# THE DOCTRINE OF CHANCE: PROBABILISTICALLY INFERRING DESIGN

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## I. ROADMAP

This Note will explore the evidentiary doctrine known as the Doctrine of Chance (hereinafter Doctrine). It will begin with a general introduction and subsequent illustration of the Doctrine and set out a thesis arguing the Doctrine should be presumptively invalid with a high threshold for admittance involving a number of discrete factors. From there, it will explore the applicability of the Doctrine to different types of crimes followed by significant criticism of the Doctrine which justifies the presumption of invalidity. Next, it will discuss the usage of the Doctrine in courts followed by a brief excursus regarding potential usage in administrative proceedings. Then, it will explain the philosophical foundations involving discussions on matters of informal logic including analogy, causation, and probability. Finally, the Note will conclude with hypothetical test scenarios to show how the Doctrine would apply under the methodology outlined herein.

## II. INTRODUCTION

At common law, it was forbidden to introduce evidence of an accused uncharged crime and use that as proof of bad character to show the accused committed the charged crime.[1] This rule is codified in the Federal Rules

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of Evidence section 404 subsection (b)(1) of which reads: "Evidence of a crime, wrong, or other act is not admissible to prove a person's character in order to show that on a particular occasion the person acted in accordance with the character."[2] The policy behind this rule is that character evidence tends to be of relatively slight probative value when compared to the extreme prejudicial nature and possibility to confuse the jurors into a so-called *preventative conviction*.[3] While there have been a few specially created exceptions to this rule,[4] by and large this rule remains a vital part of litigation. Despite being an absolute bar on so-called *propensity reasoning*, this rule does not *per se* bar the admission of these past occurrences. Section 404(b) of the Federal Rules of Evidence lists a non-exhaustive set of permissible uses, provided reasonable notice is given to the defense[5]: proving motive, opportunity, intent, preparation, plan, knowledge, identity, absence of mistake, or lack of accident.[6] An additional use commonly recognized is the "Doctrine of Chance" in which an inference of design is drawn from the repetition of incidents which tends to eliminate the element of chance occurrences.[7]

This theory is admissible to demonstrate either the *actus reus*[8] or, more

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1. Edward J. Imwinkelried, *Criminal Minds: The Need to Refine the Application of the Doctrine of Objective Chances as a Justification for Introducing Uncharged Misconduct Evidence to Prove Intent*, 45 HOFSTRA L. REV. 851, 851 (2017).

2. Fed. R. Evid. 404(b)(i). *See also* Okla. Stat. tit. 12, § 2404(B) (2011 & Supp. 2018).

3. *See* Fed. R. Evid. 404 Advisory Committee's Notes on Subdivision (b).

4. *See* Fed. R. Evid. 413, 414, & 415 (abolishing the character evidence prohibition in cases of sexual assault and child molestation).

5. Hereafter, reasonable notice is to be assumed anytime evidence is attempted to be admitted unless otherwise specified. Furthermore, it should be assumed that, unless otherwise specified, each piece of evidence passes Fed. R. Evid. 401's relevancy requirement; that is, it has a tendency to make a fact of consequence more or less probable than it would be in its absence.

6. Fed. R. Evid. 404(b)(2).

7. Clifford S. Fishman & Anne T. McKenna, "3 Jones on Evidence" § 17:62 (7th ed., July 2019 update) (The Doctrine is also used as a method to demonstrate some of the enumerated examples by providing the inference of intent, knowledge, motive, or lack of accident or mistake.).

8. *Guilty act*, BLACK'S LAW DICTIONARY (10th ed. 2009) ("The wrongful deed that comprises the physical components of a crime . . . .")..

commonly, the *mens rea*,[9] and may be offered by either the prosecution or defense.[10] Despite the extreme versatility of the Doctrine, the advisory committee and the drafter of the rules correctly highlight the extreme risk of unfair prejudice.[11] Even when such evidence is offered for a valid reason, it is impossible to prevent *dual relevance* whereby, even if unintentional, the jurors attribute weight to the defendant's character—this is especially true in light of the quicker and more intuitive route of inference between action and character than for any of the permissible uses.[12] This danger is present any time past actions are admitted and, for this reason, courts ought to be hesitant in admitting any instances of past misdeeds. However, due to the intuitive suspicion of coincidence, courts ought to be extra weary of admissions under the Doctrine.[13]

The application of the Doctrine should be presumptively invalid due to the extreme prejudicial effect; this presumption is defeasible subject to demonstration of substantial probative value. The party seeking to admit the evidence should be required to submit evidence of the base-line frequency of an event indicative of the improbability of multiple random occurrences rather than merely relying upon judicial intuition on the odds. Once that initial burden is met, judicial officers ought to weigh the following factors:[14] the specificity of circumstances; the number of prior incidents; the net number of significant analogues; the number of viable alternative inferences; the relative probability of those alternative

9. *Guilty mind*, BLACK'S LAW DICTIONARY (10th ed. 2009) ("The state of mind that the prosecution, to secure a conviction, must prove that a defendant had when committing a crime.").

10. It is far more often offered by the State in prosecuting a defendant; but, when applicable, it can be a potent argument for the defense in showing the existence of a reasonable doubt.

11. *See* Fed. R. Evid. 404 Advisory Committee's Notes on Subdivision (a) & (b).

12. Imwinkelried, *supra* note 1. Both the extreme prejudicial weight and the ease of propensity reasoning are demonstrated in the illustration from Michael Peterson's trial below. *See* discussion *infra* Section III.

13. That is, anytime past misdeeds are offered due to similarities of circumstances, especially those that may occur independently of the actions of the alleged perpetrator. As will be discussed in greater detail later, the intuitive weight given this theory is often misplaced. This is contrasted with admission of past misdeeds as extrinsic evidence of motive or intent such as evidence of a prior criminal arrest as motive for why the defendant killed a retired police officer. *See* discussion *infra* Section IV.

14. Majorie A. Shields, Annotation, *Application of "Doctrine of Chances" in Homicide, Sexual Crimes, and Other Offenses Against the Person*, 11 A.L.R. 7th Art. 1 (2015) (Note that the standard *key factors* are limited to: (1) the number of extrinsic incidents and (2) their similarity to facts alleged in case being tried.).

inferences; and the causal connection between the suspect and the event.[15] Cases that are too close to call, without strong contravening reasons, should be resolved in favor of the defendant in the spirit of the presumption of innocence.

The basis justifying the enumerated factors and the policy reasons by which they should be applied is to optimally preserve the substance of the defendant's presumption of innocence. This is done by ensuring any evidence admitted via the Doctrine is optimally positioned to provide the greatest potentiality possible to encourage and induce probabilistic chains of inferences and dissuade or limit propensity chains of inference while providing the State with an opportunity to pursue their interest in convicting guilty defendants. The initial three factors[16] pursue this goal by ensuring there are ample grounds by which to draw the inference and by ensuring the inferences are as cogent as reasonably possible by seeking maximal specificity and similarities. The factors pertaining to alternative viable inferences are extrinsic pieces of evidence intended to ensure the random act of chance argument is objectively improbable *when compared to other options*. It does no good to argue that random chance is incredibly improbable if the theory of guilt is as improbable or, more importantly, there is a strong contravening factor extrinsic to the defendant which has a substantially higher probability than a random act of chance. Finally, the factor on causation seeks to limit the situations where there are multiple potential causal inferences in addition to random chance and the defendant's agency—if there are additional commonalities then there is less weight to the inference of guilt.

## III. ILLUSTRATIONS

The Netflix documentary, *The Staircase*, depicts the dramatic trial of Michael Peterson for the murder of his wife, Kathleen Peterson, after purportedly finding her unconscious after she fell down the staircase, causing her to suffer deadly injuries.[17] Episode three, *A Striking Coincidence*, reveals that, during the course of the investigation, it came

15. It cannot be over-emphasized that these are *factors* to be considered rather than elements for an admission under the Doctrine. It is the aggregate weight that matters, not any specific combination to arrive thereat. For example, abnormally strong analogical inferences can over-balance limited instances of the event.

16. Specificity of circumstances, number of prior incidents, and net number of significant analogues

17. *The Staircase* (Netflix 2018).

to light that nearly two decades earlier a previous suspicious death occurred under similar circumstances in Germany when Mr. Peterson's friend, Elizabeth Ratliff, was found dead at the bottom of a staircase.[18] During mock jury deliberations put on by the defense in preparation for trial, the "jurors" focused upon this coincidence as "casting a long shadow on Michael Peterson."[19] Even in the absence of other substantive evidence, the jury pool seriously questioned his innocence purely on the basis of how similar the cases were.[20] Furthermore, when the defense proffered additional information to color the incident in a more favorable light, every bit of conversation with the jurors was paradigmatic propensity-based reasoning.[21] During the trial, the prosecution team seized upon this coincidence arguing *inter alia* that such tragic accidents are unlikely to occur twice.[22] Ultimately, the jury found Michael Peterson guilty.[23]

The Twentieth Century London case, *Rex v. Smith*—better known as the *Brides in the Bath* murders—became the most famous example of this Doctrine.[24] In this case, Mr. George Joseph Smith was indicted for the murder of Ms. Bessie Mundy with whom he had purportedly married depsite having a living spouse.[25] On July 13, 1912, Ms. Mundy was found dead in her bathtub.[26] At trial, evidence was presented of the deaths of Alice Burnham and Margaret Elizabeth Lofty, both of whom died in circumstances acutely reminiscent of Ms. Mundy's death.[27] In all three cases, the defendant had a purported marriage with the deceased, the deceased allegedly died while bathing, were found in similar circumstances, and left the defendant with monetary gain.[28] The judge admitted evidence of the prior deaths under what would later be known as the Doctrine. He instructed the jury:

> If [you] find an accident which benefit[s] a person, and [you find]

18. *Id*. at *A Striking Coincidence*.
19. *Id*.
20. *Id*.
21. *Id*. Granted, as the defendant, Michael Peterson, and his legal team are entitled to offer character evidence. Nonetheless this is indicative of difficulty in separating non-character based reasoning from character based reasoning.
22. *The Staircase*: *A Striking Coincidence* (Netflix 2018).
23. *Id*.
24. Rex v. Smith, [1914-1915] All ER 262 (Eng.).
25. George Fisher, Evidence 195 (Thomas Reuters/Foundation Press, 3d ed. 2013).
26. *Id*.
27. *Id*. at 196.
28. *Id*. at 195-96.

> . . . that the person has been sufficiently fortunate to have that accident happen to him a number of times, benefiting him each time, [you draw] a very strong, frequently an irresistible inference, that the occurrence of so many accidents benefiting him [is] such a coincidence that it cannot have happened unless it was design.[29]

In this precedential case, the jury found such an inference and, based largely upon that, they convicted the defendant.[30]

## IV. APPLICABILITY AND LIMITS

The Doctrine is applicable to both questions of *actus reus* and *mens rea*. The typical application is to use the repetition of the *actus reus* to probabilistically demonstrate the existence of the *mens rea*. It is often described as "the instinctive recognition of that logical process which eliminates the element of innocent intent by multiplying instances of the same result until it is perceived that this element cannot explain them all."[31] The idea is that, by multiplying instances of the *actus reus*, the odds of the presence of *mens rea* exponentially increases. The alternative method is to use the Doctrine to demonstrate that the crime itself occurred. This takes the form of an inference to criminal culpability from disproportional frequency of objectively improbable *accidents*—such as repeated instances of cyanotic episodes resulting in infant death leads to the inference of an *actus reus* of criminal neglect, reckless endangerment, or other similar crimes.[32]

Typically, the Doctrine is utilized by the State in attempting to prove guilt; however, there are rare examples of the Doctrine being cited as a defense—with *at least* one recent example being meritorious. A recent *Habeas* case, *Stermer v. Warren*, resulted in an order of conditional relief on the basis of, *inter alia*, insufficient evidence to prove guilt beyond a reasonable a doubt and prosecutorial misconduct.[33]

In February 2010, Linda Stermer was convicted of felony murder after

29. *Id*. at 196.
30. *Id*. at 197.
31. State v. Rule, 1914 OK CR 153, 144 P. 807, 811 (quoting 1 John Wigmore § 302 (1904)). *Compare* Cohn v. State, 1910 OK CR 237, 113 P. 217, *with* Abbot v. Territory 1908 OK CR 2, 94 P. 179.
32. Imwinkelried, *supra*, note 1.
33. Stermer v. Warren, 360 F.Supp 3d. 639, 670 (E.D. Mich. 2018).

her husband died in an arson-fire.[34] One of her arguments at trial was an invocation of the Doctrine. Her husband, the alleged victim, had twice before been involved in arson-related fires and was explicitly suspected of having started the latter of those two prior fires.[35] The prosecution, recognizing the intuitive weight of this argument, committed reversible prosecutorial misconduct by telling the jury there was no evidence of these fires.[36] On *Habeas* petition, the District Court held that, *inter alia*, substantial evidence existed to indicate the victim himself was culpable for the fire—specifically citing the two prior instances as a clear use of the Doctrine—and that the impermissible undermining of that argument by the prosecution substantially prejudiced the defendant to the point of denial of due process.[37]

Another example of a defense application[38] of the Doctrine could be a procedural application regarding *voir dire* in light of *Batson v. Kentucky*.[39] In *Batson*, an African-American defendant challenged his conviction for second-degree burglary alleging denial of equal protection through the State's use of peremptory challenges in *voir dire* to exclude members of his race from the petit jury.[40] The Supreme Court found the prosecutor's exclusion of African-American jurors, without a race-neutral reason, violated the Equal Protection Clause of the Fourteenth Amendment.[41] Furthermore, the Court established a three-part test to determine if equal protection is violated in *voir dire*: (1) the defendant must make a *prima facie* showing that the prosecutor has used peremptory strikes to exclude members[42] of a cognizable protected group;[43] (2) if successful, the

34. *Id*. at 646.
35. *Id*.
36. *Id*. at 656.
37. *Id*. at 653, 670.
38. Per Georgia v. McCollum, 505 US 42, 59 (1992), Batson v. Kentucky, 476 U.S. 79 (1986) applies to the defense as well, so theoretically the prosecution could take advantage of this method as well.
39. *See generally Batson*, 476 U.S. at 79.
40. *Id*. at 83.
41. *Id*. at 84.
42. *Batson* itself was concerned specifically with the rights of the defendant and thus the defendant had to make a showing they were also a member of such group; however, subsequent cases have shifted the analysis to the rights of the jurors and, therefore, the membership of the defendant is immaterial. *See* Powers v. Ohio, 499 US 400, 414-15 (1991).
43. *Batson* itself dealt with racial discrimination, but the case J.E.B. v. Alabama *ex rel.* T.B., 511 U.S. 127 (1994) extended this to gender-based discrimination. Some lower courts have extended to include all *cognizable protected classes* as defined in various Civil Rights

prosecutor must give a class-neutral reason for the exclusion; and (3) the trial judge must weigh the alleged neutral reason is merely pretense.[44]

This is where the Doctrine could come into play. The defense could seek to demonstrate the neutral reason offered by the prosecution is merely a pretense by showing the prosecutor has sought to exclude members of the cognizable class at a rate far higher than statistically expected in a particular type of case—for example, when a prosecutor has sought to exclude women in murder cases involving an affirmative defense claim of battered woman syndrome. By looking at past incidents, the inference of illegitimately motivated exclusions is probabilistically demonstrated. It is highly unlikely that so many neutral exclusions would just happen to exclude specific classes in specific cases, especially over an extended period of time with numerous repetitions.

The Doctrine has been, and will continue to be, applicable in a wide variety of cases involving varied criminal offense. A small list of non-exhaustive examples includes arson, theft, forgery, and murder.[45] These criminal acts and the applicability of the Doctrine are explored below.[46]

The Model Penal Code (hereinafter M.P.C.)[47] defines "arson" as "start[ing] a fire or caus[ing] an explosion with the purpose of: (a) destroying a building or occupied structure of another; or (b) destroying or damaging any property, whether his own or another's, to collect insurance for such loss."[48] From this definition, there are two factors the prosecutor must prove for a conviction: causation (*actus reus*) and purpose (*mens rea*).[49] The Doctrine could be relevant to prove either. A prime example of proving *actus reus* is if a defendant was charged with arson and the prosecution sought to introduce evidence of other uncharged fires that correspond to the defendant's geographical movement.[50] In this

Acts.

44. *Batson*, 476 U.S. at 96.

45. These four crimes were selected as examples for application as they cover a range of criminal behavior: property crime, white-collar crime, and violent crime.

46. For the purposes of these examples of how the Doctrine might apply, it will be assumed that the prosecution has provided sufficient evidence of base-line frequency to justify claim of objective improbability.

47. Paul H. Robinson & Markus D. Dubber, *The American Model Penal Code: A Brief Overview*, 10 NEW CRIM. L. REV., 319-20 (2007) (While this is not law, it is the "closest thing to an [] American criminal code" and the criminal law of most states—even those that have not adopted it—have been influenced by it.).

48. MODEL PENAL CODE § 220.1(1) (AM. L. INST. 1985)

49. *Id*.

50. Example taken from People v. Mardlin, 790 N.W.2d 607 (Mich. 2010).

example, the causal inference from a number of otherwise unconnected fires—occurring in a geographic area in the time a particular defendant was there—would strongly support the culpability of said defendant. An example of proving *mens rea* would be a case in which a defendant was charged with arson after accidentally starting a wildfire after previous incidents of accidental fires being started—the repetition of instances, depending on how many and how specific they are, could strongly imply culpability on the part of the alleged arsonist.

The M.P.C. defines "theft" as "purposely reciev[ing], retain[ing], or dispos[ing] of moveable property of another knowing that it has been stolen, unless the property is received, retained, or disposed with the purpose to restore it to the owner."[51] Again, there are two factors necessary for conviction, "knowledge" (*mens rea*) and "receiving, retaining, or disposing of moveable property" (*actus reus*).[52] Typically, with theft, the Doctrine would be used to demonstrate the *mens rea*. For example, consider an individual who is caught with stolen goods. While a felony if done knowingly, the possession of stolen goods has an easy and obvious defense—that of a lack of knowledge. So, when this individual is arrested and charged with theft on the basis of retaining the goods, he argues that he did not know the goods were stolen (lack of *mens rea*). To overcome this defense, the prosecution seeks to enter into evidence past occurrences when he allegedly obtained stolen goods innocently. The more times this has occurred in the past, the stronger the inference to design as regularly receiving stolen goods innocently is highly improbable. Thus, by the repetition of the *actus reus*, an affirmative defense can be overcome by substantial probability.

This same line of argument can be applied to incidents of "forgery," defined as "with [the] purpose to defraud or injure anyone, or know[ingly] . . . facilitating a fraud or injury to be perpetrated by anyone, the actor: . . . (c) utters any writing which he knows to be forged in a manner specified . . . ."[53] Similar to theft, the *mens rea* can be inferred if the alleged forger has an unnaturally frequent number of "unknown" forgeries in a given period of time.

The MPC defines "murder" as criminal homicide that is "committed purposely or knowingly[, or] . . . recklessly under circumstances

51. MODEL PENAL CODE § 233.6 (AM. L. INST. 1985).
52. *Id*.
53. MODEL PENAL CODE § 224.1 (AM. L. INST. 1985).

manifesting extreme indifference to human life."[54] There is an affirmative defense against a murder charge of self-defense if the defendant believed deadly "force [was] immediately necessary [to] . . . protect[] himself against the use of unlawful force" by another.[55] The Doctrine can be used to refute a claim of self-defense as highly improbable if the prosecution can introduce extrinsic evidence of past self-defense claims far in excess of the statistical norm. Even if the defendant really did kill in *self-defense*, vast disparity in the frequency of violent altercations with the statistical norm can lead to a strong inference that the defendant is initiating these altercations and then killing under the guise of self-defense; or, in other words, the self-defense claim is merely a pretense for intentionally killing with premeditation.

## V. CRITICISM OF THE DOCTRINE AT AN ABSTRACT LEVEL

The most obvious criticism levied against the Doctrine, which is also one of the most devastating, is that under the Doctrine, it is demonstratable that the probability of any particular event occurring by chance multiple times is vanishingly small, but it cannot demonstrate that *this* particular instance of the event is not a random act of chance. It has long been held as a basic principle of Anglo-American law that an accused must be convicted of a specific offense.[56] Lord Herschell eloquently expresses this in his dictum in *Makin v. Attorney-General for New South Wales*:

> It is undoubtedly not competent for the prosecution to adduce evidence tending to shew that the accused has been guilty of criminal acts other than those covered by the indictment, for the purpose of leading to the conclusion that the accused is a person likely from his criminal conduct or character to have committed the offence for which he is being tried.[57]

It is simply insufficient to demonstrate that the accused likely committed a crime regardless of how strongly the inference of guilt is; rather, it must

54. MODEL PENAL CODE § 210.2 (AM. L. INST. 1985).

55. MODEL PENAL CODE § 3.04 (AM. L. INST. 1985).

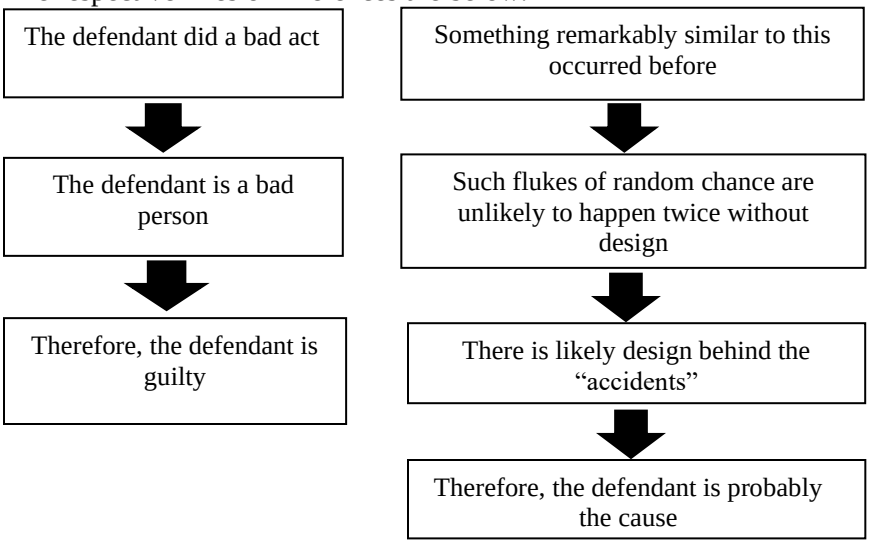
56. Edward J. Imwinkelried, *The Dispute Over the Doctrine of Chances: Relying On the Concept of Relative Frequency to Admit Uncharged Misconduct Evidence*, CRIM. JUST., Fall 1992, at 16.

57. Makin v. Attorney-Gen. for New South Wales [1893] UKPC 56, [1894] AC 57 (PC) 65.

be proved beyond a reasonable doubt that the accused committed the specific crime(s) with which he is charged.

It is for this reason, among others, that the Doctrine by itself is never sufficient for a conviction. The inference of design may establish a strong probability that a crime was committed, but it cannot prove beyond a reasonable doubt that a defendant is guilty of *this* crime. Other evidence is necessary to demonstrate guilt. The Doctrine may be used as strong evidence to bolster the prosecution's (or, less often, the defense's) case, but the prosecution cannot rest its case upon it.

An additional criticism levied against the Doctrine is, as alluded to earlier, the inherent *dual relevancy* respect of the Doctrine. While this in and of itself may not be bad from an *a priori* perspective, factoring this in to the subconscious rationale of jurors and the much more intuitive inference to propensity-based reasoning, it becomes a concerning factor. The respective lines of inferences are below:[58]




The danger of this erroneous type of inference is twofold: it is a more intuitive and direct chain of inference and jurors are subject to a specific type of cognitive bias called evidentiary cross-contamination.[59] This occurs when potentially prejudicial evidence is implicitly supported by

58. On the left, impermissible propensity-based chain of inferences, on the right permissible probabilistic chain of inferences.

59. Stephanie Roberts Hartung, *The Confluence of Factors Doctrine: A Holistic Approach to Wrongful Convictions*, 51 SUFFOLK UNIVERSITY L. REV. 369, 378-79 (2018).

mutually affirming independent pieces of evidence. In this context, that would mean the impermissible and more prejudicial line of inference would become increasingly likely as the trial goes on and more evidence is offered to show the defendant's guilt. This causes the jurors to subconsciously reevaluate the chain of inference in the light of increased evidence of guilt resulting in an increasing probability the inference to bad character will occur which will in turn result in a reinterpretation of other evidence in light of the negative character of the defendant.

For the aforementioned reasons, in addition to the difficulty with statistical analysis[60] and the inherent prejudice of prior events, courts should be careful in scrutinizing factors for admissibility. Furthermore, if a case is ever presented with no further evidence besides inference through the Doctrine, it should be dismissed.

## VI. COURT USAGE

The Tenth Circuit Court of Appeals addressed the applicability of the Doctrine in the relatively recent case *United States v. Henthorn*.[61] In this case, the court reviewed a murder trial.[62] A man was tried for the murder of his wife under suspicious circumstances while they were alone at a remote and isolated spot.[63] The alleged murder took place soon after the defendant had taken out a substantial life insurance claim on her.[64] Furthermore, the stories the defendant gave to authorities were inconsistent with evidence and omitted several important facts,[65] which coupled with the unusually swift cremation, over familial objections,[66] painted the defendant in a bad light. The government sought and was allowed to introduce evidence of an almost identical prior incident with his first wife and a prior *accident* with the wife on the indictment.[67] The Tenth Circuit held that the district judge properly admitted the evidence.[68]

In some ways, this is a paradigmatic example of the Doctrine. The circumstances were very specific: two prior occurrences with a multitude

60. I.e. reference class problem discussed below.
61. United States v. Henthorn, 864 F.3d 1241 (10th Cir. 2017).
62. *Id*. at 1245.
63. *Id*.
64. *Id*. at 1247.
65. *Id*. at 1245-46.
66. *Id*. at 1251.
67. *Id*. at 1245.
68. *Id*.

of significant analogues,[69] limited viable alternative inferences,[70] low relative probability of those instances,[71] and the single commonality between all three instances leading to a causal inference—all factors identified as relevant weigh in favor of admission. The only argument that could be levied against admission is an argument of redundancy. With how strong the case was without the Doctrine, a defense attorney might argue that the limited probative value—as the commission of the crime was already virtually assured the Doctrine could not make it much more probable—would be substantially outweighed by the risk of undue prejudice and confusing the jury. Such an argument is virtually certain to fail as it contravenes a fundamental principle of evidentiary law that each piece of evidence is analyzed individually. Furthermore, it makes poor policy as it essentially would assert a prosecution is not entitled to a case above an arbitrary threshold of viability.

Another case tried in federal district court within the Tenth Circuit was *United States v. Mathews*.[72] In this case, the government indicted Mathews for armed robbery.[73] The prosecution sought to introduce evidence that the defendant was previously arrested for armed robbery under the Doctrine.[74] The district judge correctly excluded the evidence albeit for loose and ambiguous reasoning.[75]

The district judge excluded the evidence on the grounds of it being too prejudicial to the defendant; while this is true, it does not address why it was it too prejudicial, which is indicative of a problem in the application of the Doctrine—too often it is left up to arbitrary judicial intuition without recourse a measure by which to judge. This is potentially problematic on appeal as, without precise factors guiding the articulation of the judge's reasoning, there is little chance for any appellate review beyond the reasoning being wildly arbitrary and capricious. The correct reason for excluding the evidence is a combination of factors one through three. The specificity of the incident was extraordinarily vague, the common nucleus was nothing beyond "African-Americans with face obscured," the singular

69. Including, but not limited to, alleged accident occurring while alone in a remote area, inconsistent stories, and suspicious post-mortem handling of bodily disposal.

70. The class of viable alternatives is limited to accident, foul play, or suicide.

71. This is doubly true once the inconsistent stories are taken into account, the odds that the widower would lie to authorities if he were innocent seem rather low.

72. United States v. Mathews, No. 16-cr-129-WJM, 2017 WL 4784597 (D. Co. 2017).

73. *Id*.

74. *Id*.

75. *Id*.

prior incident offers little in the way of inferential potency; and, even within that singular prior incident, there were a number of significant disanalogues.[76]

An additional federal example of the Doctrine, one used in a civil case, is found in *Lucero v. Valdez*.[77] The appeal at issue in *Lucero* concerned an evidentiary ruling in a section 1983 civil rights suit alleging official misconduct on behalf of police.[78] The plaintiffs alleged defendants violated their constitutional rights to be free from unlawful seizures and due process as well as, in the amended complaint, constitutional right to be free from malicious prosecution.[79] The defendants asserted a claim of qualified immunity, which, in order to overcome, the plaintiffs must demonstrate a culpable state of mind.[80] The plaintiffs petitioned for, and the court granted, permission to cite prior incidents of violations of police procedure and policy under the Doctrine hoping the fact finder would make the inference that it is unlikely an officer would be involved in this many instances of misconduct in the absence of culpability.[81]

Proving state of mind is difficult as it deals with subjective intentions and motivations of the individual. In the absence of extrinsic evidence that provides a strong reason to infer culpability in this particular incident,[82] the best way to demonstrate this is via probability—innocent mistakes certainly happen, but they should be infrequent and/or minor. Using frequent past examples of flagrant violations of procedure and policy to demonstrate intent was a proper use of the Doctrine on behalf of the court.

### *Administrative Usage*

The potential legal usage of the Doctrine is not confined to a courtroom; in fact, it may be more useful in certain administrative proceedings. The ability of a party invoking the Doctrine during an administrative proceeding is far greater than in a courtroom. Typically,

76. *Id*. (Most notably, the use of masks versus bandannas. While not incredibly different, it is a marked disanalogues and with only a single prior incident the degree of analogy needs to be significant.).

77. Lucero v. Valdez, 204 F.R.D. 591 (D. N.M. 2007).

78. *Id*. at 591.

79. *Id*. at 592.

80. Lucero v. Valdez, No. 05-0601 JP/WPL, Slip op., 2006 WL8443580 (D. N.M. Oct. 30, 2006).

81. *Id*.

82. E.g., evidence of a feud between the parties.

rules of evidence explicitly delineate what proceedings they are applicable to, and conspicuously absent in those lists are administrative hearings.[83] Furthermore, courts have affirmed the inapplicability of standard rules of evidence in administrative proceedings.[84] With this understanding in mind, as a matter of law, the Doctrine's admissibility is more likely than not. As a matter of policy, the Doctrine could be vital to asserting some cause of action in an administrative hearing and thus, the admissibility is good and ought to be, at least in some contexts, *sue sponte* admitted by the administrative body.[85]

The usage of the Doctrine in administrative proceedings is best exemplified in administrative hearings where: (1) the hearing involves a vulnerable class or individual; (2) the hearing involves a power imbalance or specifically situated individual, such that a party's testimony is given substantially less weight than the opposition; (3) due to the context or subject matter of the hearing, alternative forms of evidence are difficult or impossible to attain; or (4) some combination of the above. The most illustrative of these factors are hearings for inmate grievances and police conduct complaints.

The Oklahoma Department of Correction (hereinafter D.O.C.) specifically enumerates eleven grounds for inmate grievances.[86] Of

83. *See* Fed. R. Evid. 1101(a) (specifying Rules applicable to *Courts* and *Judges*); Fed. R. Evid.1101(b) (specifying Rules applicable to Civil, Criminal, and Contempt cases or proceedings); and OKLA. STAT. tit. 12, § 2013(A) (specifying Rules applicable in both criminal and civil proceedings *conducted by or under the supervision of a court*).

84. *E.g.*, Barnes v. University of Oklahoma, 1995 OK CIV APP 14, ¶ 18, 891 P.2d 614, 618 ("Furthermore, the strict rules of evidence are not necessarily applicable to an administrative hearing."); Gallagher v. National Transp. Safety Bd. 953 F.2d 1214 (10th Cir. 1992) (quoting 5 U.S.C. § 556(d) (2012)) ("The standard for admission of evidence in an agency proceeding is found in the Administrative Procedures Act and allows '[a]ny oral or documentary evidence' except 'irrelevant, immaterial, or unduly repetitious evidence.'").

85. The calculous for admissibility in administrative context should also change. In criminal trials, at issue is the defendant's life or liberty which justifies the intricate calculous and relatively high burden of admissibility. In administrative hearings, the stakes can be far lower. Here, the reviewing body ought to use a balancing test, weighing the significance of the right or privilege asserted and ability to assert claim without the doctrine against the Doctrine's inherent pitfalls and the risk and severity of erroneous decision.

86. Inmate/Offender Grievance Process OP-090124, State of Oklahoma Department of Corrections at IV(A)(1)-(11), http://doc.ok.gov/Websites/doc/Images/Documents/Policy/op090124.pdf [https://perma.cc/26KK-XB24] (Discrimination, Classification, Complaint against staff, Conditions of Confinement, Disciplinary Process, Legal, Medical, Property/Trust Fund, Records/Sentence Administration, Religion, and Personal Identity).

particular note is number three—complaints against staff—in which all three of the enumerated factors are present.[87] As an inmate in a correctional facility, the petitioner is a member of a vulnerable class with limited access to resources and limited freedom, which also satisfies the third factor of difficulty attaining alternative evidence. As the inmate is already serving a sentence for criminal wrongdoing, his or her testimony will immediately be subject to scrutiny and bias, especially when contradicted by a correctional officer (hereinafter C.O.). The C.O.'s testimony is given *prima facie* credence due to the expectation and assumption that he or she is upstanding and trustworthy with the implicit endorsement of the prison having trusted them enough to hire. In this context, the Doctrine is the best method to resolve the dispute. The reviewing body ought to *sue sponte* admit any and all prior complaints lodged against the C.O., sufficiently analogous to the present complaint to be probative. An erroneous decision against the C.O. subjects them, at worst, to unemployment. The stakes are significantly higher for the inmate as an erroneous decision could subject him or her to continued abuse.

Virtually every law enforcement agency has an administrative procedure whereby citizens can file complaints against specific officers.[88] An average citizen filing such a complaint will run into at least the second factor—a presumption of police conduct being done in good faith and pursuant to law. This presumption will give the testimony of the law enforcement officer substantial weight in comparison to the citizen's own testimony. This presumption is strong because people do not *want* to believe police officers act maliciously, negligently, or arbitrary and capriciously. In the absence of alternative evidence,[89] the Doctrine is the best way to undermine that presumption. If evidence is presented to show numerous unconnected individuals have lodged similar complaints against the officer in question, the probability of culpability of some kind is increased.

### *Philosophical Rationale*

Prior to the application of the Doctrine, there are three matters of

87. *Id*.

88. *Reporting Police Misconduct*, PERL, https://www.enforcerapelaws.org/resources/victims-rights/formal-complaints-against-memphis-police/ (last visited Feb. 11, 2020).

89. E.g., altercation being videotaped.

inductive logic[90] to explore: arguments from analogy, causation, and probability. This is necessary in order to understand and explain the presupposition of the Doctrine that improbable events will likely not repeat unless deliberately caused. In order to analyze this, it is necessary to show that the two circumstances are sufficiently similar (analogy), that the suspect has a potential role to play in the events (causation), and that the event is unlikely to occur (probability).

The basic formulation of an argument by analogy is to take two situations and break them down into discrete factors[91] to compare. Factors in which they resemble each other are analogues and factors in which they do not are disanalogues. The greater the ratio of analogues to disanalogues, the stronger the analogy and by extension the stronger the argument.[92] While seemingly intuitive, this step can be rather tricky as it is not sufficient to simply count and compare analogues and disanalogues. Rather, "[t]he crucial question is whether the compared objects resemble (and differ from) one another *in relevant respects*, that is respects that are relevant to possession of the inferred resemblance."[93] *Relevant respects* is difficult to define but can be approximated as a factor having some causal relation to, or consisting of a necessary part of, the effect.[94]

This type of analysis is useful for other purposes besides identifying the similarity of events for statistical analysis. For example, an alternative inference of probability can be made based solely upon an argument from analogy. The argument takes the following form:

1. *A, B, C,* & *D* have characteristics *e*, *f*, *g*, and *h*.
2. *E* also has characteristics *e*, *f*, *g*, and *h*.

90. Jaaka J. Hintikka, *Applied Logic, Applications of Logic*, ENCYCLOPEDIA BRITANNICA (Oct. 11, 2016) ("Inductive reasoning means reasoning from known particular instances to other instances and to generalizations.").

91. The more specific the factors, the better the analysis. For example, "losing a loved ones to a tragic accident three times" is technically accurate but far less useful than "losing a wife by drowning in the bath tub in three consecutive marriages" *See* Rex v. Smith, [1914-1915] All ER 262 (Eng.).

92. Sufficiently strong analogues could lead to an inference of *Modus Operandi*, which can be characterized as a specific sub-category of the Doctrine whereby the exact circumstances and pattern of a crime are repeated with such precise specificity that it is bordering on the impossible that anyone else could have committed the crime.

93. Martin Golding, *Argument by Analogy in the Law*, ANALOGY AND EXEMPLARY REASONING IN LEGAL DISCOURSE 123, 124 (Hendrik Kaptein & Bastaan van der Velden eds., Amsterdam University Press, 2018) (emphasis added).

94. *Id*. at 162.

3. *D* also has characteristic *k*.
4. Having characteristics *e*, *f*, *g*, and *h* is relevant to having characteristic *k*.
5. Therefore, *E* will probably also have characteristic *k*.[95]

With "*A*", "*B*","*C*", "*D*", and "*E*" being events and "*e*", "*f*", "*g*", "*h*", and "*k*" being discrete factors in those events. For example, let "*A*", "*B*", "*C*", "*D*", and "*E*" be arson cases, "*e*", "*f*", "*g*", "*h*",[96] and "*k*" are geographic area, accelerant, method of ignition, time of fire, and suspects involvement respectively. *K* is a causal factor, its presence in *D* started the fire. With *e* through *h* being relevant factors that are identical in both circumstances, the inference that *k* is present in *E* is strong. This type of inference is called *Modus Operandi* (hereinafter *M.O.*), a legal term of art denoting a particular *signature* crime;[97] but, in reality, this is simply a particular sub-species of the Doctrine. This is an analogical equivalent to the statistical variant that is discussed below. The idea is that the crimes mirror each other with such exactness that it is preposterous to think anyone else committed the crime. This is, of course, untrue.[98] Given access to the crime records and time, anyone could theoretically imitate an *M.O.*, but it is far more probable, in the absence of countervailing evidence, to link the prior criminal with this crime.

Correlation does not equate to causation. To demonstrate this, one can point to the strong statistical correlation between crime rate and ice cream—as a general rule, the more ice cream that is sold the higher the rate of crime.[99] However, it is absurd to say that ice cream sales somehow cause crime because there is no conceivable causal mechanism by which one could cause the other. Therefore, it is apparent that there is a distinct

95. Luis Duarte d'Almeida & Cláudio Michelon, The Structure of Argument by Analogy in Law 1, 1 (University of Edinburgh School of Law Research Paper Series, 2017).

96. The inference is greatly strengthened with the proliferation of discrete factors; if one were to add "*a*", "*b*", "*c*", and "*d*" to the list, the inference to "*k*" would be strengthened exponentially, rather than linearly, and would increase the potency of the analogy.

97. *Modus operandi*, BLACK'S LAW DICTIONARY, (10th ed. 2009) ("[a] pattern of criminal behavior so distinctive that investigators attribute it to the work of the same person . . . .").

98. The phenomena of "copycat criminal" shows that specific *M.O.*'s, especially highly publicized ones, can (and will) be replicated by dedicated criminal enterprises intent upon doing so. *See* Ray Surette, *Copycat Crime and CopyCat Criminals: Concepts and Research Questions*, J. OF CRIM. JUST. & POP. CUL. 1, 50. (2016).

99. Rebecca M. Warner, Applied Statistics 315, 417 (Vicki Knight et al,. 2d ed. 2013).

difference between two things being *correlated* and two things being directly *causally connected*.

Regarding the investigation of causal connections, the Nineteenth Century British philosopher John Stuart Mill framed the modern discourse on the topic with his Five Canons—the methods of: Agreement, Disagreement, Indirect Difference, Residue, and Concomitant Variations.[100] The first Canon states that "[i]f two or more instances of the phenomenon under investigation have only one circumstance in common, the circumstance in which alone all the instances agree, is the cause (or effect) of the given phenomenon."[101] Put more plainly, take two or more instances of an occurrence and find what they all have in common to determine what is causally acting. The inverse of this is the second Canon which states that "[i]f an instance in which the phenomenon under investigation occurs, and an instance in which it does not occur, have every circumstance in common save one, that one occurring only in the former; the circumstance . . . which alone the two instances differ, is the effect, . . . cause, or [a necessary] part of the cause, of the phenomenon."[102] In essence, these differ only in which direction the problem is looked at, the first by enumeration and the latter by elimination. The third Canon by which causal connection could be inferred is really no more than a combination of the first two:

> [i]f two or more instances in which the phenomenon occurs have only one circumstance in common, while two or more instances in which it does not occur have nothing in common save the absence of that circumstance, the circumstance in which alone the two sets of instances differ, is the effect, or the cause, or [a necessary] part of the cause, of the phenomenon.[103]

The final two Canons are more complex. The fourth states that if one subtracts "from any phenomenon such part as is known by previous

100. John Stuart Mill, *A System of Logic, Ratiocinative and Inductive, Being a Connected View of the Principles of Evidence, and the Methods of Scientific Investigation*, 478, 478-83, 489-98 (Project Gutenberk EBook, Jan. 31, 2009 EBook 27942) (1882). It is obviously true that more research has been done, and many more arguments made, since the time of Mill; however, for the purposes of this Note the foundational work of Mill is more than sufficient.

101. *Id*. at 482.

102. *Id*. at 483.

103. *Id*. at 489.

inductions to be the effect of certain [causes], [then] the residue of the phenomenon is the effect of the remaining [cause]."[104] In laymen's terms, this means that in order to find the specific effects of a cause, one first dismisses any known effects of an alternative cause—that which is left of the phenomenon in question after doing so is the effect of the cause one is investigating.[105] Finally, the fifth Canon states "[w]hatever phenomenon varies in any manner whenever another phenomenon varies in some particular manner, is either a cause or an effect of that phenomenon, or is connected with it through some fact of causation."[106] Variations in some phenomenon that correspond to variations in another indicate the two are causally connected *in some way*. Either by cause-and-effect (directly connected) or by variations in some common cause (indirectly connected).

To return to the frivolous example above regarding the correlation between ice-cream sales and murder rates, there are two seemingly independent phenomena that are strongly correlated. Therefore, by applying the fifth Canon (Method of Concomitant Variation), a causal connection can be inferred. The correlation is most likely attributable to a common cause, variations of which result in similar variations in both ice-cream sales and murder rates. Since this correlation is independent from other factors, any and all socioeconomic or geographic causes can be subtracted (fourth Canon of Residue). If we separately analyze the two phenomena using the third Canon (Method of Indirect Difference) the frequency of both phenomena are causally connected to temperature variations which, unlike the two phenomena in question, are causally disconnected from human agency. Therefore, both ice-cream sales[107] and crime rates[108] are causally affected by temperature and thus correlated due to a common cause.

While this may seem unimportant and arcane, it is of crucial importance for the application of the Doctrine. In order for the Doctrine to be applicable, some causal connection must be attributable to an agent. The base-line lifetime odds of being struck by lightning are small—the

104. *Id*. at 491.

105. For example, when trying to isolate the effect of recidivism, further discussed below, researchers will identify other causes (such as socioeconomic status) and subtract the statistical effects thereof in order to analyze the effects of prior criminal history (the cause).

106. Mill, *supra* note 100, at 495-96.

107. Warner, *supra* note 99.

108. Simon Field, *The Effect of Temperature on Crime*, 32 BRIT. J. CRIMINOLOGY 340, 351 (1992).

National Oceanic and Atmospheric Administration estimates it as roughly 1:15,300.[109] Yet, there has been at least one reported case where an individual was struck seven separate times.[110] The odds of that occurring are 1:1.41 *octillion*.[111] This is a perfect example of accidents derived from random acts of chance with odds that are vanishingly small and would make for a perfect application of the Doctrine were it not for the fact that no mortal agent has any causal role in the random striking of lightning. It does not matter how unlikely an event occurring is if the occurrence of that event is causally disconnected from agency of individuals.

More pointedly, causal relations are vital for determining relevant factors to consider as analogues or disanalogues which is a necessary step to apply the Doctrine and, for *M.O.*, the entire basis of the inference to design. It is also the case that a causal analysis may itself be the basis for the inference to design from a typical probabilistic approach. Suppose there were nine major fires over a year in various parts of the country. Now being in geographically and socio-economically diverse areas spread out over four seasons, it appears that all circumstances differ between each fire. However, suppose also that the presence of a particular individual remains a constant in each fire—the fire took place in each case within the window of time the individual was in the area. Now, by using Mill's Method of Agreement,[112] we can infer the individual in question was causally connected to the fires from which point the Doctrine can be applied by finding the base-line probability of major fires occurring in cities or suburbs and then applying the factors identified to the odds that the one particular individual could innocently cause nine separate, major fires.

Relevant for present purposes, there are three types of probability theories that factor into different respects of the Doctrine.[113] First,

109. *How Dangerous Is Lightning?*, NATIONAL WEATHER SERVICE, https://www.weather.gov/safety/lightning-odds [https://perma.cc/9PM6-E6YC] (last visited Nov. 18, 2019).

110. Tom Dunkel, *Lightning Strikes: A Man Hit Seven Times*, WASHINGTON POST (Aug. 15, 2013), https://www.washingtonpost.com/lifestyle/magazine/inside-the-life-of-the-man-known-as-the-spark-ranger/2013/08/15/947cf2d8-ea40-11e2-8f22-de4bd2a2bd39_story.html [https://perma.cc/G23E-TUN5].

111. To put that into perspective, it is roughly 14.3 quadrillion times the estimated total population of humans to ever live. *See* Carl Haub, *How Many People Have Ever Lived on Earth?*, POPUL. TODAY, Feb. 1995 at 5.

112. Mill, *supra* note 100.

113. The import of different theories of probability is that different theories are applicable to different aspects of the Doctrine. Frequentism is needed to establish the base-

*Frequentism*, holds the position that there is a 1:1 correlation between statistics and probability.[114] That is, that the probability of something happening is nothing more than proportion of its occurrence to the relevant sample size.[115] This theory is used in determining base-line statistical frequency to determine whether an event is sufficiently improbable for the Doctrine to have any legitimate probative value.[116] The biggest problem in this theory is the so-called *reference class problem*—the value of statistics varies drastically with how the parameters of the class is defined. The more specifically tailored, or finely tuned, the class is, the more valuable the statistical data is. Unfortunately, there can be problems in narrowing the parameters of the class. One incredibly valuable factor in statistical analysis for probability of criminal enterprise is a prior criminal history—recidivism rates are much higher than rate of crime in general.[117] Furthermore, the specific class of crime committed is highly indicative of the likelihood to re-offend.[118] For example, compare recidivism rates of property offenders (82.1%) with violent offenders (71.3%).[119] However, to consider these factors is the very definition of propensity reasoning—factoring in prior criminal history by definition asserts that the defendant is more likely to commit a crime because he has in the past.

Secondly, the Classical Probability theory holds that the odds of an event are divided equally into each possible outcome.[120] Under this approach, the odds of an occurrence are determined by reducing all possible events to a number of equally probable outcomes. This approach is used to ascertain the *a priori* probability that a crime has occurred.[121]

line probability for initial showing, classical probability is used when evaluating the likelihood of criminal culpability, and Bayesianism is used to compare relative probabilities of alternative inferences.

114. Alan Hájek, *Interpretations of Probability*, THE STANFORD ENCYCLOPEDIA OF PHILOSOPHY, https://plato.stanford.edu/archives/win2012/entries/probability-interpret/ [https://perma.cc/FN9U-YZ93] (last updated Aug. 28, 2019).

115. This is amply illustrated with the example of recidivism below. To say there is an 82.1% chance of property offenders re-offending is saying nothing more than 821 out of 1000 property offenders will re-offend.

116. This is typically the end of the probabilistic inquire.

117. *Recidivism*, NATIONAL INSTITUTE OF JUSTICE, https://www.nij.gov/topics/corrections/recidivism/pages/welcome.aspx#statistics [https://perma.cc/V823-SL59] (last visited Mar. 4, 2019).

118. *Id*.

119. *Id*.

120. Hájek, *supra* note 114, at 32.

121. See truth tables below.

Finally, there is the so-called *Subjective Conditional Probability* approach.[122] This approach is used to determine the relative probabilities of competing alternative inferences. Under this theory, probability is ascertained by using prior knowledge to determine the probability of an event assuming that another has occurred.[123] This is best described as degrees of belief rather than firm numbers. The theory is best articulated using the Bayesian Theorem which takes the following form: "The probability of event 'A' given fact 'B' = [the probability of 'A' divided by the probability of 'B'] multiplied by the probability of 'B' given 'A'".[124] The probability of "A" predicated upon some fact "B" is equal the probability of "A" divided by the probability of "B" multiplied by the probability of "B" predicated upon "A". In less abstract language, this means the conditional probability of "A" occurring is equal to the quotient of "A's" antecedent probability and "B's" antecedent probability multiplied by the probability of "B's" existence given "A" with "B" being a body of evidence.[125]

Returning to the illustration above of Michael Peterson's case, I will analyze it in light of the identified factors and the doctrinal applicability adduced above.[126] The first step is to ascertain the base-line probability of dying from falling down the stairs. According to the National Safety Council, the life-time odds of dying by falling down stairs is 1:1,662.[127] This cause of death is not wildly uncommon, nor can it be characterized as a routine—the judge would be well within his discretion to accept this base-line as sufficient to overcome the initial burden. Having met the initial burden, we turn to the enumerated factors: (1) the specificity of circumstances; (2) the net number of significant analogues; (3) the number of prior incidents; (4) the number of viable alternative inferences; (5) the relative probability of those alternative inferences; and, (6) the causal connection between the suspect and the event.

The circumstances are relatively specific in that in both cases the

122. Hájek, *supra* note 114.

123. *Id.*

124. Trefor Bazett, *Intro to Conditional Probability*, YOUTUBE (Nov. 18, 2017), https://www.youtube.com/watch?v=ibINrxJLvlM [https://perma.cc/5CC9-T6AF] (Symbolically: $(P(A|B) = \frac{P(A)}{P(B)} P(B|A))$).

125. *Id*.

126. *See supra* Part III.

127. *Odds of Dying Details*, NATIONAL SAFETY COUNCIL, https://injuryfacts.nsc.org/all-injuries/preventable-death-overview/odds-of-dying/data-details/ [https://perma.cc/U94G-G4GA] (last visited Mar. 4, 2019).

individual was found dead at the bottom of the stairs. There are a number of significant analogues in both cases: Michael Peterson was the last person to see the deceased; the deceased female had a pre-existing relationship with Mr. Peterson; the decedents suffered traumatic head injuries; and the decedents were allegedly alone at the time of the accident.[128] These two factors weigh in favor of admissibility; however, from thereon, the weight substantially shifts. While not determinative, having only a single prior incident does weigh against the admissibility; "[o]nce is happenstance[, t]wice is coincidence[, t]he third time it's" a pattern.[129] More significantly, there are several alternative inferences that can be drawn to explain both (or either) incident. The fall(s) could have resulted from: tripping; seizure; collapse; stepping on something unstable; startled by something; or suicide. These alternative inferences vary in degree of probability, but, with the possible exception of suicide, none of them seem too outlandish. Furthermore, if we look at a truth table,[130] we see that *a priori* chances of homicide in classical probability are half.[131]

| | | | | |
|---|---|---|---|---|
| 1 | Yes | Yes | No | No |
| 2 | Yes | No | Yes | No |

[132]

As demonstrated here, there are four possible series of events to be inferred: both could be homicide; the first death could have been homicide but not the second; the second death could have been homicide but not the first; or neither were homicide. While the odds of the event may be high enough to overcome the initial burden, the probability of foul play from a classical analysis reveals it is equally likely that the charged crime was accidental under the Doctrine. Finally, with respect to the causal connection between the suspect and the event, there was at least some indication that Ms. Ratliff's fall was caused by a brain hemorrhage which would be causally disconnected from Mr. Peterson.[133] Therefore, the court

128. *The Staircase* (Netflix 2018).

129. Edward J. Imwinkelried, *An Evidentiary Paradox: Defending The Character Evidence Prohibition By Upholding A Non-Character Theory Of Logical Relevance, The Doctrine Of Chances*, 40 U. RICH. L. REV. 419, 419 (2006) (quoting Ian Fleming, *Goldfinger* (1982)).

130. Truth analysis for the proposition of homicide.

131. Equivalent to odds of 1:2.

132. The rows are representative of discrete instances and the columns are the possible outcomes (in this case, "yes," the death was homicide, or "no," the death was not homicide).

133. The Staircase: Imperfect Justice (Netflix 2018).

erred in permitting evidence of the prior death to be admitted.[134]

Returning to the suspected bridal drownings in *Rex v. Smith*,[135] it can be analyzed similarly using the identified factors. The first step is to determine *a priori* probability of drowning in the bath. The National Safety Council gives a lifetime odd of 1:8,078[136] for accidental deaths by drowning in the bathtub.[137] This is infrequent enough to satisfy the base-line probability threshold to overcome the initial burden. Once again, we now turn to the enumerated factors: (1) the specificity of circumstances; (2) the net number of significant analogues; (3) the number of prior incidents; (4) the number of viable alternative inferences; (5) the relative probability of those alternative inferences; and, (6) the causal connection between the suspect and the event.

The circumstances are highly specific—accidental death by drowning in a bathtub. Furthermore, there are a number of significant analogues. In each case the defendant was purportedly married to the deceased, the deceased allegedly died while bathing, the deceased were found in similar circumstances, and they all left the defendant with monetary gain.[138] These two factors strongly weigh in favor of admission. With two prior incidents, bringing the total to three, the inferential value is far stronger than in a case with only a single prior instance. This factor weighs in favor of admission but less strongly than the previous two factors—a single prior incident weighs against admission, an additional instance is more than sufficient to flip the balance but not enough to provide substantial weight towards admission. The list of alternative inferences is relatively constrained because the deaths had to result from either homicide, suicide, or some sort of seizure leaving the decedent unconscious. That three women connected to the defendant happened to have seizures while in the bath and drowning is, arguably, more improbable than the defendant killing

134. At least with regard to the Doctrine, a more convincing argument, irrelevant for the purposes of this paper, was made on the ground of indicative of knowledge. That argument was that because Mr. Peterson saw someone die at the bottom of the stairs and saw what the aftermath was, he had the idea to recreate it.

135. *See* Rex v. Smith, [1914-1915] All ER 262 (Eng.). *See also supra* Part III.

136. It is worth noting that this statistic is skewed. A more accurate analysis would involve a far more narrowed reference class—the odds of an *adult woman* drowning in a bathtub or, with even greater precision, the odds of an *adult woman* in *1915 London* of drowning in the bath; however, for the purpose of this illustration, the less constrained reference class odds will be sufficient.

137. NATIONAL SAFETY COUNCIL, *supra* note 127.

138. George Fisher, Evidence 195 (Thomas Reuters/Foundation Press, 3rd ed. 2013).

them.[139] Suicide is intuitively more probable; however, the problem is suicide does not *necessarily* absolve the defendant.[140] If the defendant was causally connected to the suicide (i.e. he drove them to do it), then he could be liable for manslaughter. Three "wives" all committing suicide provides a fairly strong basis to infer some causal connection between the three—that connection would be the defendant. In sum, the alternative inferences are limited, and it is dubious at best that the odds of the alternative exceed (or even equal) the odds of the criminal liability. A truth table demonstrates classical probability of homicide is half.[141] The rows are demonstrative of alternative instances of death and the columns are the two possibilites (homicide or not).

| 1 | **Yes** | **Yes** | **No** | **No** | **Yes** | **No** | **Yes** | **No** |
|---|---|---|---|---|---|---|---|---|
| 2 | Yes | No | Yes | No | No | Yes | Yes | No |
| 3 | Yes | No | No | Yes | Yes | Yes | No | No |

Finally, with respect to causal connection between the suspect and the event, the suspect was the only common factor for all three instances leading to a strong causal inference by the *Method of Agreement*.[142] Whether this causal role was murder or manslaughter by driving the victims to suicide (or a combination thereof) is immaterial. To summarize, the odds are easily significant enough to warrant judicial ruling of satisfying the initial burden, the specificity, the net number of analogues, the number of repetitions, the number and relative probability of alternative inferences, and the causal inference all support admission. The judge was correct in admitting the evidence of other deaths under the Doctrine.

### *Test Scenarios*

In order to effectively evaluate this understanding of the Doctrine,

139. Or at least not substantially less likely.

140. *See* MODEL PENAL CODE § 210.5(2) (AM. L. INST. 1985) ("Aiding or Soliciting Suicide as an Independent Offense. A person who purposely aids or solicits another to commit suicide is guilty of a felony of the second degree if his conduct causes such suicide or an attempted suicide, and otherwise of a misdemeanor."); Carla Zavala, *Manslaughter by Text: Is Encouraging Suicide Manslaughter?*, 47 SETON HALL L. REV. 297, 311-12 (2016).

141. Observant readers may note that this will always be the case, while the odds of no crime having been committed (with two instances, 1:4. With three instances, like here, it becomes 1:8, etc.) exponentially decrease with the increase of incidents, the ratio of occasions in which the current event is criminal will remain 1:2.

142. Mill, *supra* note 100.

several hypothetical scenarios in which the Doctrine is arguably applicable to determine if the perspective advanced provides some clarification to, or furthers the understanding of, the common application to the Doctrine. Three hypotheticals will be provided, including both prosecution and defense usage, in which the applicability would be arguable. The specificity of circumstances, the net number of significant analogues, the number of prior incidents, the number of viable alternative inferences, the relative probability of those alternative inferences, and the causal connection between the suspect and the event will be analyzed to determine if evidence should be admissible under the Doctrine.

One potential application of the Doctrine would be in a case of arson. Suppose there is a defendant who is charged with arson connected with a wildfire in the forests of California. Prior to this the defendant had been (independently) investigated for connections to two other wildfires. The prosecution seeks to admit these past occurrences under the Doctrine. Wildfires in California occur surprisingly frequently. The California Department of Forestry and Fire Protection gives a five-year average of 5,756 separate fires with a total of 233,483 acres impacted.[143] That works out to an average of 110.7 fires a week covering approximately 0.2% of the total land mass. Assuming the defendant lives in a mountain town near forests where fires are most prevalent, the probability of being connected with three fires over the course of a lifetime is not so improbable as to grant much probative value. Due to the high base-line frequency for wildfires, especially in the geographic area, the judge should hold the prosecution was unable to meet his or her initial burden and not allow evidence of prior fires under the Doctrine. The prejudicial affect will far outweigh any marginal probative-ness on the basis of probability.

A second possible scenario involves a widow who has lost three husbands in tragic circumstances. All three of the deceased husbands perished in skydiving accidents while on vacation. She borrowed parachutes from her brothers, who were pilots, every time to save money. She has been charged with the murder of the most recent death and the prosecution seeks to admit the prior two deaths under the Doctrine. The chances of dying in skydiving accident have been estimated at 1:100,000.[144] Such odds are sufficiently slim to justify passing the initial

143. *2018 Statistics and Events*, CAL. DEP'T OF FORESTRY AND FIRE PROTECTION, https://fire.ca.gov/stats-events/ [https://perma.cc/GLA2-WA9V#collapse-702e1e1c-20c6-430b-9985-3d80a3607f07] (last visited Mar. 4, 2019).

144. *Wingsuiting Risk*, WINGSUIT FLY, http://www.wingsuitfly.com/risk/4572000812

burden to admit the evidence, so the identified factors must be analyzed.

First, the circumstances are fairly specific: jumping out of a plane with a parachute with the intent to free-fall for a time before pulling chute to slowly fall the remainder of the way—this weighs in favor of admittance. Barring negligible differences in altitude and wind speed, the three incidents are virtually identical, so there are a high number of significant analogues weighing in favor of admittance. With only two prior incidents, there is no substantial increase in admissibility although it certainly does not weigh against it. The viable alternative inferences become a little tricky because there are several: (1) the widow murdered the husband(s); (2) the husband(s)' deaths were tragic accidents; (3) the husband(s)' deaths were a result of sabotage by some third party (e.g., brothers); (4) the husband(s) committed suicide; or (5) some combination of the above. An additional trouble here is that three alternative causal inferences can be made: (1) she was the cause or a necessary condition; (2) her brothers were the cause or a necessary condition; or (3) both were causes and necessary conditions. Given that there are two circumstances in common with each incident and that these circumstances never occurred in the absence of each other, it is impossible to eliminate any of these inferences. From the standpoint of classical probability there are six options, only two of which point towards the widow: (1) foul play on the part of the widow; (2) foul play on the part of the brothers; (3) foul play on behalf of both the widow and the brothers; (4) suicide; (5) incompetence on behalf of the brothers; or (6) innocent accidents. In the absence of apparent motives, all that remains is a Bayesian calculus for different alternative inferences. Given two prior deaths, what are the chances that she would go skydiving again if she were innocent? Intuitively, that seems fairly slim unless it was an agreed upon cover for husbands to commit suicide without devastating family by knowing they killed themselves. This is a close case and ultimately the judge would not abuse discretion by deciding either way. There are a number of strong factors weighing in favor of it, but the plurality of causal chains and alternative inferences provide support for a decision to exclude. This Author would assert that the case for admittance is stronger and the judge should permit the evidence in under the Doctrine.[145]

[https://perma.cc/8QT4-88V2] (last visited Mar. 4, 2019).

145. *See generally*, Jenny Kleeman, *He Has the Traits of a Psychopath: The Inside Story of the Parachute Murder Plot*, THE GUARDIAN (July 14, 2018 3:00 EDT), https://www.theguardian.com/uk-news/2018/jul/14/emile-cilliers-psychopath-inside-

A final hypothetical is the sale of counterfeit tickets.[146] An individual has been arrested for selling counterfeit tickets to some concert or event. He pleads not guilty and proffers the defense that he did not know the tickets were fake because he bought them off of a resale website. Under the Doctrine, the prosecution seeks to admit evidence of a prior incident in which the defendant was caught selling counterfeit tickets the year before. The prosecutor argues that it is objectively improbable that an innocent individual would be caught associated with the sale of counterfeit tickets twice in two years. After the prosecution successfully shows the base-line frequency of counterfeit purchases is low enough to merit considering under the doctrine, the court turns to factors. The circumstances are reasonably specific and analogous. In both incidents he allegedly purchased fake tickets off of a resale site which he then took to the venue to sell to anyone looking for tickets; therefore, this factor weighs in favor of admission. With only a single prior incident, the number of prior incidents factor weighs strongly against admission.[147] With only two incidents and the relatively banal nature of the criminal enterprise the defendant is accused of, the number of alternative inferences is quite small: he innocently purchased the tickets from a resale site or he intentionally attempted to sell counterfeit tickets. Without reference to any prior criminal history or any other such propensity latent data points that would refine the reference class, there is no real reason to suppose one is more probable than the other—arguably it is more probable that it was done intentionally as it happened twice, but that argument does not bear much weight. Due to the single prior incident and the lack of meaningful distinction in the alternative inferences, the evidence should not be admitted.

## VII. CONCLUSION

The Doctrine is a potentially valuable tool available to both

story-parachute-murder-plot [https://perma.cc/7WTP-VC7L] (loosely inspired by the murder case of Emile Cilliers, in Winchester Crown Court UK: In this case Emile Cillier sabotaged his wife's parachute in an unsuccessful attempt to kill her. During trial, suspicion was cast upon him for the only similar incident—the death of Stephen Hilder who fell to his death after both his main and backup parachutes failed to deploy).

146. Which, per definition in M.P.C., would be forgery. *See* MODEL PENAL CODE § 224.1(1)(a) (AM. L. INST. 1985).

147. Imwinkelreid, *supra* note 129, at 419 ("Once is happenstance[,] [t]wice is coincidence[,] [three] time[s] it's . . ." a pattern.).

prosecution and defendants in criminal trials; however, courts must be very careful when applying it. With the inherit prejudice latent within prior incidents of similar types, courts must be diligent to ensure that any prior incidents admitted to the jury under the Doctrine provides substantive probative value by first serving as a gatekeeper to prevent banal coincidences from being offered into evidence. In order to be eligible, the occurrence(s) must be objectively improbable, and this burden should be enforced. Should the evidence meet that burden courts should consider several factors: (1) specificity of circumstances; (2) net number of analogues; (3) the number of prior incidents; (4) the number of viable alternative inferences and relative probability thereof; and (5) the causal connection between the suspect and the event.

The Doctrine is also potentially invaluable to certain types of administrative proceedings, such as inmate grievances and police complaint hearings. Due to the lower stakes, specific vulnerability of complainant, and lack of alternative evidentiary means, the reviewing body should be lenient in admitting pertinent evidence of analogous prior complaints.