).

23. See ALEXANDER ET AL., *supra* note 11, at 92 (acknowledging that their account of criminal law eliminates the traditional distinction between wrongdoing and culpability).

24. *Id.* at 62-63.

the actor's liability would depend solely on her "subjective beliefs about the probabilities of outcomes."²⁵

None of these modifications to the existing law is necessary. In this paper, I will argue that the theorists have overlooked a viable alternative method of measuring objective probabilities. This alternative would measure the probabilities not on the basis of what the actor herself *believed*, nor on the basis of what a hypothetical reasonable person in her place would have believed, but on the basis of what the actor *knew*. There is a difference, of course, between what the actor knew and what she believed; in order to qualify as knowledge, a belief must be (at the very least)²⁶ true and justified.²⁷ Under the proposed alternative, then, the actor's mistaken beliefs would have no effect on the probability calculation, nor would any fact of which the actor was ignorant.²⁸ The jury or judge would calculate the probabilities on the basis of a subset of the world's facts, namely, the subset consisting of just those facts of which the actor was aware.

What makes this alternative worth exploring is, in part, its strong footing in the existing law. The Model Penal Code's influential definitions of recklessness and negligence both require the finder of fact to evaluate the "nature and degree" of the risk on the basis of "the circumstances *known* to [the actor]."²⁹ The Code's choice of words has gone unremarked by scholars, who indeed have consistently

25. *Id.* at 63.

26. See Edmund L. Gettier, *Is Justified True Belief Knowledge?*, 23 ANALYSIS 121, 122-23 (1963) (identifying several examples that show the "justified true belief" definition of knowledge "does not state a sufficient condition for someone's knowing a given proposition").

27. LAURENCE BONJOUR, THE STRUCTURE OF EMPIRICAL KNOWLEDGE 4 (1985); see also Daubert v. Merrell Dow Pharm., 509 U.S. 579, 590 (1993) ("[T]he word 'knowledge' connotes more than subjective belief or unsupported speculation. The term 'applies to any body of known facts or to any body of ideas inferred from such facts or accepted as truths on good grounds.'") (citation omitted).

28. See ALFRED J. AYER, THE PROBLEM OF KNOWLEDGE 31 (1956) (defining knowledge to include, among others, a requirement "that what is known should be true").

29. MODEL PENAL CODE § 2.02(2)(c)-(d) (1985) (emphasis added).

overlooked the distinction between what the actor knows and what the actor believes.³⁰ But the Code's use of the word "known" plainly was the product of a considered choice by the Code's drafters, who in other sections of the Code made the actor's liability hinge instead on "the circumstances as he *believes* them to be."³¹ An evaluation of this aspect of the Model Penal Code is overdue.³²

This known-circumstances formula is of interest for another reason as well. The courts have happened upon exactly the same formula in cases from another subject-matter area, where probability plays a similar, if more overt, role: the law of search and seizure. The lawfulness of a warrantless search or seizure usually depends on whether the evidence available to the officer satisfied one of two probability thresholds: the probable cause standard or the reasonable suspicion standard.³³ In applying these two probability thresholds, the courts measure the objective probabilities just as the Model Penal Code requires the factfinder to do in criminal cases: on the basis of "the facts and circumstances *known* to the officer,"³⁴ rather than on the basis of the facts as the officers *believed* them to be.

30. ALEXANDER ET AL., *supra* note 11, at 29-30, 82 (treating "what the actor knows" as synonymous with what the actor believes); Robinson, *supra* note 10, at 388-89 (treating the actor's mistaken beliefs as counting among "the circumstances known to him"); Westen, *supra* note 11, at 544 (assuming that the purely subjective approach to measuring risk takes as its starting point whatever "knowledge . . . the actor himself possesses").

31. § 210.3(1)(b) (defining the defense of extreme emotional disturbance) (emphasis added); § 5.01(1)(c) (defining the elements of criminal attempt) (emphasis added).

32. See Eric A. Johnson, *Is the Idea of Objective Probability Incoherent?*, 29 L. & PHIL. 419, 428-29 (2010) (arguing that the Model Penal Code's use of both the phrase "circumstances known to him" and the phrase "circumstances as he believes them to be" reflects the drafters' awareness of the distinction between the two).

33. See *Illinois v. Gates*, 462 U.S. 213, 231 (1983) (applying the probable cause standard to a search conducted pursuant to search warrant); *Terry v. Ohio*, 392 U.S. 1, 26-27 (1968) (applying the reasonable suspicion standard to protective frisks).

34. *Henry v. United States*, 361 U.S. 98, 102 (1959) (emphasis added) (citing *Stacey v. Emery*, 97 U.S. 642, 645 (1878) ("Probable cause exists if the facts and circumstances known to the officer warrant a prudent man in believing that an

Close analysis bears out the intuitions behind the known-circumstances formula, as I will show in this Article. I will begin with a brief historical introduction, in which I will explain where the known-circumstances formula came from and what it was meant to accomplish. Next, I will explain how it is possible, paradoxically, to generate agent-independent, or objective, probabilities from what the actor knows. Third, I will explain how the known-circumstances formula defines the body of facts or evidence from which the probabilities are generated, and how the formula can be refined to overcome the criticisms justly leveled at the reasonable-person-centered approach to probability. Finally, I will explore the question why the known circumstances provide a fair basis for evaluating the justifiability of the actor's conduct.

I. A BRIEF HISTORY OF THE KNOWN-CIRCUMSTANCES FORMULA

The Model Penal Code's definitions of recklessness and negligence share a requirement that the actor's conduct pose a "substantial and unjustifiable risk."³⁵ And they share, too, a requirement that the factfinder, in evaluating the nature and degree of the risk, consider "the circumstances known to [the actor]."³⁶ The question arises in connection with both definitions, then: Exactly what did the Model Penal Code's drafters mean when they said that the factfinder, in evaluating the risk, was to consider the circumstances known to the actor?

In this Section, I will take a historical approach to this question. This brief history of the critical phrase will show three things. First, the Model Penal Code's drafters

offense has been committed."); *see also* Devenpeck v. Alford, 543 U.S. 146, 155 (2004) (holding that the existence of probable cause is evaluated solely on the basis of "the facts *known* to the . . . officers" (emphasis added)); *Terry*, 392 U.S. at 21-22 ("[A] judge . . . must evaluate the reasonableness of a particular search or seizure in light of . . . the facts available to the officer at the moment of the seizure or the search.").

35. § 2.02(2)(c)-(d).

36. *Id.*

understood the difference between evaluating the actor's conduct on the basis of what the actor believed and evaluating the actor's conduct on the basis of what she knew, and they meant to require the factfinder to evaluate the actor's conduct on the basis of what the actor knew. Second, the function of the phrase "circumstances known to him" is to define, in Herbert Wechsler's words, a method for "making . . . probability judgments."³⁷ Third, the probability judgments so derived bear not on the question of the actor's culpability but, rather, on the criminal law's objective or external question, namely, whether the actor's conduct—culpable or not—violated an applicable "rule of conduct."

A. *The Formula's Origins in The Common Law*

It is to the Model Penal Code that the known-circumstances formula owes its footing in the current law.³⁸ But the drafters of the Model Penal Code did not coin the phrase "circumstances known to him," nor did they think up the associated method of measuring probabilities—Holmes did.³⁹ The known-circumstances formula emerged fully fledged in *The Common Law*, where Holmes said of the criminal law that "the circumstances in connection with which the tendency of [a person's] act is judged are the circumstances known to him."⁴⁰ Holmes invoked the same formula again three years later, in his opinion for the

37. Wechsler & Michael, *supra* note 1, at 747.

38. See § 2.02(2)(c)-(d) (using the phrase "circumstances known to him" in defining both recklessness and criminal negligence); see also § 2.02 cmt., at 233 ("[V]irtually all recent legislative revisions and proposals follow [the Model Penal Code] in setting up general standards of culpability.").

39. See OLIVER WENDELL HOLMES JR., THE COMMON LAW 75 (1881). When Holmes first introduced the idea of judging the probabilities according to the "known circumstances," he includes a citation to Blackstone. *Id.* at 57 n.1. But Blackstone just said that a killing may be murder "[i]f a man . . . does such an act, of which the probable consequence may be, and eventually is, death." 4 WILLIAM BLACKSTONE, COMMENTARIES *197. Blackstone's only reference to *knowledge* appears in an example: "[I]f a man hath a beast that is used to do mischief; and he, knowing it, suffers it to go abroad, and it kills man; even this is manslaughter in the owner." *Id.*

40. HOLMES, *supra* note 39, at 75.

Massachusetts Supreme Court in *Commonwealth v. Pierce*⁴¹ affirming the manslaughter conviction of a doctor who had recklessly killed a patient by making her spend three days in kerosene-soaked flannels.⁴² And Holmes invoked the formula repeatedly, though to less effect, as a Supreme Court justice.⁴³

The known-circumstances formula was the centerpiece of Holmes's effort in *The Common Law* to articulate objective standards of criminal liability.⁴⁴ In *The Common Law*, Holmes famously wanted to make not just criminal liability but civil liability, too, depend on external or

41. 138 Mass. 165 (1884).

42. *Id.* According to biographer Edward White, Holmes "saw the [Pierce] case as the ideal opportunity to put his theories into practice." G. EDWARD WHITE, JUSTICE OLIVER WENDELL HOLMES 259-61 (1993). In a letter to Frederick Pollack, Holmes said, "[i]f my opinion goes through [in Pierce] . . . it will do much to confirm some theories of my book." *Id.*

43. See *Nash v. United States*, 229 U.S. 373, 377 (1913) ("An act causing death may be murder, manslaughter, or misadventure according to the degree of danger attending it' by common experience in the circumstances known to the actor." (quoting *Pierce*, 138 Mass. at 178)); *Aikens v. Wisconsin*, 195 U.S. 194, 203 (1904) ("A death is caused of malice aforethought if, under the circumstances known to the actor, the probability of its ensuing from the act done is great and manifest according to common experience" (citing *Pierce*, 138 Mass. at 178)); see also *Schlemmer v. Buffalo, Rochester & Pittsburgh Ry. Co.* 205 U.S. 1, 12 (1907) ("Negligence consists in conduct which common experience or the special knowledge of the actor shows to be so likely to produce the result complained of, under the circumstances known to the actor, that he is held answerable for that result, although it was not certain, intended, or foreseen.").

44. See HOLMES, *supra* note 39, at 38 ("[W]hile the law does still and always, in a certain sense, measure legal liability by moral standards, it nevertheless, by the very necessity of its nature, is continually transmuting those moral standards into external or objective ones, from which the actual guilt of the party concerned is wholly eliminated."); see also H. L. A. HART, *Diamonds and String: Holmes on The Common Law*, in ESSAYS IN JURISPRUDENCE AND PHILOSOPHY 278, 281-84 (1983) ("[Holmes] thought . . . acts should be judged by their tendency under the known circumstances not by the actual intent which accompanies them . . ."); Gerald Leonard, *Towards a Legal History of American Criminal Theory: Culture and Doctrine from Blackstone to the Model Penal Code*, 6 BUFF. CRIM. L. REV. 691, 694 n.11 (2003) ("Candidates for a unified theory of criminal law include . . . Oliver Wendell Holmes's reduction of all criminal law to matters of objective risk-creation in *The Common Law*.").

“objective” standards, rather than subjective ones.⁴⁵ But Holmes said that the need for external standards is particularly compelling in the criminal law, where among the law’s aims is the articulation of general standards of conduct: “[W]hen we are dealing with that part of the law which aims more directly than any other at establishing standards of conduct, we should expect there more than elsewhere to find that the tests of liability are external.”⁴⁶ Holmes returned to the same theme in *Pierce*, where he said that the criminal law’s “immediate object and task [is to] establish a general standard, or at least general negative limits, of conduct for the community.”⁴⁷

As Holmes recognized, this task of establishing standards of conduct sometimes can be accomplished through the adoption of specific rules, like “Don’t drive when you’re intoxicated,” or “Don’t sell plantation bitters.”⁴⁸ But many crimes do not lend themselves to rule-like definitions.⁴⁹ This is true, for example, of implied-malice murder and manslaughter, which encompass forms of conduct too various to be captured by specific rules.⁵⁰ Murder and manslaughter really only can be defined as

45. Richard A. Posner, *Legal Scholarship Today*, 115 HARV. L. REV. 1314, 1315 (2002) (“Holmes sought to reconceptualize the Anglo-American common law and by doing so to bring about a variety of reforms, such as the substitution of ‘objective’ for ‘subjective’ principles of criminal and tort liability.”).

46. HOLMES, *supra* note 39, at 50.

47. *Pierce*, 138 Mass. at 176.

48. See HOLMES, *supra* note 39, at 59 (“[U]nder a prohibitory liquor law, it has been held that, if a man sells ‘Plantation Bitters,’ it is no defence that he does not know them to be intoxicating.”); see also W. Jonathan Cardi, *Reconstructing Foresightability*, 46 B.C. L. REV. 921, 977 n.288 (2005) (attributing to Holmes a “longstanding view that judges [in tort cases] should more actively apply their cumulative wisdom to prescribe specific duties in categories of cases”).

49. See Paul H. Robinson, *A Functional Analysis of the Criminal Law*, 88 NW. U. L. REV. 857, 882 (1994) (“Because danger may be created in an infinite number of ways and in an infinite number of situations, the prohibition [on criminal risk] must use risk as the defining concept; no specific set of acts and circumstances can adequately define the prohibited conduct.”).

50. See Simons, *supra* note 14, at 320 (“One cannot, for example, simply define negligent homicide as a killing in which the actor should have realized that he created a 2%, or 5%, risk of unjustifiably causing death.”).

Holmes defined them, namely, according to “the degree of danger attending [the actor’s conduct].”⁵¹ Where crimes like these are concerned, the best we can hope for by way of creating general standards of conduct is (in Paul Robinson’s words, rather than Holmes’s) to “define the real world risk-creation that is prohibited;”⁵² to “tell persons beforehand which risks—what probability of how serious a harm under what circumstances—must be avoided.”⁵³

“Real world risk-creation” is difficult to define, though. What matters, Holmes said in *Pierce*, cannot be the act’s “tendency under all the circumstances actually affecting the result.”⁵⁴ When all the circumstances affecting the result are taken into account, probabilities are displaced by certainties.⁵⁵ Where a bullet “misses its aim,” he said, “the act has produced the whole effect possible to it in the course of nature. It is just as impossible that that bullet under those circumstances should hit that man, as to pick an empty pocket.”⁵⁶ What is more, even if it were possible somehow to derive probabilities from *all* the circumstances, the probabilities so derived wouldn’t tell us what we want to know, namely, whether the actor’s conduct is wrongful. “So far . . . as criminal liability is founded upon wrongdoing in any sense,” Holmes said, it “must be confined to cases where circumstances making the conduct dangerous were known [to the actor].”⁵⁷ The probabilities of interest to the criminal law necessarily are rooted in the actor’s perspective, then.

On the other hand, the probabilities of interest to the criminal law, though rooted in the actor’s perspective,

51. United States v. Nash, 229 U.S. 373, 377 (1913) (quoting *Pierce*, 138 Mass. at 178).

52. Robinson, *supra* note 49, at 884.

53. *Id.* at 883.

54. *Pierce*, 138 Mass. at 179.

55. See HOLMES, *supra* note 39, at 69-70 (addressing the defense of legal impossibility).

56. *Id.*

57. *Id.* at 55; see also *id.* (“An act cannot be wrong, even when done under circumstances in which it will be hurtful, unless those circumstances are or ought to be known.”); Warren A. Seavey, *Negligence—Subjective or Objective?*, 41 HARV. L. REV. 1, 6 (1927) (“[R]isk is . . . dependent upon knowledge.”).

cannot be merely the probabilities the actor herself assigned to outcomes. In *Pierce*, Holmes considered and rejected the possibility of making the actor's liability depend on the "estimate formed by the actor personally,"⁵⁸ or the actor's own "expectation of good results."⁵⁹ This possibility Holmes identified with "recklessness in a moral sense," which depends, he said, "on the *actual condition of the individual's mind with regard to consequences*, as distinguished from mere knowledge of present or past facts or circumstances from which some one or everybody else might be led to anticipate or apprehend them if the supposed act were done."⁶⁰ Requiring recklessness in "this [moral] sense," Holmes said in *Pierce*, would be inconsistent with the criminal law's objective of establishing external standards of conduct for the community.⁶¹

This tension—between the demand for external standards, on the one hand, and the requirement that probabilities be rooted in the actor's perspective, on the other—Holmes resolved with the known-circumstances formula. "[A] man's liability for his acts is determined by their tendency under the circumstances known to him," Holmes said, "and not by their tendency under all the circumstances actually affecting the result, whether known or unknown."⁶² This test is rooted in the actor's perspective, of course. At the same time, though, the test is fundamentally objective in that it specifies a subset of the circumstances in the world as the basis for calculating the probabilities. And it is objective, too, in that the probabilities derived from these circumstances are independent of the "actual condition of the individual's mind with regard to consequences."⁶³ The actor's mistaken beliefs, including her mistaken beliefs about consequences, don't matter.

58. *Pierce*, 138 Mass. at 178.

59. *Id.* at 176.

60. *Id.* at 175-76 (emphasis added).

61. *Id.* at 176.

62. *Id.* at 179.

63. *Id.* at 175-76.

B. The Formula's Place in the Model Penal Code

The only current case law that makes direct use of Holmes's formula is from Massachusetts, where the courts still follow *Pierce* and its progeny.⁶⁴ And so Holmes's intentions would be mostly beside the point had not the formula found its way into the Model Penal Code's definitions of recklessness and criminal negligence and, from there, into the criminal codes of many states.⁶⁵ As it is, Holmes's intent is the intent of the Model Penal Code's drafters, who lifted the phrase directly from him; and the intent of the Model Penal Code's drafters is the intent of many state codes.⁶⁶

The formula's journey from Holmes to the Model Penal Code is short and easily mapped. The drafters of the Model Penal Code were familiar with *The Common Law*, of course, and they were familiar too with Holmes's opinion in

64. See Commonwealth v. Sanna, 674 N.E.2d 1067, 1074 (Mass. 1997) (holding that implied malice may be inferred "if, 'in the circumstances known to the defendant, a reasonably prudent person would have known that according to common experience there was a plain and strong likelihood that death would follow the contemplated act'" (quoting Commonwealth v. Grey, 505 N.E.2d 171 (Mass. 1987))).

65. See MODEL PENAL CODE § 2.02 cmt., at 233 (1985) ("[V]irtually all recent legislative revisions and proposals follow [the Model Penal Code] in setting up general standards of culpability."); see also, e.g., ARK. CODE ANN. § 5-2-202(4)(B) (2006) (defining criminal negligence to require evaluation of "the circumstances known to the actor"); HAW. REV. STAT. ANN. § 702-206(3)-(4) (1986) (defining recklessness and criminal negligence to require evaluation of "the circumstances known to [the actor]"); IDAHO CODE ANN. § 18-4101(G) (1976) (defining "reckless conduct" to require evaluation of "the circumstances known to [the actor]"); ME. REV. STAT. ANN. 17-A § 35(3), (4) (1964) (defining recklessness and criminal negligence to require evaluation of "the circumstances known to the person"); MISS. CODE ANN. § 17-17-67 (1972) (defining recklessness to require evaluation of "the circumstances known to [the actor]"); N.H. REV. STAT. ANN. § 626:2 (2007) (defining recklessness and criminal negligence to require evaluation of "the circumstances known to [the actor]"); N.J. STAT. ANN. § 2C:2-2(b)(3)-(4) (West 2005) (same); 18 PA. STAT. ANN. § 302(b) (West 1998) (same).

66. See, e.g., Riley v. State, 60 P.3d 204, 212-14 (Alaska Ct. App. 2002) (relying on intent of Model Penal Code's drafters in interpreting state accomplice liability provision derived from Model Penal Code); Commonwealth v. Capo, 727 A.2d 1126, 1129 (Pa. Super. Ct. 1999) ("[It is] important to consider the MPC in interpreting the term.").

*Commonwealth v. Pierce.*⁶⁷ In a 1937 law review article that laid the groundwork for the Model Penal Code's treatment of homicide,⁶⁸ Herbert Wechsler (who would later serve as the Code's chief reporter) and co-author Jerome Michael used the phrase "circumstances known to the actor" repeatedly⁶⁹ and traced the phrase to Holmes.⁷⁰ They identified the known-circumstances formula as one of "various criteria available to measure the degree of inadvertently created risk."⁷¹ Under the known-circumstances criterion, Wechsler and Michael said, the factfinder "attempt[s] to estimate [on the basis of common experience] the probability that death would result from the act, taking into account only *the circumstances known to the actor.*"⁷²

It is evident not only from the history of the Code but from its text, too, that the drafters' use of the phrase "circumstances known to him" was not unconsidered. Other sections of the Code require the jury to evaluate the actor's conduct on the basis of "the circumstances as [the actor] believes them to be."⁷³ This is true, for example, of the Code

67. See Herbert Wechsler, *The Challenge of a Model Penal Code*, 65 HARV. L. REV. 1097, 1108 & n.22 (1952) (citing *Pierce* in connection with the question whether it is sufficient for criminal liability that the actor knew or should have known "the facts that give the conduct its offensive tendency"); Wechsler & Michael, *supra* note 1, at 710 n.31 (citing both *Pierce* and *The Common Law* for the proposition that the actor's unawareness of the consequences of his actions is immaterial "if under the circumstances known to him" the consequences are obvious).

68. See Wechsler & Michael, *supra* note 1; see also Kent Greenawalt, *A Few Reflections on the Model Penal Code Commentaries*, 1 OHIO ST. J. CRIM. L. 241, 241 (2003) ("[The Model Penal Code's] intellectual roots can be traced back to the late 1930s when Herbert Wechsler and Jerome Michael, in *A Rationale of the Law of Homicide*, developed a systematic utilitarian approach to that central aspect of the criminal law.").

69. See Wechsler & Michael, *supra* note 1, at 710, 734-35.

70. *Id.* at 710 n.31.

71. *Id.* at 735.

72. *Id.* (emphasis added).

73. See, e.g., MODEL PENAL CODE § 3.04(2)(c) ("[A] person employing protective force may estimate the necessity thereof under the circumstances as he believes them to be when the force is used."); § 3.05(1)(b) (providing that use of force in defense of another person is to be evaluated on the basis of "the

section defining the partial defense of extreme emotional disturbance, which requires the jury to evaluate the reasonableness of the actor's explanation or excuse "under the circumstances as he believes them to be."⁷⁴ It is also true of the Code section defining the offense of criminal attempt, which requires the jury to evaluate the actor's conduct "under the circumstances as he believes them to be."⁷⁵ By opting instead—in the Code's definitions of recklessness and criminal negligence—to require the jury to evaluate the "nature and degree" of the risk on the basis of "circumstances known to [the actor],"⁷⁶ the drafters signaled, first, that they were cognizant of the difference between what the actor knows and what the actor believes and, second, that they meant the jury to measure the risk on the basis of what the actor knows.⁷⁷

The Model Penal Code did nothing to change the substance of the known-circumstances formula. The Model Penal Code did, however, change the formula's place in the criminal law. For Holmes, criminal liability appeared to hinge exclusively on the answer to the "external" question, namely: What is "the degree of danger shown by experience to attend the act under [the] circumstances known [to the

circumstances as the actor believes them to be"); § 5.01(1)(c) (defining the elements of criminal attempt).

74. *Id.* § 210.3(1)(b).

75. *Id.* § 5.01(1)(c).

76. *Id.* § 2.02(2)(c), (d).

77. Interestingly, the Model Penal Code's principal justification defenses—self defense and choice of evils—both appear to require the jury to assess the justifiability of the actor's conduct on the basis of what the actor "believe[d]," rather than what the actor knew. *See id.* §§ 3.02(1), 3.04(1). Why, if the Code's drafters thought the ultimate justifiability of conduct hinged on what the actor knew, would they have defined these justification defenses in terms of what the actor believed? The paradoxical-sounding answer is that the availability of the two "justification" defenses does not actually depend on whether the defendant's conduct was, strictly speaking, "justifiable." The Code acknowledges that even if a defendant succeeds in establishing one of these two justification defenses in response to a charge of, say, intentional murder, he may still face prosecution for reckless or criminally negligent homicide, both of which hinge on a finding that the conduct was unjustifiable. *Id.* §§ 3.02(2), 3.09(2).

actor?]”⁷⁸ Holmes expressed doubt about whether the law requires more than this—about whether “the actual degree of personal guilt involved in any particular transgression . . . is an element at all.”⁷⁹ More strongly, he said that “the *mens rea*, or actual wickedness of the party, is wholly unnecessary, and all reference to the state of his consciousness is misleading if it means anything more than that the circumstances in connection with which the tendency of his act is judged are the circumstances known to him.”⁸⁰

In the Model Penal Code, by contrast, criminal liability depends on the answers to not one but two questions.⁸¹ The first is the question of “legality” or “wrongdoing,” which corresponds to Holmes’s external question, and which asks essentially whether the actor’s conduct violated an external rule of conduct.⁸² The second is the question of “culpability,” which has no analogue in Holmes, and which asks whether the actor, despite having violated a rule of conduct, nevertheless “does not have the minimum

78. HOLMES, *supra* note 39, at 75; *see also id.* at 66 (“Acts should be judged by their tendency under the known circumstances, not by the actual intent which accompanies them.”). *But see* Fletcher, *supra* note 10, at 429-30 (“Perhaps Holmes proceeded in intuitive deference to the distinction between legality and culpability.”).

79. HOLMES, *supra* note 39, at 49.

80. *Id.* at 75

81. See § 2.02 cmt., at 238, 241 (explaining that the code’s definitions of recklessness and criminal negligence require the jury to perform “two distinct functions,” the first of which involves “examin[ing] the risk and the factors that are relevant to how substantial it was and the justifications for taking it,” and the second of which involves deciding whether the defendant’s conduct “justifies condemnation”); *see also* MARKUS D. DUBBER, CRIMINAL LAW: MODEL PENAL CODE 247-49 (2002) (identifying the question whether the actor “is blameworthy” as a question separate from the questions of legality and justifiability); Fletcher, *supra* note 10, at 430 (“The Model Penal Code . . . displays an appreciation for the distinction between the dimensions of legality and culpability in the structure of negligence.”).

82. See Fletcher, *supra* note 10, at 427-30 (“[T]here is a distinction . . . between the legality of the conduct and the culpability of the individual who engages in the conduct The Model Penal Code . . . displays an appreciation for [this] distinction.”).

blameworthiness required to be held criminally liable for the violation.”⁸³

The Code’s definitions of recklessness and criminal negligence pose both these questions.⁸⁴ The question of wrongdoing is captured by the Code’s requirement—in both definitions—that the risk posed by the actor’s conduct be “substantial and unjustifiable.”⁸⁵ As the Code commentary explains, however, this assessment of the risk is just the first of the jury’s “two distinct functions” in applying the two definitions.⁸⁶ Both definitions require the jury to perform a second function too, namely, to decide whether the actor’s conscious disregard of the risk (in recklessness cases) or failure to perceive the risk (in negligence cases) “justifies condemnation.”⁸⁷ In addressing this second question, the jury doesn’t measure probabilities. It decides, in the words of the Code commentary, whether the actor’s creation of the unjustifiable risk was attributable to a culpable “insensitivity to the interests of others” or instead was

83. Robinson, *supra* note 49, at 878; see also Herbert Wechsler & Jerome Michael, *A Rationale for the Law of Homicide II*, 37 COLUM. L. REV. 1261, 1275 (1937) (explaining the culpability component of criminal negligence); DUBBER, *supra* note 81, at 248 (identifying as a separate question under the code “whether [the actor] is blameworthy—taking into account her relevant personal characteristics as well as the relevant circumstances of her behavior in this particular case”).

84. See FLETCHER, *supra* note 1, § 6.6.6, at 484-85 (“[The] bifurcation of negligence into the distinct questions of wrongdoing and attribution [or culpability] finds an echo in the Model Penal Code’s structuring of negligence and recklessness. The issue of wrongdoing is captured in the question whether the risk is ‘substantial and unjustified’; the issue of attribution, in the case of negligence, by the elaborate question whether the actor’s failure to perceive it . . . involves a gross deviation from the standard of care that a reasonable person would observe in the actor’s situation.”) (footnote omitted).

85. § 2.02(2)(c), (d); see also Fletcher, *supra* note 10, at 429 (“Thinking of negligent conduct as consisting of dimensions both of legality and culpability leads one to regard the standard for negligence as, at once, objective and subjective. The objective issue is whether the risk is justified under the circumstances . . . ”).

86. § 2.02 cmts. 3-4.

87. *Id.*

attributable to an innocent “intellectual failure to grasp” the significance of the known facts.⁸⁸

It is in connection with the first of these questions—Holmes’s external question, that is—that the jury must decide the seemingly inward-looking question of what the actor knew of the facts. The known-circumstances formula, as Wechsler recognized, is a formula for calculating “the probability that [the proscribed harm] would result from the act.”⁸⁹ This probability bears on the question whether the risk is substantial and unjustifiable.⁹⁰ And the question whether the risk is substantial and unjustifiable is what defines the rule of conduct in cases of recklessness and negligence.⁹¹ Wechsler did not change the external question framed by Holmes, then. He just added to it a separate question about the actor’s culpability, whose answer depends on more than what the actor knew.⁹²

This history of the formula would be incomplete if it didn’t say what happened after the Code was published. What happened was that the formula was forgotten. Even the Code commentaries prepared shortly after the Code’s adoption make a muddle of the probability question.⁹³ Though the Code’s definitions of recklessness and negligence both require the jury to measure the degree of risk according to the “circumstances known to [the actor],”⁹⁴ the commentaries overlook this parallel.⁹⁵ The

88. § 2.02 cmt. 4; *see also* Wechsler & Michael, *supra* note 83, at 1275 (“We cannot avoid asking why the actor did not pay attention when so much turned out to be at stake.”).

89. Wechsler & Michael, *supra* note 1, at 735.

90. *See* § 2.02 cmt. 3.

91. Robinson, *supra* note 49, at 883.

92. § 2.02 cmt. 4; *see also* Wechsler & Michael, *supra* note 83, at 1275 (explaining culpability question).

93. Some aspects of the final commentaries were drawn from the commentaries prepared in connection with the various tentative drafts. *See* Greenawalt, *supra* note 67, at 241-43. The portions of the final commentaries addressed in this paragraph, however, were not present in the tentative drafts. *See* MODEL PENAL CODE § 2.02 cmt. 3, at 124-26 (Tentative Draft No. 4, 1955).

94. MODEL PENAL CODE § 2.02(2)(c), (d) (1985).

95. *Id.*

commentaries say, embarrassingly, that the Code's definition of criminal negligence requires the jury to evaluate the degree of risk "in terms of an objective view of the situation as it actually existed," while the Code's definition of recklessness requires the jury to evaluate the risk "from the point of view of the actor's perceptions."⁹⁶ For whatever reason, Wechsler's care in resolving the difficulties associated with the probability question went unnoticed even by those whom he supervised in the preparation of the commentaries.⁹⁷

II. HOW THE FORMULA WORKS, PART 1: DERIVING AGENT-INDEPENDENT PROBABILITIES FROM AGENT-DEPENDENT FACTS

In this Section and the next, I will be more specific about what it means to calculate probabilities on the basis of the circumstances known to the actor. The known-circumstances formula essentially has two working parts. The first is a method for deriving probabilities from a body of facts or evidence. The second is a method for defining the body of facts or evidence from which the probabilities are to be derived—for defining, in Herbert Wechsler's words, "the conditions . . . to be taken into account in making the probability judgments."⁹⁸ I will explain the first of these working parts in this Section, and the second in the following Section.

My discussion below of the formula's first working part will be framed as an answer to the so-called "determination problem." The determination problem begins with the recognition that probability calculations based on "all the circumstances, known and unknown," always come out as either 1 or 0. From this recognition, scholars have inferred, first, that the probabilities of interest to the criminal law necessarily are rooted in the actor's perspective and, second,

96. *Id.* § 2.02(2)(c), (d) & cmts. 3-4, at 238, 241.

97. See Greenawalt, *supra* note 68, at 241-42 (describing Wechsler's role in supervising the preparation of the post-adoption commentaries).

98. Weschler & Michael, *supra* note 1, at 747.

that the probabilities of interest to the criminal law necessarily are *subjective*, rather than objective.⁹⁹

The paradoxical-sounding answer to this dilemma, as we'll see, is that it is possible to derive *objective* or agent-independent probabilities from a body of facts or evidence defined by what the actor knows or believes. To show how agent-independent probabilities can be derived from agent-dependent bodies of fact or evidence, I will turn to the search and seizure cases, where lawyers and judges routinely derive "objective probabilities" from bodies of facts or evidence defined by what the police officer knows. I will follow this discussion of the search and seizure cases with two important digressions. The first will say, specifically, what it means for probabilities to inhere in bodies of facts or evidence. The second will address some potential objections to the search and seizure analogy.

A. *The Determination Problem*

What exactly did Holmes mean when he said that a bullet that misses its target "has produced the whole effect possible to it in the course of nature"?¹⁰⁰ And what do present-day commentators mean when they say that for an observer who knows all the facts, "all events have a probability of either one or zero (leaving aside quantum events)"?¹⁰¹ This "determination problem"¹⁰² is worth exploring in slightly more depth, in part because the courts and commentators still overlook it sometimes,¹⁰³ and in part

99. See *infra* text accompanying notes 112-20.

100. HOLMES, *supra* note 39, at 69-70.

101. ALEXANDER ET AL., *supra* note 11, at 29.

102. Mike Redmayne, *Objective Probability and the Assessment of Evidence*, 2 L. PROBABILITY & RISK 275, 279 (2003) (referring to this as "the determination problem").

103. See, e.g., People v. Maciel, 6 Cal. Rptr. 3d 628, 634 (Ct. App. 2003) (insisting that probabilities are calculated on the basis of "all the surrounding circumstances"); Albrecht v. State, 658 A.2d 1122, 1141 (Md. Ct. Spec. App. 1995) (explaining that the reckless-endangerment statute contemplates that "actual measurement of the magnitude of the risk will be made objectively without regard to the defendant's state of mind"); State v. Kistenmacher, 436 N.W.2d 168, 171 (Neb. 1989) (holding that factfinder's assessment of risk in

because it is an important point of departure for criminal law theory.

The determination problem is present in its simplest form in a case like *Commonwealth v. Malone*,¹⁰⁴ where the defendant, Malone, was prosecuted for implied-malice murder after shooting and killing his friend Long during a game of Russian roulette. Malone had put one bullet in a five-chamber revolver, then had aimed the gun at Long and pulled the trigger three times.¹⁰⁵ In upholding Malone's murder conviction, the Pennsylvania Supreme Court said that probability of an adverse outcome from one of the three trigger pulls was "at least sixty per cent."¹⁰⁶

Now, this sixty-percent probability figure clearly can't be based on *all* the objective facts as they existed in the moment before Malone pulled the trigger. Among the objective facts of Malone's case was—as we know now—the fact that the bullet was in the third chamber of the revolver. Thus, if the probabilities were calculated on the basis of *all* the objective facts, the probability of an adverse outcome from the first two trigger pulls would be zero and the probability of an adverse outcome from the third trigger pull would be one. The probabilities would disappear, in other words.¹⁰⁷

manslaughter prosecution is "purely objective"); § 2.02 cmt. 4, at 241 (asserting that the Model Penal Code's definition of criminal negligence requires the jury to evaluate the degree of risk "in terms of an objective view of the situation as it actually existed"); MD. PATTERN JURY INSTRUCTIONS (CRIMINAL) 4:26A cmt. (2007) ("Whether the defendant's conduct created a substantial risk of death or physical injury is an objective determination and is not dependent upon the subjective belief of the defendant.").

104. 47 A.2d 445 (Pa. 1946).

105. *Id.*

106. *Id.* at 449. This figure is somewhat misleading. Unless Malone somehow had committed himself in advance to pulling the gun's trigger three times (like someone who sneezes three times whenever he sneezes at all), his conduct really consisted of three separate potentially culpable acts, none of which carried a sixty-percent probability of an adverse outcome. The first carried a risk of twenty percent. The second carried a risk of twenty-five percent. And the third act carried a risk of about thirty-three percent.

107. See Johnson, *supra* note 32, at 422-23 (using *Commonwealth v. Malone* to illustrate the determination problem). This paragraph and the preceding

Nor is this determination problem confined to cases like *Malone*, where the objective fact that pre-determined the outcome—the presence of the bullet in the third chamber—was readily ascertainable afterwards. Consider *People v. Knoller*,¹⁰⁸ where the fatal attack was triggered partly by complex neural events in the dogs' brains.¹⁰⁹ It is not possible now to reconstruct the physical conditions, neural and otherwise, that existed in the moments before the attack. Because the world is deterministic,¹¹⁰ however, it is possible to infer—from the fact that the attack occurred—that these physical conditions, whatever they were, were so constituted as to make the attack inevitable. Even in cases like Knoller's, then, the jury always will be able to infer, from the fact that the result did or did not occur, that the "objective" probability of the result occurring was either one or zero.¹¹¹

The determination problem appears to show that the probabilities of interest to the criminal law presuppose the adoption of someone's perspective. After all, if statements about probabilities cannot be based on "all the circumstances actually affecting the result,"¹¹² then they must be based, as Herbert Wechsler said, on a factual setup

paragraph are excerpted, with few modifications, from Johnson, *supra* note 32, at 422-23.

108. 158 P.3d 731 (Cal. 2007).

109. *Id.* at 736-37.

110. See GREENE, *supra* note 15, at 341 (explaining that quantum weirdness "does not leave the concept of determinism in total ruins"; rather, "quantum determinism replaces Laplace's classical determinism"); LAPLACE, *supra* note 13, at 4 ("[For] an intelligence which could comprehend all the forces by which nature is animated and the respective situation of the beings who compose it[.] . . . nothing would be uncertain and the future, as the past, would be present to its eyes.").

111. See Crocker, *supra* note 19, at 1098; see also Matthew D. Adler, *Risk, Death and Harm: The Normative Foundations of Risk Regulation*, 87 MINN. L. REV. 1293, 1386 (2003) ("If the connection between macroscopic events and human death is deterministic, only those persons who will actually die as a result of such events are 'put at risk' by them in the hypothetical full-information Bayesian sense.").

112. Commonwealth v. Pierce, 138 Mass. 165, 179 (1884).

containing “some but not all” of those circumstances.¹¹³ This constraint on the factual setup, in turn, suggests just the kinds of limitations imposed by the adoption of a particular person’s perspective.¹¹⁴ To be sure, it might be possible to generate probabilities by “limiting Nature’s level of focus,”¹¹⁵ or by taking “some wider [but still objective] view of the circumstances short of that revealed by total omniscience.”¹¹⁶ The law, however, traditionally has generated probabilities not by *blurring* the facts but by specifying a perspective.¹¹⁷ This far, anyway, the lessons of the determination problem are uncontroversial.

The trouble arises with the next step. From the fact that probability statements appear to presuppose the adoption of someone’s perspective, some commentators have inferred that “[t]here is no gap between the actor’s subjective estimate of the risk and the ‘true’ or ‘objective’ risk”¹¹⁸ and that objective risk, therefore, is “illusory.”¹¹⁹ This move is grounded on two intermediate premises, both of which seem plausible enough at first glance. The first, which even Holmes would grant, is that the perspective on which the actor’s liability depends is her own. The second is that adopting the actor’s perspective necessarily means adopting, perhaps among other things, her beliefs about the probabilities of outcomes—her “subjective estimate of the

113. Wechsler & Michael, *supra* note 1, at 746 & n.167 (citing *Pierce*, 138 Mass. at 179).

114. See Seavey, *supra* note 57, at 7 (“[T]o find risk, we must take the standpoint of some person who has imperfect knowledge, since if one were omniscient there would be certainty and hence no risk.”).

115. Redmayne, *supra* note 102, at 281.

116. Wechsler & Michael, *supra* note 1, at 735.

117. This is nicely illustrated by *Long v. State*, 931 S.W.2d 285 (Tex. Crim. App. 1996), where the Texas Court of Criminal Appeals concluded that a stalking statute’s use of the phrase “reasonably likely” was ambiguous because the statute did not specify the perspective from which this probability determination was to be made. *Id.* at 289.

118. ALEXANDER ET AL., *supra* note 11, at 31; see also Seavey, *supra* note 57, at 6-7 (arguing that adoption of an actor’s perspective necessarily makes the risk “purely subjective”).

119. ALEXANDER ET AL., *supra* note 11, at 31.

risk[s]," in other words.¹²⁰ If both premises are correct, then the determination problem appears to show that the probabilities of interest to the criminal law necessarily are subjective, not objective.

B. *Redefining Objective Probability*

Holmes solved the determination problem by distinguishing two ways in which the finder of fact might make use of the actor's perspective in calculating the relevant probabilities. For one, the finder of fact might make use of the actor's perspective just by adopting the probabilities the actor herself assigned to outcomes.¹²¹ Alternatively, though, the finder of fact might make use of the actor's perspective by deriving probabilities from what the actor knows or believes¹²² about the surrounding circumstances.¹²³ Probabilities derived from what the actor knows or believes about the surrounding circumstances are *subjective* in one sense, since they are derived from a factual setup defined in part by the scope of the actor's subjective awareness. But they are *objective* in the sense that they are independent of the probabilities the actor herself assigned to the relevant outcomes.

This kind of objectivity is what Keynes had in mind when he said that "once the facts are given which determine our knowledge, what is probable or improbable in these

120. *Id.*

121. Commonwealth v. Pierce, 138 Mass. 165, 176, 178 (1884) (referring to the possibility of evaluating the actor's conduct on the basis of an "estimate formed by the actor personally," or the actor's own "expectation of good results").

122. I later explain why the derivation of probabilities from the actor's beliefs is problematic. See *infra* text accompanying notes 199-201. I mention the possibility of deriving probabilities from the actor's *beliefs* only to emphasize that the objective character of the conditional probabilities so derived does not depend on the truth of the "particular propositions we select as the premises." JOHN MAYNARD KEYNES, A TREATISE ON PROBABILITY 4 (1921). It depends, rather, on the relationship between the premises (or the evidence) and the conclusion.

123. *Pierce*, 138 Mass. at 175-76 ("[Recklessness] is understood to depend on the actual condition of the individual's mind with regard to consequences, as distinguished from mere knowledge of present or past facts or circumstances from which some one or everybody else might be led to anticipate or apprehend them if the supposed act were done.").

circumstances has been fixed objectively, and is independent of our opinion.”¹²⁴ More to the point, the underlying idea—that it is possible to derive agent-independent probabilities from a body of facts or circumstances defined by what the agent believes or knows—is uncontroversial, at least among lawyers.¹²⁵ It is commonplace for lawyers and judges to refer to the probabilities inherent in¹²⁶ or generated by¹²⁷ a body of facts

124. KEYNES, *supra* note 122, at 4. I do not mean to endorse Keynes’s specific method for deriving objective probabilities from facts, which has been the subject of considerable controversy among probability theorists. See, e.g., J. Franklin, *Resurrecting Logical Probability*, 55 ERKENNTNIS 277, 288-90 (2001); Donald Gillies, *Intersubjective Probability and Confirmation Theory*, 42 BRIT. J. FOR PHIL. SCI. 513, 521-24 (1991); Jochen Runde, *Keynes After Ramsey: In Defence of A Treatise on Probability*, 25 STUD. HIST. & PHIL. SCI. 97, 97-98 (1993).

125. It is not, incidentally, uncontroversial among probability theorists. See, e.g., Bruno De Finetti, *Probabilism*, 31 ERKENNTNIS 169, 174 (1989) (“By denying any objective value to probability I mean to say that, however an individual evaluates the probability of a particular event, no experience can prove him right, or wrong; nor, in general, could any conceivable criterion give any objective sense to the distinction one would like to draw, here, between right and wrong.”).

126. See, e.g., United States v. De Vivo, 190 F. Supp. 483, 486-87 (E.D.N.Y. 1961) (“While the circumstances of the consent must be carefully examined, more reliance seems to be upon objective evidence of the state of mind and circumstances and the inherent probabilities arising therefrom.”); People v. Vasquez, 82 Cal. Rptr. 131, 138 (Ct. App. 1969) (holding that evidence was sufficient to support defendant’s conviction for heroin possession, given “the probabilities and improbabilities inherent in all [the] circumstances”).

127. See, e.g., City of Minot v. Rubbelke, 456 N.W.2d 511, 513 (N.D. 1990) (reviewing a jury instruction that told the jury in a criminal case to decide whether the prosecution had “produce[d] evidence which generates a high degree of probability or persuasive force”); Richard A. Posner, *An Economic Approach to the Law of Evidence*, 51 STAN. L. REV. 1477, 1535 (1999) (identifying as a factor bearing on the defendant’s decision whether to testify “the probability of guilt generated” by other evidence); Margaret Raymond, *Down on the Corner, Out in the Street: Considering the Character of the Neighborhood in Evaluating Reasonable Suspicion*, 60 OHIO ST. L.J. 99, 132-33 (1999) (referring to “the probability of criminal conduct generated by [a particular body of] evidence”); James J. Tomkovicz, *Divining and Designing the Future of the Search Incident to Arrest Doctrine: Avoiding Instability, Irrationality, and Infidelity*, 2007 U. ILL. L. REV. 1417, 1439 (2007) (“Consequently, an officer possesses the authority to conduct a search incident to arrest as long as he has taken a person into custody on the basis of facts that generate a ‘fair probability’ that the arrestee has committed or is committing an offense.”).

or evidence, and to assume that it is possible to be wrong, or right, about these probabilities.¹²⁸ This is nowhere clearer than in the search and seizure cases.

Probability plays a more overt role in the law of search and seizure than it plays in criminal law. Usually, in search and seizure cases, the only question for the factfinder is whether the evidence available to the officer who conducted the search or seizure, or to the judge who issued the warrant, satisfied one of two invariant probability thresholds: the probable cause standard, which the Fourth Amendment itself uses explicitly to define the circumstances in which full-blown searches and seizures are justified,¹²⁹ or the reasonable suspicion standard, which the Supreme Court developed in *Terry v. Ohio*¹³⁰ to define the circumstances in which investigatory stops and protective frisks are justified.¹³¹

Under both these standards, the probabilities at issue are “objective,” according to the Court. Probable cause is an “objective standard[] of conduct,” which does not “depend on the subjective state of mind of the officer,” the Court explained in *Devenpeck v. Alford*.¹³² The reasonable suspicion standard too is an “objective standard,” as the Court said in *Terry*.¹³³ Of course, what the Court means by *objective* is not that the probabilities at issue are based on

128. See ALVIN I. GOLDMAN, KNOWLEDGE IN A SOCIAL WORLD 117 (1999) (“[I]n testimony cases it looks as if jurors, for example, work hard at trying to get accurate estimates of such probabilities, which seems to presume objective facts concerning such probabilities.”).

129. See *Hill v. California*, 401 U.S. 797, 804 (1971) (“[S]ufficient probability . . . is the touchstone of reasonableness under the Fourth Amendment.”); *Brinegar v. United States*, 338 U.S. 160, 175 (1949) (“In dealing with probable cause, . . . as the very name implies, we deal with probabilities.”); *Llaguno v. Mingeay*, 763 F.2d 1560 (7th Cir. 1985) (“Probable cause—the area between bare suspicion and virtual certainty—describes not a point but a zone, within which the graver the crime the more latitude the police must be allowed.”).

130. 392 U.S. 1 (1968).

131. *Id.* at 27; see also *United States v. Cortez*, 449 U.S. 411, 418 (1981) (observing that the question of reasonable suspicion deals “with probabilities”).

132. 543 U.S. 146, 153 (2004).

133. *Terry*, 392 U.S. at 21-22.

all the circumstances. Taking into account *all* the circumstances would mean, for example, taking into account the fact that the suspect's car had twenty pounds of marijuana hidden in the trunk, as the officer learned when he conducted the challenged search. If facts like these were taken into account, then the requirement of probable cause would collapse; successful searches always would be lawful.

What the Court means by *objective*, rather, is just what Holmes meant by *external*. Namely, that the probabilities are derived objectively from a body of facts defined by what the actor knows. The Court consistently has said that the basis for the probability calculation is "the facts and circumstances known to the officer."¹³⁴ And the Court consistently has recognized, too, that probabilities derived from "the facts and circumstances known to the officer" are independent of the probabilities assigned to outcomes by the officer herself.

In *Devenpeck*, for example, the question whether Officer Devenpeck had probable cause to arrest Alford for impersonating a police officer turned exclusively on what Devenpeck knew about the underlying facts—for example, that Alford had "wig-wag" headlights and was carrying handcuffs and a police scanner in his car.¹³⁵ It was of no moment that Officer Devenpeck had not arrested Alford for this offense, and seems not to have considered the possibility that Alford had committed it.¹³⁶ Likewise, in

134. *Henry v. United States*, 361 U.S. 98, 102 (1959) (citing *Stacey v. Emery*, 97 U.S. 648, 645 (1878) ("Probable cause exists if the facts and circumstances known to the officer warrant a prudent man in believing that the offense has been committed."); *see also Devenpeck*, 543 U.S. at 153 ("Our cases make clear that an arresting officer's state of mind (except for the facts he knows) is irrelevant to the existence of probable cause."); *Carroll v. United States*, 267 U.S. 132, 149 (1925) ("If the search and seizure without a warrant are made upon probable cause, that is, a belief, reasonably arising out of circumstances known to the seizing officer, that an automobile or other vehicle contains that which by law is subject to seizure and destruction, the search and seizure are valid."); *Emery*, 97 U.S. at 645 ("If the facts and circumstances before the officer are such as to warrant a man of prudence and caution in believing that the offence has been committed, it is sufficient.").

135. *Devenpeck*, 543 U.S. at 149.

136. *Id.* at 149, 153-54.

Terry, the question whether Officer McFadden had reasonable suspicion justifying a stop of Terry and his companions depended exclusively on what McFadden knew about the men's movements outside the drug store.¹³⁷ It was beside the point that McFadden was "thoroughly suspicious."¹³⁸

The probabilities so derived are *objective* in more than word, moreover. The Court has long recognized that Fourth Amendment protections depend critically on *not* crediting the officer's estimate of the probabilities. In *Beck v. Ohio*,¹³⁹ for example, the Court said that the protection afforded by the Fourth Amendment would be meaningless if the existence of probable cause depended solely on whether the officer subjectively believed herself to have probable cause.¹⁴⁰ "If subjective good faith alone were the test, the protections of the Fourth Amendment would evaporate, and the people would be 'secure in their persons, houses, papers, and effects,' only in the discretion of the police."¹⁴¹ Likewise, in *Terry* the Court said: "it is imperative that the facts be judged against an objective standard," that is, be judged on the basis of "the facts available to the officer at the moment of the seizure or the search."¹⁴² "Anything less," the Court said, "would invite intrusions upon constitutionally guaranteed rights based on nothing more substantial than inarticulate hunches."¹⁴³

In summary, the lessons of the search and seizure cases are threefold. First, the practice of deriving rough, intuitive probabilities from bodies of facts or evidence has solid credentials in the experience of judges and lawyers in the

137. *Terry*, 392 U.S. at 6.

138. *Id.*

139. 379 U.S. 89 (1964).

140. *Id.* at 97.

141. *Id.*

142. *Terry*, 392 U.S. at 21-22.

143. *Id.* at 22; see also *Beck*, 379 U.S. at 97 ("If subjective good faith alone were the test [of probable cause], the protections of the Fourth Amendment would evaporate, and the people would be 'secure in their persons, houses, papers, and effects,' only in the discretion of the police.").

search and seizure cases.¹⁴⁴ Second, probabilities so derived are objective in the sense that they are independent of the probabilities assigned to outcomes by the actor herself. Third, this sort of objectivity goes a long way toward accomplishing what Holmes meant to accomplish with the known-circumstances formula, namely, the creation of meaningful external standards of conduct.

C. *How Probabilities Inhere in Circumstances*

Though the idea that probabilities inhere in bodies of facts is likely to seem intuitive to most lawyers, it requires clarification in one important respect.¹⁴⁵ There are at least two different ways in which probabilities might inhere in a body of facts.¹⁴⁶ First, probabilities might inhere in the facts *physically*, in a way that could be discovered by running the same factual setup over and over.¹⁴⁷ Second, the probabilities might inhere in the facts *evidentially* or *epistemically*, in a way that could be determined by applying reason or shared experience to the factual setup.¹⁴⁸

144. Cf. LLOYD L. WEINREB, *LEGAL REASON* 12 (2005) (“[Reasoning by analogy] is a valid, albeit undemonstrable, form of reasoning that stands on its own and has its own credentials, which are not derived from abstract reason but are rooted in the experience and knowledge of the lawyers and judges who employ it.”).

145. This clarification will prove important later. See *infra* text accompanying notes 220-44.

146. See IAN HACKING, *THE EMERGENCE OF PROBABILITY* 123 (2d ed. 2006) (distinguishing “aleatory probabilities” from “epistemic probabilities”).

147. See MARIA GALAVOTTI, *PHILOSOPHICAL INTRODUCTION TO PROBABILITY* 109 (2005) (describing how Karl Popper’s propensity theory of probability associates probability with propensities that inhere physically in “the experimental arrangement (or set-up) in which experiments take place”); IAN HACKING, *AN INTRODUCTION TO PROBABILITY AND INDUCTIVE LOGIC* 132-33 (2001) (observing that when we talk about frequency-type or propensity-type probabilities, “[w]e are talking about a physical property of the coin, which can be investigated by experiment”); CLARENCE IRVING LEWIS, *AN ANALYSIS OF KNOWLEDGE AND VALUATION* 270-71 (1946) (describing the “empiricist manner of interpreting probability” and distinguishing this “empirical interpretation” from logical theories of probability).

148. See HACKING, *supra* note 147, at 130 (acknowledging that statements about probability sometimes can be understood as statements about the probability “[r]elative to the available evidence”); Seavey, *supra* note 57, at 8

The *Pierce* case illustrates the difference between these two ways of talking about—and deriving—probabilities. In 1883, when Pierce killed Mary Bemis by making her spend three days in kerosene-soaked flannels, kerosene had been around for only thirty years.¹⁴⁹ If Pierce's conduct had occurred not in 1883 but in 1853, the probability of harm from his conduct would *in one sense* have been exactly the same. After all, the physical properties of kerosene and of human bodies were the same in 1853 as they were in 1883. And these physical properties, in 1853 as in 1883, would have made themselves felt in an experiment whose conditions of repetition were defined by the facts known to or believed by Pierce.

In another sense, though, the probability of harm from Pierce's conduct was different in 1883 than it would have been in 1853. It is possible to approach the question of probability as an *evidential* question, rather than as a question about “physical propensities.”¹⁵⁰ On this approach, the facts known to Pierce would be treated as defining not “conditions of repetition” but, rather, a body of evidence. The probabilities would be derived from this body of evidence by the application “of reason and of those experiences which are common to men generally.”¹⁵¹ In 1853, when kerosene was not in common use, kerosene’s toxicity likely would not have been part of a body of evidence defined by what Pierce knew. Nor would kerosene’s toxicity have figured in the factfinder’s probability calculation as part of “those experiences which are common to men generally.”¹⁵² By 1883, by contrast,

(observing that the derivation of probabilities in civil negligence cases is a “purely intellectual process”).

149. See 6 ENCYCLOPÆDIA BRITANNICA 815 (15th ed. 2007) (“Kerosine was first manufactured in the 1850s . . .”).

150. See HACKING, *supra* note 147, at 139 (acknowledging that probability may be approached either as “a matter of physical propensities” or as a question about the “relation between hypotheses and evidence”).

151. State v. Manning, 224 N.W.2d 232, 236 (Iowa 1974) (quoting *Purcell v. Tribbles*, 69 N.W. 1120, 1121 (Iowa 1897)) (explaining how juries decide what inferences to draw from the evidence adduced at trial).

152. *Id.*

kerosene's toxicity would have been widely known,¹⁵³ and so this property would have made itself felt in the probability calculation either as part of the body of evidence or as part of common experience.

It is this second, *evidential* sense of probability on which the actor's criminal liability depends under the known-circumstances formula. Granted, Holmes refers sometimes to an act's "tendency" under the known circumstances,¹⁵⁴ and it is tempting to suppose that he means by "tendency" roughly what philosopher Charles Sanders Peirce meant when he referred to the "would-be" of a factual setup.¹⁵⁵ Peirce said, for example, that a probability statement about a die thrown from a dice box is equivalent to a statement "that the die has certain 'would-be'."¹⁵⁶ To say that a die has a certain "would-be," he explained, is "to say that it has a property, quite analogous to any *habit* that a man might have,"¹⁵⁷ which would make itself known in repeated trials of the same setup. On this view, then, the circumstances known to the actor would define "the 'conditions of repetition' under which the probability is to be generated."¹⁵⁸

This is not Holmes's view, despite his use of the word "tendency." When pressed to say what probability means, Holmes identifies probability not with the physical propensities of the factual setup to produce a certain outcome but, rather, with the teachings of experience. Probability, he says in *The Common Law*, is measured

153. See THOMAS HAWKES TANNER, MEMORANDA ON POISONS 63 (Henry Leffman, 9th ed. 1902) (describing symptoms and treatment of kerosene poisoning).

154. See Commonwealth v. Pierce, 138 Mass. 165, 179 (1883); HOLMES, *supra* note 39, at 75.

155. CHARLES S. PEIRCE, *The Doctrine of Chances*, in ESSAYS IN THE PHILOSOPHY OF SCIENCE 79-80 (Vincent Tomas ed., 1957); see also HACKING, *supra* note 147, at 133 (identifying "tendency" as a word associated with frequency- or propensity-type theories of probability).

156. PEIRCE, *supra* note 155, at 79-80.

157. *Id.*

158. Crocker, *supra* note 19, at 1099 (treating the question of probability in criminal cases as a problem of defining "the 'conditions of repetition' under which the probability is to be generated").

according to “the common working of natural causes *as shown by experience.*”¹⁵⁹ He articulates the same view in the *Pierce* case, where he says that the relevant probability is “the degree of danger which *common experience* shows to attend the act under the circumstances known to the actor.”¹⁶⁰ The same view is implicit, moreover, in Holmes’s insistence that “[t]he test of foresight is . . . what a man of reasonable prudence would have foreseen.”¹⁶¹

Holmes’s view appears to be right. For one thing, criminal cases are usually, if not always, about unique, unrepeatable events. And probability theorists appear to agree that the assignment of frequency- or propensity-type probabilities to unique, unrepeatable events is problematic.¹⁶² For another thing, the use of propensity-type probabilities would undercut one of the reasons for adopting the known-circumstances formula. One of the reasons for adopting the known-circumstances formula, again, is that “[s]o far . . . as criminal liability is founded upon wrong-doing in any sense, . . . [it] must be confined to cases where circumstances making the conduct dangerous were known [to the actor].”¹⁶³ It makes no more sense to hold an actor responsible for the effects of undiscovered *causal mechanisms*, as a propensity-type theory effectively would do, than to hold the actor responsible for the effects of unknown physical *facts*.

159. HOLMES, *supra* note 39, at 67 (emphasis added).

160. Commonwealth v. Pierce, 138 Mass. 165, 178 (1883) (emphasis added).

161. HOLMES, *supra* note 39, at 54.

162. See, e.g., DONALD GILLIES, PHILOSOPHICAL THEORIES OF PROBABILITY 124 (2000) (arguing that Karl Popper’s propensity theory of probability does not succeed in justifying “the introduction of objective singular probabilities”); RICHARD VON MISES, PROBABILITY, STATISTICS AND TRUTH 11 (Hilda Geiringer ed., George Allen & Unwin. 1957) (1939) (“The phrase ‘probability of death’, when it refers to a single person, has no meaning at all for us.”); HACKING, *supra* note 147, at 136 (“It does not make sense to speak of the ‘frequency’ of a single event.”).

163. HOLMES, *supra* note 39, at 55; see also *id.* (“An act cannot be wrong, even when done under circumstances in which it will be hurtful, unless those circumstances are or ought to be known.”); Seavey, *supra* note 57, at 6 (arguing that risk is “dependent upon knowledge”).

Finally, Holmes's view is in keeping with legal usage. The law usually treats probability as "a relation between hypotheses and evidence," rather than as "a matter of physical propensities."¹⁶⁴ And it usually treats the *derivation* of probabilities as a "purely intellectual process," rather than as an experimental one.¹⁶⁵ This is true in particular of the law of search and seizure. In the search and seizure cases, the courts have acknowledged, for example, that where a police officer testifies that she noticed the odor of patchouli oil before searching the defendant's car for drugs, her testimony won't help establish probable cause unless she also testifies that she *knew* that patchouli oil sometimes was used to mask the odor of marijuana; it is not enough for the government to show that patchouli oil is *in fact* associated with drug-trafficking.¹⁶⁶ What matters, then, is not whether the factual setup defined by what the actor knows actually *has* a certain propensity, which could be discovered by running the setup over and over again. What matters is whether the body of evidence defined by what the actor knows includes that propensity in the form of background knowledge.

D. Some Objections to the Search-and-Seizure Analogy

The analogy between criminal law and the law of search and seizure seems vulnerable to objection on a number of grounds. First, one might argue that search and seizure's use of fixed probability thresholds reflects deep differences between probability's function in the law of search and seizure and its function in criminal law. In criminal law, after all, the factfinder's probability determination usually

164. See HACKING, *supra* note 147, at 139.

165. Seavey, *supra* note 57, at 7-8 (arguing that the derivation of "the mathematical chance of injury" from the hypothesized facts or circumstance in civil negligence cases is a "purely intellectual process").

166. See *United States v. Stone*, 866 F.2d 359, 362 (10th Cir. 1989) (upholding an investigatory stop where the officer detected a strong odor of patchouli oil and the officer knew that patchouli was used by drug traffickers to mask the smell of marijuana); cf. *Flood v. State*, 2007 WY 167, ¶23, 169 P.3d 538, 546 (Wyo. 2007) (recounting a state trooper's testimony that drug traffickers often use patchouli and other strong scents to mask the smell of marijuana).

is but one part of a broader inquiry into the justifiability of the actor's conduct. In recklessness and negligence cases, for example, the justifiability of the actor's conduct will depend not only on the probability of harm posed by the conduct, but also on the magnitude of the potential harm and on the countervailing benefits of the actor's conduct.¹⁶⁷ This means, as Glanville Williams said, that in criminal cases "the degree of probability of the consequence" that will qualify as unjustifiable "must *vary* in each instance with the magnitude of the harm foreseen and the degree of utility of the conduct."¹⁶⁸

But this difference between criminal law and the law of search and seizure is superficial; probability's role in search and seizure, though more overt, is fundamentally the same as its role in criminal law. The ultimate question in search and seizure cases really is a question about justifiability, as the Supreme Court has acknowledged.¹⁶⁹ "[I]n principle [, if not in practice,] every Fourth Amendment case, since it turns upon a 'reasonableness' determination, involves a balancing of all relevant factors."¹⁷⁰ What is more, the "relevant factors" at work in the law of search and seizure are basically the same as the factors at work in the criminal law. In search and seizure, the justifiability of the police

167. See Joshua Dressler, *Does One Mens Rea Fit All?: Thoughts on Alexander's Unified Conception of Criminal Liability*, 88 CAL. L. REV. 955, 957 (2000) ("To determine justifiability [in connection with recklessness], we conduct a criminal law version of the Learned Hand formula for measuring civil negligence"); Hurd & Moore, *supra* note 11, at 393 & n.144 (assuming that conduct will qualify as "reckless" under the Model Penal Code only if the risk is unjustified in the sense required by the Hand formula); see also Leo Katz, *A Look at Tort Law with Criminal Law Binders*, 76 B.U. L. REV. 307, 308 (1996) ("The drafters of the Model Penal Code seem to have been so taken by this claim [that the Hand formula clearly captures our intuitions about the meaning of negligence] as to adopt a formulation pretty close to it: They define negligence as the taking of a substantial, unjustifiable risk."); Wechsler & Michael, *supra* note 1, at 744 ("[T]he desirability of preventing a particular act because it may result in death[] turns upon[, among other things,] (1) the probability that death or serious injury will result; [and] (2) the probability that the act will also have desirable results and the degree of their desirability").

168. WILLIAMS, *supra* note 1, § 26, at 62 (emphasis added).

169. Whren v. United States, 517 U.S. 806, 817 (1996).

170. *Id.*

officer's conduct essentially depends on three factors: (1) the degree of probability that the officer will find what or whom she is looking for; (2) the weight of the public interest served by the search or seizure; and (3) the nature and scope of the intrusion.¹⁷¹

What distinguishes the question of justifiability in search and seizure law from the question of justifiability in criminal law is just that "the requisite 'balancing' has [already] been performed in centuries of precedent," as Justice Brennan said in *Dunaway v. New York*.¹⁷² In search and seizure cases, the two other factors in the justifiability calculus—"the magnitude of the harm foreseen" and "the degree of utility of the conduct"¹⁷³—vary only within a narrow range, and so it is possible for the law to fix in advance "the degree of probability of the consequence" that will make the conduct unjustifiable.¹⁷⁴ It is telling, moreover, that when either of these two other factors falls outside the normal range—when a search or seizure is unusually intrusive,¹⁷⁵ say, or when the search or seizure serves some government interest other than the

171. See *United States v. Mendenhall*, 446 U.S. 544, 561 (1980) (Powell, J., concurring) ("The reasonableness of a stop turns on . . . (i) the public interest served by the seizure, (ii) the nature and scope of the intrusion, and (iii) the objective facts upon which the law enforcement officer relied in light of his knowledge and expertise."); see also *Brown v. Texas*, 443 U.S. 47, 50-51 (1979) (holding that the reasonableness of a seizure other than a full-blown arrest "involves a weighing of [1] the gravity of the public concern served by the seizure, [2] the degree to which the seizure advances the public interest, and [3] the severity of the interference with individual liberty").

172. 442 U.S. 200, 214 (1979); see also *Whren*, 517 U.S. at 817 ("[W]ith rare exceptions . . . , the result of that balancing is not in doubt where the search or seizure is based upon probable cause."); *Arizona v. Hicks*, 480 U.S. 321, 329 (1987) ("Our disagreement with the dissenters pertains to where the proper balance should be struck; we choose to adhere to the textual and traditional standard of probable cause.").

173. WILLIAMS, *supra* note 1, § 26, at 62.

174. *Id.*

175. *Whren*, 517 U.S. at 818 (recognizing that when a search or seizure is unusually intrusive a case-by-case balancing of the government and individual interests will be required).

government's usual interest in gathering evidence¹⁷⁶—the courts abandon the two invariant probability thresholds in favor of a case-by-case reasonableness determination.

The reason why probability matters in the law of search and seizure is, finally, the same as the reason why it matters in criminal law, then. The justifiability of a person's actions—whether undertaken as a private citizen or as a police officer—usually is determined by the actions' expected outcomes, and the value of an expected outcome will vary not just in relation to the magnitude of the potential harm or benefit, but in relation to the probability that the harm or benefit will occur.¹⁷⁷

A second objection to the analogy between criminal law and search and seizure is that the criminal law is partly or mostly about culpability, while the law of search and seizure isn't (or wasn't, until the Supreme Court broadened the good-faith exception in *Herring v. United States*¹⁷⁸). But this objection is grounded on a misunderstanding of probability's role in the criminal law. As we have seen, criminal law has both a wrongdoing dimension and a

176. See *id.* at 817-18 (recognizing that when the government interest advanced by the search or seizure is something other than the government's traditional interest in gathering evidence—as it is in special needs cases—the usual probability thresholds will not apply and a case-by-case balancing will be performed).

177. Lawyers often associate this lesson with the Learned Hand formula. *United States v. Carroll Towing Co.*, 159 F.2d 169, 173 (2d Cir. 1947) (“[I]f the probability be called P; the injury, L; and the burden, B; liability depends upon whether B is less than L multiplied by P: i.e., whether $B < PL$.”). However, the basic point is as old, and as uncontroversial, as the idea of probability itself. See HACKING, *supra* note 139, at 9, 77. It had already taken its current form by 1662, when the authors of the Port-Royal Logic said: “[I]n order to decide what we ought to do to obtain some good or avoid some harm, it is necessary to consider not only the good or harm in itself, but also the probability that it will or will not occur.” ANTOINE ARNAULD & PIERRE NICOLE, LOGIC OR THE ART OF THINKING 273-74 (Jill Vance Buroker trans., 1996).

178. 129 S. Ct. 695 (2009). In *Herring*, the Court said that “[t]he fact that a Fourth Amendment violation occurred—*i.e.*, that a search or arrest was unreasonable—does not necessarily mean that the exclusionary rule applies.” *Id.* at 700. The applicability of the exclusionary rule depends, too, the Court said, on the separate question whether the officer's conduct was “sufficiently culpable.” *Id.* at 702.

distinct culpability dimension.¹⁷⁹ Probabilities derived by application of the known-circumstances formula bear on the wrongdoing dimension, not the culpability dimension; they tell us whether the actor violated a rule of conduct, not whether the actor, despite having violated a rule of conduct, is not deserving of condemnation.¹⁸⁰ It is beside the point, then, that the criminal law has a culpability dimension that the law of search and seizure lacks. The criminal law and the law of search and seizure share a wrongdoing or “rule-articulation” function,¹⁸¹ and it is in service of this function that the courts in both settings measure the probabilities.

A third potential objection to the search-and-seizure analogy is that search and seizure differs from the criminal law in the kinds of facts to which probabilities are assigned. The criminal law seems usually to concern itself with the probability that some *future* harm will come about as a consequence of the actor’s conduct. In a reckless manslaughter case, for example, the probability at issue is the probability that someone would die as the result of the actor’s conduct. In contrast, the law of search and seizure seems to concern itself with the probabilities attached to *existing* states of affairs, e.g., whether the suspect’s car contains illegal drugs.

But criminal law and the law of search and seizure are not really different in this respect. First, it would be wrong to assume that the criminal law concerns itself exclusively with the probabilities that attach to future events.¹⁸² In a prosecution for rape, for example, the defendant’s liability might hinge on the probability that the victim had given her consent when the sex act occurred.¹⁸³ And in child sexual abuse cases, the defendant’s liability might hinge on the

179. See *supra* text accompanying notes 81-88.

180. See *supra* text accompanying notes 89-92.

181. See Robinson, *supra* note 49, at 857 (describing criminal law’s legality or wrongdoing dimension as concerned with “rule articulation”).

182. See FLETCHER, *supra* note 1, § 4.3, at 262.

183. See, e.g., Reynolds v. State, 664 P.2d 621, 625 (Alaska Ct. App. 1983) (holding that the state statute defining the offense of first-degree sexual assault requires the government to prove that the defendant “recklessly disregarded his victim’s lack of consent”).

probability the victim was underage.¹⁸⁴ Indeed, this possibility is anticipated by the Model Penal Code's definitions of recklessness and criminal negligence, both of which are "designed to apply to cases of mistakes about attendant circumstances as well as to mistakes involved in causing harm."¹⁸⁵

Second, it would be wrong to assume that the law of search and seizure always, or even usually, concerns itself with probabilities that attach to existing conditions. The Supreme Court addressed this question in *United States v. Grubbs*,¹⁸⁶ where a criminal defendant argued that the Fourth Amendment does not authorize anticipatory search warrants, that is, warrants "based upon an affidavit showing probable cause that at some future time (but not presently) certain evidence of crime will be located at a specified place."¹⁸⁷ The Court rejected this argument, and in the course of doing so explained that *all* search warrants, not just anticipatory warrants, are really based on a prediction about future events: in every case, "the magistrate's determination that there is probable cause for the search amounts to a prediction that the item will still be there when the warrant is executed."¹⁸⁸

Finally, there is no reason to suppose that the distinction between probabilities attached to future outcomes, on the one hand, and probabilities attached to existing conditions, on the other, is a fundamental one, at least for our purposes.¹⁸⁹ Probabilities are relative to human

184. See, e.g., *State v. Elton*, 680 P.2d 727, 729-30 (Utah 1984) (holding that the state statute defining the offense of statutory rape requires the government to prove that the defendant was negligent with respect to the victim's age).

185. FLETCHER, *supra* note 1, § 4.3 at 262; see also MODEL PENAL CODE § 2.02(2)(c), (d) (1985) (defining recklessness and negligence standards to encompass conduct that poses unjustifiable risk either "that the material element exists" or that the material element "will result from [the] conduct").

186. 547 U.S. 90 (2006).

187. *Id.* at 94-95 (quoting 2 WAYNE R. LAFAVE, SEARCH AND SEIZURE § 3.7(c), at 398 (4th ed. 2004)).

188. *Id.* at 95-96.

189. See MODEL PENAL CODE § 2.02 cmt., at 125 (Tentative Draft No. 4, 1955) ("Whether the risk relates to the nature of the actor's conduct or to the existence

ignorance; they arise from limitations on the available information.¹⁹⁰ What distinguishes our two situations is just the source of the ignorance from which the probability arises. In the one case, the ignorance is a product of the fact that the event still lies in the future; in the other, of the fact that some existing condition is hidden from view. The basic question, though, is the same. To a person trying to calculate the probability that a coin will be found lying “heads” up, the task is the same whether the coin is about to be tossed or has already been tossed and is hidden from view.¹⁹¹

III. HOW THE FORMULA WORKS, PART 2: DEFINING THE CIRCUMSTANCES TO BE TAKEN INTO ACCOUNT

In the last Section, I identified a method for deriving probabilities from bodies of facts or evidence. The question remains, though: “[W]hat conditions are to be taken into account in making the probability judgments”?¹⁹² The known-circumstances formula provides a clear answer to this question, of course: the “conditions to be taken into account” are just the facts the actor knew. The real question for this Section is whether this method of defining the factual setup is vulnerable to the objections that critics of objective probability have raised in relation to another method of defining the body of facts or evidence: namely, the reasonable-person-centered method. In this Section, I will identify the concern underlying these objections as a concern about artificiality and arbitrariness, and I will

of the requisite attendant circumstances or to the result that may ensue is immaterial; the concept is the same.”).

190. GILLIES, *supra* note 162, at 17 (“In a completely deterministic system, probabilities cannot be inherent in objective nature but must be relative to human ignorance.”); GREENE, *supra* note 15, at 105 (“We are accustomed to probability showing up in horse races, in coin tosses, and at the roulette table, but in those cases, it mere reflects our *incomplete* knowledge.”).

191. Cf. Helen Beebee & David Papineau, *Probability as a Guide to Life*, 94 J. PHIL. 217, 224 (1997) (arguing that in formulating a method of calculating objective probabilities, it doesn’t matter whether the subject is the probability of events that remain in the future or is the probability of already existing facts).

192. Wechsler & Michael, *supra* note 1, at 747.

argue that the known-circumstances formula is not vulnerable to this concern.

A. *The Problem of Artificiality*

If one overlooks, as nearly everyone has, the alternative of measuring the probabilities on the basis of the known circumstances, then there really appear to be just two possible answers to the question “what conditions are to be taken into account in making the probability judgments?”¹⁹³ The first answer is simply to “take the actor at the time of the [action], with what he is conscious of and adverting to, his background beliefs, and so forth.”¹⁹⁴ In other words, the first answer is to calculate the probabilities on the basis of what the actor herself *believed* the facts to be. The second answer is to “construct an *artificial* perspective”¹⁹⁵ using “some beliefs of the actual actor together with beliefs that the [fact-finder] inserts.”¹⁹⁶ Scholars have argued—correctly, I think—that neither of these two alternatives is workable, at least as a method of deriving *objective* probabilities.¹⁹⁷ And from the failure of these two alternatives, some have drawn the further conclusion that the idea of objective probability is incoherent.¹⁹⁸

The scholars appear to be right about the impossibility of deriving objective probabilities from a factual setup

193. *Id.*

194. ALEXANDER ET AL., *supra* note 11, at 83.

195. *Id.* at 29.

196. *Id.* at 82 (emphasis added).

197. See *id.* at 85 (“[T]here is no principled way to determine the composition of [the reasonable-person] construct.”); Seavey, *supra* note 57, at 6-7, 18 (arguing that probabilities calculated without falsely ascribing “further knowledge” to the actor are “purely subjective,” but that the false ascription of further knowledge to the actor is impermissible). For a discussion disavowing the view, ascribed to them by me, that “the relevant probabilities must be derived by the fact-finder from a body of information consisting of all the facts as the actor believed them to be,” Johnson, *supra* note 32, at 421, see Larry Alexander & Kimberly Kessler Ferzan, *Response to Critics*, 29 L. & PHIL. 482, 492-93 (2010).

198. See ALEXANDER ET AL., *supra* note 11, at 31 (“[O]bjective risk . . . is either illusory . . . or arbitrary . . .”).

defined merely by what the actor herself *believed* the facts to be.¹⁹⁹ The central problem with this method of defining the factual setup is that individuals often hold beliefs that are inconsistent with one another.²⁰⁰ Suppose, for example, that a driver tries to pass another car on a blind curve and, as a result, winds up colliding with an oncoming car. The driver might insist afterwards that she thought the chances were remote that she would encounter another car on the curve. At the same time, though, she might admit knowing that during her daily ten-minute commute on this roadway, she usually sees about twenty cars traveling in the other direction. And she might admit knowing that, in order to pass, she would have to spend at least, say, twenty seconds in the other lane. In cases like this, what is the jury to credit in calculating the probability of harm? Should it credit the actor's background beliefs? Or should it credit her estimate of the risk, which is plainly inconsistent with her background beliefs? It cannot do both, and it therefore cannot really calculate the probabilities on the basis of all the beliefs that the actor actually held.²⁰¹

The scholars also appear to be right in their second, more interesting claim: that the factual setup for the probability calculation cannot be defined by what a "reasonable person," a standard man, or an "idealized observer" would have believed under the circumstances.²⁰² If

199. See Seavey, *supra* note 57, at 6-7 (arguing that adoption of actor's perspective necessarily makes the risk "purely subjective"); see also Alexander & Ferzan, *supra* note 197, at 492-93.

200. John Banville, *A Century of Looking the Other Way*, N.Y. TIMES, May 23, 2009, at A21 ("Human beings—human beings everywhere, not just in Ireland—have a remarkable ability to entertain simultaneously any number of contradictory propositions.").

201. For the proponents of the subjective approach to probability, the answer to this problem is straightforward: the jury must credit the actor's subjective probability estimate as to the proscribed outcome and ignore the beliefs or perceptions that lie behind it. See ALEXANDER ET AL., *supra* note 11, at 63 (arguing that what matters is just the actor's subjective beliefs about the probabilities of "outcomes") (emphasis added); WILLIAMS, *supra* note 1, § 26, at 62-63 (arguing that in recklessness cases, what matters is "what degree of possibility [the actor] foresaw").

202. Westen, *supra* note 11, at 544-46.

the question what a standard man knows about, say, the toxicity of kerosene is a sociological one, then it probably can be answered—perhaps by means of a survey. But *this* answer doesn't appear to have any bearing on the broader question in whose service the probabilities are being calculated, namely, whether the actor's conduct was *wrong*.²⁰³ If, on the other hand, the question what a standard person knows about kerosene is a *normative* one, then the question appears to be unanswerable. After all, “everyone has varying experiences.”²⁰⁴ And so there is, finally, “no standard of knowledge as to the existence of physical facts surrounding any situation.”²⁰⁵

This is not to deny, of course, that the reasonable-person construct has a legitimate role to play in the criminal law. It might. In recklessness and criminal negligence cases, for example, the reasonable person might have a role to play in the jury's resolution of the broader, partly normative question in which the probability inquiry is embedded, namely, whether the risk posed by the actor's conduct was unjustifiable.²⁰⁶ The reasonable-person-construct might also have a legitimate role to play in the jury's resolution of the separate question—in recklessness and criminal negligence cases—whether the actor's conduct

203. See HOLMES, *supra* note 39, at 55 (“So far . . . as criminal liability is founded upon wrong-doing in any sense, . . . [it] must be confined to cases where circumstances making the conduct dangerous were known [to the actor].”); Westen, *supra* note 11, at 546 (“There is no justification for making an actor's criminal responsibility depend upon whether an average or ‘normal’ person would have made the same mistake.”).

204. Seavey, *supra* note 57, at 18.

205. *Id.*; see also ALEXANDER ET AL., *supra* note 11, at 82-83 (“The [reasonable person] standard, cut loose from the alternative moorings of the actor's actual beliefs or the world as it really was at the time the actor acted, is completely adrift in a sea of alternative constructions, none of which is more compelling than others.”); Westen, *supra* note 18, at 139 (summarizing difficulties associated with imputing individual characteristics to reasonable person).

206. See Westen, *supra* note 18, at 141-42, 144 (describing the role of the reasonable person in defining objective “standards of conduct” and making a distinction between the reasonable person's role as “a measure of conduct” and its role as “a measure of . . . culpability”).

was culpable.²⁰⁷ In both these settings, though, the reasonable person plays a role fundamentally different from her role in the reasonable-person-centered method of deriving probabilities. In both these other settings, the reasonable person functions as “a *normative* measure of what kinds of conduct, thinking, and emotions are normatively appropriate to such facts as obtain or are believed to obtain.”²⁰⁸ A reasonable-person-centered theory of probability, in contrast, would rely on the reasonable person in generating the underlying facts and beliefs themselves, from the ground up.²⁰⁹ In this role, as Larry Alexander has said, the reasonable-person construct is “indeterminate through and through. Its application will perforce be completely arbitrary and manipulable.”²¹⁰

B. *The Known-Circumstances Formula Isn’t Artificial*

So the theorists are right in concluding both that (1) the probabilities of interest to the criminal law cannot be derived from a factual setup defined merely by what the actor herself believed the facts to be; and (2) the probabilities of interest to the criminal law cannot be derived from a factual setup defined by what a reasonable person would have believed under the circumstances. Where the theorists go wrong, of course, is in drawing the further conclusion—based on the failure of these two alternatives—that objective probability is illusory.²¹¹ The theorists have

207. See George P. Fletcher, *Fairness and Utility in Tort Theory*, 85 HARV. L. REV. 537, 557 n.74 (1972) (arguing that the Model Penal Code’s definition of negligence “invoke[es] the reasonable man only to account for the blameworthiness of the negligent conduct”); Westen, *supra* note 18, at 142-43.

208. Westen, *supra* note 11, at 545-46; see also Westen, *supra* note 18, at 138 (“[R]easonableness is a normative measure of ways in which it is *right* for persons to think, feel or behave—or, at the very least, ways in which it is *not wrong* for them to do so”).

209. See DUFF, *supra* note 17, at 82 (“[The] ‘reasonable’ observer will know certain general facts about the world in which she and the defendant live”); Crocker, *supra* note 19, at 1099 (assigning idealized observer the role of defining “the ‘conditions of repetition’ under which the probability is to be generated”).

210. Alexander, *supra* note 20, at 67.

211. ALEXANDER ET AL., *supra* note 11, at 31.

overlooked a viable third alternative: namely, using the circumstances known to the actor to define the set of conditions to be taken into account.

This alternative approach to defining the factual setup is not, moreover, vulnerable to either of the two concerns that led to the failure of the other approaches. First, the known-circumstances formula is not vulnerable to concerns about consistency. What the actor *knows* is, by definition, true; and no truth is inconsistent with any other.²¹² Second, the known-circumstances formula's method of defining the factual setup from which the probabilities are derived—as distinguished from its method of deriving probabilities from this setup (about which more in a moment²¹³)—is not vulnerable to concerns about artificiality.

The artificiality objection to the reasonable-person-centered approach began with the assumption that what is natural or *unconstructed* is the actor's entire mental field—“all the beliefs that the actor actually held,” in other words.²¹⁴ This view, though, overlooks the possibility of defining somewhat differently what is natural in the actor's perspective. A perspective defined by what the actor *knows* of the facts is no more artificial than a perspective defined by what she *believes*. The word “perspective” sometimes is used to refer to a person's entire visual or mental field.²¹⁵ But it sometimes is used instead to define the relationship between a viewer and a viewed object.²¹⁶ As philosopher Simon Blackburn has said, the notion of perspective conceives of sight as “a transaction between a thing in one

212. Rubin Gotesky, *The Uses of Inconsistency*, 28 PHIL. & PHENOMENOLOGICAL RES. 471, 471 (1968) (summarizing Aristotle's and Parmenides's view that the world is so constructed that a contradiction cannot occur).

213. See *infra* text accompanying notes 220-44.

214. ALEXANDER ET AL., *supra* note 11, at 82.

215. RANDOM HOUSE WEBSTER'S COLLEGE DICTIONARY 988 (2000) [hereinafter COLLEGE DICTIONARY] (“[Perspective is] (i) a visual scene, esp. one extending to a distance”; (ii) “one's mental view of facts, ideas, etc., and their interrelationships”; and (iii) “a mental view or prospect.”).

216. *Id.* (“[Perspective is] the manner in which objects appear to the eye in respect to their relative positions and distance.”); see also SIMON BLACKBURN, TRUTH: A GUIDE 87 (2005) (“Perspective is a notion from the science of sight.”).

place in space, and another thing, a perceiver, at a different place in space.”²¹⁷

This use of the word “perspective” to refer just to what the actor *knows* is in keeping with this second definition of the word. Imagine describing a person’s visual perspective on, say, a particular building. And imagine that the person’s view of the building is partly blocked by a billboard. Our description of the person’s perspective on the building—of *how the building looks from her perspective*—would not include a description of the contents of the billboard. Granted, neither would it include a description of the portion of the building that is obscured by the billboard. Her perspective on the building—as we describe it—would be *partial*, as all perspectives are, but it would include nothing that is not part of the building. It would not encompass the viewer’s entire visual field.

The actor’s mental “perspective” on the world can be thought of in the same terms. So conceived, our description of the actor’s perspective on the world—of how the world appears to her—would not include a description of what obscures her perception of the world, or of the truth. Her perspective on the world would be *partial*, as all perspectives are.²¹⁸ But our description of her perspective on the world would include nothing that is not true. It would not encompass her entire “mental view or prospect.”²¹⁹ Rather, it would include only what she *knows* of the world.

C. *The Problem of Common Experience*

There is one respect in which the known-circumstances approach—at least as formulated by Holmes and Wechsler—is vulnerable to the very criticism that undercuts

217. BLACKBURN, *supra* note 216, at 87.

218. Cf. Gottlob Frege, *On Sense and Meaning*, 100 ZEITSCHRIFT FÜR PHILOSOPHIE UND PHILOSOPHISCHE KRITIK 25 (1882), reprinted in TRANSLATIONS FROM THE PHILOSOPHICAL WRITINGS OF GOTTLÖB FREGE 65 (Peter Geach & Max Black eds. & trans. 1980) (describing judgments as “distinctions of parts within truth values” and acknowledging the confusion that arises from the fact that “the word ‘part’ is already used of bodies in another sense”).

219. COLLEGE DICTIONARY, *supra* note 215, at 991.

the reasonable-person-centered approach. Though Holmes said that the probability of harm is judged in relation to “the circumstances known to the actor,” he also said that the trier of fact must rely on “common experience” in deriving this probability from the known circumstances.²²⁰ According to Holmes, the test of criminality is “the degree of danger which *common experience* shows to attend the act under the circumstances known to the actor.”²²¹ Wechsler and Michael, too, assigned a role to “common experience.”²²² The idea behind the known-circumstances formula, they said, is that “[o]n the basis of *common experience*, one may attempt to estimate the probability that [the proscribed harm] would result from the act, taking into account only the circumstances known to the actor.”²²³

This resort to common experience is problematic. What makes Holmes’s and Wechsler’s resort to common experience at first seem unobjectionable is that they use common experience not in defining the set of “conditions . . . to be taken into account in making the probability judgments,”²²⁴ but rather in specifying the method by which the factfinder will derive probabilities from this set of conditions. For purposes of the artificiality concern, however, it doesn’t appear to matter at what stage the artificial infusion of knowledge occurs. Nor does it appear to matter whether this infusion of knowledge is limited to deep background facts of a kind known to nearly every member of

220. Commonwealth v. Pierce, 138 Mass. 165, 178 (1883).

221. *Id.* (emphasis added).

222. Wechsler & Michael, *supra* note 1, at 735.

223. *Id.* (emphasis added). The search and seizure cases, likewise, appear to assume that common experience will be used in deriving probabilities from the circumstances known to the actor. See, e.g., *Ornelas v. United States*, 517 U.S. 690, 696 (1996) (“[P]robable cause to search [exists] where the known facts and circumstances are sufficient to warrant a man of reasonable prudence in the belief that contraband or evidence of a crime will be found.”); *Brinegar v. United States*, 338 U.S. 160, 175-76 (1949) (“Probable cause exists where ‘the facts and circumstances with their (the officers’) knowledge and of which they had reasonably trustworthy information are sufficient in themselves to warrant a man of reasonable caution in the belief that’ an offense has been or is being committed.” (quoting *United States v. Carroll*, 267 U.S. 132, 162 (1925))).

224. Wechsler & Michael, *supra* note 1, at 747.

the community.²²⁵ In either event, as Holmes acknowledged, the result is to hold the actor responsible for knowledge she might not have.²²⁶ And so in either event, the effect is to sever the connection between probability and wrongdoing. Just as “[t]here is no standard of knowledge of isolated events,” there also “should be no standard of knowledge based upon a common community experience.”²²⁷

The answer to this problem is not as easy as jettisoning the common-experience component entirely, however. As Holmes and Wechsler apparently recognized, it is difficult to make the probability calculation work *without* an infusion of common experience. Evidential probabilities—of the kind at work in criminal law, the law of search and seizure, and the law of evidence—cannot be obtained merely through the application of formal logic to a small body of case-specific facts or circumstances.²²⁸ Consider, for example, how a judge goes about deciding—as judges often

225. See Seavey, *supra* note 57, at 18-19 (“[A] hermit hearing, without explanation, a radio for the first time; or a savage, suddenly dropped from his native swamps into the streets of New York, cannot be judged except with reference to what he knows.”).

226. *Pierce*, 138 Mass. at 179-80 (“[I]f the dangers are characteristic of the class according to common experience, then he who uses an article of the class upon another cannot escape on the ground that he had less than the common experience.”); HOLMES, *supra* note 39, at 57 (“[T]he law requires [people] at their peril to know the teachings of common experience, just as it requires them to know the law.”).

227. Seavey, *supra* note 56, at 18-19.

228. See RONALD ALLEN ET AL., EVIDENCE: TEXT, PROBLEMS, AND CASES 113-14 (4th ed. 2006) (“[W]hat seems ‘plausible’ to a person is determined by the sum of that person’s knowledge and experience rather than by the outcome of formal logical manipulations.”); JAMES B. THAYER, PRELIMINARY TREATISE ON EVIDENCE AT THE COMMON LAW 279-80 (1898) (“In conducting a process of judicial reasoning, as of other reasoning, not a step can be taken without assuming something which has not been proved; and the capacity to do this, with competent judgment and efficiency, is imputed to judges and juries as part of their necessary mental outfit.”); GILLIES, *supra* note 162, at 25-49 (describing the shortcomings of logical theories of probability, which purport to derive probabilities merely by the application of formal logic to defined sets of conditions); *cf.* United States v. Cortez, 449 U.S. 411, 418 (1981) (“Long before the law of probabilities was articulated as such, practical people formulated certain common-sense conclusions about human behavior; jurors as factfinders are permitted to do the same—and so are law enforcement officers.”).

must under the evidence rules—whether a particular piece of evidence makes a fact of legal consequence “more probable or less probable” than it would be without the evidence.²²⁹ And consider how a jury decides what probabilities to assign to case-specific historical facts on the basis of the evidence adduced at trial.²³⁰ In these settings, the judge and jury can make the required probability judgments only with the help of “vast storehouses of commonly-held notions about how people and objects generally behave in our society.”²³¹

So the problem, finally, is how to reconcile (1) the apparent dependence of the probability calculation on access to vast storehouses of background knowledge; and (2) the practical impossibility of specifying exhaustively the contents of the actor’s *own* vast storehouse of background knowledge. The solution to this problem is, I think, to reinterpret Holmes’s and Wechsler’s references to “common experience” as creating a kind of rebuttable presumption that the actor knew of the background facts just what other members of the community know. Warren Seavey hinted at this solution in a 1927 law review article.²³² Seavey acknowledged, albeit in relation to the tort of negligence, that “there should be no standard of knowledge based upon a common community experience,” and that, accordingly, even “a savage suddenly dropped from his native swamps into the streets of New York[] cannot be judged except with

229. FED. R. EVID. 401; *see also id.* advisory committee’s note (“[Probability] depends upon principles evolved by experience or science, applied logically to the situation at hand.”).

230. *See State v. Manning*, 224 N.W.2d 232, 236 (Iowa 1974) (explaining that juries rely on “reason and . . . those experiences which are common to men generally” in deciding what inferences to draw from the evidence adduced at trial (quoting *Purcell v. Tibbles*, 69 N.W. 1120, 1121 (Iowa 1897))); *see also Rostad v. Portland Ry., Light & Power Co.*, 201 P. 184, 187 (Or. 1921) (“[A]ny juror must consider the testimony in light of that knowledge and experience which is common to all men.”).

231. DAVID A. BINDER & PAUL BERGMAN, FACT INVESTIGATION 85 (1984); *see also FED. R. EVID. 201* advisory committee’s note (acknowledging that neither jury nor judge could decide what inferences to draw from evidence without resort to “hundreds or thousands” of other facts).

232. Seavey, *supra* note 57, at 18-19.

reference to what he knows.”²³³ But Seavey nevertheless found a role for “common experience” in the measurement of probability: “[T]here is an inference that all persons in the community have had a common experience and because of this know certain matters of ‘common knowledge,’ this inference being often sufficient to create a presumption against a defendant.”²³⁴

This means that the jury in *Commonwealth v. Pierce*, for example, would have been justified in assuming, even without specific evidence, that Pierce knew of kerosene what other members of his community did. And it means that the jury in *People v. Knoller* probably would have been justified in assuming that Knoller knew of dog behavior what other members of her community knew.²³⁵ At the same time, though, Seavey’s approach would have permitted either Pierce or Knoller to challenge this assumption—to show, in Seavey’s formulation, that either was a “savage” or a “hermit” who lacked this common experience.²³⁶ In effect, Seavey’s approach creates a movable line between the known-circumstances component of the Holmes test and the common-experience component. The parties decide what aspects of the actor’s knowledge they want to litigate; as to the rest, the jury defaults to common experience. What ultimately matters, however, is just what the actor knew.

This resort to a movable line between knowledge and experience is less makeshift than it appears. Just this sort of movable line probably is an inevitable feature of any system for deriving probabilities from defined bodies of evidence or facts.²³⁷ In the United States jury trial system,

233. *Id.*

234. *Id.* at 19.

235. See *id.* at 19 n.18 (describing *Linnehan v. Sampson*, 126 Mass. 506 (1878), where the court held in a civil action for injuries by a bull that the defendant could be liable only if he knew of the bull’s propensities, but that the jury might find, without specific evidence, that the defendant knew what was common knowledge in the neighborhood).

236. See Seavey, *supra* note 57, at 19.

237. Cf. FED. R. EVID. 201 advisory committee’s note (explaining that neither the judge nor the jury could decide what inferences to draw from the evidence adduced at trial without making use of “hundreds or thousands” of other facts);

for example, juries routinely are instructed that “you must decide the case solely on the evidence before you,”²³⁸ and that “[a]ny inference you make . . . must be based on the evidence in the case.”²³⁹ At the same time, though, everybody acknowledges that the jury could not possibly decide what inferences to draw from the evidence—and, finally, what probabilities to assign to the case-specific historical facts at issue—without drawing on “knowledge gained from the experiences common to men generally.”²⁴⁰ The jury, it is often said, considers the evidence “in the light of reason and of those experiences which are common to men generally.”²⁴¹

This line between the “evidence” and the jury’s “common experience” is movable, moreover. In the ordinary case, the jury will hear no evidence about, say, the effects of the passage of time on witnesses’ memories. This topic is “within the ken of jurors”²⁴² and so the jury ordinarily draws only on common experience in judging the effects of time on a particular witness’s testimony. This doesn’t mean, though, that this topic falls on one side of a fixed line dividing topics suitable for the introduction of evidence, on the one hand, from topics within the common experience of jurors, on the

GILLIES, *supra* note 155, at 162 (explaining that intersubjective probabilities are conditional or relational, but that the conditions necessarily include background knowledge from which the probabilities are judged).

238. MANUAL OF MODEL CRIMINAL JURY INSTRUCTIONS FOR THE DISTRICT COURTS OF THE NINTH CIRCUIT § 3.1 (2003).

239. FEDERAL CIVIL JURY INSTRUCTIONS OF THE SEVENTH CIRCUIT § 1.11 (2010).

240. *State v. Manning*, 224 N.W.2d 232, 236 (Iowa 1974) (quoting *Purcell v. Tibbles*, 69 N.W. 1120, 1121 (Iowa 1897)); *see also, e.g.*, *Wassilie v. Alaska Vill. Elec. Coop.*, 816 P.2d 158, 162 n.6 (Alaska 1991) (“[I]t is possible that the jury applied its knowledge of local conditions to conclude that an accident was foreseeable.”); *Linn v. State*, 133 S.W.2d 407, 409 (Ark. Ct. App. 2003) (holding that “[a] jury may also rely on its common knowledge, experiences, and observations in life” in deciding whether the evidence at trial is sufficient to prove that the victim suffered a physical injury); ALLEN ET AL., *supra* note 228, 113-14 (“[W]hat seems ‘plausible’ to a person is determined by the sum of that person’s knowledge and experience rather than by the outcome of formal logical manipulations.”).

241. *Manning*, 224 N.W.2d at 236.

242. *Bomas v. State*, 987 A.2d 98, 115 (Md. 2010).

other. Expert testimony about the effects of the passage of time on witnesses' memories—or about any other topic within the ken of the lay juror—is admissible if it adds something to, or subtracts something from, the jury's storehouse of common experience.²⁴³ It is admissible if, for example, it describes "scientific advances . . . [that have led to a] greater understanding of the mechanics of memory that may not be intuitive to a layperson."²⁴⁴ In effect, then, the litigants decide what they want to challenge of the jury's storehouse of common experience, and so they decide where the line between the evidence and the jury's common experience is located.

IV. WHY THE PROBABILITIES GENERATED BY THE KNOWN-CIRCUMSTANCES APPROACH ARE AN APT MEASURE OF WRONGDOING

What the preceding two Sections show, at best, is that probabilities derived using the known-circumstances formula are neither "illusory" nor "artificial." The real question remains, though: Are these the probabilities on which the justifiability, and legality, of the actor's conduct ought to depend? Do these probabilities represent the actor's perspective authentically in a way that, say, her own estimate of the probabilities does not?

My answer to this question will take the form of responses to a series of objections, most of which take issue with what the known-circumstance formula *leaves out* of the probability calculation. No one, presumably, would quarrel with what the known-circumstances formula *includes*; no one, that is, would quarrel with the inclusion of what the actor *knows* in the body of facts or evidence from which the probabilities are derived. What seems objectionable about the formula is, rather, what it leaves out. It leaves out, for example, the actor's probability estimates and partial

243. See KENNETH S. BROUN ET AL., MCCORMICK ON EVIDENCE § 206, at 881-83 (6th ed. 2006) ("[I]n those instances where the case turns on the eyewitness testimony and the expert's assistance could make a difference, the scientific knowledge generally should be admitted.").

244. *Bomas*, 987 A.2d at 112.

beliefs, which cannot count as “known circumstances” even if they are accurate. And it leaves out any of the actor’s beliefs that turned out to be false, even if the actor had very good reasons for believing as she did. Finally, it leaves out what the actor *should have* believed but did not.

All of these objections have the same answer. All of these things that seem, intuitively, to matter—the actor’s probability estimates, her justified beliefs, and what she *should have* believed but didn’t—really only matter to the degree that they are connected to what the actor knows. And to the degree that they are connected to what the actor knows, they are mostly redundant of the known circumstances. The actor’s perspective is, finally, less like a jigsaw puzzle than a densely woven tapestry. The absence of a few threads from the fabric of the actor’s experience does not distort the picture conveyed.

A. *The Richness of What the Actor Knows*

Perhaps the most fundamental objection to the known-circumstances formula is that, in the ordinary case, the known circumstances are too few and too sparse to generate probabilities; “knowing is hard,” after all.²⁴⁵ This objection is nicely framed by Larry Alexander and Kimberly Kessler Ferzan, who use a standard example: “David believes that he is going 80 miles per hour, but his speedometer is broken and he is actually going 50 mph.”²⁴⁶ They argue that the known-circumstances formula does not provide enough data to enable us to calculate the probability of harm faced by David, whatever that probability might be. Alexander and Ferzan argue: “If we look at what David ‘knows’, then he doesn’t know the speed he is traveling. He has a false belief. How are we to glean the probability of harm based on David’s knowledge?”²⁴⁷

245. Fred I. Dretske, *The Epistemology of Belief*, 55 SYNTHESE 3, 3 (1983) (“Believing is easy, knowing is hard . . . Such is the conventional contrast between knowledge and belief.”).

246. Alexander & Ferzan, *supra* note 197, at 493; see also Robinson, *supra* note 10, at 388 (analyzing a similar broken-speedometer example).

247. Alexander & Ferzan, *supra* note 197, at 493.

Though Alexander and Ferzan have identified one thing David does not know—namely, the speed at which he is traveling—they have overlooked countless other facts that he does know. For one, David knows that his speedometer reads eighty miles per hour. The reading on the speedometer is, of course, false. Still, this reading is among the circumstances known to David. And so this reading—together with David's background knowledge that cars' speedometers usually are roughly accurate—is one of the facts that will drive the probability calculation.²⁴⁸ It suggests that he is driving eighty miles per hour, and thereby suggests that the probability of harm to the occupants of other cars, and perhaps to pedestrians too, is high.

There is much more, though. For example, David probably knows the posted speed limit on the highway where he is driving, and he probably has noticed how fast he is driving in relation to the other drivers. If the speed limit is, say, fifty miles per hour, and he knows that he is being passed by more cars than he is passing, then these two known facts—together with David's deep background knowledge that United States drivers usually drive within ten miles per hour or so of the posted speed limit—suggest that David is not really driving 80 miles per hour. David might also know other things that cast doubt on the speedometer reading. He might know, for example, that his speedometer has malfunctioned in the past. Even if he has not drawn the natural inference from this knowledge—namely, that his speedometer's current reading is wrong—the speedometer's past malfunctioning still is a known circumstance that, under our formula, affects the probability calculation.

Probably the most important aspect of David's knowledge, however, is not his knowledge of truths but,

248. In the search and seizure cases, by comparison, an informant's report might well provide probable cause even if it turns out to be false, since the fact that the informant *made* the report is among the facts that the officer knows. See *Carter v. United States*, 244 A.2d 483, 485 (D.C. 1968) (relying in part on the informant's false report of a robbery in concluding that the "probabilities" were sufficient to justify defendant's arrest).

rather, his knowledge *by acquaintance*. This terminology—knowledge of truths, knowledge by acquaintance—is Bertrand Russell's,²⁴⁹ but the underlying distinction between two uses of the word “know” is commonsensical.²⁵⁰ As Russell explained, the first use of the word “know” is “applicable to the sort of knowledge which is opposed to error . . . the sense which applies to our beliefs and convictions.”²⁵¹ The second use of the word “know” “applies to our knowledge of *things*, which we may call *acquaintance*.²⁵² This second sense is the sense in which we “know,” say, a particular shade of brown. We might formulate any number of “truths” about the color—“that it is brown, that it is dark, and so on.”²⁵³ But we also possess an immediate sensory knowledge of the color that is not remotely exhausted by these truths. This is knowledge by acquaintance.

Knowledge by acquaintance often plays an important role in the jury's probability calculations in criminal cases.²⁵⁴

249. BERTRAND RUSSELL, THE PROBLEMS OF PHILOSOPHY 69 (1912). Some of what Russell says about “knowledge by acquaintance” is controversial. See, e.g., H.L.A. Hart et al., *Is There Knowledge by Acquaintance?*, 23 ARISTOTELIAN SOC'Y SUPPLEMENTARY 69 (1949); G. Dawes Hicks et al., *Is There Knowledge by Acquaintance?*, 2 ARISTOTELIAN SOC'Y SUPPLEMENTARY 159, 179 (1919). But what matters for my argument is simply that (1) there is a kind of knowledge that we can ascribe to an actor without, at the same time, ascribing any particular beliefs to him; and (2) that this knowledge has a legitimate role to play in calculating the objective probabilities.

250. G. E. Moore observed that Russell uses the phrase “knowledge by acquaintance” primarily “to express a fact, which we all know to be a fact, and which no one wishes to dispute.” See Hicks, *supra* note 249, at 179.

251. RUSSELL, *supra* note 249, at 69.

252. *Id.*

253. *Id.* at 73.

254. Knowledge by acquaintance plays much the same role in the law of search and seizure. Consider *State v. Campbell*, 198 P.3d 1170, 1173 (Alaska Ct. App. 2008), where the constitutionality of a traffic stop was at issue. A police officer stopped Campbell's car in the mistaken belief that the car was operating in violation of a state regulation that required vehicles to have their headlights on one half-hour after sunset. *Id.* The officer had contacted a police dispatcher at about 11:00 p.m. to find out “what time sunset was” and the dispatcher had told him that sunset was “somewhere around” 10:26 p.m. *Id.* As a result, when the officer stopped Campbell's car at 11:20 p.m., the officer believed that the sun had set nearly an hour before. See *id.* In fact, though, the sun did not set that

Consider, for example, a case of child sexual abuse in which the defendant asserts, as a defense, that he made a reasonable mistake about the girl's age. In calculating the objective probability that the girl had reached the critical age, the jury might rely in part on the defendant's "knowledge of truths." It might rely, for example, on the fact that the defendant had seen a sixth-grade report card on the girl's dresser. And it might rely on what the girl had said to the defendant about her age. But the jury also will rely on what the defendant knew by acquaintance of the girl's appearance. The girl will take the witness stand and the jury will decide for itself how old she must have appeared to the defendant at the time of the alleged abuse. What the jury learns of the girl's appearance—and what knowledge the jury ascribes to the defendant as a result—will not take the form of descriptive "truths" about the girl's appearance. Rather, the jury's reckoning of the objective probability that she had reached the critical age will be influenced by what the jurors notice intuitively about, say, the size of her eyes relative to the size of her nose.²⁵⁵

Much the same thing would be true in the broken speedometer case. Human beings are pretty good at judging speed without the help of speedometers,²⁵⁶ and they also are

night until 11:25 p.m. *Id.* In resolving the question whether the officer had probable cause to stop Campbell, the appeals court relied in part on the officer's knowledge of truths—for example, his knowledge that the dispatcher had told him that sunset was around 10:26 p.m. *See id.* But the court also took into account what the officer knew by acquaintance. The court observed that "the sun was above the horizon for almost half an hour after Officer Chafin spoke to his dispatcher" and that, according to the officer himself, "the evening of June 4th was a 'very nice' evening." *Id.* No doubt these two observations were meant in part to negate any possibility that the officer had actually gone to the trouble of checking the horizon for the sun. But they were also meant, I think, to conjure up for the reader a sense of how the ambient light must have appeared to the officer.

255. ROBERT WRIGHT, THE MORAL ANIMAL: EVOLUTIONARY PSYCHOLOGY AND EVERYDAY LIFE 65 (1994) (noting that a woman's eyes look smaller and her nose appears larger as she gets older).

256. *See Marcucci v. Bird*, 88 N.Y.S.2d 333, 335 (App. Div. 1949) ("An estimate of the speed at which an automobile is moving at a given time is generally viewed as a matter of common observation rather than expert opinion, and it is well settled that any person of ordinary ability and intelligence having the

pretty good at judging (again without the help of speedometers) the risks associated with particular speeds under particular conditions.²⁵⁷ If, as stipulated by Alexander and Ferzan, David really was driving fifty miles per hour, then the jury, in evaluating the probability of harm under the known circumstances, will consider how the world appears to a person who is driving fifty miles per hour. And this consideration, like the jury's consideration of the girl's appearance in the sexual abuse case, will affect the jury's calculation of the probability of harm.

In summary, what the actor knows of the circumstances is rich enough to generate probabilities. What the actor knows encompasses facts that have obvious bearing on the probability of harm—like a speedometer reading. But what the actor knows also encompasses a variety of concrete circumstances in the immediate background—like the fact that other drivers are passing him. And it encompasses a multitude of facts in the *deep* background—like the fact that most people drive within ten miles per hour or so of the speed limit. Finally, it encompasses what the actor knows by acquaintance.

B. *Imputed Knowledge or Foresight*

Another potential objection to the known-circumstances approach is that it assigns no weight in the probability calculation to what the actor should have known but did not. In some cases, the actor will be able plausibly to deny knowledge of a fact that seems critical to the probability setup. In the *Pierce* case, for example, Dr. Pierce plausibly denied having known that kerosene was poisonous when used as a balm.²⁵⁸ And in *Wilson v. Tard*, where defendant Wilson was convicted of manslaughter after accidentally

means or opportunity of observation is competent to testify as to the rate of speed of such a vehicle.”).

257. See Robert E. King & Cass R. Sunstein, *Doing Without Speed Limits*, 79 B.U. L. REV. 155, 163 (1999) (explaining why Montanans' driving habits were not dramatically affected by the adoption of federally mandated speed limits, and recounting one resident's observation that Montanans know the safe speed for travelling a particular road).

258. Commonwealth v. Pierce, 138 Mass. 165, 174 (1884).

shooting a friend, the defendant plausibly denied having known that the gun was loaded.²⁵⁹ If these denials are credited, neither of these seemingly critical facts—the toxicity of kerosene, in *Pierce*, and the bullet in the gun, in *Wilson*—will count as a “known circumstance.” And so neither of these facts will play a role in the generation of the relevant probabilities. What these examples appear to show is that any adequate formula for calculating probabilities must assign weight not only to what the actor knew but, in addition, to what the actor *should have known*.

This appearance is deceiving. As a preliminary matter, notice that the phrase “should have known” might mean either of two things. First, it might mean that the actor should have *inferred* the existence of the critical fact from what the actor already knew.²⁶⁰ Second, it might mean instead that the actor should have *discovered* the critical fact by conducting additional investigation or acquiring additional experience.²⁶¹ The objection described above really encompasses two questions, then: (1) Is it a shortcoming of the known-circumstances approach that it does not permit the jury to impute inferential knowledge to the defendant?; and (2) Is it a shortcoming of the known-circumstances approach that it does not permit the finder of fact to impute non-inferential knowledge to the actor?

As to the first question, Holmes and Wechsler both appear sometimes to have assumed that the factfinder would be required, as an intermediate step in the calculation of the probabilities, to decide what a reasonable person would have *inferred* from the facts that the actor actually knew.²⁶² Holmes said, for example, that the

259. *Wilson v. Tard*, 593 F. Supp. 1091, 1093 (D.N.J. 1984) (granting habeas relief).

260. “Two questions are involved” in the broader question “what a man of reasonable prudence would discover,” namely, “(1) What knowledge would most men acquire from a given kind of investigation?” and “(2) What sort of investigation, if any, would a reasonably prudent man make?” See Wechsler & Michael, *supra* note 1, at 748.

261. *Id.*

262. See HOLMES, *supra* note 39, at 75; Wechsler & Michael, *supra* note 1, at 748.

defendant could be charged with knowledge of "things which a reasonable and prudent man would have inferred from the things actually known."²⁶³ And Wechsler and Michael said that the jury was required to decide "[w]hat knowledge . . . most men [would] acquire from a given kind of investigation [or experience]."²⁶⁴ What Holmes, Wechsler, and Michael appear to have meant is that the factfinder, in constructing the factual setup from which the probabilities are derived, may take into account not only what the actor knew but also what the actor *ought* to have known—at least by way of inferential knowledge.²⁶⁵

But this modification of the known-circumstances formula doesn't accomplish anything. In cases like *Pierce* and *Wilson*, the factual setup for generating the probabilities already will include the underlying facts on which the imputed inferential knowledge is based—the "things actually known," in Holmes's formulation.²⁶⁶ Adding to this factual setup a new "fact" that is nothing more than a probabilistic inference from other known facts would have no effect on the jury's probability calculation, since the jury would already have taken into account the probabilistic import of the other known facts in making the probability calculation.

Take the *Pierce* case, for example. If we were to impute *inferential* knowledge of kerosene's toxicity to *Pierce*, the imputation would be based—as Holmes said—on things actually known to *Pierce*. The things actually known to *Pierce* might have included, for example, the fact that kerosene is combustible and is used as a fuel and a solvent; and they might have included, too, the fact that many fuels and solvents are poisonous when taken internally. To say that these known facts would have warranted a reasonable person in inferring that kerosene is potentially toxic,

263. HOLMES, *supra* note 39, at 75; see also *id.* at 55 ("An act cannot be wrong, even when done under circumstances in which it will be hurtful, unless those circumstances are *or ought to be* known.") (emphasis added).

264. Wechsler & Michael, *supra* note 1, at 748.

265. HOLMES, *supra* note 39, at 55.

266. *Id.* at 75.

however, is really just to say, as we do in the law of evidence, that these known facts have a tendency to make the inferred fact “more probable . . . than it [otherwise] would be.”²⁶⁷ And if these known facts have a tendency to make the inferred fact more probable, then this very tendency will make itself felt in the jury’s probability calculation anyway.²⁶⁸

In *The Common Law*, Holmes eventually winds up making substantially the same point, albeit in connection with the tort of negligence. In his analysis of the tort of negligence, as in his analysis of the criminal law, Holmes concludes that the exclusive ground of liability is “the degree of danger attending given conduct under certain known circumstances.”²⁶⁹ This basic test, he says, can be translated into a question about imputed foresight: “it would be possible to state all cases of negligence in terms of imputed or presumed foresight.”²⁷⁰ Holmes acknowledges, however, that this translation is nothing more than a mode of expression or a “fiction.”²⁷¹ What is really going on, at bottom, is just the derivation of probabilities from the underlying known facts: “[I]f foresight were presumed, the ground of the presumption, and therefore the essential element, would be the knowledge of facts which made foresight possible.”²⁷²

At least where *inferential* knowledge is concerned, then, it is not a shortcoming of the known-circumstances formula that it provides no avenue for imputing knowledge to the

267. FED. R. EVID. 401 (“Relevant evidence’ means evidence having any tendency to make the existence of any fact that is of consequence to the determination of the action more or less probable than it would be without the evidence.”); *see also* LEWIS, *supra* note 147, at 338 (locating an epistemic justification in the probabilistic “congruence” among beliefs).

268. Cf. Commonwealth v. Pierce, 138 Mass. 165, 178 (1883) (“The truth was, that [Pierce’s] failure to predict [the critical facts] was immaterial, if, under the circumstances known to him, the court or jury, as the case might be, thought them obvious.”).

269. HOLMES, *supra* note 39, at 149.

270. *Id.* at 147.

271. *Id.*

272. *Id.*

actor. The problem of *non-inferential* knowledge remains, however. To illustrate: Suppose that Pierce really knew almost nothing about the properties of kerosene. On these facts, one could argue that Pierce's real fault lay in failing to conduct additional investigation of kerosene's properties before using it as a medicinal balm. And one could argue, as Wechsler and Michael do, that the best and perhaps only solution to cases like these is to impute to the actor knowledge he would have acquired if he had conducted "the sort of investigation . . . a reasonably prudent man [would] make" under the circumstances.²⁷³

Wechsler and Michael get this wrong, though. The question whether a reasonable person would have performed additional factual investigation bears not on the calculation of the probabilities but, rather, on another aspect of the broader question of justifiability. It bears on the question whether the availability of an alternative course of action—namely, pausing long enough to acquire additional information—made the actor's decision to proceed *immediately*, without further investigation, unjustifiable.²⁷⁴ It goes, in other words, not to what a reasonable person would have *believed*, but to what a reasonable person would have *done*.²⁷⁵ It does not change the factual setup from which the relevant probabilities are generated.

Consider our hypothetical variation on *Pierce*. The trouble with Wechsler and Michael's view is that they conceive of the choice facing Pierce as embracing just two alternatives: (1) going forward with the treatment, which

273. The application of the reasonable-person standard in constructing a factual setup requires the finder of fact to answer the question, "What sort of investigation, if any, would a reasonably prudent man make?" See Wechsler & Michael, *supra* note 1, at 747-48.

274. *Id.* at 744 (acknowledging that justifiability of conduct depends on the probability of death or serious injury and on the availability of less dangerous alternatives that still allow the pursuit of the social benefits that justify the creation of the risk).

275. See Eric A. Johnson, *Beyond Belief: Rethinking the Role of Belief in the Assessment of Culpability*, 3 OHIO ST. J. CRIM. L. 503, 521 (2006) (explaining the distinction between the reasonableness of action and the reasonableness of a belief).

carries, as far as Pierce knows, only a very slight danger; and (2) ending the treatment, which means sacrificing the medical benefits obtained by Pierce from kerosene on past occasions.²⁷⁶ On this view of the situation, Pierce will not be liable unless the probability of harm is sufficient to outweigh the supposed benefits of the kerosene treatment. And so, in order to make the balance come out in favor of liability, we have to tamper with the probability assigned to the harm by imputing to Pierce the knowledge that he *would have obtained* from a reasonable investigation.²⁷⁷ The problem disappears, though, if we re-conceive of Pierce's decision as a choice among not two but three alternatives, including: (3) pausing long enough to consult the medical books in the local library. Unless Pierce has good reason to believe that the benefits of the kerosene treatment will be lost by even a moment's distraction, then option three offers all the benefits of option one with none of the potential dangers. And because option three offers all the benefits of option one with none of the dangers, those benefits cannot be invoked to offset the small but substantial danger associated with option one.

C. Partial Beliefs

A third possible objection to the known-circumstances approach is that it assigns no weight to the actor's partial beliefs, or probability estimates. Suppose, for example, that Mary is driving a critically injured hiking companion to the hospital when she finds herself trapped behind a slow-moving truck. The two-lane mountain road is winding, so Mary cannot tell when a car is approaching in the other direction. In her first five minutes behind the truck, Mary sees three or four cars go past in the opposite direction. Based on this and other observations and based on her experiences on this road, she estimates that her chance of

276. Commonwealth v. Pierce, 138 Mass. 165, 169 (1884) ("The defendant introduced evidence tending to show that he had, prior to [his treatment of Bemis], made application of kerosene oil to patients for various complaints, with beneficial results . . .").

277. Wechsler & Michael, *supra* note 1, at 748.

encountering an oncoming car while passing the truck is about .02, or twenty percent.

Mary's probability estimate seems to have a strong bearing on the question whether she should pass the truck—and on the question whether, if she does pass, her actions should expose her to criminal liability. But the known-circumstances formula would assign no weight at all to Mary's probability estimate. Mary could not, after all, be said to "know" either (1) that a car was approaching or (2) that a car was not approaching; she was uncertain. Further, even if we were inclined to count accurate probability estimates as "knowledge,"²⁷⁸ they still would not appear to qualify as known *circumstances* for purposes of Holmes's formula.²⁷⁹ And so this seemingly critical fact about Mary's perspective—the likelihood she reasonably assigned to the prospect of encountering another car—would play no part in the assessment of whether her actions were justified.

Despite the seeming importance of Mary's probability estimate, it is not a shortcoming of the known-circumstances formula that it denies estimates like Mary's a role in the jury's calculation of the relevant probabilities. The reason why is suggested in a recent paper by philosophers John Hawthorne and Jason Stanley.²⁸⁰ The subject of Hawthorne and Stanley's paper is the question of "what is appropriate to use as a reason for acting."²⁸¹ In answer to this question, they argue that only *knowledge*, not belief, is appropriately invoked as a reason for acting.²⁸² (In technical terms, their thesis is: "Knowing that *p* is necessary for treating the proposition that *p* as a reason for

278. See John Hawthorne & Jason Stanley, *Knowledge and Action*, 105 J. PHIL. 571, 581 (2008) (suggesting that one way to address their version of the problem of partial belief is to utilize the knowledge of chances). See generally *infra* text accompanying notes 285-87.

279. See BLACK'S LAW DICTIONARY 236 (7th ed. 1999) (defining "circumstance" as "[a]n accompanying or accessory fact, event, or condition, such as a piece of evidence that indicates the probability of an event").

280. Hawthorne & Stanley, *supra* note 278.

281. *Id.* at 584.

282. *Id.* at 577-78.

acting.”²⁸³⁾ According to Hawthorne and Stanley, then, “[w]hen someone acts on a belief that does not amount to knowledge, she violates the norm, and hence is subject to criticism.”²⁸⁴

In the course of defending this thesis, Hawthorne and Stanley address a question very like the one that arises in Mary’s case, namely, “[whether] we can rationally act on *partial beliefs*,” or probability estimates, even though probability estimates are not usually counted as knowledge.²⁸⁵ Their answer to this question is, in part, that nothing is accomplished by permitting actors to invoke probability estimates as reasons for actions, since actors already are permitted to invoke the background knowledge on which these probability estimates are based.²⁸⁶ “[W]hen someone appropriately acts on a belief about epistemic chances,” according to Hawthorne and Stanley, “there are always [known] propositions that are not about chances that they could instead appropriately use as reasons for action.”²⁸⁷

Roughly the same thing is true in the criminal setting. That is: in cases where an actor’s probability estimate appears, intuitively, to bear on the question whether the risk posed by her actions is unjustifiable, the probability estimate always winds up being redundant of the known circumstances. The reason why is twofold.

First, the cases where the actor’s probability estimate appears to bear on the justifiability of her actions are just those where the actor’s probability estimate is grounded in what she knows. In Mary’s case, for example, we stipulated

283. *Id.* at 578.

284. *Id.* at 577.

285. *Id.* at 581. *But see id.* at 581 (“One possible maneuver is to appeal to knowledge of chances.”).

286. *Id.* at 584-85.

287. *Id.* at 585; *see also id.* at 584 (“Whenever we appropriately act on our knowledge of the high epistemic chance of the proposition that *p*, we could equally appropriately have acted on knowledge of propositions that are not about chances, namely, those propositions we know that make for a high epistemic chance of the proposition that *p*.“)

that Mary's probability estimate was grounded in, among other things, her knowledge that three or four cars had passed by in the preceding five minutes. If, instead, we had stipulated that Mary's probability estimate was groundless—if Mary had acted on the basis of a probability estimate that was unconnected to anything in her experience, current or past—her probability estimate probably would not seem to matter, at least for purposes of the question of whether her actions were *justified*.²⁸⁸ In Hawthorne and Stanley's formulation, this untethered probability estimate is not one that Mary could “appropriately use as [a] reason[] for action.”²⁸⁹

Second, when the actor's probability estimate is grounded in what she knows, her probability estimate will contribute nothing to the jury's evaluation of the probabilities, for roughly the same reason that imputed inferential knowledge contributes nothing to the jury's evaluation of the probabilities.²⁹⁰ The jury already is responsible for deriving the relevant probabilities from what the actor knows. So to the degree that the actor's *own* probability estimate is grounded in what she knows, her probability estimate will add nothing to the probability calculation.

D. Luck in What Turns Out to Be True

A fourth potential objection to the known-circumstances formula is that it assigns too much weight to *what turns out to be true*. Imagine, for example, two identically situated actors, Abby and Becky, each of whom briefly leaves a gun on the kitchen counter within reach of her children, and each of whom is convinced, with very good reason, that the gun is inoperable. Abby is right about the gun's

288. Cf. *Terry v. Ohio*, 392 U.S. 1, 27 (1968) (“[I]n determining whether the officer acted reasonably in [making an investigative stop], due weight must be given, not to his inchoate and unparticularized suspicion or ‘hunch,’ but to the specific reasonable inferences which he is entitled to draw from the facts in light of his experience.”).

289. Hawthorne & Stanley, *supra* note 278, at 585.

290. See *supra* text accompanying notes 266-72.

inoperability. But Becky, despite having the same good reasons as Abby for believing the gun to be inoperable, happens to be wrong, and with tragic results. The known-circumstances formula appears to treat these two actors very differently. Abby's belief in the gun's inoperability proves to be correct, so it qualifies as a *circumstance known to the actor*. Becky's belief in the gun's inoperability, on the other hand, is wrong, and so it drops out of the factual setup entirely.

What this example appears to demonstrate, at first glance anyway, is that the known-circumstance formula gives too much effect to a particular kind of happenstance—luck in what turns out to be true. To clarify: it would be wrong to say that Abby is *lucky* in what she knows. After all, as stipulated, she has very good reasons for believing as she does; moreover, as we will see in a moment, epistemologists appear to agree among themselves that *knowing* something, as opposed to *not knowing* it, is never a matter of luck.²⁹¹ On the other hand, it would be accurate to say that Becky's failure to know is *unlucky*. Despite having the exact same very good reasons for her belief as Abby, Becky winds up being wrong. Our intuitions tell us that epistemic misfortune like Becky's ought not to have a dramatic effect on the actor's exposure to criminal liability.²⁹²

291. Linda Zagzebski, *The Inescapability of Gettier Problems*, 44 PHIL. Q. 65, 66 (1994) (assuming that a true belief acquired "by an accident of good luck" does not count as knowledge); Matthias Steup, *The Analysis of Knowledge*, STANFORD ENCYCLOPEDIA OF PHILOSOPHY § 3 (Fall 2008), <http://plato.stanford.edu/archives/fall2008/entries/knowledge-analysis> ("What turns a true belief into knowledge? An uncontroversial answer to this question would be: the sort of thing that effectively prevents a belief from being true as a result of epistemic luck.")

292. The basic intuition is nicely articulated by Douglas Husak and Craig Callender, albeit in a different setting:

[I]t is clear that one is to some extent lucky to be knowledgeable. Yet it is perverse to fault someone for being unlucky. Criminal culpability cannot be thought to be in part a function of whether an agent is epistemically fortunate or not. What matters for culpability is how a defendant performs with respect to factors accessible to him; whether his cognizing has been responsible is important, for irresponsible cognizing may well count as culpable behavior.

The answer to this objection lies in the meaning of the critical phrase “known circumstance.” What is known must be *true*, of course.²⁹³ And at least where propositional knowledge is concerned, what is known must be *believed*.²⁹⁴ But knowledge requires more than true belief.²⁹⁵ Exactly *what* it requires, in addition to true belief, is a subject of disagreement among philosophers.²⁹⁶ The traditional answer was justification.²⁹⁷ But this “justified true belief” definition of knowledge was famously thrown in doubt in 1963, when Edmund Gettier presented two examples of justified true beliefs that, as everyone agreed, didn’t qualify as knowledge.²⁹⁸ Despite the controversy stirred up by Gettier, though, it is possible even now to say something uncontroversial about the critical third condition of knowledge. Namely, whatever else this third condition is, it must be (in the words of philosopher Matthias Steup) “the sort of thing that effectively prevents a belief from being true as a result of epistemic luck.”²⁹⁹

Douglas N. Husak & Craig A. Callender, *Wilful Ignorance, Knowledge, and the Equal Culpability Thesis: A Study of the Deeper Significance of the Principle of Legality*, 1994 WIS. L. REV. 29, 49 (emphasis omitted).

293. AYER, *supra* note 28, at 31 (defining knowledge to include, among others, a requirement that “what is known should be true”).

294. See Michael S. Pardo, *Testimony*, 82 TUL. L. REV. 119, 125 (2007) (“Propositional knowledge is generally taken to have three constituents: justified, true, and belief.”).

295. See AYER, *supra* note 28, at 31 (“[I]t is possible to be completely sure of something which is in fact true, but yet not to know it.”); see also Anthony Quinton, *Knowledge and Belief*, in 4 ENCYCLOPEDIA OF PHILOSOPHY 345, 346 (Paul Edwards ed., 1967) (“It is generally accepted that lucky guesses should not count as knowledge.”).

296. Steup, *supra* note 291, § 1.2

297. See, e.g., Quinton, *supra* note 295, at 345 (“According to the most widely accepted definition, knowledge is justified true belief.”).

298. Gettier, *supra* note 26, at 122-23; see also BONJOUR, *supra* note 27, at 5 (observing that the Gettier problem “has usually been taken to show either that the three standard conditions for knowledge require supplementation by a fourth or else, more radically, that the standard conception is irremediably defective”).

299. Steup, *supra* note 291, § 3.

As it turns out, even this very broad rendering of the third condition is enough for our purposes. From the fact that knowledge cannot be a product of luck, it appears to follow that a person whose belief is a candidate for knowledge—that is, a person whose belief would count as knowledge if it turned out to be true—will know other facts that bear a justificatory relationship to the candidate belief.³⁰⁰ This is one of the lessons of the Gettier examples (though not the only one³⁰¹). In their classic form, the Gettier examples had two basic features: first, one of the beliefs that provided justification for the candidate belief turned out to be false; second, the candidate belief itself nevertheless turned out to be true.³⁰² The reason why the Gettier examples didn't count as knowledge was that a person who is right about her conclusion but wrong about

300. See D. M. Armstrong, *BELIEF, TRUTH AND KNOWLEDGE* 153 (1973) (arguing that the answer to the Gettier problem lies in requiring, as a condition of knowledge, “that the justifying beliefs are *known* to be true”). Critics of Armstrong’s theory argue that this requirement is not *sufficient*, by itself, to solve the Gettier problem; it is possible, they say, to create variations on the Gettier cases in which justifying beliefs are known to be true and yet the candidate belief still does not count as knowledge. Steup, *supra* note 291. These variations do not, however, cast any doubt on the proposition that the truth of one’s justifying beliefs is a *necessary* condition of knowledge.

301. See Steup, *supra* note 291, § 2 (showing that it is possible to construct variations on the Gettier cases in which the justifying beliefs are true).

302. Gettier, *supra* note 26, at 122-23. Here is a somewhat simplified version of one of Gettier’s original examples: Suppose you are justified in believing that your friend Jones owns a Ford. Perhaps Jones has offered you a ride while driving a Ford, has bragged about owning a Ford, and even has shown you what appears to be the title to a Ford. On the basis of this evidence, you justifiably infer first that “Jones owns a Ford.” In addition, though, you infer the truth of the disjunction “Either Jones owns a Ford or Brown is in Barcelona.” You are justified in inferring the truth of this disjunction as a matter of deductive logic, despite the fact that, as it happens, you have absolutely no reason to believe that Brown is in Barcelona. Now suppose that you are wrong about Jones—he really doesn’t own a Ford. But you happen by the sheerest coincidence to be right about Brown, who really is in Barcelona. In this case, the “justified true belief” definition of knowledge is satisfied: (1) you *believe* the proposition that “Either Jones owns a Ford or Brown is in Barcelona”; (2) you are *justified* in believing this proposition; and (3) this proposition is *true*. At the same time, though, nobody would say that you know that this proposition is true. The truth of your belief is a matter of luck, and a belief that’s true as a matter of luck can’t qualify as knowledge. *Id.*

her premises is *lucky* to be right about her conclusion, and therefore cannot be said to know it.³⁰³ This means, then, that a person whose belief is a candidate for knowledge usually will have to be right about her premises.³⁰⁴ She usually will have to know *other things* that justify the candidate belief.

With this background, let us return to Abby and Becky. What made this example work was the stipulation that Becky's belief in the gun's inoperability would have qualified as knowledge (as her counterpart Abby's did) but for the fact that it happened to be wrong. If this is so, however—if Becky's belief would have qualified as knowledge but for the fact that it happened to be wrong—then it follows that Becky must have known *other things* that justified her belief in the gun's inoperability. She might have known, say, that the gun was rusty from having been outside in all weather for several years. And she might have known that her husband had tried several times to test-fire the gun without success. If Becky had not known other facts like these that justified her belief in the gun's inoperability, then her belief wouldn't have counted as knowledge anyway, since her belief, if true, would have been true only “as a result of epistemic luck.”³⁰⁵

The last step in this argument probably is obvious. If Becky knew other things that justified her belief in the gun's inoperability, then these “circumstances known to her” would make themselves felt in the jury's probability calculation to nearly the same degree as the fact of the gun's inoperability would have. After all, the justificatory relationship is probabilistic—to say that one fact provides a

303. See Zagzebski, *supra* note 291, at 66 (assuming that a true belief acquired “by an accident of good luck” does not count as knowledge).

304. I say “usually” because it is possible to imagine a case where the candidate belief, if true, would qualify as knowledge, but where the belief is not linked to any other belief, true or false. Suppose, for example, that a police officer is convinced that she smells marijuana. If she proves to be right, she might be credited with knowledge. See *State v. Owensby*, No. 36542-1-II, 2008 WL 4147798, at *1 (Wash. Ct. App. Sept. 9, 2008). If she proves to be wrong, however, she would have nothing to fall back on, at least by way of propositional knowledge.

305. Steup, *supra* note 291, § 3.

basis for inferring another is really to say, as the evidence rules do, that it makes the second fact “more probable.”³⁰⁶ And so to say that Becky knew other things that justified her belief in the gun’s inoperability is to say, in effect, that the known circumstances made the gun’s inoperability highly probable. The jury’s calculation of the outcome probabilities will reflect this. So the fact that Becky’s belief in the gun’s inoperability does not count as knowledge will have at most a slight effect on the probability calculation. (I’ll explain at the beginning of the next Section what I mean by “slight.”)

This point—that an actor’s epistemic misfortune will have little effect on the probability calculation under the known-circumstances formula—is borne out by the courts’ experience in the search and seizure cases. Consider, for example, *Hill v. California*.³⁰⁷ The police officers in *Hill*, after putting together enough evidence to justify Hill’s arrest for a recent armed robbery, went to Hill’s apartment to arrest him.³⁰⁸ When the door to Hill’s apartment was answered by a man who fit Hill’s description, the officers immediately arrested him. The man insisted that his name was Miller, and he produced identification indicating (accurately, as it turned out) that he was Miller.³⁰⁹ The police officers “were unimpressed,” however, and they proceeded to conduct a search of the apartment incident to arrest, during which they found evidence that implicated Hill in the robbery.³¹⁰

The case eventually wound up before the Supreme Court, where among the questions on review was the question whether the arrest was supported by probable cause. In resolving this question, the Supreme Court refused to assign any weight to the officers’ seemingly justified belief that Miller was Hill.³¹¹ What mattered, the

306. FED. R. EVID. 401; *see also* LEWIS, *supra* note 147, at 338.

307. 401 U.S. 797 (1971).

308. *Id.* at 799.

309. *Id.*

310. *Id.* at 799-800.

311. *Id.* at 804.

Court said, was the “probability” that Miller was Hill,³¹² not what the officers believed. In calculating the probability that Miller was Hill, the Court considered only what the officers *knew* when they arrested Miller: namely, how Hill’s accomplices in the robbery had described Hill’s appearance; the fact that Miller matched this description of Hill; the fact the apartment where the officers had found Miller belonged to Hill; and the fact that Miller was alone in the apartment.³¹³ This was enough, however. Because the officers’ mistaken belief—that Miller was Hill—was grounded in several other *known* circumstances, the officers’ epistemic misfortune ultimately had no effect on the Court’s resolution of the question whether their actions were justified.³¹⁴

E. *The Justified-Belief Alternative*

A few pages ago I said that the effect of epistemic misfortune on the calculation of probabilities under the known-circumstances formula will usually be “slight.” The reason why epistemic misfortune has even a slight effect on the probabilities can be illustrated by Abby’s and Becky’s case. Suppose that Abby’s and Becky’s identical “very good reasons” for believing that the gun is inoperable would themselves generate a 0.9 degree of probability that the gun is inoperable. If Abby’s belief winds up being correct, the inoperability of the gun will become one of the

312. *Id.* (“[S]ufficient probability . . . is the touchstone of reasonableness under the Fourth Amendment. . . .”).

313. *Id.* at 799, 803-04.

314. *Id.* Nor does epistemic *good luck*, as distinguished from epistemic misfortune, influence the outcomes of search and seizure cases. See, e.g., *Florida v. J.L.*, 529 U.S. 266, 271 (2000) (“That the allegation about the gun turned out to be correct does not suggest that the officers, prior to the frisks, had a reasonable basis for suspecting J.L. of engaging in unlawful conduct. . . .”); *People v. Sparks*, 734 N.E.2d 216, 223 (Ill. App. Ct. 2000) (“Simply because the information about the drugs turned out to be correct does not mean that it provided officers, prior to stopping [the] defendants, with a reasonable basis for suspecting them of unlawful conduct.”); *Tanner v. State*, 228 S.W.3d 852, 860 (Tex. Ct. App. 2007) (“If an officer stops an individual based merely on a hunch that the individual is ‘up to no good,’ the fact that the hunch turns out to be correct does not retroactively validate the stop.”).

"circumstances known to her" and, as a result, this fact will *not* be discounted by its 0.9 degree of certainty. In effect, this fact will be assigned a probability of 1 by the jury when it calculates the outcome probabilities in Abby's case. The effect of Becky's epistemic misfortune, then, is the difference between 0.9 and 1. Abby will receive a 0.1 windfall just because she happens to be right.

It would be possible, at least in theory, to eliminate this windfall by requiring the jury to calculate the probabilities not on the basis of what the actor knows but on the basis of what the actor *justifiably believes*.³¹⁵ Epistemic justification, unlike knowledge,³¹⁶ admits of degrees.³¹⁷ And so it would be possible for the jury, under this alternative, to assign the gun's inoperability a 0.9 degree of probability in both Abby's case and Becky's. Of course, every other known circumstance, including the known circumstances that justified Abby's and Becky's belief in the gun's inoperability, would require the same treatment in its turn, lest the actor receive a windfall by virtue of having been right about *it*. Abby's and Becky's justified belief that the gun had been lying outside for several years might be assigned a 0.95 degree of probability, for example. And their justified belief that their husbands had tried unsuccessfully to fire the gun on several occasions might be assigned a 0.8 degree of probability.

This kind of exactitude, though, has more costs than benefits, at least in the context of a criminal trial. The problem with the justified-belief alternative is *not* the complexity of the jury's task as I have described it. After all,

315. See Clayton Littlejohn, *On Treating Something as a Reason for Action*, 4 J. ETHICS & SOC. PHIL. 1, 1 (2009) ("In the wake of Hawthorne and Stanley's article, epistemologists are lining up to argue that we ought to replace a knowledge-based account with some sort of justification-based account.").

316. See Fred Dretske, *The Pragmatic Dimension of Knowledge*, 40 PHIL. STUD. 363, 363 (1981) ("Knowing that something is so, unlike being wealthy or reasonable, is not a matter of degree . . . [F]actual knowledge, the knowledge that something is so, does not admit of [degrees].")

317. See John L. Pollock, *Defeasible Reasoning with Variable Degrees of Justification*, 133 ARTIFICIAL INTELLIGENCE 233, 243 (2001) (emphasizing the importance of accounting for degrees of justification in a defeasible reasoning system).

no one can suppose that jurors actually would assign probabilities to the actor's every belief; the best we could hope for from the jury would be some rough, intuitive approximation of this process. The real problem is the difficulty of constructing or conceptualizing for jurors this rough, intuitive approximation. It plainly would not be enough to instruct the jury to measure the probability of harm on the basis of what the actor *justifiably believed*. For one thing, the idea of epistemic justification is likely to be unfamiliar to many jurors. As Hawthorne and Stanley have said, “*justified belief* is a phrase from philosophy classrooms.”³¹⁸ “[I]t is considerably more natural to appraise behavior with the verb ‘know’ than with the phrase ‘justified belief,’ or even ‘reasonable belief.’”³¹⁹

Worse, telling the jury to measure the probability of harm on the basis of what the actor justifiably or reasonably believed would be affirmatively misleading. What makes the justified-belief alternative appealing is the possibility of taking into account *degrees* of justification. In Abby's and Becky's case, for example, this alternative theoretically would permit the jury to distinguish a belief in the gun's inoperability that carries, say, a 0.9 degree of justification from a belief in the gun's inoperability that carries only a 0.6 degree of justification. But telling the jury simply to measure the probability of harm on the basis of what the actor justifiably or reasonably believed would obscure this very distinction. As I have argued elsewhere of the phrase “*reasonable belief*,” the phrase “*justified belief*” doesn't, by itself, carry any information about the belief's degree of certainty, or about the belief's degree of justification.³²⁰ A belief of 0.6 degree of justification is as much a “*justified belief*” as a belief of 0.99 degree of justification. Thus, unless the jury was instructed specifically to take degrees of justification into account—and it could not realistically be

318. Hawthorne & Stanley, *supra* note 278, at 573.

319. *Id.*

320. See Eric A. Johnson, *supra* note 275, at 519-21 (arguing that the reasonableness of a belief does not tell us whether the belief was sufficiently certain to justify action under the circumstances in which the actor found herself).

so instructed—the jury likely would assign a probability value of 1 to every belief that was justified at all.

CONCLUSION

Everything that seems, intuitively, to bear on the justifiability and lawfulness of an actor's conduct is either included in or implied by the circumstances known to the actor. What the known-circumstances formula leaves out—what are neither included in nor implied by the known circumstances—are just those of the actor's beliefs and thoughts that are untethered to anything in the actor's experience of the world. But this is as it should be. No one would say, in a search and seizure case, that the justifiability of a police officer's actions depended in part on her "baseless" or "groundless" suspicions or beliefs.³²¹ This ought to tell us that in the criminal law the actor's untethered beliefs bear only on the question that *distinguishes* criminal law from search and seizure, namely, the question of culpability. Holmes and Wechsler were right: where the question of justifiability is concerned, what matters, finally, is not the contents of the actor's mental field but the actor's relationship to the world. Of this relationship, the circumstances known to the actor are "the whole picture."³²² The probabilities that bear on the justifiability of an actor's conduct are the probabilities that inhere in what she knows.

321. See, e.g., *Shipman v. State*, 282 So. 2d 700 (Ala. 1973) (explaining that the probable cause requirement prevents police from "acting on mere groundless suspicion"); *Commonwealth v. Stevenson*, 832 A.2d 1123, 1128 (Pa. Super. Ct. 2003) ("This Court has repeatedly held that reasonable suspicion is not satisfied by an officer's hunch or baseless suspicion.").

322. *United States v. Cortez*, 449 U.S. 411, 417 (1981) ("[T]he essence of all that has been written [about the reasonable suspicion standard] is that the totality of the circumstances—the whole picture—must be taken into account."); see also, e.g., *People v. Avant*, 771 N.E.2d 420, 428 (Ill. App. Ct. 2001) (mentioning that reasonable suspicion is judged on the basis of the facts known to the officer and that reasonable suspicion is judged on the basis of the "whole picture"); *Bentley v. State*, 846 N.E.2d 300, 307 (Ind. Ct. App. 2006) (remarking both that reasonable suspicion is judged on the basis of the facts the officer knows at the time of the stop and that reasonable suspicion is judged on the basis of "the whole picture").

This point has far-reaching implications for the criminal law. Most importantly, it means that the criminal law can satisfy both of the two widely shared intuitions that lay behind Holmes's development of the known-circumstances test. It can satisfy, first, the intuition that the criminal law has an objective or "external" component, whose rules of conduct are "independent of the degree of evil in the particular person's motives or intentions."³²³ And it can satisfy, at the same time, the intuition that the wrongfulness of an actor's conduct depends mostly on probabilities—on the act's tendency under the circumstances.³²⁴ Put somewhat differently, the availability of a workable conception of objective probability means, happily, that the criminal law need not resort to purely *subjective* probabilities—to the actor's own elusive "beliefs about the probabilities of outcomes"³²⁵—as a basis for defining and grading risk-based offenses.

In Marjorie Knoller's case, then, the law can satisfy, first, our intuition that what distinguishes Knoller from a responsible pet-owner—what makes her conduct *wrong*—is "[t]he degree of probability of the consequence."³²⁶ At the same time, the law can satisfy our intuition that the wrongfulness of Knoller's conduct does not depend on the probabilities assigned by Knoller herself to the outcome. It does not depend on whether, as Knoller claimed at trial, she "had no idea that [Bane, one of the two dogs,] would ever do anything like that to anybody."³²⁷ The wrongfulness of her conduct can be made to depend on what she knew: on the letter from the dog's veterinarian warning Knoller of the danger posed by the dogs; on the thirty or so prior "incidents of the two dogs being out of control or threatening humans and other dogs" while in the care of Knoller or her husband;

323. HOLMES, *supra* note 39, at 50.

324. *Id.* at 75.

325. ALEXANDER ET AL., *supra* note 11, at 63 (arguing that the actor's criminal liability depends exclusively on the actor's subjective beliefs about probability); *see also* WILLIAMS, *supra* note 1, at 62 ("[T]he extent of probability of the damage is a subjective question, dependant on the foresight of the accused. . . .").

326. *See* WILLIAMS, *supra* note 1, § 21, at 58.

327. People v. Knoller, 158 P.3d 731, 736 (Cal. 2007).

on the size of the two dogs; on what Knoller had been told by the dogs' previous owners; on the document found in Knoller's apartment, describing the Presa Canario breed as "a gripping dog . . . always used and bred for combat and guard . . . [and] used extensively for fighting. . . ."³²⁸

No less important are the implications of the known-circumstances formula for cases like Sharan Ann Williams's.³²⁹ Williams, recall, was prosecuted for reckless injury to a child after her two children died in a house fire while her boyfriend was babysitting them.³³⁰ Unlike Knoller, Williams apparently thought she had done something wrong: she lied to her husband about the children's whereabouts,³³¹ then admitted to the police that "she should have brought [her children] home" instead of leaving them at the boyfriend's house.³³² Our intuition, though, is that Williams's liability ought to depend not (or not only) on whether she *thought* she had created an unjustifiable risk, but on whether she *really* had. The known-circumstance test satisfies this intuition. It permits us to conclude, as the Texas Court of Criminal Appeals did, that—no matter "the degree of evil in [Williams's] motives or intentions,"³³³ no matter that Williams was a prostitute³³⁴ and "a 'bad' mother, unworthy of her mother, her children, and her boyfriend"³³⁵—Williams's acts "are simply not acts that, viewed *objectively* under these particular circumstances, involved 'an extreme degree of risk, considering the

328. *See id.* at 733-35.

329. *Williams v. State*, 235 S.W.3d 742 (Tex. Crim. App. 2007).

330. *Id.* at 746, 749.

331. *Id.* at 771 (Keller, P.J., dissenting) ("[Williams] was aware of the risk of fire and, because of this awareness, thought she needed to hide the truth about where the girls were from their father.").

332. *Id.*

333. HOLMES, *supra* note 39, at 50.

334. *Williams*, 235 S.W.3d at 770 n.4 (Keller, P.J., dissenting).

335. *Id.* at 769 (majority opinion).

probability and magnitude of the potential harm to others'."³³⁶

336. *Id.* (emphasis added) (quoting *Transp. Ins. Co. v. Moriel*, 879 S.W.2d 10, 23 (Tex. 1994)).