Something Smells Rotten: The practical consequences of bad epistemology in the context of drug sniffing dogs.

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George Souri*

I. INTRODUCTION

The Fourth Amendment to the United States Constitution provides that “[t]he right of the people to be secure in their persons, houses, papers, and effects, against unreasonable searches and seizures, shall not be violated.”\(^1\) Despite grappling with what precisely qualifies as “unreasonable,” the Supreme Court has held that, with few exceptions, a search must be conducted pursuant to a warrant to fall within the reasonableness requirement of the Fourth Amendment.\(^2\) Among the exceptions to the warrant requirement is the probable cause standard, which the Supreme Court has described as a “practical, nontechnical conception” that deals with “the factual and practical considerations of everyday life on which reasonable and prudent men, not legal technicians, act,”\(^3\); a “fluid concept-turning on the assessment of probabilities in particular factual contexts - not readily, or even usefully, reduced to a neat set of legal rules”.\(^4\) Probable cause exists when “there is a fair probability that contraband or evidence of a crime will be found in a particular place.”\(^5\) Despite the Court’s verbose attempt to articulate the reasonableness and probable cause standards, the Court’s rules amount to little more than a series

\(^1\) U.S. Const. amend. IV.


\(^4\) *Id.* at 232

\(^5\) *Id.* at 238.

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of tautologies and circular reasoning. To say, as the Court has, that “X is reasonable if a reasonable man thinks it is,” or that “a search is probable if it will probably disclose the existence of X,” is to say nothing at all. In essence, the Court has created a series of analytical, or a priori, rules that have no empirical, or a posteriori, content. The problem arises because these analytical rules must be applied to empirical cases, and absent empirical content, the rules are largely meaningless. As such, a better approach is required – but such a task presents clear challenges.

First, the Court can be defended in its hesitation to decide probable cause issues through the use of technical, bright-line rules. Often times such rules obfuscate the richness and complexity of experience, despite trying to clarify. As Ronald Allen and Ross Rosenberg argue, “[t]he world of the Fourth Amendment is not the world of mathematics and formal analysis; it is instead the world of rain forests and spontaneous growth.” As such, fluid, ad hoc analysis is often times preferable because it allows the courts to undergo a more rigorous analysis of the particular case. Since not all things can be measured, the “fluid” probable cause standard articulated by the Court provides a useful method for reaching decisions on matters that are not susceptible to clear computational analysis. Second, the question of how probable something must be to qualify under the probable cause standard requires that someone, in this case the Court, establish a limiting threshold: a mechanism by which to meaningfully categorize what does, or does not, qualify for inclusion in the class. This is to say that, in the context of the Fourth Amendment, “probable” need not necessarily mean “greater than 50%.” It may very well be that any non-trivial level of probability qualifies as “reasonable.” But someone has to decide where the line is drawn and, more importantly, provide a basis for why the line is drawn in that particular place in any given case. If the Court were to draw a hard and fast line (e.g. probable

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cause requires greater than 50% probability), it would potentially be allowing intrusions that might not meet the reasonableness standard in light of the totality of circumstances, or preventing searches that would meet the reasonableness standard. By refusing to draw such a line, therefore, the Court has left itself room to consider cases on a more fact-oriented, and substantive basis. However, while the process of categorization need not employ hard and fast lines, it must remain systematically bound because, absent some bounding mechanism, the rule’s decision making capacity is rendered arbitrary. In other words, if the rule is not systematically bound, then the adjudicative decision becomes overly subjective and the rule loses any sense of authority.

Notwithstanding the foregoing, the Court’s “fluid” methodology is fundamentally flawed as it is applied to those contexts where the subject matter is susceptible to systematic empirical analysis. As this paper argues, by employing fluid analysis in probable cause considerations that are susceptible to systematic empirical analysis, the Court is engaging in irresponsible decision making that has the potential of perpetuating unjustified intrusions by the government. The use of drug sniffing dogs to establish probable cause is one area in which this is the case.

In its October 2012 term, the Supreme Court will hear the case of Florida v. Harris.\(^7\) Specifically, the Court will determine what standard should apply to deciding whether an alert by a trained drug-sniffing dog is sufficient to establish probable cause for a subsequent search. The Florida Supreme Court has ruled that training and certification, in and of themselves, are not sufficient to demonstrate the reliability of the dog for purposes of determining probable cause.\(^8\) Rather, the Florida Supreme Court held that additional information, such as records of the dog’s

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\(^7\) 132 S. Ct. 1796, 182 L. Ed. 2d 615, 2012 U.S. LEXIS 2335, 80 U.S.L.W. 3545 (U.S. 2012)

\(^8\) Harris v. State, 71 So. 3d 756, 759 (Fla. 2011)
performance, must be presented to demonstrate the reliability of the dog. Only if the additional data supports the dog’s consistently reliable detection of drugs, the Florida Supreme Court held, will the sniff be deemed adequate to establish probable cause. The question for the Supreme Court is whether to uphold the more rigorous standard established by the Florida Supreme Court, or overturn the Florida Supreme Court in favor of a more deferential standard that presupposes the reliability of the dog.

The issue presented in *Harris* is a specific case of a larger epistemological question the Court has skirted: in matters that are susceptible to empirical testing and demonstration, ought the Court rely on, indeed require, such demonstration, or ought the Court instead continue to rely on rationalizations and commonly held beliefs that are unsubstantiated by empirical evidence? A corollary to this question is, when empirical testing and data conflict with certain of the rationalizations and commonly held beliefs historically relied on by the courts, do courts have a duty to abandon these previously relied on beliefs and assumptions in favor of premises which are based in empirical evidence?

When the Court chooses not to demand empirical substantiation of those premises that can be empirically tested and assumes an “unscientific attitude,” the Court is making a normative decision that has significant consequences (e.g. the expansion of governmental intrusions into the private affairs of citizens). As such, the Court should not be afforded blind deference, but made to justify and defend its methodological choice. As it relates to *Harris*, the question is as follows: ought we rely on the unverified assumption that an alert by a trained drug-sniffing dog is sufficient to establish probable cause, or ought we demand evidence of the dog’s reliability? In other words, if a drug-sniffing dog is found to erroneously alert 60% of the time, for example, is

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9 *Id.*

10 *Id.*
such an alert adequate to establish “probable cause,” and if so, what are the implications for the
definition of “probable” within the context of the Fourth Amendment? Would a reasonable
person find X to be probable if the probability of X occurring is less than the probability of X not
occurring, and if not, does a probability threshold that is lower than 50% qualify as reasonable
under the Fourth Amendment?

The Fourth Amendment, and indeed the entire U.S. Constitution, are permeated with
skepticism of an overly intrusive government. As such, it is facially inconsistent to simply take
unverified assumptions as an adequate basis for allowing such intrusions, particularly when the
assumptions being perpetuated are susceptible to empirical falsification. I am not here implying
that courts should start determining probable cause using mathematics; the richness of the world
is often times too complex to be reduced to discrete computation. However, the fact that probable
cause cases largely require ad hoc analysis, when taken together with the Constitution’s
skepticism towards warrantless government intrusions, burdens courts to substantiate the
empirical truth of the premises upon which they rely – a burden courts have not thus far met.
The general reliability of drug dogs is, therefore, only a secondary concern of this paper. The
primary concern is the flawed methodology employed by the Court in the drug dog context; the
“unscientific” attitude of the court that finds its roots in an epistemology of rationalization rather
than empiricism. For the reasons discussed below, this paper argues that to continue such a
methodology in the contemporary age is unreasonable. Therefore, the Supreme Court should
adopt a new epistemology with respect to cases involving probable cause and matters susceptible
to scientific inquiry, and uphold the Florida Supreme Court’s decision in *Harris*.

This paper proceeds as follows. By way of background, the first two sections of this
paper present certain of the Supreme Court’s jurisprudence with respect to probable cause and
detector dogs, and a discussion of the Florida Supreme Court’s opinion in *Harris*. Next, the
paper examines how detector dogs are trained, and identifies certain potential flaws related to using detector dogs to justify searches. Next, Bayesian analysis is used to demonstrate that detector dogs, even if reliable, can still lead to a high percentage of searches where no contraband is present. The paper then moves to a discussion of what I refer to as the judiciary’s “unscientific” attitude, and a discussion of why such an attitude is inappropriate to adjudicating the question of detector dogs and probable cause. This attitude is contrasted to what I refer to as the “scientific” attitude, and a discussion of why the judiciary ought employ an empirical methodology. Finally, the paper proposes a standard, based on the Daubert factors, that allows the judiciary the flexibility to decide cases on a case by case basis, but which employs a methodology of systematic empirical inquiry.

II. BACKGROUND

1. PROBABLE CAUSE & DOG SNIFFING

The Fourth Amendment to the United States Constitution provides that “[t]he right of the people to be secure in their persons, houses, papers, and effects, against unreasonable searches and seizures, shall not be violated.”11 In Katz v. United States, the Supreme Court held that “searches conducted outside the judicial process, without prior approval by judge or magistrate, are per se unreasonable under the Fourth Amendment-subject only to a few specifically established and well-delineated exceptions.”12 In the post-Katz era, the Supreme Court recognized even more exceptions to the warrant requirement, allowing government agencies to

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11 U.S. Const. amend. IV.

12 389 U.S. 347, 357 (1967) (footnotes omitted). See also Carroll v. United States, 267 U.S. 132, 153 (1925)).
pursue a broader range of warrantless searches.\textsuperscript{13} Indeed, in recent years, the Court has moved away from the strict standard articulated in \textit{Katz}, and adopted and ever more permissive attitude toward government conduct.\textsuperscript{14} Most significantly, the Court has quarantined certain police conduct from judicial scrutiny by narrowing the range of intrusions that even qualify as a “search” under the Fourth Amendment.\textsuperscript{15} Dog sniffing is one such quarantined intrusion. Since the Court has found a dog sniff not to be a “search” under the Fourth Amendment, Fourth Amendment protection does not apply to dog sniffs.

The Court’s standard with respect to dog sniffs and the Fourth Amendment was articulated in \textit{United States v. Place}, in which the Court held that a dog sniff does not constitute a “search” within the meaning of the Fourth Amendment.\textsuperscript{16} \textit{Place} involved a dog-sniff of a traveler’s luggage conducted at an airport. The luggage was targeted because the traveler’s “behavior aroused the suspicions” of officers.\textsuperscript{17} The “trained narcotics detection dog” reacted positively to one of Place’s bags and a warrant to search the luggage was later obtained. The officers found cocaine in the suitcase and Place was convicted for possession of narcotics.\textsuperscript{18}

\textsuperscript{13}\textit{See}, e.g., \textit{United States v. Martinez-Fuerte}, 428 U.S. 543, 566 (1976) (brief stops for questioning at permanent checkpoints need not be authorized by warrant); \textit{Schneckcloth v. Bustamonte}, 412 U.S. 218, 248 (1973) (warrantless searches conducted pursuant to voluntary consent consistent with Fourth Amendment); \textit{Chimel v. California}, 395 U.S. 752, 764 (1969) (incident to arrest, an officer may make a warrantless search of the arrestee’s person and the area “within his immediate control”); \textit{Terry v. Ohio}, 392 U.S. 1, 30 (1968) (stop-and-frisk searches for weapons constitutional where officer has reasonable grounds to believe subject is armed and dangerous).

\textsuperscript{14}Hope Walker Hall, \textit{Sniffing Out the Fourth Amendment: United States v. Place-Dog Sniffs-Ten Years Later}, 46 Me. L. Rev. 151, 155 (1994).

\textsuperscript{15}Hall, \textit{supra} note 14, at 156.


\textsuperscript{17}\textit{Id.} at 698.

\textsuperscript{18}\textit{Id.} at 699.
Supreme Court ultimately reversed Place's conviction, finding that the ninety-minute detention of Place's luggage exceeded the bounds of a Terry stop, and therefore, violated the Fourth Amendment’s reasonableness standard.\(^\text{19}\) The dog sniff, however, did not violate the Fourth Amendment because it was not a “search,” according to the Court.\(^\text{20}\) In its analysis of dog sniffs the Court stated:

A “canine sniff” by a well-trained narcotics detection dog, however, does not require opening the luggage. It does not expose noncontraband items that otherwise would remain hidden from public view, as does, for example, an officer's rummaging through the contents of the luggage. Thus, the manner in which information is obtained through this investigative technique is much less intrusive than a typical search. Moreover, the sniff discloses only the presence or absence of narcotics, a contraband item. Thus, despite the fact that the sniff tells the authorities something about the contents of the luggage, the information obtained is limited. This limited disclosure also ensures that the owner of the property is not subjected to the embarrassment and inconvenience entailed in less discriminate and more intrusive investigative methods.

In these respects, the canine sniff is *sui generis*. We are aware of no other investigative procedure that is so limited both in the manner in which the information is obtained and in the content of the information revealed by the procedure. Therefore, we conclude that the particular course of investigation that the agents intended to pursue here-exposure of respondent's luggage, which was located in a public place, to a trained canine-did not constitute a “search” within the meaning of the Fourth Amendment.\(^\text{21}\)

While *Place* established that a dog sniff is not a “search” within the meaning of the Fourth Amendment, the greater danger of *Place* is the unquestioning deference given to the dog sniff and its reliability. Although the Court pointed out the minimally intrusive nature of a dog sniff – an assumption that will be questioned below – the Court never once inquired as to whether the technique had any merit; it merely took the premise to be true on the blind faith of a widely held, but empirically unverified belief.

\(^{19}\) *Id.* at 709.

\(^{20}\) *Id.* at 707.

\(^{21}\) *Id.* at 707.
In *Illinois v. Caballes* the Court decided the question of “[w]hether the Fourth Amendment requires reasonable, articulable suspicion to justify using a drug-detection dog to sniff a vehicle during a legitimate traffic stop.”22 The Court answered in the negative and held that “[a] dog sniff conducted during a concededly lawful traffic stop that reveals no information other than the location of a substance that no individual has any right to possess does not violate the Fourth Amendment.”23 In so finding, the Court reasoned that the use of a well-trained narcotics-detection dog during a lawful traffic stop, generally does not implicate legitimate privacy interests.24 The Court did observe, however, that a lawful stop could become unlawful if the subject were to be detained for an exceptionally long period of time.25

Justice Souter dissented in *Caballes*, questioning the characterization of a dog sniff as a “sui generis.”26 Justice Souter first observed that *Place* was based on the premise that drug dogs do not err.27 Questioning this premise, and pointing to “what we have learned about the fallibility of dogs in the years since *Place* was decided,” Justice Souter suggested reconsidering the decision in *Place*.28 According to Justice Souter, “The infallible dog ... is a creature of legal fiction.”29 Pointing to a range of cases where accuracy rates for drug dogs varied from 62% to

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22 543 U.S. 405, 407 (2005)
23  *Id.* at 410.
24  *Id.* at 409.
25  *Id.*
26  *Id.* at 410 (Souter, J., dissenting)
27  *Id.*
28  *Id.* at 411
29  *Id.*
92%, Justice Souter concluded that the significant possibility for error “ends the justification claimed in *Place* for treating the sniff as sui generis under the Fourth Amendment.”

The deferential standard of the Supreme Court has been adopted by other courts as well. In *United States v. Ludwig*, the Tenth Circuit held that “[A] dog alert usually is at least as reliable as many other sources of probable cause and is certainly reliable enough to create a ‘fair probability’ that there is contraband. We therefore have held in several cases that a dog alert

30 Id. at 412

31 See the following Federal Cir. courts on what must be proved to provide probable cause for a search: *U.S. v. Howard*, 621 F.3d 433 (6th Cir. 2010) (trainer’s testimony suffices to show reliability of dog for probable cause to search); *U.S. v. Winters*, 600 F.3d 963 (8th Cir. 2010) (need only show trained and certified to provide probable cause for search; everything else goes to weight); *U.S. v. Funds in Amount of Thirty Thousand Six Hundred Seventy Dollars*, 403 F.3d 448 (7th Cir. 2005) (provides probable cause for forfeiture; need not show that dog alerts only on methyl benzoate); *U.S. v. Boxley*, 373 F.3d 759 (6th Cir. 2004) (certification suffices; dog's performance records go to weight, not admissibility); *U.S. v. Limares*, 269 F.3d 794 (7th Cir.2001) (can provide probable cause for search even though dog’s success rate was only 62%); *U.S. v. Sundby*, 186 F.3d 873 (8th Cir. 1999) (to provide probable cause for search, need only show that dog was trained and certified but not how; collecting cases); *U.S. v. Kennedy*, 131 F.3d 1371 (10th Cir. 1997) (suffices for probable cause to show dog was “certified” and “trained”); *U.S. v. Berry*, 90 F.3d 148, 153 (6th Cir. 1996) (need only show dog was trained; need not show how or that the dog was reliable); *U.S. v. Diaz*, 25 F.3d 392 (6th Cir.1994) (certification that dog was properly trained suffices for probable cause; contrary expert testimony goes only to the weight of the evidence); *U.S. v. Meyer*, 536 F.2d 963, 985 (1st Cir. 1976) (rejects informing analogy; if dog was trained, need not show it is reliable); See the following for less deferential rulings: *State v. England*, 19 S.W.3d 762, (Tenn. 2000), (Rejecting a per se rule that probable cause may be established through a positive alert by a trained narcotics detection dog.); *United States v. Florez*, 871 F.Supp. 1411, (D.N.M. 1994), (Observing that certified dogs have falsely alerted and finding that a dog having been certified is not sufficient to establish probable cause.); *United States v. Heir*, 107 F. Supp. 2d 1088, (D. Neb. 2000) (Finding that dog’s alert behavior, even if it had occurred, was too subjective a standard to establish probable cause, and that an “objectively observable indication by the dog of the presence of drugs” is required.”; *United States v. Trayer*, 898 F.2d 805 (D.C. Cir. 1990). (Upholding search, despite finding testimony about false alerts “quite troubling”.)
without more gave probable cause for searches and seizures."³² Again, despite presupposing the reliability of the dog, the court never bothered to actually test its premise empirically.

In United States v. Diaz, the Sixth Circuit held that:

[ɪ]regarding the failure to prove [the dog’s] training and reliability with training and performance records, this court has indicated that testimony [from the dog’s handler] is sufficient to establish a dog’s reliability in order to support a valid sniff. While training and performance documentation would be useful in evaluating a dog’s reliability, here the testimony of Dennard, [the dog’s] handler, sufficiently established the dog’s reliability.³³

To rely on the testimony of the dog’s handler as evidence of the dog’s reliability is to have no evidence at all as, assuredly, the handler is not going to testify to anything except that the dog is reliable. The handler is not objective in any sense of the word because undermining the reliability of the dog would be to undermine his own ability as the dog’s handler. The handler would, therefore, essentially be testifying against his own interest if he testified that the dog was not reliable – which he is unlikely to do. Handler testimony, therefore, is entirely inadequate to reaching the truth of the matter with respect to a drug dog’s reliability.

What the above cases have in common is a remarkable degree of deference to the presumption that dog sniffs are objectively reliable tools with which to detect contraband. While this paper takes issue with the truth of this premise below, the deeper concern is the lack of interest shown by the courts with actually establishing, or even inquiring as to, the truth of the premise. In other words, even if the premise is true, its truth ought not be accepted on faith, but on the demonstrable basis of empirical data that affords an opportunity to verify or falsify the

³² 10 F.3d 1523, 1527-28 (10th Cir. 1993); See also Morales-Zamora, 914 F.2d 200 (10th Cir. 1990); United States v. Stone, 866 F.2d 359 (10th Cir. 1989); United States v. Williams, 726 F.2d 661, 663 (10th Cir. 1984).

³³ 25 F.3d 392, 396 (6th Cir. 1994)
premise. Amazingly, despite ruling time and again that a dog’s having been trained is an adequate basis for probable cause, at no time has the Court shown any interest in actually examining the training techniques used to train specific dogs, whether these techniques are consistent across jurisdictions, whether a specific dog falsely alerts a high percentage of the time despite being certified, or the effects of environmental biases that might compromise the objective detection ability of the dog. Absent such investigation, the Court’s assumption with respect to dog sniffs is unsubstantiated, and we ought not accept such fallacious reasoning from the Court any more than we should get on a plane that has not been checked for mechanical soundness because the pilot promises we’ll be safe.

2. **FLORIDA v. HARRIS**

*Harris* involves a dog sniff that was conducted pursuant to a legitimate traffic stop. On June 24, 2006, Liberty County Sheriff’s Canine Officer William Wheetley was on patrol (along with his dog Aldo), when he pulled Clayton Harris over because Harris’s tags were expired. Upon approaching the truck, Officer Wheetley noticed that Harris was shaking, breathing rapidly, and could not sit still. Officer Wheetley asked for consent to search the truck, which Harris refused. Officer Wheetley then deployed Aldo, who, after conducting a “free air sniff” of the exterior of the truck, alerted to the door handle of the driver's side.

Upon Aldo’s alert, Officer Wheetley searched Harris’s truck, and discovered over 200 pseudoephedrine pills in a plastic bag wrapped in a shirt, eight boxes of matches containing a

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34 I discuss why this should be the case below.

35 *Harris*, 71 So. 3d at 760.

36 *Id.*

37 *Id.*
total of 8000 matches, and muriatic acid, which Officer Wheetley testified were precursors of methamphetamine manufacture. After being read his *Miranda* rights, Harris admitted that he had been cooking meth for about one year.

In July 2006, the State charged Harris with possession of the listed chemical pseudoephedrine with intent to use it to manufacture methamphetamine, more commonly known as meth. Harris subsequently moved to suppress the seized evidence, including the pseudoephedrine, arguing that it was found pursuant to an illegal search of his truck.

The question for the Florida Supreme Court was “[w]hen will a drug-detection dog's alert to the exterior of a vehicle provide an officer with probable cause to conduct a warrantless search of the interior of the vehicle?” After acknowledging that a dog sniff was not a “search” within the meaning of the Fourth Amendment, the court turned to the “reliability of a dog as a detector of illegal substances.” The court reasoned as follows:

Like the informant whose information forms the basis for probable cause, where the dog's alert is the linchpin of the probable cause analysis, such as in this case, the reliability of the dog to alert to illegal substances within the vehicle is crucial to determining whether probable cause exists. If a dog is not a reliable detector of drugs, the dog's alert in a particular case, by itself, does not indicate that drugs are probably present in the vehicle. In fact, if the dog's ability to alert to the presence of illegal substances in the vehicle is questionable, the danger is that individuals will be subjected to searches of their vehicles and their persons without probable cause. Conversely, if a dog is a reliable detector of drugs, the dog's alert in a particular case can indicate that drugs are probably present in the vehicle. In those circumstances, the drug-detection dog's alert will indicate to the officer that there is a "fair probability that contraband" will be found.

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38 *Id.* at 760 - 61
39 *Id.* at 760
40 *Id.*
41 *Id.* at 759
42 *Id.*
43 *Id.* at 767.

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The crux of the matter for the Florida Supreme Court was the ability of the trial court to make a probable cause determination if evidence of the dog’s reliability was unavailable. The court held that such evidence was essential to making the probable cause determination.\textsuperscript{44} The court also held that the burden should be on the state to provide such evidence, and not on the defendant to provide evidence rebutting the assumption of the dog’s reliability.\textsuperscript{45} According to the court:

\begin{quote}
[T]he State must present the training and certification records, an explanation of the meaning of the particular training and certification of that dog, field performance records, and evidence concerning the experience and training of the officer handling the dog, as well as any other objective evidence known to the officer about the dog’s reliability in being able to detect the presence of illegal substances within the vehicle. To adopt the contrary view that the burden is on the defendant to present evidence of the factors other than certification and training in order to demonstrate that the dog is unreliable would be contrary to the well-established proposition that the burden is on the State to establish probable cause for a warrantless search. In addition, since all of the records and evidence are in the possession of the State, to shift the burden to the defendant to produce evidence of the dog’s unreliability is unwarranted and unduly burdensome.\textsuperscript{46}
\end{quote}

The Florida Supreme Court reached the correct decision in Harris for a number of reasons. First, the court correctly observed that “certification” means nothing in and of itself; and therefore, an explanation of the meaning of the certification is required. Second, the court properly observed that a dog’s reliability could only be determined by reference to empirical data, and that, absent such data, there is no reason to presuppose the adequacy of the dog for establishing probable cause. Finally, and most significantly, the court took a critical attitude towards the question. Rather than just take the dog’s reliability as given, the court endeavored to systematically examine and assess the premise because it is the very basis upon which the

\begin{flushright}
\textsuperscript{44} Id. \\
\textsuperscript{45} Id. at 759 \\
\textsuperscript{46} Id.
\end{flushright}
decision of probable cause is made. The court correctly recognized that, if the premise fails, so too does the basis for probable cause. The Supreme Court should follow the *Harris* court’s lead and adopt a similar critical attitude with respect to the use of detector dogs as a basis for probable cause.

**III. Analysis**

1. **Cause for Concern: The Data and Potential Problems Involving Detector Dogs**

   It will be helpful to begin with an overview of the training and use of detector dogs, and a discussion of some potential problems associated with using dogs to detect contraband. Dogs undoubtedly have tremendous olfactive senses and a unique ability to detect faint traces of odors. Researchers at Auburn University studying dogs' capacity to identify certain smells have found that some dogs can detect odors when the particles in the air are at a concentration of 500 parts per trillion. That dogs have a natural ability to detect scents, however, does not necessarily imply that dog-sniffing is a reliable tool by which to detect contraband. As Richard Meyers points out: “A drug detection dog is not a gas chromatograph-mass spectrometer. It does not detect molecules in the air and produce a readout that states with empirical reproducibility

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47 I provide only an overview in this paper as more exhaustive work has already been done by others. See e.g Andrew Taslitz, *Does the Cold Nose Know? The Unscientific Myth of the Dog Scent Lineup*, 42 HASTINGS L.J. 17 (1990); Mark. E. Smith, *Going to the Dogs: Evaluating The Proper Standard For Narcotic Detector Dog Searches of Private Residences*, 46 HOUS. L. REV. 103 (2009); Robert C. Bird, *An Examination of the Training and Reliability of the Narcotics Detection Dog*, 85 KY. L.J. 405 (1996-97).


the chemical composition of the molecules. It is part of a team that depends on a complex interaction of animal psychology and human factors." In other words, a dog is not a computational instrument that is indifferent to the varying environmental inputs it is faced with; and to the extent these external inputs can affect the dog’s reliability, they undermine the reliability of dog-sniffing generally.

Dogs learn to detect scents in various manners. For example, dogs can be trained to follow general scents, or they can be trained to detect specific scents and then alert to the presence of these scents. The latter type of training is called “single element point source” training. Point source dogs can be trained for “detection” or “discrimination.” Detection dogs react to a particular substance’s presence but do not distinguish between the target substance and similar substances. Discrimination dogs, on the other hand, are trained to distinguish between similar scents. Sniff-dog training typically lasts two to six weeks. Training the dog’s handler, however, is a more involved task. As such, the handler and dog will typically train together for ten to sixteen weeks.

Training a drug detection dog involves training the dog in varying conditions, which helps improve the dog’s reliability in different contexts and among varying distractions. For example, dogs will train in noisy settings, and in places where there are other strong scents that

50 Id. at 5
51 Taslitz, supra note 47, at 50.
52 Id. at 49
53 Id.
54 Bird, supra note 47, at 409
55 Id. at 412
56 Id.
may distract or impede the dog.\textsuperscript{57} Records of the dog’s reliability during the training and certification process are generally kept in some detail. In many programs, even after a dog and handler team has completed initial training and certification, they must also pass periodic recertification exercises.\textsuperscript{58}

One problem that immediately arises with the use of drug dogs is the lack of a standard training, certification, and recertification protocol. Dogs trained by the U.S. Customs office, for example, undergo a different training and certification regiment than do dogs trained by the Florida State Police.\textsuperscript{59} The state police dogs, in turn, might undergo a different training and certification regiment than do dogs trained by local police. Some programs may be adequately rigorous so as to ensure the consistent reliability of a drug dog, but absent a critical attitude towards verifying or falsifying this premise, how are we supposed to know? This is the problem with respect to the Court’s attitude towards the question. As the \textit{Harris} court correctly observed, to say that a dog is certified is to say nothing, because there is no standard certification that defines what it means to be a “certified drug dog.” And since there is no standard protocol, certification cannot be relied upon as a per se measure of a drug dog’s reliability. Deference to certification as a per se metric of reliability simply assumes the truth of the premise without actually establishing it.

Next, not all dogs are well-trained and well-handled.\textsuperscript{60} Some dogs are distractible or suggestible, and may alert improperly.\textsuperscript{61} For example, if a handler rewards the dog for a search

\textsuperscript{57} \textit{Id.}

\textsuperscript{58} \textit{Id.}

\textsuperscript{59} \textit{Id.} at 414.

\textsuperscript{60} Myers, supra note 49, at 4.

\textsuperscript{61} \textit{Id.}
that reveals a substance on which the dog was not trained, the dog may start alerting to this new scent to please its handler, and the handler may mistake this as a contraband presence alert. The dog can also learn to associate certain smells, and might alert to the scent of air freshener or plastic baggies, even in the absence of contraband. This natural adaptability can lead to field results that differ from the results obtained in a training facility. As such, absent on-going data on the dog’s performance, there is no way to tell whether the dog has continued to perform reliably, even if the dog performed well during certification.

Another concern has to do with what the dog is actually trained to do. Drug dogs are trained to detect scent; they are not trained to detect the presence of something. The use of drug dogs, therefore, depends on the implication that, if a scent is present, drugs will likely also be present. But this conclusion is undermined by the prevalent problems of odor contamination and residual odors, which can make a dog alert to a scent when no contraband is actually present. When a dog alerts to a scent, the dog is doing what it is trained to do. But that an odor is present does not necessarily mean that drugs are present. This is to say that, even if a dog is highly accurate in detecting scent, the presence of the scent does not adequately suggest that contraband is also present, which undermines the basis for the search. Some authors have mistakenly assumed that this is a mark on the reliability of the dog. In fact, this is a systemic problem

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62 Id.
63 Id.
64 Id.
65 Smith, supra note 47, at 117.
66 Id.
67 Id.
68 See Id. at 118 for a discussion.
associated with the use of detector dogs, and as such, is even more problematic than poor performance, since it is an inherent weakness in the technique itself. Given the level of olfactory sensitivity that many dogs have, it is possible that a dog will alert at a person who has merely attended a party where other people were using drugs.\textsuperscript{69} Or a dog might alert at a rental car vehicle that had formerly been used to transport drugs, even though the drugs are no longer present.\textsuperscript{70}

Handler cuing is yet another potential problem with the use of drug dogs.\textsuperscript{71} Dogs have a natural tendency to please their handlers, and are highly sensitive to even subtle influences by their handlers. Therefore, even absent nefarious intent, a drug dog may respond, not to the presence of a smell, but to subconscious cuing from the handler who believes that an individual possesses drugs.\textsuperscript{72} In other words, if a handler believes that contraband is present, and worse yet, if the handler pushes the dog to search a target area repeatedly after a dog has failed to alert, the handler can easily cue the dog to alert regardless of the actual presence or absence of any contraband.\textsuperscript{73} And in the worst case, handlers who are looking for a reason to perform a search can intentionally cue their dogs to alert.\textsuperscript{74}

Now, it may very well be possible to mitigate and minimize the inherent risks discussed above to an acceptable level. But absent a critical attitude by the courts, how are we to know to


\textsuperscript{70} Id.

\textsuperscript{71} Id. at 239-40.

\textsuperscript{72} Id.

\textsuperscript{73} Id.

\textsuperscript{74} Meyers, supra note 49, at 5.
what extent these risks are affecting performance, and whether they have even been considered by the specific agency utilizing the dogs? If the risks discussed above are not addressed by the agency using the dog, the results of dog sniffs can be extremely flawed. The only way to know whether or not this is the case is through the use of empirical evidence and data. But this requires courts to take a skeptical attitude towards the matter and to actually perform an empirical analysis of the data at hand. Yet notwithstanding this straightforward conclusion, the courts have generally failed to examine the use of drug dogs in any meaningful way.

2. **Probabilities in the Context of Detector Dogs**

   Every dog alert has four possible outcomes. First, a dog positively alerts and contraband is found. Second, a dog does not alert and no contraband is present. These two outcomes are “correct” because the dog’s alert, or failure to alert, corresponds to whether contraband is, or is not, actually present. A dog can also make two types of errors. A dog can fail to alert when drugs are present. This error is known as a “false negative.” Finally, a dog can alert when drugs are not present. This type of error is called a “false positive.”

   Simple Bayesian analysis will help inform whether we ought be relying on dog-sniffing with respect to probable cause. Surprisingly, the math shows that, even a highly accurate dog can produce an unreasonable amount of false positives (allowing a search when no contraband is present).

   Assume that the dog has a 98% accuracy rate. This means that, when the dog alerts,

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   75 Bird, supra note 47, at 427. A false positive would also occur when the dog fails to alert when drugs are present. However, this type of false positive can only be verified in controlled settings and cannot be tracked in the field.

   77 By accuracy rate is meant whether contraband is, or is not, actually recovered. The dog may be 100% accurate with respect to scent detection. But because of contamination and residual odors,
contraband is recovered 98% of the time (implying that contraband will not be present 2% of the time when the dog alerts). Further assume that the dog sniffs 5000 people randomly, and that 1% of this sample has drugs in their possession at any given time. Here, 50 people will have drugs in their possession (5000 x 1%). Of these 50, the dog alert will recover contraband 49 times (50 x 98%). Of the remaining 4950 people, the dog will alert, but not recover contraband, 99 times (4950 x 2%). The total detections, therefore, equals 148, of which, 49 detections recovered contraband. Under these facts, the probability that a dog correctly alerts to a person who actually posses drugs is only 33% (49/148). This does not answer the question as to whether a 33% probability is adequate to establish probable cause – but I will address that point below. The 33% probability is also based on inductive reasoning: it is a measure of likely performance in the future based on previous outcomes. The only way to actually determine the effectiveness of the dog to turn up contraband is by subjecting him to tests in controlled conditions over a sufficient number of trials and tracking that data. But notwithstanding these two points, Bayesian probability gives a reasonably accurate measure of expected future outcomes to the extent the dog’s performance is relatively consistent over time.

There is one more issue that merits identification in the above example: the calculated probability depends on the premise that 1% of those in the sample set actually possess drugs. Some commentators have argued that police intuition raises this expectancy. In other words, the argument goes, since drug dogs are not usually deployed into random samples, but rather in cases where there is a suspicion that drugs are present, a larger percentage of the sample set will actually have drugs in their possession, increasing the probability of success. To illustrate, assume the same numbers as above, but increase the percentage of those that actually possess even a dog that is 100% accurate with respect to detecting scent will not be 100% effective with respect to recovering contraband.
drugs in the sample set to 25%. In this case, 1250 people will actually have drugs (5000 x 25%). Of these 1250, the dog alert will turn up contraband 1225 times (1250 x 98%). Of the remaining 3750, the dog alert, but not turn up contraband, 75 times (3750 x 2%). Here, the total detections equals 1300, of which 1225 are correct, for a probability of 94% (1225/1300). But there are also weaknesses with the expectancy increase argument. First, probability as a measure of performance is not reliable when conducted over bias samples, which is the case in this instance. Rather, an accurate probability requires random sampling. If you bias the sample towards the thing you are looking for, the probability of finding that thing will naturally be abnormally high. You can no more calculate the probability of a dog’s reliability by using a bias sample, than can you calculate the probability of a mouse making it through a maze by using a sample of blind and deaf mice. In any event, if X is actually the case, the only way to determine how often X is the case is by testing how often X occurs over a random sample in controlled settings. The expectancy argument, therefore, does not imply that a dog-sniff will be more likely to turn up contraband as a function of an officer’s intuition.

Another problem with the officer intuition argument is, once again, a lack of substantiation with respect to the premise, only now as it relates to the reliability of the officer’s intuition. In other words, how do we know in the first place that an officer’s intuition increases the likelihood that a person has actually has drugs? Take the example of two real officers of the Florida State Police. Between January 2000 and September 2001, Officer A conducted eighteen searches, and Officer B conducted fifteen searches. When Officer A thought he was likely to

78 For a layman’s discussion of why this is the case, see Richard Feynman, The Meaning of It All: Thoughts of a Citizen Scientist 71-3 (1998).


80 Id.
recover evidence, he was right only 5.6% of the time; only one of his eighteen searches led to a seizure. Officer B, by contrast, was right 86.7% of the time, recovering evidence in thirteen of the fifteen searches. The assumption that police intuition increases the probability of success for a drug dog sniff, therefore, is highly questionable.

The important point here is not to put forth a generalized theory of reliability, either with respect to drug dogs or officer intuition, but rather to show that, in any given case, we can only make a decision by venturing to investigate the empirical evidence and data; a task that is very much within the ability of the judiciary. But absent the correct epistemological attitude from the courts, we are left, not with substantive results based in empirical fact, but speculative conclusions based on unsubstantiated conjecture. As it relates to justifying warrantless intrusions by the government, the Constitution certainly demands more.

3. THE “SCIENTIFIC” ATTITUDE AND THIS “UNSCIENTIFIC” JUDICIARY

The preceding discussion was not intended to put forth a general theory of drug dog reliability. Rather, it was intended to show that there are very strong reasons not to presuppose the reliability of a drug dog, and that a drug dog’s reliability can only actually be established through systematic inquiry and in reference to the empirical data. Having set the stage, it is now appropriate to discuss the judicial attitude I am objecting to.

Although a few courts, like the Harris court, have criticized a per se acceptance of dog alerts as a basis for probable cause, the judiciary generally believes that dogs are highly

81 Id.
82 Id. at 914.
83 See, e.g., Merrett v. Moore, 58 F.3d 1547 (11th Cir. 1995) (canine sniffs during highway roadblock delay motorists for up to 45 minutes), cert. denied, 117 S. Ct. 58 (1996); Doe v.
effective and reliable with respect to detecting contraband. But whether deferential or critical, courts have almost entirely failed to address the question of dog-sniff reliability in an adequately rigorous manner. As Robert Bird points out: “Most evaluations are cursory at best. When courts do look more closely, they overemphasize some factors and neglect others. As a result, courts approve inferior dogs, and their erroneous alerts may result in unnecessary invasions of privacy.” In the vast majority of detector dog cases, the courts adopt what I shall refer to as an “unscientific attitude.”

In The Meaning of It All: Thoughts of a Citizen-Scientist, the famed physicist Richard Feynman describes our age as “unscientific,” a description that, for the reasons discussed below, is appropriate for the modern American judiciary. Describing the current age as “unscientific” seems strange, Feynman observes, since at no other time in history have science and technology been so ubiquitous. But this is not what Feynman means by “unscientific.” Rather, Feynman is referring to a particular attitude with respect to how we think about and understand the phenomena we encounter in the world. The following example will help illustrate the point.


Bird, supra note 47, at 407.

*Id.*

Feyman, supra note 78, at 59.

*Id.*

The information in the following example is taken from the National Fire Protection Association’s *NFPA 921: Guide for Fire and Explosion Investigations* (2011); *See also* Report.
Traditionally, arson investigators trained by attending a class (which typically lasted no more than a week or two) and apprenticing at the feet of a senior arson investigator. For a very long time, these same arson investigators assumed that crazed glass indicated the use of an accelerant in a fire. The thinking was that the crazed glass was caused by extreme and rapid heating, which would only result if accelerant was used. This assumption was adopted by generations of arson investigators who had no exposure to university science departments or labs. The premise that crazed glass was a result of extreme and rapid heating caused by the use of an accelerant was, in other words, just a commonly held belief; it was not something that had actually been demonstrated to be true. Nonetheless, the premise was relied on in countless cases to conclude that an accelerant had been used and a fire intentionally set.

The traditional arson investigators had simply assumed the premise to be true because an authority figure had told them it was true and because the belief was commonly held. In contrast, the scientists, rather than presupposing the truth of the premise, took out a piece of glass and performed tests. If in fact accelerant causes crazed glass, then the tests would reveal that to be the case. But what scientists in fact discovered was that crazed glass results, not from extreme heat, but as a result of cooling hot glass – which occurs when the water from the fire hoses hits the hot glass in a fire. Scientists not only discredited the traditional assumption about crazed glass, they went so far as to show it impossible to make glass craze through heating. The premise that had been used to conclude that fires were arson and convict people, in other words, turned out to be complete nonsense.

The approach of the traditional arson investigators exemplifies what I am referring to as the “unscientific attitude,” and the approach of the scientists exemplifies what I am referring to of the Texas Forensic Science Commission: Willingham/Willis Investigation (December 8, 2012, 10:23 PM), http://www.fsc.state.tx.us/documents/FINAL.pdf.
as the “scientific attitude.” The difference between the two attitudes has to do with the basis that is relied upon to make decisions, and why those bases are chosen, as opposed to others. The “unscientific attitude” accepts the presupposed truth of premises because the premise is commonly believed to be true or because an authority figure believes it to be true; and it accepts these foundations out of political desires, conformist desires, or pure ignorance. The “scientific attitude,” in contrast, presupposes nothing and demands that a premise be verified or falsified through systematic empirical inquiry; it demands these foundations because they demonstrably evidence the factual reliability, or lack of reliability, of a given assumption.

There are two central features of the “scientific attitude” that the above example reveals. First, the scientific attitude assumes a skeptical stance. This is not to say that the scientific attitude entails fanatical skepticism. Rather, scientific skepticism is marked by a willingness to maintain doubt so that questions may be asked and new discoveries made; a commitment to reserve judgment until something can be more rigorously tested for validity over a sufficient number of trials; and a willingness to change one’s mind if the empirical evidence contradicts previous assumptions. John Dewey echoes this sentiment in describing “reflective thinking:”

Reflective thinking, in short, means judgment suspended during further inquiry; and suspense is likely to be somewhat painful... To maintain the state of doubt and to carry on systematic and protracted inquiry – these are the essentials of thinking.⁹⁰

To be sure, the skepticism of the scientific attitude is not only directed externally; it is also applied to one’s own ideas. It is commonly said amongst scientists that if you want to know how good a theory is you should try to disprove it. This is the core of scientific skepticism: try to disprove it, and if it holds up, there’s something to it. But this skepticism and willingness to abandon ideas has political consequences, especially when the evidence contradicts a widely

held and “authoritative” belief. As such, the scientific attitude also entails possessing the will to question premises upon the discovery of new information in the face of political pressure to perpetuate existing norms. The prime example of this dynamic is that of the Catholic Church and Galileo. The same dynamic, albeit to a lesser degree, is also salient to the judiciary as it relates to precedent and judicial norms – an issue I address more fully below.

Second, the scientific attitude takes observation (rather than pure logic or community belief) as the cardinal arbiter of truth. The scientific attitude demands that belief be based on systematic empirical inquiry, not convention, conjecture, commonly held beliefs, or rationalized story telling. According to Dewey:

> Reflection thus implies that something is believed in (or disbelieved in), not on its own direct account, but through something else which stands as witness, evidence, proof, voucher, warrant; that is, as ground of belief… Thinking… is defined accordingly as that operation in which present facts suggest other facts (or truths) in such a way as to induce belief in the latter upon the ground or warrant of the former. ¹

Here, Dewey pinpoints the key difference between the two attitudes. Whereas the “unscientific attitude” adopts commonly held beliefs on their own account, whether verified or not, the “scientific attitude” demands demonstrable warrant and justification; some external check that stands as “witness, evidence, proof” of the truth of the matter.

If what has been said thus far is to be accepted, then it is correct to describe the judiciary as having an “unscientific attitude” in the detector dog context. In general, the judiciary has failed to demonstrate any material level of skepticism with respect to commonly held beliefs about detector dogs, and, more significantly, has failed to undergo any form of rigorous inquiry to establish the truth or falsity of the premise that detector dogs are adequately reliable for

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¹ Id. 8
establishing probable cause. But this is of no surprise, as most judges have been trained in, and subscribe to, a largely formalistic methodology.

4. **LEGALIST ADJUDICATION AND THE ROOTS OF THE JUDICIARY’S UNSCIENTIFIC ATTITUDE**

Most practicing judges subscribe to the school of legal formalism, and in particular, the legalist theory of adjudication.\(^92\) According to the legalist, adjudication is, or should be, a value-free process of determining what the law is, and of reaching true legal conclusions through the use of “legal reasoning.”\(^93\) For the legalist, the meaning of a law is, and should be, based on objective reference to “preexisting rules found stated in canonical legal materials… or derivable from those materials by logical operations,” rather than on subjective judicial interpretation or critical examination of empirical data.\(^94\) As Judge Posner explains:

The ideal legalist decision is the product of a syllogism in which a rule of law supplies the major premise, the facts of the case supply the minor one, and the decision is the conclusion. The rule might have to be extracted from a statute or a constitutional provision, but the legalist model comes complete with a set of rules of interpretation (the “canons of construction”), so that the interpretation too becomes a rule-bound activity, purging judicial discretion.\(^95\)

Legalist adjudication, therefore, is essentially an exercise of applying pre-made legal rules to facts, and then reaching some conclusion through logical deduction. To borrow Kant’s formulation, “if the understanding in general is explained as the faculty of rules, then the power of judgment is the faculty of subsuming under rules, i.e., of determining whether something


\(^{93}\) Id.

\(^{94}\) Id.

\(^{95}\) Id.
stands under a given rule or not.”96 At base, this is what adjudication does; and inasmuch as judges have been bred to “think like lawyers,” it is of no surprise that they have failed to adopt a more empirical, and less formalistic, methodology. The problem with such formalism is its over-dependence on non-empirical reasoning as a tool for adjudicating empirical content.

Most legal rules are analytical statements. In other words, the statement “X is reasonable if a reasonable person thinks it is,” is a true in itself tautology that lacks any empirical content. The meaning of “reasonable” was not arrived at by an examination of “reasonable people,” which is to say derived from observation and experience. There was no study conducted to determine what is considered “reasonable” by these “reasonable people” the law continually refers to. The rule is just a rule; it is not a fact. The problem arises because these analytical statements then have to be applied to actual circumstances. But since the rules themselves were not based in, or derived from, empirical fact, but posited analytically, the empirical truth of the rule is presupposed rather than demonstrated. The question begs: why ought we presuppose the truth of a premise when we can verify or falsify it, or at least show it to be more or less true?

The judiciary’s formalistic approach is especially confounding because adjudication itself is empirically, rather than theoretically focused. This is to say that courts are concerned with applying legal rules or principles to actual circumstances; they are not concerned with how legal conclusions follow from legal rules only in theory. And since adjudication is in fact an empirical exercise, it can adequately discharge its function only by employing an empirical methodology. But notwithstanding this conclusion, judges continue to employ largely formalistic methods.

96 IMMANUEL KANT, CRITIQUE OF PURE REASON A130-132/B170-172. By borrowing Kant’s formulation, I am not adopting Kant’s larger thesis on the origin of rules and the manner in which the content of experience is subsumed under them.
Dewey raised a similar argument against “theoretical philosophizing.” According to Dewey: “The charge that is brought against the non-empirical method of philosophizing is not that it depends on theorizing, but that it fails to use refined, secondary products as a path pointing and leading back to something in primary experience.”

Dewey’s criticism is directly relevant to the judiciary’s methodology in examining detector dogs.

In the first instance, the judiciary has theorized about the reliability of detector dogs without referring the theory back to empirical facts. In the second instance, the presupposed truth of the un-established premise is used to provide the content for a purely analytical probable cause rule, compounding the problem of a lack of empirical foundation. The result of such a process, according to Dewey, is that the “subject-matter becomes arbitrary, aloof – what is called ‘abstract’ when that word is used in a bed sense to designate something which exclusively occupies a realm of its own without contact with the things of ordinary experience.”

It is precisely the resulting “abstractness” of the Court’s Fourth Amendment jurisprudence – which arises as a function of the Court’s unempirical methodology – that has led commentator after commentator to criticize the Court in this area.

But there is another, more direct, reason to object to the judiciary’s epistemological attitude and the resulting deference afforded detector dogs: the Constitution. The Constitution and especially the Fourth Amendment embody a certain degree of skepticism towards unchecked governmental intrusions. The Constitution’s skepticism of such intrusions demands that any

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97 Dewey, supra note 90, at 6.
98 Id.
basis that is used to bypass the warrant requirement be based in *substantiated* facts, rather than
deduced from unverified premises based in mere belief (e.g. Dogs have superior sense of smell.
Therefore, they can reliably detect the presence of drugs). This is an important distinction. If the
Constitution took a deferential attitude towards governmental intrusions, then the judiciary's
deferential handling of the detector dog question would be excusable. But the Constitution is
explicitly and overtly skeptical with respect to governmental intrusions, and the judiciary’s
deference as to the means used to justify warrantless intrusions contradicts this skepticism.

The “scientific attitude” is not about mathematical precision or absolute certainty; it is
about assessing the reliability of beliefs through critical observation to determine whether a
given belief should be relied upon in decision-making. “Reasonable” people do not make
decisions – especially costly decision – on the basis of speculation and unverified assumption.
When one gets on a plane, one does not simply assume that the plane is in sound flying
condition. Rather, one accepts that the plane is fit to fly because a team has gone out and checked
the plane and tested its components before take-off. When reasonable people get sick, even
religious ones, they go to medical doctors, not faith healers. Why? Because the scientific
methods employed by modern medicine are more productive with respect to the goal of getting
better. Reasonable people demand empirically tested premises when the stakes are high because
empirical analysis is the only way to demonstrate whether something ought, or not, be relied
upon.

When a court allows a warrantless search to stand, the costs are high, as the legitimate
privacy interests of citizens are implicated. That the judiciary has allowed such searches on the
basis of empirically un-verified premises, therefore, is entirely unreasonable. The lack of
empirical substantiation of, and the judiciary’s general deference towards, the reliability of
detector dogs has put us at risk of getting on a plane that has a cracked wing. The *Harris* court, in
demanding that the reliability of the dog be established for purposes of establishing probable cause, took a step in the right direction; a step that should be affirmed by the Supreme Court.

5. **The Benefits of an Empirical Methodology**

Notwithstanding the foregoing critique, we are still left with offering an alternative to the current judicial methodology. This paper began by observing that probable cause adjudication is not the sort of thing that necessarily lends itself to bright-line computational analysis. This does not imply, however, that systematic empirical analysis cannot be employed. To say that the judiciary ought adopt an empirical epistemological attitude is not to say that cases should be determined through the use of mathematical equations. It is, however, to say that the judiciary ought demonstrate the truth of their assertions by reference to fact, rather than through the mere application of analytical rules. At base, the relevant question is: what do we choose to rely on to make decisions, and why do we choose to rely on that rather than something else? The value of the move towards the cardinality of empirical demonstration is summed up by Dewey as follows:

Reference to the primacy and ultimacy of the material of ordinary experience protects us, in the first place, from creating artificial problems which deflect the energy and attention of philosophers from the real problems that arise out of actual subject-matter. In the second place, it provides a check or test for the conclusions of philosophic inquiry; it is a constant reminder that we must replace them, as secondary reflective products, in the experience out of which they arose, so that they may be confirmed or modified by the new order and clarity they introduce into it… In the third place, in seeing how they thus function in further experiences, the philosophical results themselves acquire empirical value…

Here, Dewey points out three benefits of the empirical method. First, the empirical method helps focus the inquiry on the actual subject in question and prevents theoretical story telling. Second, the empirical method affords the ability to check the truth of conclusions such

\[100\] Dewey, supra note 90, at 18-9.
that prior beliefs can be updated with new information, and thereby made more robust. Finally, the empirical method provides an analytical apparatus with empirical content, enabling the apparatus to better comport with the subject matter it hopes to assess.

The empirical method also helps us better deal with the task of capturing the often times irreducible complexity and richness of the world in analysis. According to Dewey:

The adoption of an empirical method is no guarantee that all things relevant to any particular conclusion will actually be found, or that when found they will be correctly shown and communicated. But empirical method points out when and where and how things of a designated description have been arrived at. It places before others a map of the road that has been travelled; they may accordingly, if they will, re-travel the road to inspect the landscape for themselves.\footnote{Id. at 29.}

Dewey’s point here is especially salient. It would be nice if probable cause analysis was the sort of thing that could be mathematically determined – but it is not. Probable cause analysis requires an assessment of many factors, the idiosyncratic combination of which will ultimately determine whether or not the search is reasonable. This decision is entrusted to the opinion of the judge. Empirical method would reinforce the trust placed in judges to make such idiosyncratic determinations because it would allow others – other courts, commentators, and the public – to trace the road employed to justify the warrantless intrusion in a particular case. In other words, the ability for others to examine the empirical truth of the premises upon which the court has relied to allow the warrantless search would decrease the general likelihood that arbitrary intrusions would be allowed. Such an external check would reduce the likelihood that judges could render whil-o’-the-whisp decisions without backlash from higher courts or academics. Faced with this potential backlash, judges would be more diligent in establishing a basis for allowing warrantless searches. The demand for empirical warrant and justification, therefore,
helps keep (although does not ensure) the judiciary honest in allowing, or not allowing, warrantless searches. Without an empirical basis for a decision, the ability to externally check decisions becomes much harder, especially in cases where precedential judicial reasoning is the basis of the decision, and empirical facts would contradict precedent or previously established judicial decision making norms. On Dewey’s account:

“[C]ommon sense” philosophy usually repeats current conventionalities. What is averred to be implicit reliance upon what is given in common experience is likely to be merely an appeal to prejudice to gain support for some fanaticism or defence of some relic of conservative tradition…  

Here, the problem of politics and authority as inhibitors of truth that was mentioned above comes to light. No one seriously questions the judiciary’s almost blind loyalty to precedent. The danger arises when there is empirical data that contradicts the premises upon which previous decisions were reached. Absent a “scientific attitude,” the perpetuation of precedent runs roughshod over empirical reality because precedent, rather than empirical fact, is held as the cardinal arbiter of the judicial decision. The scientific attitude, by insisting on the primacy and ultimacy of empirical analysis, would allow the judiciary to avoid this error. In other words, when facts contradict believed premises, the scientific attitude questions the premises, not reality. Judicial formalism inverses this move. By largely ignoring empirical data, the judiciary has not only implicitly perpetuated empirically false premises, but negated any opportunity for a discussion as to the affect of such data on a particular decision. It may very well be the case that the empirical data in a given case does not undermine the integrity of a given search; but absent an effort on the part of the judiciary to examine and apply the empirical data, how are we to know? The availability and use of such empirical data is important because it subjects judicial decisions allowing warrantless intrusions to scrutiny, which in turn helps

\[102\] Id. at 33.
establish the veracity of a particular decision. While it is true that judicial decisions are currently subjected to scrutiny, this scrutiny largely takes the form of critiquing a particular court’s reasoning or interpretation of the law. It employs the same formalistic, or theoretical, methodology employed by the judiciary, it merely argues for a different line of reasoning. Empirical critique is preferable because it relates the criticism back to demonstrable evidence. The performance of a new plane’s design can be argued about indefinitely when the design is merely a set of drawings or a computer model. But building the plane and testing its performance in-the-world settles the matter. Similarly, if judicial decisions allowing warrantless searches in the detector dog context are to be adequately appraised, they must be based on empirical content rather than mere formalistic reasoning.

6. THE QUESTION OF “REASONABLENESS” AND A NEW FRAMEWORK

The Fourth Amendment requires that a search be “reasonable;” which is to say that it must be appropriate under the circumstances. Specifically, there must be some reason to allow the search that outweighs a citizen’s right to be free from arbitrary government intrusion. It is also fair to say that “reasonableness” is determined in reference to the socio-temporal context in which the action is taken. It might have been “reasonable” to make people endure ordeals as a method for proving their guilt or innocence in the sixteenth century, but it not “reasonable” in 2012. So we are left to ask, in the probable cause context, what qualifies as reasonable?

As discussed above, “reasonableness” in the probable cause context is not the sort of thing that can be reduced to algorithmic calculation. What is reasonable depends on a variety of factors, the idiosyncratic combination of which will establish if the action was, or was not, appropriate under the circumstances, which is to say “reasonable.” This decision we entrust to

103 BLACK’S LAW DICTIONARY 1431 (Revised 4th ed. 1968).
the judge. It was also said that presupposing the truth of the reliability of detector dogs was unreasonable, in the same way it is unreasonable to get on a plane that has not been checked prior to take-off. Relying on unchecked assumptions to make decisions when the stakes are high does not comport with the “considerations of everyday life on which reasonable and prudent men … act.”\textsuperscript{104} What is required, then, is a method for adjudicating the detector dog question that allows for a case by case inquiry, but which is also based on critical empirical analysis. How then are the courts to go about adjudicating detector dog cases if they are to adopt the “scientific attitude” this paper advocates?

\textit{Daubert v. Merrell Dow Pharms.}, in which the Supreme Court discussed what constitutes “scientific knowledge,” may offer some direction.\textsuperscript{105} In \textit{Daubert}, the Court identified the following factors in determining whether something should, or should not, be considered “scientific knowledge:”

\begin{enumerate}
\item Empirical testing: whether the theory or technique is falsifiable, refutable, and/or testable.
\item Whether it has been subjected to peer review and publication.
\item The known or potential error rate.
\item The existence and maintenance of standards and controls concerning its operation.
\item The degree to which the theory and technique is generally accepted by a relevant scientific community.\textsuperscript{106}
\end{enumerate}

Given the factors established by the Court, there arises an immediate obstacle to employing \textit{Daubert} in the detector dog context: detector dog teams are not homogeneous scientific apparatus or theories; they are idiosyncratic. In other words, the question “are detector dogs reliable?” is not the same sort of question as “is DNA testing using such and such a device reliable?.” In the latter case, all the machines are presumably the same, and produce the same


\textsuperscript{105} \textit{Daubert v. Merrell Dow Pharms.}, 509 U.S. 579, 593 (U.S. 1993).

\textsuperscript{106} \textit{Id.}
results over time. As such, *ceteris paribus*, a scientific conclusion with respect to one machine applies to all machines. The same is not true with respect to detector dogs, especially when one recognizes that reliability is not merely a function of the dog, but a function of the dog and the handler: the team. The best one can do in the detector dog context is to ask: “is this dog alert reliable?” But even here the matter is not settled because we have not established what is meant by “reliable.” We must go on to ask additional questions about the team’s training and performance, and about the exogenous circumstances that may have affected the integrity of the alert. As such, the question is perhaps more completely framed as follows: “given the totality of circumstances, how likely was a particular alert to be reliable?”

If the foregoing is accepted, then *Daubert* is not directly applicable to establishing the reliability of detector dog teams generally. *Daubert* does, however, offer a good framework for deciding, on a case by case totality of the circumstances basis, whether a detector dog team is sufficiently reliable in a given scenario to establish probable cause. I am not here implying that detector dog teams should be assessed as “scientific evidence.” Rather, what I intend to show is that use of the *Daubert* factors allows the courts to employ a “scientific attitude” in examining the question while still allowing for flexible case by case analysis.

The first of the *Daubert* factors is the requirement of empirical testing. Detector dog teams are susceptible to empirical testing in a variety of ways. First, the courts can look to the extent and type of training the dog team had; the more extensive the training the more likely a team is reliable. Next, the court can look to the degree and frequency of recertification. How often has the team recertified (e.g. every six months, every year, never), and how extensive was the recertification? Next, the court can look to the team’s performance in controlled conditions, including the frequency and consistency of the team’s performance. For example, a team that has performed well in controlled conditions only once or a team that has performed inconsistently
over time, would be less likely to be reliable than a team that has consistently performed well in controlled conditions over a period of three years. In a similar fashion, the court can look to the field data on the team’s performance (e.g. how long has the team been in the field, what is the team’s recovery rate, how many false positives). Finally, the team can look to the circumstances in which the team was deployed to determine whether there could have been environmental influences that affected the team’s reliability, and to what extent.

The next *Daubert* factor is whether a scientific theory or technique has been subjected to peer review and publication. In the detector dog context, peer review takes the form of third-party verification. The court can look to the extensiveness and frequency of the team’s certification as one metric of third-party verification. The more outside agencies that have certified or tested the team, the more robust the team’s abilities are likely to be. The court can also compare the training methods and field techniques used by the team to best-practices protocols that are generally accepted by reputable dog trainers and handlers, which is discussed in more detail below. Finally, the court can assess whether the alert given by a detector dog is objectively recognizable as such, or whether the alert is so subtle or idiosyncratic that it cannot be distinguished by a third-party from the dog’s other natural behaviors.

The third *Daubert* factor is the known or potential error rate. In the detector dog context, this factor has several facets. First, the court can examine the recovery rates of the team both in the field and in controlled conditions as a general metric of how reliable a team is. This would also include considering the extent of the data available; data of performance over a higher number of incidents and a longer period of time reveals more than data of fewer performances and a shorter period of time. Higher success rates imply a higher level of reliability. Also, if a team performs well in controlled conditions, but materially less well in the field, the court can increase the importance it places on environmental conditions that may have influenced the alert.
The fourth and fifth *Daubert* factors, taken together, require the existence and maintenance of standards and controls concerning the scientific technique’s operation which are generally accepted by a relevant scientific community. In the detector dog context, this means evaluating the training and certification of the specific team against generally accepted best practices. For example, the International Forensic Research Institute has set forth standards “intended to provide recommended scientific standards of practice for trainers and organizations and to make available an additional layer of credentials for detection teams,” with the goal of “advance[ing] scientifically sound detection K-9 validation programs which are internationally recognized and which improve contraband interdiction from local enforcement to courtroom defensibility.”107 The court can assess the extent to which a particular team’s training meets, or falls short of, accepted best practices, like those set forth by the IFRS; and gauge the likelihood of the team’s reliability to the extent the team’s training and certification meets, or falls short of, the best practices.

Use of the *Daubert* factors will not reveal with absolute deterministic certainty how reliable a dog alert was, nor provide an exact numerical probability for how likely a dog team is to be accurate – but this is not the point. What the scientific attitude demands is not absolute certainty, but empirical warrant for the belief that something is more or less likely. Employing the *Daubert* factors accomplishes this task. Use of the *Daubert* factors provides a basis for determining whether the team, given the totality of circumstances, was adequately likely to be reliable so as to meet the requirement for probable cause because it basis the determination in fact. In other words, it enables the courts to consider the question on a case by case basis, while also employing the systematic empirical inquiry demanded of the scientific attitude. Use of the

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107 International Forensics Research Institute. Available at http://www2.fiu.edu/~ifri/detector_dogs.htm
Daubert factors has additional benefits as well.

First, because use of the Daubert factors would require critical examination of the training and certification regimen of the team against best practices, a baseline for the adequacy of the dog team can be actually established, rather than presupposed. Second, by requiring an examination of the team’s performance in a variety of settings, and by considering the effect of time and frequency on the veracity of performance reliability, the ruling is given empirical content – an external basis for why a search was, or was not, found reasonable. A decision based in empirical facts also gives the amorphous “reasonableness” standard more meaning, since “reasonable” will come to be defined in reference to facts, rather than analytically. Finally, use of the Daubert factors will impose accountability on the courts in allowing warrantless searches, which is consistent with the Constitutional skepticism described above. Because use of the Daubert factors would force the courts to critically, and empirically examine the totality of circumstances, the reasons for a poor decision can be more clearly identified and criticized. Judicial critique would no longer be a mere debate over reasoning, but could be grounded in fact and the implications of those facts. The Daubert factors would also hold the courts accountable for explaining the allowance of a warrantless search in cases where the facts imply that a team is more likely to be unreliable than reliable. Is it reasonable to call something “probable” if it is less likely to occur than not; and if so, what is the justification for this seeming inversion of the term? This is an important question that courts should not be allowed to merely pass by.

In sum, while detector dog teams are not suited to being treated as scientific apparatus, use of the Daubert factors, which the courts are already familiar with, provides clear benefits with respect to adopting a scientific attitude towards the question of detector dogs and probable cause.
IV. CONCLUSION

The question of detector dogs as a basis for probable cause is anything but straightforward. But it is precisely the complicated nature of the matter that demands courts to employ a scientific attitude. Rather than continue as they have – assuming the reliability of the dog as a sui generis – courts should adopt a new methodology of systematic empirical inquiry. One way to accomplish this goal is through the use of the Daubert factors. Use of the Daubert factors provides the courts with the flexibility to decide the matter on a case by case basis, while also giving the courts the tools with which to conduct a systematic empirical inquiry. The Constitution’s skepticism of unchecked government intrusions, and indeed the reasonableness standard itself require that courts to do more than presuppose the truth of unverified premises in allowing warrantless searches. Rather, what reasonableness requires in contemporary society with respect to the veracity of a belief is a systematically established basis in fact for making the determination. Only by adopting a scientific attitude can the courts meet this burden.