Criminal Law - Evidence of Inactive Drug Metabolites in DUI Cases: Using a Proximate Cause Analysis to Fill the Evidentiary Gap between Prior Drug Use and Driving under the Influence

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I. INTRODUCTION

David was pulled over one morning for speeding.\(^1\) His speech was slurred and his eyes were bloodshot.\(^2\) The police officer administered a breathalyzer test and it yielded a .00 blood alcohol content reading.\(^3\) The officer then took David to a hospital where, approximately ninety minutes later, a blood sample was taken.\(^4\) A cocaine metabolite known as benzolectamine was found in David’s blood.\(^5\) This metabolite was evidence that David had ingested cocaine at some point in the past.\(^6\)

A certified drug recognition expert concluded that, while David was not under the pharmacological influence of cocaine at the time of driving, he was experiencing a “rebound effect” from a cocaine high.\(^7\) On June 28, 2007, the appellate division of the Superior Court of New Jersey used this concept of a “cocaine hangover” to secure David’s conviction for driving under the influence (DUI).\(^8\) The court held that David’s prior ingestion of cocaine had caused his “cocaine hangover,” and thus had proximately caused his impaired driving.\(^9\) No consideration was given to either the quantity of cocaine metabolites found in David’s blood, or the amount of time that had passed since his ingestion of the cocaine.\(^10\)

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2. Id.
3. Id.
4. Id.
5. See John P. Apol & Stacey M. Studnicki, Criminal Law for the 2005–2006 Term, 53 Wayne L. Rev. 183, 192 (2007) (examining two Michigan DUI cases that were consolidated on appeal, under the name People v. Derror, to consider the evidentiary significance of marijuana metabolites). See also Jason Dimitris, Life After Law School: Experience in the Miami-Dade County State Attorney’s Office, 29 Stetson L. Rev. 1303, 1309–10 (2000) (briefly discussing a DUI Florida case involving cocaine metabolites, as an example of the wide variety and complexity of cases prosecuted in Miami-Dade County). See also People v. Derror, 706 N.W.2d 451, 454 (Mich. Ct. App. 2005) (considering expert testimony that the presence of marijuana metabolites in the defendant’s blood is an indication that the defendant used marijuana at some point in the past), rev’d on other grounds, 715 N.W.2d 822 (Mich. 2006).
6. Franchetta, 925 A.2d at 747.
7. Id. at 746.
8. Id. at 749.
9. See id. at 745.
The Arkansas legislature should take heed of the Driving Under the Influence of Drugs (DUID) legislation in Nevada, Ohio, and Virginia, under which specific quantitative levels of various controlled substances or their metabolites must be detected in order to create a \textit{per se} presumption of impairment.\textsuperscript{11} This legislation stops juridical bias and over-reaching judicial interpretation at the courthouse doors. Arkansas needs to enact a law mimicking those of Nevada, Ohio and Virginia, to the extent that they specify detectable amounts of controlled substances and their active metabolites.\textsuperscript{12} However, an Arkansas law should explicitly exclude pharmacologically inactive metabolites from the realm of possible evidence.

The first section of this note examines the evidentiary problem that drug metabolites pose. The background section will take an in depth look at drug metabolites, and consider the reliability of different drug-testing procedures. It will then look at the Arkansas Rules of Evidence and examine how metabolites are typically used as evidence in the courtroom. Next, the questionable decisions of \textit{ERC Contractor Yard & Sales v. Robertson} \textsuperscript{13} and \textit{State v. Franchetta} \textsuperscript{14} will be compared. The note will also examine a controversial decision of the Supreme Court of Michigan in \textit{People v. Derror}.\textsuperscript{15} The section will close with a look at the current Arkansas DUI law, as compared to the laws of Nevada, Ohio, and Virginia.\textsuperscript{16} In conclusion, this note proposes that: (1) inactive metabolites be removed from the realm of circumstantial evidence in DUI cases, and (2) the Arkansas legislature adopt a law similar to those of Nevada, Ohio, or Virginia, modified to the extent of eliminating inactive metabolites from legal consideration.

\textbf{II. THE PROBLEM}

David’s case\textsuperscript{17} was not the beginning of this line of cases. The proximate cause test was applied a few years earlier by the same New Jersey appellate court in an attempt to connect a defendant’s prior marijuana ingestion to his impaired driving.\textsuperscript{18} A marijuana metabolite was found in the de-
fendant’s urine, and a state trooper testified about the defendant’s erratic driving, slurred speech, and bloodshot eyes. Nevertheless, the court found for the defendant because there was no testimony about the effect of marijuana on the defendant. There was no testimony to link the prior drug use to the defendant’s impaired driving. The causal chain was broken.

The appellate court went on to note that the trial court record did not specify the amount of marijuana metabolites found in the defendant’s urine. Contrary to the appellate court’s reasoning, the trial judge concluded that evidence of any quantity of drug or drug metabolite was sufficient for conviction of DUI. The appellate court overruled this conclusion as creating a per se rule, where any evidence of a drug or drug metabolite automatically gives rise to a presumption of DUI.

Sixteen states have actually enacted such per se laws under the title of Driving Under the Influence of Drugs (DUID). Under these laws, any detectable amount of drugs or drug metabolites creates a presumption of impairment. Three of these states—Nevada, Ohio, and Virginia—actually specify quantitative levels of various controlled substances and their metabolites that must be detected in order to create a per se presumption of impairment.

The majority of states, however, do not have per se DUI laws for drugs. Instead, they maintain only various forms of the standard DUI law, commonly stating that it is illegal to drive (1) with a blood alcohol concent-

19. *Id.* at 1083.
20. *Id.* at 1086. This appellate court finding was reversed a year later on the grounds that testimony as to the effect of marijuana on the defendant was not needed. *State v. Bealor*, 902 A.2d 226, 236 (N.J. 2006). The Supreme Court of New Jersey argued that the evidence, when considered in the aggregate, was enough to allow a jury to infer that marijuana caused the defendant’s impairment. *Id.*
22. *See id.* at 1085–86.
23. *Id.* at 1085.
24. *Id.* at 1086.
25. *Id.*
27. Lewis & Buchan, *supra* note 26, at 35.
28. Cordova, Jr., *supra* note 26, at 571 n.12; *see Nev. Rev. Stat. Ann.* § 484.379 (West 2009); *Ohio Rev. Code Ann.* § 4511.19 (West 2009); *Va. Code Ann.* § 18.2-266 (West 2009). Throughout this note, the impaired driving laws of these three states will be referred to as DUI/DUID laws because all three contain both alcohol (DUI) and drug (DUID) provisions.
29. Cordova, Jr., *supra* note 26, at 571.
There is a specified amount of alcohol that must be present in the blood in order to create a per se presumption of alcohol impairment. There are no such specifications listed for controlled substances.

This lack of specificity leads to controversial decisions. Scientific improvements in drug testing procedures are beginning to render this imprecise language susceptible to over-reaching judicial interpretation. Unlike alco-
hol, the metabolic remnants of some controlled substances—namely cocaine and marijuana—can be detected weeks and even months after ingestion.35 Also unlike alcohol, some of the remnants are pharmacologically inactive, meaning that they have no effect on the mind or body.36 Yet, these remnants are being given varied levels of evidentiary weight toward determining whether a defendant was "under the influence" at the time of driving.37

Outside of the sixteen states that have adopted DUID laws with the per se presumption of drug impairment, judges are free to set a per se presumption of impairment at any level of drugs or metabolites detected, even at miniscule amounts, and even if the metabolites are pharmacologically inactive.38 Most judges choose to treat evidence of drug metabolites as mere circumstantial evidence that is, by itself, inadmissible in DUI cases.39 They are considered circumstantial evidence of prior drug use, and as such, they

workers' compensation to the defendant because marijuana metabolites were detected in his urine, and ignoring the defendant's testimony that he smoked marijuana seventeen days before the accident).

35. See Stevens & Addison, supra note 34, at 21 (charting alcohol as detectable in urine up to 24 hours after consumption, while metabolites of marijuana are detectable in urine up to two months after ingestion; metabolites of cocaine up to a few weeks; opiates a few days; barbiturates up to or longer than one month, etc.).

36. See Calhoun, supra note 33, at 1135 (discussing the metabolization of marijuana); see also People v. Derror, 715 N.W.2d 822, 830 (Mich. 2006) (acknowledging that the marijuana metabolite, 11-carboxy-THC, had no pharmacological effect on the defendant); State v. Franchetta, 925 A.2d 745, 747 (N.J. Super. Ct. App. Div. 2007) (acknowledging that the cocaine metabolite, benzoctamine, had no pharmacological influence on the defendant while he was driving).

37. Compare Franchetta, 925 A.2d at 749 (giving the inactive cocaine metabolite, benzoctamine, a high level of evidentiary weight—using it to both (1) show prior ingestion of cocaine, and (2) establish the prior ingestion as proximate cause of the defendant's impaired driving) with State v. McClain, 525 So.2d 420, 422 (Fla. 1988) (giving a trace amount of cocaine no evidentiary weight at all—barring the cocaine from evidentiary consideration due to its low probative value, and high risk for unfair prejudice).

38. See Calhoun, supra note 33, at 1143 (arguing that the Michigan legislature needs to specify drug and metabolite quantities in the Michigan DUI law in order to prevent the Michigan judiciary from arbitrarily legislating its own specific quantities); Hogue & Hogue, supra note 34, at 181–82 (briefly discussing how evidence of marijuana metabolites constitutes a per se violation of Georgia DUI law); Lewis & Buchan, supra note 26, at 34 (examining a Florida trial judge's belief that evidence of even a small amount of marijuana is significant for the simple reason that it provides a possible explanation for the defendant's impairment). See also People v. Derror, 715 N.W.2d 822, 836 (Mich. 2006). The Supreme Court of Michigan held that the defendant was guilty of DUI, regardless of actual impairment, because he had a marijuana metabolite in his system at the time of driving. Id. The Michigan legislature failed to specify that a person must be impaired while driving in order to be guilty of DUI. Id. at 830.

carry with them the probative value of making it more probable that the defendant was “under the influence” of the drug at the time of driving.40

What is not currently considered in the courts is the pharmacological activity of the metabolites.41 Because the metabolite of a drug is circumstantial evidence of prior ingestion of the drug itself, it is deemed to hold at least some probative value toward proving intoxication, regardless of its activity.42 It would seem that a pharmacologically active metabolite would hold more probative value than an inactive metabolite. Unfortunately, this consideration is left largely untouched43 because the concern is centered on whether a defendant is “under the influence” of a controlled substance; metabolites are not considered controlled substances.44 Thus, the mental or physical influence of a drug’s metabolite is inconsequential. Nevertheless, the metabolite of a controlled substance retains probative value toward proving that the defendant was under the influence of the drug itself at some point in the past.45

The question is how far in the past—one month ago, one week ago, or one hour ago—was the defendant was still behind the wheel of his or her car? It is at this unclear stage of the proof that some judges—like the judges of the New Jersey appellate court46—apply a proximate cause analysis.47

40. See State v. McClain, 525 So.2d 420, 421 & 423 (Fla. 1988).
41. See, e.g., Derror, 715 N.W.2d at 830; Franchetta, 925 A.2d at 207. But see Williams v. State, 710 So.2d 24, 40 n.32 (Fla. 3rd Dist. Ct. App. 1998) (Cope, J., concurring in part, dissenting in part) (“Because illegal substances may be detected in a urine test days or weeks after use . . . , it is possible for a test to be positive after all active effect of the substance has worn off. Upon a showing that the detected amount could not cause, or contribute to, the driver’s impairment, presumably the driver would be entitled to have the test result excluded.”).
42. See Franchetta, 925 A.2d at 747; People v. McAfee, 104 P.3d 226, 228 (Colo. App. 2004); McClain, 525 So.2d at 422. Contra West v. State, 553 So.2d 254, 255 (Fla. 4th Dist. Ct. App. 1989) (deciding that a trace amount of valium detected in the defendant had no probative value because it had no measurable effect on defendant’s driving).
43. See supra note 41.
44. Compare Ark. Code Ann. § 5-65-103 (West 2009) (“It is unlawful and punishable as provided in this act for any person who is intoxicated to operate or be in actual physical control of a motor vehicle.”) with Ark. Code Ann. § 5-65-102 (West 2009) (defining “intoxicated” as being under the influence or affected by a controlled substance, and defining “controlled substance” as being a drug, substance, or immediate precursor in Schedules I through IV) and Ark. Code Ann. §§ 5-64-203, 205, 207 & 209 (West 2009) (outlining what substances can fall under the respective categories of Schedule I through IV) and Timothy P. Wise, Pennsylvania’s “New Improved” Implied Consent Law—Not Just for DUI Offenders Anymore, 77 Pa. B. Ass’n Q. 121, 138 n.112 (July 2006) (noting that the Department of Health distinguishes between Schedule I through III controlled substances, and their metabolites). But see Derror, 715 N.W.2d at 831 (holding that the marijuana metabolite, 11-carboxy-THC, is a Schedule I controlled substance).
45. See supra note 42.
46. See supra Part II.
This analysis helps to bridge the evidentiary gap between driving impaired and ingesting a controlled substance at some point in the past. In David’s case, the bridge was given a name: the cocaine “hangover.”

The problem with applying the proximate cause analysis to bridge this gap is that it effectively disguises evidence of a defendant’s prior bad act as an attempt to prove an element of DUI. Unlike a positive BAC test result, which helps to show that the defendant was intoxicated at the time of the test, a positive test result for pharmacologically inactive metabolites does no such thing. On the contrary, evidence of inactive metabolites helps to show that the defendant was not intoxicated at the time of the test.

Yet, because the presence of inactive metabolites also helps to show that the defendant ingested a controlled substance at some point in the past, it gets admitted into evidence as an attempt to prove an element of DUI, namely that the defendant was “under the influence” of the controlled sub-

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48. E.g., Franchetta, 925 A.2d at 749; Bealor, 872 A.2d at 1085; Buckles, 830 P.2d at 706 (explaining why the presence of cocaine metabolites in the defendant’s system was relevant).
49. See supra Parts I–II.
50. Franchetta, 925 A.2d at 746.
51. See ARK. R. EVID. 404(b) (stating that evidence of other crimes, wrongs, or acts may be admissible to prove opportunity or preparation); see also Phavixay v. State, 373 Ark. 168, 170, 282 S.W.3d 795, 797 (2008) (stating that a prior bad act must be independently relevant to the main issue in the case, tending to prove a material element in the case, as opposed to proving merely that the defendant is a criminal). Evidence of a drug’s metabolite is evidence of prior ingestion of such drug. State v. McClain, 525 So.2d 420, 422 (Fla. 1988). The prior ingestion of the drug is a prior bad act—possession of a controlled substance—other than the one being proved—driving under the influence. But see Daniel D. Blinka & Thomas J. Hammer, Court of Appeals Digest, 71 Wis. L. 38, 38 (Oct. 1998) (recognizing the majority rule that mere presence of a controlled substance in one’s urine or blood, without more, is not sufficient to prove possession). However, this prior bad act of ingestion is useful toward proving the opportunity to be intoxicated at the time of driving. Being intoxicated at the time of driving is a material element of DUI. See ARK. CODE ANN. § 5-65-103(a) (West 2009).
52. See Cordova, Jr., supra note 26, at 591 (arguing that a positive test result for a low level of metabolites is irrelevant evidence); Calhoun, supra note 33, at 1138 (discussing the inaccuracies of drug testing techniques for cocaine); see also State v. Bealor, 902 A.2d 226, 231 (N.J. 2006) (considering the defendant’s argument that “it would be ‘a leap of faith’ to conclude that ‘having some substance in your urine [means] being under the influence of it; Brown v. Ala. Elec. Co., 60 Ark. App. 138, 149, 959 S.W.2d 753, 758 (1998) (Griffen, J., dissenting) (“It makes no more sense to call a marijuana metabolite marijuana than to call carbon monoxide gasoline.”).
53. See Edward L. Fiandach, The Offense: Drug-Influenced Operating Offenses, 1 HANDLING DRUNK DRIVING CASES § 2.8 (June 2008) (offering a direct examination during which “pharmacological activity” was defined as affecting, altering or influencing either the functioning of the brain or different organs in the body); see also Franchetta, 925 A.2d at 747; Derror, 715 N.W.2d at 830.
stance, not at the time of the test, but at the time of driving.\textsuperscript{54} Thus, the evidence of metabolites would be admitted as circumstantial evidence under one of the exceptions—opportunity or preparation—to Rule 404 of the Arkansas Rules of Evidence.\textsuperscript{55}

The probative value of pharmacologically inactive metabolites, however, is substantially outweighed by the risk of unfair prejudice that can be caused by evidence of prior bad acts.\textsuperscript{56} Instead of supporting an element of DUI, evidence of prior drug use does little more than support a jury mentality of “once a drug-user, always a drug-user.”\textsuperscript{57} For this reason, evidence of inactive drug metabolites in DUI cases should be considered inadmissible under Rule 403 of the Arkansas Rules of Evidence.\textsuperscript{58}

III. BACKGROUND

In order to fully grasp the problem presented by this controversial law, background information is necessary. The first section will define drug metabolites and examine different drug-testing procedures.\textsuperscript{59} The second section will look at the evidentiary hurdles of Rules 403 and 404 of the Arkansas Rules of Evidence, and attempt to ascertain how evidence of pharmacologically inactive metabolites makes it into the courtroom.\textsuperscript{60} In the third section, \textit{ERC Contractor Yard & Sales v. Robertson},\textsuperscript{61} a worker’s compensation case involving alcohol withdrawal, will be compared with \textit{State v. Franchetta},\textsuperscript{62} the DUI case involving a “cocaine hangover.”\textsuperscript{63} The fourth section will review \textit{People v. Derror}\textsuperscript{64} in which the Supreme Court of Michigan decided to expand the coverage of the Michigan DUI law to include those driving

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\textbf{54.} See \textit{supra} note 51.
\textbf{55.} See \textit{Ark. R. Evid.} 404(b).
\textbf{56.} See McClain, 525 So.2d at 422; Williams v. State, 710 So.2d 24, 40 n.32 (Fla. 3d Dist. Ct. App. 1998) (Cope, J., concurring in part, dissenting in part); Cordova, Jr., \textit{supra} note 26, at 589 (arguing that evidence of prior drug use is being used to characterize defendants as law breakers). \textit{Compare Ark. R. Evid. 404 with Ark. R. Evid. 403} (stating that relevant “evidence may be excluded if its probative value is substantially outweighed by the danger of unfair prejudice”).
\textbf{57.} See Cordova, Jr., \textit{supra} note 26, at 588–91 (arguing that evidence of drug metabolites can equate to character evidence of a prior bad act); \textit{see also} Skinner v. Ry. Labor Executives’ Ass’n, 489 U.S. 602 (1989) (Marshall, J., dissenting) (arguing that the majority’s holding was guided by society’s utter disdain toward illegal drug use).
\textbf{58.} See \textit{Ark. R. Evid. 403} (stating that relevant evidence can be excluded if its probative value is substantially outweighed by the risk of unfair prejudice against the defendant).
\textbf{59.} See \textit{infra} Part III.A.
\textbf{60.} See \textit{infra} Part III.B.
\textbf{61.} 335 Ark. 63, 977 S.W.2d 212 (1998).
\textbf{63.} See \textit{infra} Part III.C.
\textbf{64.} 715 N.W.2d 822 (Mich. 2006).
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with any amount of drug metabolites in their body, regardless of the pharmacological activity of the metabolite, and regardless of whether the driver was actually impaired. Finally, Arkansas’s current DUI law will be matched up against the DUI/DUID laws of Nevada, Ohio and Virginia.

A. The Problem with Metabolites

This section of the note will begin by explaining what metabolites are and how they are produced. It will then follow up with a brief discussion of the four types of body specimens that are analyzed for drugs, as well as two different drug testing procedures. The section will conclude with a look at the overall relevance and reliability of drug tests.

1. Metabolites Defined

Once a drug is ingested, the body begins to break it down through the process of metabolism. The process begins with the activation of the primary chemical component of the drug, intoxicating the mind and body and typically producing a “high.” After all of the primary chemicals have been activated, a second phase of deactivation begins and the mind and body begin to detoxify. It is during this phase that most of the major drug metabolites are produced as intermediate products of metabolism. Some metabolites are pharmacologically active and influence either the brain or the functioning of different organs in the body. Others are inactive and affect the body in no way at all.

There are a variety of factors that influence the speed of activation and deactivation including, but not limited to, weight, gender, age, and mental state. In turn, these factors can determine how long drug metabolites re-

65. See infra Part III.D.
66. See infra Part III.E.
67. See Cordova, Jr., supra note 26, at 578–79 (detailing the breakdown of the psychoactive marijuana metabolite tetrahydrocannabinol (THC) that takes place after marijuana is smoked); see also Calhoun, supra note 33, at 1126–38 (examining the aftereffects of metabolizing marijuana and cocaine).
68. See Cordova, Jr., supra note 26, at 578–79.
69. Id. at 578–79.
70. Id. at 578–79.
71. Fiandach, supra note 53 (discussing the lack of pharmacological activity of carboxylic acid, a marijuana metabolite).
73. See Kimberly S. Keller, Sobering up Daubert: Recent Issues Arising in Alcohol-Related Expert Testimony, 46 S. Tex. L. Rev. 111, 124 (2004). This article examines the inaccuracies of expert retrograde extrapolation, where an expert looks at two different blood-alcohol concentrations taken from the defendant at different times, and then uses the difference between the two to calculate backward in time and determine the defendant’s actual
main in an individual's system, and how long they can be detected. Because most drug tests used in DUI cases do not take these factors into account, their credibility is diminished.

2. Drug Testing

Drugs and their metabolites can be tested for in four ways: (1) urinalysis, (2) oral fluid, (3) hair, and (4) blood. Urinalysis is the most common method of testing, and is recognized as the industry standard. However, drug metabolites can be detected in urine long after ingestion of the drug—marijuana metabolites can be detected in urine up to two months after ingestion of marijuana. Urinalysis is also considered less accurate than a blood sample for the simple reason that it does not show the amount of drugs actually present in the blood. For this reason, blood samples are also often taken because they provide a clear indication of drug presence and current state of impairment.

Specimens that are less frequently tested are hair and oral fluid. Although both are considered less invasive than blood or urine samples, both have their drawbacks. Hair samples are susceptible to environmental contamination and can reveal drug use dating back months or years ago. Oral fluid analysis is as effective as urinalysis for detection of recent use, but costs approximately ten dollars more per specimen to analyze.
There are two tests that are applied to specimens of urine and blood—the Immunoassay test and Gas Chromatography/Mass Spectrometry test. There are a number of factors that cause the Immunoassay test to be used more often, the most notable of which are speed and cost. Even though manufacturers of the test claim a 95 to 99 percent accuracy rate, there are a number of shortcomings to the Immunoassay. The test has trouble distinguishing one type of drug from another—this can lead to false positive results, meaning that the results can come back positive for a drug that the defendant never ingested. The test also fails to specify the amount of drug detected—it only provides an estimated quantity.

A more precise, yet more costly test is the Gas Chromatography/Mass Spectrometry test. Unlike the Immunoassay, this test is better able to distinguish one type of drug from another, is less likely to produce a false positive result, and can specify the amount of drug detected. Nevertheless, it is substantially more expensive than the Immunoassay, and is therefore typically used only to confirm preliminary test results when needed.

3. Relevance and Reliability of Test Results

Two theorists, Mark Stevens and James Addison, believe that drug test results should not be heavily relied on in court. They argue that few people in the legal community have a sufficient level of understanding of what drug tests actually measure. Little research has been done to correlate drug consumption with level of impairment. Moreover, most drug tests fail to provide any proof toward whether a person is under the influence of a drug. A positive drug test establishes nothing more than some prior use or exposure and is inadequate evidence of intoxication or impairment.

85. Stevens & Addison, supra note 34, at 19.
86. Id. at 19.
87. Id. at 19–20.
88. Id. at 19.
89. Id. at 21–22 (discussing cross-reactivity—when a legal over-the-counter drug causes a test sample to come back positive for the presence of illegal drugs or their metabolites—and charting over-the-counter drugs against those illegal drugs which they may test positive for).
90. Id. at 19.
91. Stevens & Addison, supra note 34, at 20.
92. Id.
93. Id.
94. Id. at 18.
95. Id.
96. Id.
97. Stevens & Addison, supra note 34, at 18.
98. Id. at 20.
In a 1983 study conducted on urine samples, 66.5% of the test results were reported to be false positives.\textsuperscript{99} False positives abound for reasons such as passive inhalation, improper laboratory procedures, contaminated laboratory equipment, mixed up samples, and cross-reactivity with other legal drugs.\textsuperscript{100} For these reasons, some contend that drug tests are often inaccurate.\textsuperscript{101}

Drug testing is also not regulated by the government.\textsuperscript{102} Administrators and examiners are often not sufficiently competent to administer and analyze the tests.\textsuperscript{103} Toxicologists, pharmacologists, and other experts who might testify about the intoxicating effects of drugs or their metabolites generally do not know enough to make any confident assertions about causation.\textsuperscript{104} The main problem is that drug tests do not establish causation.\textsuperscript{105} For these reasons, some argue that positive test results for drug metabolites should not be heavily relied upon, especially if the metabolites are not pharmacologically active.\textsuperscript{106}

\section*{B. Sneaking Through the Rules of Evidence}

This section will first outline Rule 404 of the Arkansas Rules of Evidence and show how inactive metabolite evidence is exempt from the general inadmissibility of character evidence. Next, it will take a look at Rule 403 to see if the metabolite evidence passes its examination. Finally, the section will consider the overall relevance of inactive metabolites as circumstantial evidence in DUI cases.

\subsection*{1. Arkansas Rules of Evidence: Rule 404}

Rule 404(b) Other Crimes, Wrongs, or Acts. Evidence of other crimes, wrongs, or acts is not admissible to prove the character of a person in order to show that he acted in conformity therewith. It may, however, be admissible for other purposes, such as proof of motive, opportunity, intent, preparation, plan, knowledge, identity, or absence of mistake or accident.\textsuperscript{107}

\begin{thebibliography}{100}
\bibitem{99} Id.
\bibitem{100} Id. at 21.
\bibitem{101} Id.
\bibitem{102} Id.
\bibitem{103} Stevens & Addison, \textit{supra} note 34, at 21.
\bibitem{104} Id. at 22.
\bibitem{105} Id. at 22–23.
\bibitem{106} Id. at 21; \textit{see also} State v. Franchetta, 925 A.2d 745, 747 (N.J. Super. Ct. App. Div. 2007).
\bibitem{107} ARK. R. EVID. 404(b) (West 2009).
\end{thebibliography}
A positive test result for a metabolite of an illegal drug is evidence of prior ingestion of that illegal drug. While an active metabolite might be considered independently relevant to the main issue of whether the defendant drove under the influence, an inactive metabolite probably could not, for the simple reason that it adds nothing to the proof of influence. Influence is the main issue in a DUI case, and evidence of an inactive metabolite shows only that defendant (1) ingested a drug at some point in the past, and (2) was not under the influence of the drug or its metabolites at the time of testing. The evidence by itself does nothing to prove up the main issue. For this reason, evidence of inactive metabolites would most likely be considered nothing more than evidence of a prior wrong or act to prove the character of the defendant.

Nevertheless, evidence of inactive metabolites can escape the grip of Rule 404 through the rule’s exceptions clause. Section (b) of Rule 404 explains that such evidence may be admitted to prove opportunity or preparation. As stated earlier, evidence of inactive drug metabolites is evidence of prior ingestion of that drug. In order for a person to drive under the influence of a drug, he needs to have first ingested the drug. Thus, this evi-

108. See Cordova, Jr., supra note 26, at 591 (admitting that even a miniscule amount of drug metabolites may consist of proof that the defendant used drugs in the past); see also State v. Franchetta, 925 A.2d 745, 747 (N.J. Super. Ct. App. Div. 2007); People v. McAfee, 104 P.3d 226, 228 (Colo. App. 2004); State v. McClain, 525 So.2d 420, 422.

109. See Cordova, Jr., supra note 26, at 591 (arguing that a low level of drug metabolites in the defendant adds nothing toward making it more or less probable that the defendant was intoxicated at the time of driving); see also Fiandach, supra note 53 (offering a direct examination during which “pharmacological activity” was defined as affecting, altering or influencing either the functioning of the brain or different organs in the body); Franchetta, 925 A.2d at 747 (acknowledging that the defendant was not under the pharmacological influence of cocaine, because an inactive cocaine metabolite was all that he tested positive for); People v. Derror, 715 N.W.2d 822, 830 (Mich. 2006) (acknowledging that the marijuana metabolite, 11-carboxy-THC, has no pharmacological effect on the human body).


111. See Calhoun, supra note 33, at 1128; see also Brown v. Ala. Elec. Co., 60 Ark. App. 138, 142, 959 S.W.2d 753, 755 (1998) (considering a doctor’s report which stated the following: “Impairment is a function of the level of the active parent drug which is presented to the central nervous system . . . and bears no relationship to the metabolic level found in the urine.”).

112. See Cordova, Jr., supra note 26, at 591.

113. See Cordova, Jr., supra note 26, at 589; see also Ark. R. Evid. 404(b).

114. See Cordova, Jr., supra note 26, at 590; see also Ark. R. Evid. 404(b).

115. Ark. R. Evid. 404(b).

116. See supra note 51.
 evidence is typically admitted to show that a DUI defendant either had the opportunity or prepared to drive under the influence.\footnote{117} 

2. \textit{Arkansas Rules of Evidence: Rule 403}

Rule 403. Although relevant, evidence may be excluded if its probative value is substantially outweighed by the danger of unfair prejudice, confusion of the issues, or misleading the jury, or by considerations of undue delay, waste of time, or needless presentation of cumulative evidence.\footnote{118}

Before any type of evidence can enter the courtroom, it must pass the scrutiny of Rule 403—the exclusionary rule for relevant evidence.\footnote{119} It states that although evidence is relevant, it may be excluded if its probative value is substantially outweighed by the risk of unfair prejudice against the defendant.\footnote{120} It is at this point that the vast majority of courts and theorists collide.\footnote{121}

First, the rule states that the evidence \textit{may} be excluded.\footnote{122} That is to say that the judge can still admit the evidence even if the probative value is substantially outweighed by the risk of unfair prejudice.\footnote{123} The growing debate, however, concerns the competing weights of interest: society's interest in punishing those who drive intoxicated and the defendant's interest in not

\footnotesize{\begin{itemize}
\item \footnote{117}{\textit{See Cordova, Jr., supra note 26, at 590; see also supra note 51.}}
\item \footnote{118}{\textit{ARK. R. EVID. 403.}}
\item \footnote{119}{\textit{Id.}}
\item \footnote{120}{\textit{Id.}}
\item \footnote{121}{\textit{See Graham v. Turnage Employment Group, 60 Ark. App. 150, 157, 960 S.W.2d 453, 457 (1998) (Roaf, J., concurring). This is an Arkansas workers' compensation case in which the injured worker was denied compensation because inactive marijuana metabolites were detected in his urine. \textit{Id.} at 152, 960 S.W.2d at 454. The worker testified that he smoked marijuana seventeen days before the accident. \textit{Id.} at 153, 960 S.W.2d at 455. In his concurrence, Judge Roaf admits that he affirmed the decision to deny compensation to the worker, but that he did so only because the worker failed to raise the issue that would have allowed a reversal—whether a test that shows only the presence of pharmacologically inactive metabolites sufficiently demonstrates the presence of an illegal drug. \textit{Id.} at 157, 960 S.W.2d at 457. \textit{Compare} Buckles v. State, 830 P.2d 702, 706 (N.J. 1992) (admitting evidence of cocaine metabolites because additional circumstantial evidence increased its probative value) with State v. McClain, 525 So.2d 420, 421 (Fla. 1988) (barring evidence of a trace amount of cocaine because of the high risk of unfair prejudice to the defendant). \textit{Compare} Cordova, Jr., supra note 26, at 588–92 (equating evidence of low levels of drug metabolites with nothing more than character evidence that should be inadmissible) with Lewis & Buchan, supra note 26, at 38 (proposing a \textit{per se} DUID law for Florida that would criminalize the act of driving with any amount of controlled substance, metabolites or derivatives present in either the blood or urine, regardless of the presence of alcohol as possible additional circumstantial evidence).}
\item \footnote{122}{\textit{ARK. R. EVID. 403.}}
\item \footnote{123}{\textit{See id.}}
\end{itemize}}
being judged by a biased judge or jury. Most courts have held that, while by itself metabolite evidence is inadmissible, additional circumstantial evidence increases its probative weight. This additional weight, in effect, tips the scale and the metabolite evidence is admissible.

This additional weight can be found in almost anything: (1) a police record or testimony about the defendant’s behavior or physical appearance, (2) paraphernalia found on the defendant or in the car, (3) the defendant’s manner of driving, (4) a low BAC level, or (5) expert testimony. While expert testimony is considered almost a prerequisite to proving a drug DUI case, it often presents a double-edged sword for the prosecution. The ex-

124. See supra note 51 & 56; see also Calhoun, supra note 33, at 1125. Lindsay Calhoun points out that the Michigan DUI law—MIC. COMP. LAWS ANN. § 257.625(8) (West 2006)—does not explicitly require actual intoxication at the time of driving. Calhoun, supra note 33, at 1125. This lack of specification eventually led to the Supreme Court of Michigan, in the case of People v. Derror, 715 N.W.2d 822 (Mich. 2006), enlisting any metabolites or derivatives as evidence of driving under the influence, regardless of their intoxicating effect or activity. Id. Calhoun notes that the “scientific debate surrounds whether metabolites can and should be considered the same as the controlled substance itself.” Id.

125. See, e.g., Buckles, 830 P.2d at 706.

126. See id.

127. See State v. Franchetta, 925 A.2d 745, 747 (N.J. Super. Ct. App. Div. 2007) (taking note of the arresting officer’s report, which stated the following: the defendant’s speech was slurred, his eyes were bloodshot, he appeared lethargic, incoherent, and could not stand without assistance); State v. Bealor, 902 A.2d 226, 231 (N.J. 2006) (noting that there was no need for an expert to interpret the positive test results for marijuana metabolites because there was additional circumstantial evidence of the smell of marijuana, a marijuana smoking pipe, and the overall appearance and conduct of the defendant); Buckles v. State, 830 P.2d 702, 706 (Wyo. 1992) (recognizing that evidence of the defendant’s manner of driving would suffice as a foundation to support the introduction of metabolites into evidence); State v. McClain, 525 So.2d 420, 423 (Fla. 1988) (pointing out that if there is additional circumstantial evidence of impairment, a low or negative BAC level will, in effect, rule out alcohol as a possible cause of impairment, thereby adding more evidentiary weight to a positive test result for drugs); Keller, supra note 73, at 129 (taking note of a dissenting opinion in Stewart v. State, 129 S.W.3d 93, 99–100 (Tex. Crim. App. 2004) (Price, J., dissenting) (acknowledging that, without expert retrograde extrapolation, the jury would be forced to perform its own crude form of extrapolation; see also supra note 73 (explaining the process of retrograde extrapolation).

128. See Keller, supra note 73, at 130–31 (considering the effect of excluding expert testimony from cases in which BAC test results are being used as evidence of driving under the influence); see also State v. Norton, No. 03C01-9707-CR-00270, 1999 WL 508654, at *2 (Tenn. Crim. App. July 20, 1999) (considering testimony from a director of pharmacy, affirming that while drug level data cannot be used to determine the actual effect on a specific individual, it can be used to predict generally as to the effects of drug dosages). But see, e.g., Brown v. Ala. Elec. Co., 60 Ark. App. 138, 142, 959, S.W.2d 753, 755 (1998) (taking note of a report by a pharmacologist on the defendant’s positive test result for marijuana metabolites—“I cannot determine when, in what manner, in what quantity, or whether legal or illegal drug use occurred.”); State v. McClain, 525 So.2d 420, 421 (Fla. 1988) (“The chemist was unable to state whether or not the presence of the cocaine could have affected the manner of McClain’s driving.”); Ashley v. Temporaries Plus, Inc., No. CA99-1049, 2000 WL 283916,
pert is needed to both explain the test results, as well as predict from the results whether the defendant was intoxicated at the time of driving. Unfortunately, there is no consensus in the scientific community as to the quantity of a particular drug needed to cause the average person to become intoxicated. Unlike alcohol, the effects and metabolic rate of drugs varies wildly from one individual to the next. Many experts refuse to make the prediction of intoxication.

Moreover, a number of theorists will argue that the weight of unfair prejudice is too heavy to be tipped by additional circumstantial evidence. The weight of unfair prejudice is created by the metabolite evidence’s (1) proof of a prior wrong act by the defendant, and (2) lack of relevance to the material issue of intoxication. On the other side of the scale: the variety of factors that affect the metabolic process, the large margin for error in testing procedures, the complete lack of proof of causation, and the fact that inactive metabolites show nothing more than that a drug was ingested at some point in the past; all of these shortcomings lessen the overall probative weight.

at *5 (Ark. Ct. App. March 15, 2000) (considering testimony from a toxicologist, admitting that “one cannot determine impairment based on a finding of cocaine metabolites”); Stevens & Addison, supra note 34, at 22 (explaining why it is so difficult for experts to confidently link positive drug test results to actual impairment—lack of published data on drug concentrations, no fixed relationship between the quantity detected and the defendant’s conduct or impairment, and drug tests’ inability to determine the quantity of drug ingested, the drug’s potency, the frequency of ingestion, time of ingestion, or the drug’s overall effect on the individual).


130. See Stevens & Addison, supra note 34, at 22 (“there is no scientific evidence that supports a fixed relationship between quantity detected and conduct or impairment”).

131. Cordova, Jr., supra note 26, at 578 (pointing out that there are a multitude of biochemical variables specific to the individual that can affect the metabolism of marijuana); State v. Neal, No. M2001-00441-CCA-R3-CD, 2002 WL 31852854, at *6 (Tenn. Crim. App. Dec. 19, 2002) (considering testimony from a forensic scientist, admitting that although humans metabolize cocaine in the same way, the rate of metabolism varies, and depends on a variety of factors).

132. See supra note 127.

133. See Cordova, Jr., supra note 26, at 591; Stevens & Addison, supra note 34, at 23.

134. See Cordova, Jr., supra note 26, at 589; see also Ark. R. Evid. 404(b).

135. See Cordova, Jr., supra note 26, at 591.

136. See generally Stevens & Addison, supra note 34.
C. Cocaine Hangover v. Alcohol Withdrawal

This section will first look at the case of ERC Contractor Yard & Sales v. Robertson, a workers' compensation case involving an injury held to be caused not by alcohol use, but by alcohol withdrawal.\textsuperscript{137} It will then consider the case of State v. Franchetta and its introduction of the "cocaine hangover."\textsuperscript{138} Next, the two court rationales will be considered in light of the different causation standards that each employed. Finally, the rationales will be considered under the lens of Arkansas's DUI law.

1. ERC Contractor Yard & Sales v. Robertson

In Robertson, Mr. Robertson was granted workers' compensation for an injury caused by a seizure from alcohol withdrawal.\textsuperscript{139} Under Arkansas law, a work-related injury is not compensable if it is substantially occasioned by the use of alcohol.\textsuperscript{140} A blood sample from Mr. Robertson revealed a BAC of .01%.\textsuperscript{141} Mr. Robertson's girlfriend told the doctors that he drank two beers the day before the accident.\textsuperscript{142} Finally, medical reports noted that Mr. Robertson had a faint smell of alcohol on his breath the day of the injury.\textsuperscript{143}

Instead of considering the medical reports and the girlfriend's statement, however, the court chose to analyze the workers' compensation statute.\textsuperscript{144} It looked at the plain and ordinary meaning of the law and made a distinction between an injury caused by the use of alcohol and one caused by abstinence from alcohol.\textsuperscript{145} Using this distinction, the court was able to conclude that Mr. Robertson's injury was compensable because his injury was not substantially occasioned by the use of alcohol, but by abstinence from it.\textsuperscript{146}
2. State v. Franchetta

In Franchetta, the court concluded that prior ingestion of cocaine proximately caused the defendant's impaired driving via a cocaine hangover.\textsuperscript{147} Even though there was no cocaine in the defendant's blood at the time the sample was taken, the court was able to use the definition of "under the influence" to make the causal connection.\textsuperscript{148}

"Under the influence" was defined as a substantial deterioration of mental or physical capabilities, caused by alcohol or drugs, so as to render a person dangerous while driving.\textsuperscript{149} There was no requirement that any amount of cocaine be in Franchetta's system at the time of the traffic stop.\textsuperscript{150} The only requirements were that his mental or physical capabilities be substantially deteriorated, and that the deterioration be caused by ingestion of cocaine.\textsuperscript{151}

Other possible causes of Franchetta's impaired driving—lack of sleep, illness, etc.—were ruled out.\textsuperscript{152} One cause not ruled out was Franchetta's prior ingestion of cocaine, revealed by the presence of a cocaine metabolite in his blood.\textsuperscript{153} Finally, Dr. George Godfrey testified that a person is considered under the influence of a drug, medically speaking, as long as there remains some physiological response to that drug, whether it is caused directly or indirectly.\textsuperscript{154} From the foregoing evidence, the jury concluded beyond a reasonable doubt that Franchetta's prior ingestion of cocaine proximately caused his impaired driving.\textsuperscript{155}

3. Direct Cause v. Probable Cause

The different outcomes in these cases might be attributed to the different causation requirements. In Robertson, the court opined that "substantially occasioned" required a direct causal link between the use of alcohol and the injury.\textsuperscript{156} In Franchetta, the court borrowed a proximate cause analysis

\textsuperscript{148} Id. at 748.
\textsuperscript{149} Id.
\textsuperscript{150} See id.
\textsuperscript{151} See id.
\textsuperscript{152} Id. at 747.
\textsuperscript{153} Franchetta, 925 A.2d at 749.
\textsuperscript{154} See id. at 747. The doctor prefaced his comment with "Drugs can cause effect, but after they have had their effect, there can be a carry over action on the part of the body which affects coordination and function of the body. . . . And in this instance, the coordination part is a rebound effect from that high." Id.
\textsuperscript{155} Id. at 749.
\textsuperscript{156} ERC Contractor Yard & Sales v. Robertson, 335 Ark. 63, 71, 977 S.W.2d 212, 216 (1998).
used in *State v. Bealor*, a case that considered whether an individual was under the influence of marijuana.\(^{157}\)

There are three elements that must be satisfied in order to establish proximate cause: (1) factual cause, (2) legal cause, and (3) no superseding cause.\(^{158}\) Factual cause is established if the injury would not have occurred absent the defendant’s act.\(^{159}\) Legal cause is established if the injury is a direct and natural result of the defendant’s act.\(^{160}\) Finally, if there is no reasonably foreseeable intervening cause that would break the causal link between the defendant’s act and the injury, there is no superseding cause and proximate cause is established.\(^{161}\)

Because there is no mention of a need for direct causation, it might be inferred that a proximate cause could be indirect, so long as there is no superseding cause.\(^{162}\) If this is indeed the case, then the requirement of causation is stricter in a workers’ compensation case than it is in a DWI case.\(^{163}\) In *Robertson*, more evidence would have been needed to establish a direct causal link between Mr. Robertson’s alcohol use and his injury, than was needed to establish proximate cause in *Franchetta*.\(^{164}\) However, the court in *Robertson* barely considered causation because it found that Mr. Robertson did not use alcohol before the injury.\(^{165}\) This statutory element needed to be established before causation could be considered.\(^{166}\)

A possible reason for the different causation requirements is the difference in statutory language used in New Jersey DWI law and that of Arkansas workers’ compensation law.\(^{167}\) The difference is the employment of the word “use” in the workers’ compensation statute versus “under the influence” in the DWI statute.\(^{168}\) In *Robertson*, the injury sustained by Mr. Robertson was held to be caused not by his use, but by his lack of use of alcohol.\(^{169}\) Even though the seizure might have been held to be indirectly caused by Mr. Robertson’s prior extended use of alcohol, the fact that the use was

\(^{157}\) *Franchetta*, 925 A.2d at 749.

\(^{158}\) See *People v. Schaefer*, 703 N.W.2d 774, 785–86 (Mich. 2005).

\(^{159}\) *Id.* at 785.

\(^{160}\) *Id.*

\(^{161}\) *Id.*

\(^{162}\) See *id.* at 785–86.

\(^{163}\) See *id.*; see also *Robertson*, 335 Ark. at 71, 977 S.W.2d at 216.

\(^{164}\) See *Franchetta*, 925 A.2d at 749; see also *Robertson*, 335 Ark. at 67, 977 S.W.2d at 214.

\(^{165}\) *Robertson*, 335 Ark. at 71, 977 S.W.2d at 216.

\(^{166}\) See *id.*, 977 S.W.2d at 216.

\(^{167}\) Compare *id.* at 68, 977 S.W.2d at 213 with *Franchetta*, 925 A.2d at 748.

\(^{168}\) Compare *Robertson*, 335 Ark. at 68, 977 S.W.2d at 213 with *Franchetta*, 925 A.2d at 748.

\(^{169}\) *Robertson*, 335 Ark. at 71, 977 S.W.2d at 216.
not a direct cause was enough to take his injury out from under the statutory language.\textsuperscript{170}

In \textit{Franchetta}, the court considered the phrase “under the influence.”\textsuperscript{171} The fact that no cocaine or active metabolite was present in Franchetta’s blood was of no consequence.\textsuperscript{172} All that was required by the language of the statute was that he still be under the influence of the cocaine.\textsuperscript{173} The court concluded that the indirect effect of Franchetta’s prior ingestion of cocaine, proved by the existence of cocaine metabolites in his blood, was enough to cause him to be under the influence.\textsuperscript{174} This indirect effect was branded the “hangover effect,” and was deemed to constitute the after-effects of the drug on the body after the active ingredients no longer exist.\textsuperscript{175} The drug was no longer influencing Franchetta’s body, but rather his body was influencing itself via recovery from the drug.\textsuperscript{176}

Likewise, the court in \textit{Robertson} concluded that Mr. Robertson’s seizure was caused by his withdrawal from alcohol via his body’s recovery from his prior use of alcohol.\textsuperscript{177} Yet, this indirect effect of Mr. Robertson’s prior alcohol use was found to be too attenuated from his injury to find it noncompensable.\textsuperscript{178} The different outcomes in these two cases are likely attributable to the different causation standards established by the different statutory language.\textsuperscript{179}

4. \textit{Under Arkansas’s DUI Law}

To be considered under the influence of alcohol or a controlled substance under Arkansas DUI law, a driver must be controlled or affected by the ingestion of the alcohol or controlled substance.\textsuperscript{180} Mr. Robertson was considered to be under the influence of a withdrawal from alcohol.\textsuperscript{181} Mr. Franchetta was determined by the Superior Court of New Jersey to be under the influence of a cocaine hangover.\textsuperscript{182} Some aspects of a drug hangover are

\begin{footnotes}
\item[170] Id., 977 S.W.2d at 216.
\item[171] \textit{Franchetta}, 925 A.2d at 748.
\item[172] Id. at 749.
\item[173] Id. at 748.
\item[174] See id. at 749.
\item[175] See id. at 747.
\item[176] See id.
\item[177] ERC Contractor Yard & Sales v. Robertson, 335 Ark. 63, 71, 977 S.W.2d 212, 216 (1998).
\item[178] See id., 977 S.W.2d at 216.
\item[179] Compare id., 977 S.W.2d at 216 with \textit{Franchetta}, 925 A.2d at 748.
\item[180] \textsc{Ark. Code Ann.} \textsection{} 5-65-302 (West 2009); \textit{e.g.}, \textit{Mace v. State}, 328 Ark. 536, 540, 944 S.W.2d 830, 833 (1997).
\item[181] \textit{See Robertson}, 335 Ark. at 71, 977 S.W.2d at 216.
\item[182] \textit{Franchetta}, 925 A.2d at 749.
\end{footnotes}
believed to be caused by a withdrawal from whatever drug was originally ingested.\textsuperscript{183} Biochemically speaking, both men were under the influence of an absence of a toxin.\textsuperscript{184} Whether they would be found guilty of DUI in Arkansas would depend on what causal analysis would be employed—Franchetta’s proximate cause analysis, or Robertson’s substantially occasioned analysis requiring a direct causal link.

D. Metabolite + Driving = DUI in Michigan

This section will examine \textit{People v. Derror}, a 2006 case in which the Supreme Court of Michigan held that 11-carboxy-THC, an inactive metabolite of THC, a psychoactive ingredient of marijuana, should be considered a schedule 1 controlled substance.\textsuperscript{185} The focus of this section, however, will be on the dissent’s rationale, contending that the majority’s ruling is unconstitutional on three grounds: (1) it does not provide for fair notice, (2) it allows for arbitrary enforcement, and (3) it bares no rational relationship to the legislative objective of the DUI.\textsuperscript{186}

1. \textit{Majority: Marijuana Metabolite is a Schedule 1 Controlled Substance}

Two blood samples were taken from Derror, and an inactive marijuana metabolite, 11-carboxy-THC, was found.\textsuperscript{187} Under Michigan DUI law, a person shall not drive if any amount of a schedule 1 controlled substance is present in that person’s body.\textsuperscript{188} The Michigan Supreme Court was asked to determine whether 11-carboxy-THC is a schedule 1 controlled substance.\textsuperscript{189}

In making this determination, the court first looked to the Public Health Code’s definition of marijuana, which included every compound and derivative of the plant, seeds, and resin.\textsuperscript{190} One definition of derivative equated a derivative of THC with any chemical substance related structurally to THC, and that theoretically can be derived from it.\textsuperscript{191} From this definition, the court was able to qualify 11-carboxy-THC as a derivative of THC.\textsuperscript{192} Be-

\begin{itemize}
\item \textsuperscript{183} \textit{See Franchetta}, 925 A.2d at 747; Buckles v. State, 830 P.2d 702, 706 (Wyo. 1992); Fiandach, supra note 53 ("Current literature does indicate that there is a 'hangover' affect to marijuana").
\item \textsuperscript{184} \textit{See Robertson}, 335 Ark. at 71, 977 S.W.2d at 216; Franchetta, 925 A.2d at 749.
\item \textsuperscript{185} People v. Derror, 715 N.W.2d 822, 831 (Mich. 2006).
\item \textsuperscript{186} \textit{Id.} at 843–45 (Cavanagh, J., dissenting).
\item \textsuperscript{187} \textit{Id.}
\item \textsuperscript{188} \textit{Id.} at 827.
\item \textsuperscript{189} \textit{Id.} at 825.
\item \textsuperscript{190} \textit{Id.} at 828.
\item \textsuperscript{191} \textit{Derror}, 715 N.W.2d at 829.
\item \textsuperscript{192} \textit{Id.}
\end{itemize}
cause THC is an ingredient of marijuana, and because the definition of mari-
juana includes all derivatives, the court concluded that 11-carboxy-THC fell
within the definition of marijuana, making it a schedule 1 controlled sub-
stance under the Michigan DUI statute.\footnote{Id. at 831.}

Concerning the legislative purpose behind enacting the DUI statute, the
majority agreed that the intent was to prevent people from driving with any
amount of a schedule 1 controlled substance in the body.\footnote{Id. at 834–35.}
It did not matter whether the substance was influencing the person while he was driving.\footnote{Id. at 835.}
According to the majority, the legislature equated the presence of any
amount of a controlled substance with being under the influence of that sub-
stance.

2. Dissent: The Majority Fails to Consider Effects of Metabolite

Judge Michael Cavanagh dissented to the majority's ruling for several
reasons.\footnote{Id. at 836–46.} First, he maintained that federal law defines marijuana as any
part of the plant that contains THC.\footnote{Derror, 715 N.W.2d at 838.}
Any derivatives or metabolites of THC are not included in the definition.\footnote{See id.}
As the Seventh Circuit Court of
Appeals held, the legislative purpose of outlawing marijuana was to prohibit
the euphoric effects produced by THC.\footnote{See id.} Metabolite 11-carboxy-THC does
not produce any euphoric effect; therefore, the legislature most likely did
not intend to outlaw it.\footnote{See id.}

Second, the majority failed to consider certain factors before classify-
ing 11-carboxy-THC as a schedule 1 drug.\footnote{See id. at 837–38.} A few of the factors include:
(1) the actual or relative potential for abuse; (2) the scientific evidence of the
drug's pharmacological effect; (3) the scope, duration and significance of
abuse; and (4) the potential of the substance to produce psychic or physio-
logical dependence.\footnote{Id. at 840.} Had the majority taken these factors into account,
they might have realized that there is no potential for abuse or dependence
because 11-carboxy-THC does not produce any euphoric effect.\footnote{Derror, 715 N.W.2d at 840 (Cavanagh, J., dissenting).}
3. Dissent: The Majority’s Holding Is Unconstitutional

Finally, Judge Cavanagh asserted that the majority’s interpretation of the Michigan DUI statute is unconstitutional.204 First, it fails to provide an ordinary person with fair notice about exactly what conduct is prohibited.205 The statute prohibits driving with any amount of a schedule I controlled substance in the body.206 Marijuana metabolites can be detected in the blood weeks after marijuana is ingested.207 Without a prior blood test, it would be almost impossible for an individual who ingested marijuana to know when he or she could legally drive again.208

Second, the majority’s interpretation allows for arbitrary and discriminatory enforcement.209 As long as any amount of 11-carboxy-THC can be detected in a person’s body, it is illegal for that person to drive.210 As science progresses, smaller amounts of 11-carboxy-THC will be able to be detected.211 Judge Cavanagh argues that eventually there will be potential for a person who ingested marijuana a year ago to be found guilty of violating the Michigan DUI statute because of a remote amount of 11-carboxy-THC found in the person’s body.212

Third, designating 11-carboxy-THC as a controlled substance is not rationally related to the legislative purpose of the statute.213 The objective of the statute is to deter people from driving under the influence of marijuana.214 11-carboxy-THC stays in a person’s body long after the influence of the marijuana has ended.215 By labeling 11-carboxy-THC as a schedule I controlled substance, the majority has in effect made it illegal to drive after ingesting marijuana, regardless of whether the driver is under the influence of it.216

4. Dissent: The Potential Windfall Effect

While Judge Cavanagh concedes in his dissent that the presence of 11-carboxy-THC could be used as circumstantial evidence, he maintains that
In a Wyoming DUI case, it was stated that there needs to be some additional evidence of impairment before the presence of metabolites in the defendant’s body can be admitted into evidence. Evidence of the manner in which the defendant was driving could be enough to allow for the evidence of metabolites to be admitted. In *State v. Franchetta*, there was additional evidence that Franchetta’s speech was slurred, his eyes were bloodshot, he was lethargic, incoherent and could not stand without assistance. It is likely because of this additional evidence of impairment that the evidence of the inactive cocaine metabolite, benzolectamine, was admitted into evidence.

On the other hand, Judge Cavanagh brings to light the possible windfall effect of placing too much deference on the presence of inactive metabolites. As stated earlier, the objective behind the Michigan DUI statute is to deter people from driving while under the influence of drugs. If a metabolite has no pharmacological effect, it is unable to influence the body of the driver. Moreover, some inactive drug metabolites can be found in the blood or urine weeks after ingestion. But simply because they exist concurrently with some additional evidence of impairment, they can be admitted into evidence. It is this one additional piece of evidence that might very well unfairly prejudice, and turn the jury against, an innocent defendant.

### E. DUI Law v. DUID Law

This final section will begin by simply laying out the Arkansas DUI law. The DUI/DUID laws of Nevada, Ohio, and Virginia will follow. The section will conclude with a comparison of the stark difference in specificity of the statutory language.

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217. *Id.* at 846.
219. *Id.*
221. *See id.; see also Buckles*, 830 P.2d at 706.
222. *See Derror*, 715 N.W.2d at 836.
223. *Id.* at 845 (Cavanagh, J., dissenting).
224. *See Franchetta*, 925 A.2d at 747.
225. *Derror*, 715 N.W.2d at 843 (Cavanagh, J., dissenting).
226. *See Buckles*, 830 P.2d at 706.
1. **Driving While Intoxicated in Arkansas**

Arkansas’s DUI law is remarkably similar to the majority of state DUI laws in the United States, minus the sixteen states that have enacted DUID laws. The Arkansas DUI law states: “It is unlawful . . . for any person to operate or be in actual physical control of a motor vehicle if at that time” the person is intoxicated, or “the alcohol concentration in the person’s breath or blood was eight-hundredths (0.08) or more.”

Anyone in Arkansas operating or in actual physical control of a motor vehicle while intoxicated is guilty of driving while intoxicated (DWI). A person is intoxicated when he or she is under the influence of alcohol, a controlled substance, any intoxicant, or any combination thereof, to such a degree that reactions, motor skills, and judgment are substantially altered, presenting a clear and substantial danger of physical injury or death if that person is driving. To be considered under the influence of a controlled substance—e.g. marijuana or cocaine—a driver must be controlled or affected by the ingestion of the controlled substance to such a degree that the driver’s reactions, motor skills, and judgment are altered or diminished, even to the slightest scale.

In order to prove that a defendant was driving under the influence of a controlled substance in Arkansas, the following three elements must be proved beyond a reasonable doubt: (1) the defendant was driving or in actual physical control of a motor vehicle, (2) he or she was sufficiently impaired to create a substantial danger as a driver, and (3) the impairment was the result of ingestion of a controlled substance. Direct evidence is not

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228. For the purpose of this note, DUI (driving under the influence) is equivalent to DWI (driving while intoxicated).
229. See supra note 30.
230. See supra notes 26 & 28.
231. ARK. CODE ANN. § 5-65-103(b) (West 2009).
232. Id.
233. Id. at § 5-65-102.
235. ARK. CODE ANN. § 5-65-302 (West 2009); e.g., Mace v. State, 328 Ark. 536, 540, 944 S.W.2d 830, 833 (1997).
Circumstantial evidence may be sufficient to sustain a conviction if it constitutes substantial evidence. While the statute quantifies a .08 level of blood-alcohol concentration necessary to create a per se presumption of intoxication, the statute fails to prescribe similar quantities for controlled substances or metabolites that might be found in the blood or urine. This lack of specificity leaves the realm of drugged driving open to over-reaching judicial interpretation.

2. Driving Under the Influence in Nevada, Ohio, and Virginia

a. Nevada

The Nevada DUI/DUID law is entitled “Driving Under the Influence of Intoxicating Liquor or Controlled or Prohibited Substance.” The DUI section of the law states in relevant part that “it is unlawful for any person who ... has a concentration of alcohol of 0.08 or more in his blood or breath ... to drive or be in actual physical control of a vehicle on a highway or on premises to which the public has access.” The DUID section continues on, however, to illegalize driving with the following amounts of prohibited substances, among others, in the blood or urine:

<table>
<thead>
<tr>
<th>Prohibited substance:</th>
<th>Urine Nanograms Per milliliter</th>
<th>Blood Nanograms Per milliliter</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Amphetamine</td>
<td>500</td>
<td>100</td>
</tr>
<tr>
<td>(b) Cocaine</td>
<td>150</td>
<td>50</td>
</tr>
<tr>
<td>(c) Cocaine metabolite</td>
<td>150</td>
<td>50</td>
</tr>
<tr>
<td>(g) Marijuana</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>(h) Marijuana metabo-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>lite</td>
<td>15</td>
<td>5243</td>
</tr>
</tbody>
</table>

237. Roach, 30 Ark. App. at 123, 783 S.W.2d at 378.
238. Id., 783 S.W.2d at 378.
239. Compare Ark. Code Ann. § 5-65-103(b) (West 2009) with Nev. Rev. Stat. Ann. § 484.379 (West 2009). In addition to specifying a .08% BAC, the Nevada law lists specific quantities of controlled substances and their metabolites necessary to establish a per se presumption of impairment. See Nev. Rev. Stat. Ann. § 484.379(3). Note that the .08% BAC is the same for both blood and breath. See id. An individual’s blood-alcohol concentration can be detected from either a blood or breath sample. See Keller, supra note 73, at 121 (indicating that, in the criminal context, a breath sample is typically taken to determine the level of alcohol in the suspect’s blood; in the civil context, a blood sample is typically taken to determine the same thing).
240. See supra note 33.
242. Id.
243. Id. at § 484.379(3) (also covering (1) heroine, (2) two different types of heroine metabolites, (3) lysergic acid diethylamide (LSD), (4) methamphetamine, and (5) phencyclidine); see Hudson v. State, 316 Ark. 360, 361, 872 S.W.2d 68, 69 (1994) (acknowledging the acronym LSD as representing lysergic acid diethylamide).
b. Ohio

The extensive Ohio DUI/DUID law is entitled “Operation of Motor Vehicle While Intoxicated.”\(^{244}\) The DUI section begins with laying out the universally accepted BAC limit of .08%.\(^{245}\) Unlike the Nevada law, however, Ohio law also specifies quantities for alcohol concentration in blood serum, blood plasma and urine.\(^{246}\) From there, it moves on to the DUID section with quantity specifications for most of the same drugs and metabolites covered under the Nevada law.\(^{247}\) After covering drugs and their metabolites, the statute continues on to specify different alcohol quantities for people under the age of twenty-one.\(^{248}\) Next, it moves on to criminal prosecution and juvenile court proceedings,\(^{249}\) then to testing procedures,\(^{250}\) who can be considered immune from criminal and civil liability,\(^{251}\) fines and sentencing guidelines;\(^{252}\) and finally to affirmative defenses for either those with a prescription for a controlled substance, or who ingested it in accordance with a doctor’s direction.\(^{253}\)

c. Virginia

Of the three states with DUI/DUID laws that specify the minimum quantities of drugs and their metabolites necessary to create a per se presumption of intoxication, Virginia specifies the least amount of drugs, and includes none of their metabolites.\(^{254}\) The statute is entitled “Driving Motor Vehicle, Etc., While Intoxicated.” The DUI section begins by enlisting the typical .08 BAC for blood or breath samples. The DUID section, on the other hand, outlaws driving with only the following amounts of substances in the body:

(a) 0.02 milligrams of cocaine per liter of blood,

\(^{244}\) See generally OHIO REV. CODE ANN. § 4511.19 (West 2009).
\(^{245}\) Id. at § 4511.19(A)(1)(b) & (d) (subsection (b) requiring .08% of alcohol per unit volume of the blood, and subsection (d) requiring .08% of alcohol per 210 liters of breath).
\(^{246}\) Id. at § 4511.19(A)(1)(c) & (e) (subsection (c) designating the blood serum and plasma quantities, and subsection (e) designating the urine quantities).
\(^{247}\) Id. at § 4511.19(A)(1)(j) (covering (1) amphetamines, (2) cocaine and any of its metabolites, (3) heroine and any of its metabolites, (4) LSD, (5) marijuana and any of its metabolites, (6) methamphetamines, (7) phencyclidine, and (8) salvia divinorum).
\(^{248}\) Id. at § 4511.19(B).
\(^{249}\) OHIO REV. CODE ANN. § 4511.19(D) (West 2009).
\(^{250}\) Id. at § 4511.19(E).
\(^{251}\) Id. at § 4511.19(F).
\(^{252}\) Id. at § 4511.19(G).
\(^{253}\) Id. at § 4511.19(K).
\(^{254}\) Compare VA. CODE ANN § 18.2-266 (West 2009) with OHIO REV. CODE ANN. § 4511.19 (West 2009), and NEV. REV. STAT. ANN. § 484.379 (West 2009).
(b) 0.1 milligrams of methamphetamine per liter of blood,

(c) 0.01 milligrams of phencyclidine per liter of blood, or

(d) 0.1 milligrams of 3,4-methylenedioxymethamphetamine per liter of blood.\textsuperscript{255}

3. **Arkansas as a DUI/DUID State**

Although the realm of drug testing is saturated with uncertainty, fostered by too many inaccuracies and indeterminable variables, it is getting better, and more precise. So too should the language of the law get better and more precise. As the Arkansas DUI law is currently written, it is open and susceptible to the judicial misinterpretation that has already contaminated too many courtrooms.

An ideal DUI/DUID law specifies quantities for both controlled substances and their active metabolites, protects the accused from bias and social contempt for drug use, and simplifies the prosecution process—the driver is either above the legal limit or below it, same as with alcohol. Arkansas needs to stop the possible judicial speculation at the threshold and adopt a modified version of one of the three DUI/DUID laws which specify minimum drug and metabolite quantities. In addition, the Arkansas legislature needs to explicitly exempt pharmacologically inactive metabolites from evidentiary consideration.

IV. PROPOSAL

This section of the note will begin with a brief explanation of why the New Jersey Superior Court's decision in *State v. Franchetta* was incorrect.\textsuperscript{256} Next, it will revisit the Arkansas Rules of Evidence and establish how the probative value of pharmacologically inactive metabolites is substantially outweighed by the potential for unfair prejudice against the defendant. Finally, the proposal will make its plea for the obvious remedy to the drug metabolite dilemma: Adopt a DUI/DUID law that specifies minimum quantities for controlled substances and their active metabolites.

\textsuperscript{255} VA. CODE ANN § 18.2-266 (West 2009). One noteworthy aspect of the Virginia DUI/DUID law is the requirement under subsection (iii) that the narcotic drug or intoxicant be self-administered. See *id*. The impaired driving laws of Nevada, Ohio and Arkansas do not specify such a requirement. See NEV. REV. STAT. ANN. § 484.379 (West 2009); OHIO REV. CODE ANN. § 4511.19 (West 2009); ARK. CODE ANN. § 5-65-103 (West 2009).

\textsuperscript{256} See supra Parts I–II.
A. State v. Franchetta Was Incorrect

State v. Franchetta introduced the concept of a cocaine “hangover.”257 The court was able to employ this concept in order to sustain a DUI conviction by (1) defining “under the influence” as a substantial deterioration of mental or physical capabilities, caused by alcohol or drugs, so as to render a person dangerous while driving,258 and (2) using the following evidence to place Franchetta under this definition: lethargia, incoherency, blood-shot eyes, slurred speech, not being able to stand without assistance, and the presence of the cocaine metabolite, benzolectamine, in his blood.259

However, benzolectamine is an inactive cocaine metabolite.260 It has no pharmacological effect on the body, and therefore, does not influence the body in any way.261 Its only evidentiary purpose is to show that a defendant ingested cocaine at some time in the past.262 For this reason, the evidence of benzolectamine should not have been considered in Franchetta.263 Under Rule 403 of the Arkansas Rules of Evidence, the metabolite’s probative value would be substantially outweighed by the risk of unfair prejudice against the defendant.264 Had this evidence not been considered, the court would have been unable to establish that Franchetta was under the influence of any drug, and thus unable to sustain a DUI conviction.265 For this reason, the outcome in State v. Franchetta was incorrect.

B. Probative Value v. Unfair Prejudice—The Rules of Evidence Revisited

According to the Arkansas Rules of Evidence, relevant evidence may be excluded if its probative value is substantially outweighed by the risk of unfair prejudice against the defendant.266 When applying this balancing test, the court should consider (1) the need for the evidence, (2) the tendency of the evidence to suggest to the jury an improper basis for resolving the matter, (3) the chain of inference necessary to establish the material fact, and (4) the effectiveness of limiting the jury instruction.267

Unless there is some additional circumstantial evidence of intoxication, a judge will usually not admit into evidence positive test results for drug

258. Id. at 748.
259. Id. at 747.
260. See id.
261. See id.
262. See Calhoun, supra note 33, at 1138.
263. See State v. McClain, 525 So.2d 420, 423 (Fla. 1988).
264. See id. See also ARK. R. EVID. 403.
265. See Franchetta, 925 A.2d at 747.
266. ARK. R. EVID. 403.
267. McClain, 525 So.2d at 422.
metabolites. In other words, a positive test result for drug metabolites, alone, is (1) not sufficient evidence to prove a DUI charge beyond a reason-
able doubt, and (2) likely to unfairly prejudice the defendant. However, if there is additional circumstantial evidence, even if only slight, a judge will typically admit the drug metabolites into evidence. Because the probative value of the metabolites increases with additional evidence of intoxica-
tion, the metabolites themselves may then be considered circumstantial
evidence of intoxication.

What courts fail to consider in determining the admissibility of metabo-
lite evidence is the pharmacological effect of metabolites. The court in Franchetta discussed the lack of pharmacological activity of the cocaine metabolite, but only to establish the causal link between ingestion and being under the influence of the cocaine, not its metabolite. It was not discussed to determine whether the metabolite evidence should have been admitted. The fact that the metabolite was inactive and not influencing David's body or mind should have been considered before allowing it to tip the scales toward David's DUI conviction. Indeed, it should be discussed in every case involving drug metabolites offered as evidence of intoxication.

Under Arkansas law, anyone operating or in actual physical control of a motor vehicle while intoxicated is guilty of DUI. A person is intoxicated when he or she is under the influence of a controlled substance to such a degree that reactions, motor skills and judgment are substantially altered, making it a clear and substantial danger of physical injury or death for the person to be driving. To be considered under the influence of a controlled substance, a driver must be controlled or affected by the ingestion of a con-
trolled substance at the time of driving.

If a metabolite is active at the time of driving, then it is influencing the body or mind in some way at the time of driving. If a metabolite is inactive at the time of driving, then it is influencing neither at the time of driv-

269. See McClain, 525 So.2d at 422.
270. See, e.g., Buckles, 830 P.2d at 706.
271. See, e.g., id.
272. See, e.g., id.
273. See Williams v. State, 710 So.2d 24, 40 n.32 (Fla. 3rd Dist. Ct. App. 1998); see also McClain, 525 So.2d at 422.
274. Franchetta, 925 A.2d at 749.
275. See generally id.
276. See id. at 747; see also Fiandach, supra note 53.
277. ARK. CODE ANN. § 5-65-103 (West 2009).
278. Id. at § 5-65-102.
279. Id. at § 5-65-302; e.g., Mace v. State, 328 Ark. 536, 540, 944 S.W.2d 830, 833 (1997).
280. See Fiandach, supra note 53.
An inactive metabolite could be construed as evidence of past ingestion of a controlled substance, but not as evidence of being under the influence of that substance. If anything, it should be construed as evidence of not being under the influence of a controlled substance—same as a negative drug test result. This is as far as its probative value should be allowed to stretch.

Aside from having a low probative value, evidence of inactive metabolites unfairly prejudices the defendant. First, it makes a blatant suggestion to the jury to resolve the issue of whether a DUI was committed on the improper basis of illegal drug use. Second, the chain of inference necessary to establish the material issue of whether the defendant was intoxicated at the time of driving is too attenuated. Positive test results for inactive metabolites establish two facts: (1) the defendant was not under the influence at the time of testing, and (2) the defendant ingested a controlled substance at some time in the past. Currently, drug tests are not precise enough to determine, at the time of testing, whether the defendant was under the influence at the time of driving. Nor are they precise enough to determine whether the defendant was under the influence to such a degree as to be considered intoxicated at the time of driving.

Finally, a limiting jury instruction would be ineffective. It is beyond reasonable expectations to expect a jury in a DUI case involving drugs to disregard the fact that the defendant ingested a controlled substance at some point in the past. For the foregoing reasons, positive test results for inactive metabolites should not be admitted into evidence. The probative value is substantially outweighed by the risk of unfair prejudice against the defendant.

C. Arkansas Should Join the Ranks of DUI/DUID States

By considering evidence of inactive drug metabolites as circumstantial evidence of driving under the influence of drugs, courts are in effect punishing drug users for driving, regardless of intoxication at the time of driving. The argument made in State v. Franchetta was that the prior ingestion of cocaine proximately caused David’s impaired driving by way of a “cocaine hangover.” Yet, David was neither under the influence of the cocaine nor

281. See id.
282. See Cordova, Jr., supra note 26, at 591.
284. See Stevens & Addison, supra note 34, at 21; Keller, supra note 73, at 124.
285. See Stevens & Addison, supra note 34, at 21; Keller, supra note 73, at 124.
286. Franchetta, 925 A.2d at 749.
its metabolites. He was merely under the influence of recovery from the cocaine use. This type of influence is not mentioned in the New Jersey DUI law, but it was enough for the appeals court to sustain a conviction under it.

This broad interpretation of "under the influence" for the purpose of a DUI conviction allows for the possibility of arbitrary and discriminatory enforcement. Exaggerating this interpretation a bit, police officers could potentially start handing out DUI citations to anyone driving conspicuously, and later secure the conviction as long as the driver ingested a controlled substance at some point in the past. After all, it would be relatively easy to fabricate additional circumstantial evidence (e.g. erratic driving, lethargy, incoherency) in order to introduce evidence of drug metabolites.

The Arkansas legislature should stand up and block this sweeping discrimination at the threshold. The sensitivity of chemical testing has caught up with, and is in the process of surpassing, the imprecise language of DUI laws. For this reason, these laws must be updated and limited. The Arkansas DUI law currently requires a specific blood-alcohol concentration of .08% for driving while intoxicated by alcohol. The legislature needs to set similar limits for controlled substances and their active metabolites.

Nevada, Ohio, and Virginia DUI/DUID laws make such limits, and the prohibited amounts are set at the various levels at which scientific findings indicate that an average driver would be experiencing a "high." Unfortunately, they do not discriminate between active and inactive metabolites. It is time for Arkansas to join the ranks of DUI/DUID states, and amend its current DUI law to include these limits. Moreover, the Arkansas legislature should expressly eliminate evidence of pharmacologically inactive drug metabolites from juridical consideration.

Matthew C. Rappold

287. See id. at 747.
288. See id.
290. See Franchetta, 925 A.2d at 749.
292. See id. at 843.
293. ARK. CODE ANN. § 5-65-103 (West 2009).
294. See NEV. REV. STAT. ANN. § 484.379 (West 2009); OHIO REV. CODE ANN. § 4511.19 (West 2009); VA. CODE ANN § 18.2-266 (West 2009).
295. See id.

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