

**CARTOON CRIMINALS: THE UNCLEAR FUTURE OF
COMPUTER ANIMATION IN THE MINNESOTA
CRIMINAL COURTROOM—*STATE V. STEWART***

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I.	INTRODUCTION	355
II.	THE BIRTH AND DEVELOPMENT OF COMPUTER ANIMATION	357
	A. <i>What Is Computer Animation?</i>	357
	B. <i>The History of Computer Animation</i>	358
	C. <i>Debate Over Use of Computer Animation</i>	359
III.	THE <i>STEWART</i> DECISION.....	363
	A. <i>Facts</i>	363
	B. <i>Court Proceedings</i>	366
IV.	ANALYSIS OF THE <i>STEWART</i> DECISION	373
V.	CONCLUSION.....	377

I. INTRODUCTION

*“When change is inevitable, you must spot it, embrace it, and find ways to make it work for you.”*¹

The face of America has changed drastically since the advent of computers.² More specifically, computer technology is now a permanent fixture in the legal field³ and has become the trial

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1. Frank Herrera, Jr. & Sonia M. Rodriguez, *Courtroom Technology: Tools for Persuasion*, 35 MAY-Trial 66 (1999) (quoting Bill Gates).

2. Robert B. Bennett, Jr. et al., *Seeing Is Believing; Or Is It?: An Empirical Study of Computer Simulations As Evidence*, 34 WAKE FOREST L. REV. 257 (1999). “Our society is fascinated, even obsessed, with modern technology, particularly computers which project an aura of objectivity.” *Id.* at 258. See also Mario Borelli, Note, *The Computer as Advocate: An Approach to Computer-Generated Displays in the Courtroom*, 71 IND. L.J. 439, 439 (1996) (“In the 1990’s, our culture has become computer crazed. We constantly hear such terms as ‘information superhighway,’ the ‘net,’ and ‘multimedia.’”).

3. See Fred Galves, *Where the Not-So-Wild Things Are: Computers in the Courtroom, the Federal Rules of Evidence, and the Need for Institutional Reform and More Judicial*

litigator's most powerful weapon.⁴ In the past several years, computer animations have developed into "a new and consistently changing medium that challenges the traditional criteria for determining prejudicial diagrams or video reenactments."⁵ The influence of computers has changed the look and feel of litigation.⁶ Computers are now being used to present complex evidence to the jury⁷ in the form of computer animations and simulations. With the ever-increasing use of computer animations in criminal litigation, courts should be receptive to their use and provide trial courts a way to make it work. Unfortunately, in *State v. Stewart*,⁸ the Minnesota Supreme Court's first decision dealing with the use of computerized animation, the court spotted the change and embraced it, but failed to provide district courts with a way to "make it work."

This article examines the development of computerized animation and its use in the legal field.⁹ It then analyzes the Minnesota Supreme Court's holding in *Stewart*¹⁰ and the consequences of that ruling.¹¹ Finally, the article concludes that the court's decision failed to delineate a test for the district courts to apply when faced with the use of computerized animation in a

Acceptance, 13 HARV. J.L. & TECH. 161, 166-67 (2000) ("Indeed, any perspective that may have initially prevailed of computerization in the courtroom as a threatening newcomer . . . is fading into the view that the incorporation of [computer-generated exhibits] in the courtroom is positive, inevitable, and in many ways quite natural.").

4. See Michael Hoenig, "Gatekeeping" *Reliability of Computer Simulations*, N.Y. L.J., July 10, 2000, at 3 ("Computer assisted courtroom animation has become a powerful tool for the visual recreation of accidents, mechanical failures and other occurrences.").

5. Cope C. Thomas, *Computer Generated Animation: Identifying New and Subtle Prejudicial Special Effects*, 74 FLA. B.J. 52, 52 (2000). See also Amanda Vogt, *Jury's Out on Animations in Court; Some Lawyers Fear Technology Creates Prejudice*, CHI. TRIB., May 9, 2002, available at 2002 WL 2652962 ("In criminal courtrooms nationwide, juries increasingly are being asked to watch 3-D computer animation, from chilling reenactments of accidents like the one that killed Chicago Fire Lt. Scott Gillen two years ago to representations of the trajectories of bullets as they penetrate a body.").

6. Thomas, *supra* note 5, at 52.

7. See Fred H. Cate & Newton N. Minow, *Communicating with Juries*, 68 IND. L.J. 1101, 1112 (1993) (illustrating how "[i]nnovative communications technologies [such as computers] may enhance the understanding of juries . . .").

8. 643 N.W.2d 281 (Minn. 2002).

9. See *infra* Part II.

10. See *infra* Part III.

11. See *infra* Part IV.

criminal case.¹²

II. THE BIRTH AND DEVELOPMENT OF COMPUTER ANIMATION

A. *What Is Computer Animation?*

It is important to distinguish between a computer animation and a computer simulation in order to determine the admissibility of the piece. This determination can be difficult because there is no bright-line distinction between the two.

In a computer simulation, data is entered into a computer for analysis.¹³ The computer then draws a conclusion regarding the data.¹⁴ Computer simulations are treated like other scientific tests; they require proof of the validity of the scientific principles used due to the fact that the results are dependent upon the application of scientific principles.¹⁵ Computer animations, on the other hand, “re-create an event, scene, or process, or simply an illustration of a general principle.”¹⁶ In addition, computer animations are broken down into two types: a series of still photographs linked together to form an animation, or a simulation created from the input of raw data that is then manipulated by a series of mathematical models to simulate an occurrence.¹⁷ Computer animations are treated by courts as demonstrative evidence to be used to illustrate a witness’s testimony because the conclusions drawn from an animation are not dependent upon the proper application of scientific principles.¹⁸

In summary, the basic distinction between a computer animation and a computer simulation is that when using a

12. See *infra* Part V.

13. Monica M. Marquez, *Admissibility of Computer-Generated Animations as Demonstrative Evidence*, 31 COLO. LAW. 89, 89 (2002).

14. *Id.*

15. *Id.*

16. *Id.*

17. Theresa A. Webster, *The Creative Side of Law: Techniques and Advice for Creating Effective Trial Graphics*, 80 MICH. B.J. 38, 44 (2001). See also Michael P. Kenny & William H. Jordan, *Trial Presentation Technology: A Practical Perspective*, 67 TENN. L. REV. 587, 592-93 (2000) (stating “[j]ust a few years ago, computer animation was relatively crude, using stick figures or jerky motion. Today’s high-speed computer processors and graphic rendering programs create nearly lifelike images. Graphic artists can even insert a light source so that the computer generates natural-looking shadows and contours.”).

18. Alyssa Litman, *Brave New World? Scranton Judge’s Ruling Widens Door for Commonplace Use of Visual Technology*, 25 PA. L. WKLY. 725, 725 (2002).

computer animation the focus is on illustration, while computer simulations focus on computation of raw data and illustration.¹⁹

B. *The History of Computer Animation*

The legal profession was barely even aware of the concept of computer animation ten years ago.²⁰ It was not until approximately five years ago that computer animation began to emerge in the fields of product liability and medical malpractice, and even then it was used only by a handful of attorneys in high-priced civil lawsuits.²¹ Computerized animations have not been used in criminal trials until recently.²²

The recent increase in the use of computer animation has spurred a great debate in the legal profession.²³ Courts have taken differing views when looking at whether to include computers and computer technology in trials.²⁴ Computer-generated exhibits are currently being used in a very wide variety of cases.²⁵

19. Bennett, *supra* note 2, at 260.

20. Litman, *supra* note 18, at 725.

21. *Id.* See also Vogt, *supra* note 5, at *2 (stating “[c]omputer animation has long been used in high-stakes civil cases, but it has been slower to catch on in criminal cases, in part because it is expensive, courtroom observers said. As the cost decreases and computer technology advances, however, it is expected to be used more often.”).

22. Litman, *supra* note 18, at 725.

23. See Galves, *supra* note 3, at 165-66 (quoting Timothy W. Cerniglia, *Computer Generated Exhibits—Demonstrative, Substantive or Pedagogical— Their Place in Evidence*, 18 AM. J. TRIAL ADVOC. 1, 1 (1994)); Borelli, *supra* note 2, at 440 (“There are many ways of thinking about how to deal with computers in the courtroom, and no clear standards have been set.”).

24. Compare *Star v. Campos*, 655 P.2d 794, 797 (Ariz. Ct. App. 1982) (“[T]he court may take judicial notice of the ability of a properly programmed computer to perform mathematical computation and of the general acceptance of the underlying principle of the method.”) and *People v. McHugh*, 476 N.Y.S.2d 721, 722-23 (N.Y. Gen. Term 1984) (“A computer is not a gimmick and the court should not be shy about its use, when proper. Computers are simply mechanical tools—receiving information and acting on instructions at lightning speed. When the results are useful, they should be accepted, when confusing, they should be rejected.”), with *Perma Research & Dev. v. Singer Co.*, 542 F.2d 111, 121 (2d Cir. 1976) (van Graafeiland, J., dissenting) (“I am not prepared to accept the product of a computer as the equivalent of Holy Writ.”) and *Exxon Corp. v. Halcon Shipping Co.*, No. CIV.A.91-920, 1995 WL 20667, at *23 (D. N.J. Jan. 18, 1995) (“This [computer simulation] is the type of exhibit that *Daubert v. Merrill Dow Pharmaceuticals, Inc.*, 113 S. Ct. 2786 (1993), had in mind when it designated the judge as the gatekeeper to eliminate junk science from the judicial arena.”).

25. See *Robinson v. Mo. Pac. R.R. Co.*, 16 F.3d 1083, 1087 (10th Cir. 1994) (upholding admission of accident simulation that illustrated expert’s theory); *Seattle Master Builders Ass’n v. Pac. Northwest Elec. Power & Conservation*

C. Debate Over Use of Computer Animation

1. Evidentiary Issues

Computers and computer animation have had a marked influence on the way lawyers approach litigation.²⁶ Courts presently face new evidentiary issues regarding the admissibility of this powerful illustrative tool.²⁷ Computer animation provides attorneys with a powerful evidentiary tool that has profoundly impacted the litigation of both civil²⁸ and criminal trials.²⁹

Planning Council, 786 F.2d 1359, 1370 (9th Cir. 1986) (allowing the use of computer simulations to ascertain energy conservation value); *Perma*, 542 F.2d at 115 (allowing computer simulation results to form the basis of expert testimony that pertained to the likelihood of perfection of an automobile anti-skid device); *Livingston v. Isuzu Motors, Ltd.*, 910 F. Supp. 1473, 1495 (D. Mont. 1995) (holding that computer expert's Advanced Dynamic Vehicle Simulation (ADVS) was properly admissible as scientific evidence); *Cleveland v. Bryant*, 512 S.E.2d 360, 362 (Ga. Ct. App. 1999) (upholding admission of computer-generated accident reconstruction); *Commercial Union Ins. Co. v. Boston Edison Co.*, 591 N.E.2d 165, 168 (Mass. 1992) (upholding the admission of a computer-generated model that estimated energy consumption); *Kudlacek v. Fiat S.P.A.*, 509 N.W.2d 603, 617 (Neb. 1994) (upholding the admission of expert testimony regarding the path of a car on a road depicted by a computer simulation); *McHugh*, 476 N.Y.S.2d at 722-23 (upholding admission of computer simulation of car crash in a second-degree manslaughter prosecution); *State v. Clark*, 655 N.E.2d 795, 814 (Ohio Ct. App. 1995), *aff'd*, 662 N.E.2d 362 (Ohio 1996) (upholding admission of expert's testimony detailing a crime scene reconstruction created through the use of AutoCAD software); *Deffinbaugh v. Ohio Tpk. Comm'n*, 588 N.E.2d 189, 194 (Ohio Ct. App. 1990) (upholding the admission of two computer-generated simulations at trial); Karen D. Butera, *Seeing Is Believing: A Practitioner's Guide to the Admissibility of Demonstrative Computer Evidence*, 46 CLEV. ST. L. REV. 511, 518-19 nn.75-84 (1998) (noting a variety of civil and criminal cases in which computer-generated exhibits have been used); Kristin L. Fulcher, Comment, *The Jury as Witness: Forensic Computer Animation Transports Jurors to the Scene of a Crime or Automobile Accident*, 22 U. DAYTON L. REV. 55, 62 (1996) ("One popular use of computer-generated evidence is to reconstruct automobile accidents.").

26. See Borelli, *supra* note 2, at 439 (discussing the growing role of computer animation in trials).

27. See generally I. Neel Chatterjee, *Admitting Computer Animations: More Caution and New Approach Are Needed*, 62 DEF. COUNS. J. 36 (1995) (arguing computer animation evidence should be admitted under the same standards governing computer-simulated evidence); Vicki S. Menard, Comment, *Admission of Computer Generated Visual Evidence: Should There Be Clear Standards?*, 6 SOFTWARE L.J. 325 (1993) (discussing standards for admitting computer-generated evidence).

28. See S. Michael Kozubek, *The Visual Courtroom: A Picture Is Worth More than a Thousand Words*, LAW. PC, Feb. 15, 1994, at 1, 2 (discussing the use of computer animation in multimillion-dollar product liability cases).

29. See Edward J. Bardelli, *The Use of Computer Simulations in Criminal Prosecutions*, 40 WAYNE L. REV. 1357, 1357 (1994).

To get computer animation admitted into evidence, attorneys must first lay a proper foundation pursuant to Rule 901 of the Federal Rules of Evidence.³⁰ Conclusive evidence regarding the exhibit's authenticity is not required.³¹ The only thing the offering party is required to offer is proof sufficient "to allow the issue of authenticity to reach the jury."³² In order for the evidence to reach the jury, however, a judge must determine the admissibility of the animation.³³ The initial admissibility determination for computer-generated evidence remains with the trial judge using a preponderance of the evidence standard.³⁴ Authentication of computer-generated animation is addressed in Rule 901(b)(9).³⁵ Rule 901(b)(9) requires the offering party to present a description of the "process or system used to produce a result" and establish that it "produces an accurate result."³⁶ A qualified expert is often required to testify as to the animation's reliability and accuracy

30. Carlo D'Angelo, *The Snoop Doggy Dogg Trial: A Look at How Computer Animation Will Impact Litigation in the Next Century*, 32 U.S.F. L. REV. 561, 567 (1998).

31. *Id.*

32. *Id.*

33. *Id.* at 567-68. The initial determination of admissibility hinges upon the judge's determination under Rule 104(b) that an adequate foundation has been laid for admitting the exhibit. See CHRISTOPHER B. MUELLER & LAIRD C. KIRKPATRICK, EVIDENCE § 9.2 (1995). This determination by the judge, however, is only limited to a finding of "whether there is evidence sufficient to support a jury finding of authenticity." *Id.* If this threshold requirement is satisfied, then the exhibit is typically admitted—unless there exist other grounds for exclusion. *Id.* Once the moving party admits an exhibit into evidence, however, the opposing party may offer "counter proof" that challenges its authenticity. *Id.* It is important to bear in mind that once an exhibit is admitted under Rule 901, the ultimate decision of whether to accept it as authentic rests entirely within the jury's discretion. *Id.*

34. See FED. R. EVID. 104. See also *Daubert v. Merrell Dow Pharms. Inc.*, 509 U.S. 579, 589-92 (1993) (outlining nature and scope of trial judge's screening duty); *Bourjaily v. United States*, 483 U.S. 171, 175-76 (1987) (stating that the trial court must find evidence "more likely than not" meets policy and technical issues addressed by Federal Rules of Evidence).

35. FED. R. EVID. 901(b)(9).

36. *Id.* The requirements of Rule 901(b)(9) can generally be met by offering evidence that:

"(1) the computer equipment is accepted in the field as standard and competent and was in good working order, (2) qualified computer operators were employed, (3) proper procedures were followed in connection with the input and output of information, (4) a reliable software program was utilized, (5) the equipment was programmed and operated correctly, and (6) the exhibit is properly identified as the output in question."

MUELLER & KIRKPATRICK, *supra* note 33, at § 9.17.

when dealing with computer animations.³⁷ A court may also require prompt pretrial disclosure due to the sophisticated nature of the computer animation to assure that opposing counsel has been provided with enough time to evaluate and rebut the exhibit's authenticity.³⁸

Once authenticity of the exhibit has been established, the focus shifts to the relevancy of the animation.³⁹ This is a crucial step in the process because if the animation is found to be irrelevant, the evidence is inadmissible—even as a demonstrative aid.⁴⁰ To be deemed relevant, the offering party must establish that the exhibit “has a tendency to make the existence of a fact that is of consequence to the determination of the action more probable or less probable than it would be without the evidence.”⁴¹ The attorney need only establish that the evidence has some probative value and is not required to establish that the animation will prove a fact at issue in the case.⁴² All the attorney needs to show to prove probative value is a “relation between an item of evidence and a matter properly provable in the case.”⁴³

2. *Impact of Computer Animation on Jury Perception*

“Even if the proffered evidence is deemed relevant, it might nevertheless be excluded on grounds of prejudice.”⁴⁴ A judge may exclude a computer-animated exhibit if the opposing party can establish that the evidence, if admitted, could be used by the jury causing an “improper” or “unusually irrational” decision.⁴⁵ It may also be excluded if it is likely that it could mislead the jury or cause

37. See David Muir, *Computer Animation: Debunking the Myths*, MASS. LAW. WKLY., Mar. 23, 1992, at S1, available in WESTLAW, MLW.

38. D'Angelo, *supra* note 30, at 568.

39. *Id.* (citing FED. R. EVID. 402).

40. *Id.* (citing FED. R. EVID. 402).

41. *Id.* (quoting MUELLER & KIRKPATRICK, *supra* note 33, at § 4.1).

42. *Id.*

43. *Id.* (quoting MUELLER & KIRKPATRICK, *supra* note 33, at § 4.1).

44. *Id.* (citing FED. R. EVID. 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.” FED. R. EVID. 403.

45. D'Angelo, *supra* note 30, at 569-70. (citing GLEN WEISSENBERGER, FEDERAL EVIDENCE § 403.1) “Consequently, if the evidence arouses the jury's emotional sympathies, evokes a sense of horror, or appeals to an instinct to punish, the evidence may be unfairly prejudicial.” *Id.*

them to confuse the issues.⁴⁶ A judge presiding over the matter can exclude a relevant piece of evidence if it “would require the trier of fact to engage in intricate, extraordinary or impossible mental gymnastics in order to comprehend the import of the evidence or to assess its weight.”⁴⁷ Finally, computer-animated exhibits may be excluded in situations where a jury could “ascribe excessive, unwarranted weight” to the evidence.⁴⁸ For a judge to exclude the evidence, the opposing party must prove that the danger of jury confusion substantially outweighs the probative value of the evidence.⁴⁹ Evidence is unlikely to be excluded on a mere assertion of possible confusion if it is both authentic and relevant to the case at hand.⁵⁰

One of the most hotly debated issues regarding computer animation is the impression left upon a juror’s mind once computer technology is used, either for the presentation of evidence or as actual evidence in visual format.⁵¹ The perceived power of animations and simulations to sway jurors has made their admissibility extremely controversial among both courts⁵² and commentators.⁵³ Those who oppose the use of computer

46. *Id.* at 570 (citing GLEN WEISSENBERGER, FEDERAL EVIDENCE § 403.4).

47. *Id.* (citing GLEN WEISSENBERGER, FEDERAL EVIDENCE § 403.4).

48. *Id.* (quoting GLEN WEISSENBERGER, FEDERAL EVIDENCE § 403.4).

49. *Id.* (citing GLEN WEISSENBERGER, FEDERAL EVIDENCE § 403.4).

50. *Id.* (citing GLEN WEISSENBERGER, FEDERAL EVIDENCE § 403.4).

51. See Butera, *supra* note 25, at 512 (quoting Adam T. Berkoff, *Computer Simulations in Litigation: Are Television Generation Jurors Being Misled?*, 77 MARQ. L. REV. 829, 829 (1994)); Jennifer L. Mnookin, *The Image of Truth: Photographic Evidence and the Power of Analogy*, 10 YALE J.L. & HUMAN. 1, 2 (1998) (stating that “[s]eeing a photograph almost functions as a substitute for seeing the real thing.”).

52. See, e.g., *Perma Research & Dev. v. Singer Co.*, 542 F.2d 111, 121-26 (2d Cir. 1976) (van Graafeiland, J., dissenting); *Racz v. R.T. Merryman Trucking, Inc.*, No. CIV.A.92-3404, 1994 WL 124857, at *5 (E.D. Pa. Apr. 4, 1994); *Bledsoe v. Salt River Valley Water Users’ Ass’n*, 880 P.2d 689, 691-93 (Ariz. Ct. App. 1994); *Pino v. Gauthier*, 633 So. 2d 638, 652 (La. Ct. App. 1993); *Comm. Union Ins. Co. v. Boston Edison*, 591 N.E.2d 165, 167-69 (Mass. 1992); *Richardson v. State Highway & Transp. Comm’n*, 863 S.W.2d 876, 881-82 (Mo. 1993) (en banc); *Bray v. Bi-State Dev. Corp.*, 949 S.W.2d 93, 97-100 (Mo. Ct. App. 1997); *Kudlacek v. FIAT S.P.A.*, 509 N.W.2d 603, 617-18 (Neb. 1994); *Deffinbaugh v. Ohio Tpk. Comm’n*, 588 N.E.2d 189, 193-94 (Ohio Ct. App. 1990); *Brown v. Boise-Cascade Corp.*, 946 P.2d 324, 342 (Or. Ct. App. 1997); *Steinhart v. St. Paul Fire & Cas. Ins.*, No. 96-2656, 1997 WL 697788, at *4 (Wis. Ct. App. Nov. 11, 1997) (per curiam) (unpublished table decision).

53. See, e.g., Berkoff, *supra* note 51, at 845-54 (1994) (suggesting the possible abuses, misunderstandings, and disadvantages to using computer simulations); Richard C. Jennings, *Evidence Survey*, 72 DENV. U. L. REV. 703, 715 (1995) (stating

animation argue that a jury will be left with the impression that the animation is one of truth.⁵⁴ Critics of video evidence being used in the courtroom have voiced many of the same concerns that are now being raised by those who opposed the use of computer-animated evidence.⁵⁵ Despite the fact that computer animation provides an extremely effective communication tool that can be used to help jurors deal with boring or cumbersome testimony, lawyers need to realize that it requires the use of subtle techniques that can be unfamiliar to many in the legal profession.⁵⁶ Lawyers need to examine the creative and sometimes subtle features to determine if the animation has a prejudicial effect.⁵⁷

III. THE STEWART DECISION

A. Facts

1. The Shooting

On April 26, 2000, at approximately 9:30 p.m., seventeen-year old Anthony Basta (“Basta”) told his mother that he was going on a

“[v]ideo animation may have a dramatic power over the trier of fact ...”); Declan O’Flaherty, *Computer-Generated Displays in the Courtroom: For Better or Worse?*, 4 WEBJ. CURRENT LEGAL ISSUES 1, § 3 (Sept. 30, 1996) available at <http://webjcli.ncl.ac.uk/1996/issue4/oflah4.html/oflah4.html> (last visited July 22, 2003).

54. Elan E. Weinrab, “*Counselor, Proceed With Caution*”: *The Use of Integrated Evidence Presentation Systems and Computer-Generated Evidence in the Courtroom*, 23 CARDOZO L. REV. 393, 395 (2001); see also James E. Carbine & Lynn McLain, *Proposed Model Rules Governing the Admissibility of Computer-Generated Evidence*, 15 SANTA CLARA COMPUTER & HIGH TECH. L.J. 1, 5 (1999) (arguing that individuals “more easily give credibility to televised information. If Peter Jennings says it happened, it happened.”). But see James W. McElhane, *Gizmos in the Courtroom*, 83 A.B.A. J. 74, 75 (1997) (quoting attorney David Malone: “Just because it’s on a television screen doesn’t mean the jury thinks it happened that way.”); Andrew C. Wilson et al., *Tracking Spills and Releases: High-Tech in the Courtroom*, 10 TUL. ENVTL. L.J. 371, 371-72 (1997) (“Constant exposure to movie and television animation has led the public and jurors to suspect ‘computer magic’ in any extraordinary visual sequence.”).

55. D’Angelo, *supra* note 30, at 585 n.221 (citing Karen Martin Campbell, *Roll Tape—Admissibility of Videotape Evidence in the Courtroom*, 26 U. MEM. L. REV. 1445, 1464 (1996); Edward V. Filardi & Dimitrios T. Drivas, *The Presentation of Demonstrative and Visual Evidence at Trial*, in PATENT LITIGATION 1990, at 245, 254 (PLI PATENTS, COPYRIGHTS, TRADEMARKS, AND LITERARY PROPERTY COURSE HANDBOOK SERIES No. 299, 1990), available in WESTLAW, PLI-PAT).

56. Thomas, *supra* note 5, at 54.

57. *Id.*

bicycle ride.⁵⁸ At about 10:00 p.m., Charles Joy (“Joy”) was riding his bicycle in the northbound lane on Mississippi River Boulevard in St. Paul.⁵⁹ He noticed an individual, later identified as Basta, riding his bicycle southbound in the bike lane.⁶⁰ Joy observed a car approaching Basta from behind. The car pulled up next to Basta, and Joy heard a “popping” sound and also heard Basta say “ow.”⁶¹ He then saw Basta ride forward on his bicycle for another ten feet and then fall off the bicycle.⁶² Paramedics arrived on the scene at 10:12 p.m.⁶³ Basta died fourteen minutes later at St. Paul Regions Hospital.⁶⁴

2. *The Investigation*

Investigators found no physical evidence of the shooting, and the only witness was Joy.⁶⁵ On May 3, they received information that Victoria Ernst was at a party and heard someone, later identified as Dale Stewart, admit to the shooting.⁶⁶ According to Ernst, Stewart said that he and some friends were driving around, saw a “kid” riding a bike, and thought it would be funny to scare the kid.⁶⁷ Ernst claimed that Stewart also thought it was funny that he later returned to the scene of the shooting and signed some kind of crime prevention statement.⁶⁸ She told investigators Stewart said that when he and his two companions left the scene of the shooting, they had planned to try killing someone else.⁶⁹

After locating Stewart, the police conducted three tape-recorded interviews of him.⁷⁰ In the first interview, Stewart denied

58. *Stewart*, 643 N.W.2d at 283.

59. *Id.* at 283-84.

60. *Id.* at 284.

61. *Id.*

62. *Id.*

63. *Id.*

64. *Id.*

65. *Id.*

66. *Id.*

67. *Id.* Stewart told the investigator that he only wanted to scare the kid but not kill him. *Id.*

68. *Id.* Citizens created a memorial where Basta was shot and distributed a petition addressed to St. Paul Mayor Norm Coleman, asking him to direct the Department of Public Works to keep the memorial. *Id.* at n.1. The petition also reminded citizens to stop the violence. *Id.*

69. *Id.* at 284.

70. *Id.* The first two interviews took place at the St. Paul Police Department Homicide Unit office. *Id.* Stewart was not under arrest at that time. *Id.* at 285.

any involvement in the shooting.⁷¹ When investigators learned that a gun had been seen at Stewart's apartment in Bloomington before the shooting, they initiated a second interview.⁷² During the second interview, the investigator questioned Stewart about the gun and suggested several possible scenarios of how the shooting occurred.⁷³ According to the investigator, Stewart eventually cried and admitted that he, Daniel Angus, and Jonathan McNeill were driving along Mississippi River Boulevard on the night of the shooting.⁷⁴ Stewart said that he was in the front passenger seat, Angus was in the back seat, and McNeill was driving.⁷⁵ Stewart told the investigator that one of the other two told him that there was a gun under the seat.⁷⁶ Stewart picked up the gun and then, being "stupid and careless," stuck the gun out the window and pulled the trigger.⁷⁷ Stewart told the investigator where to find the shell casing that he had kept because it jammed in the gun.⁷⁸ Stewart was then placed under arrest.⁷⁹

After his arrest, investigators conducted a third interview with Stewart.⁸⁰ During that interview, Stewart informed the investigators that the gun belonged to Angus.⁸¹ He also said that in the weeks leading up to the shooting, the three of them had discussed using the gun to rob people; in the days preceding the shooting, they actually went up to Mississippi River Boulevard with a loaded gun.⁸² Stewart said that they all agreed when McNeill suggested that they kill their targets rather than just rob them.⁸³ Stewart told the investigator that he gave Angus and McNeill the impression that he was a willing participant in the scheme, but that he had no

71. *Id.* at 284. Stewart said he was on probation, he was not the type of person who would do such a crime, and that he could never kill anybody. *Id.*

72. *Id.*

73. *Id.* at 284-85.

74. *Id.* at 285.

75. *Id.*

76. *Id.*

77. *Id.* He stated that he did not see Basta as he pulled the trigger. *Id.*

78. *Id.* Investigators later recovered shell casings from Stewart's residence and a 9-mm semiautomatic handgun from McNeill's apartment. *Id.* Ballistics tests confirmed that Basta had been shot with this gun. *Id.*

79. *Id.*

80. *Id.*

81. *Id.*

82. *Id.* While they had picked out individuals as targets, they did not follow through with their plan to rob them. *Id.*

83. *Id.*

intention to rob or kill anyone.⁸⁴ He claimed that he went along only because he feared that his friends would reject him if did not go along with the plan.⁸⁵

Stewart then told the investigator about the events leading up to the shooting and the shooting itself.⁸⁶ Stewart stated that the three of them drove up to Mississippi River Boulevard with the purpose of killing someone, just to see if they could do it.⁸⁷ Someone then spotted Basta and they turned the car around to follow him.⁸⁸ As they came upon Basta, Stewart stuck his hand and the gun out the window and pulled the trigger.⁸⁹ He said that they then headed to Roseville because Angus wanted to shoot someone.⁹⁰

B. Court Proceedings

1. Pretrial

On June 14, 2000, Stewart was indicted for first-degree murder.⁹¹ At a preliminary hearing on August 4, 2000, the state provided notice that one of the exhibits it would seek to present at the trial was a computerized animation prepared by Dan Davis, an assistant Hennepin County medical examiner.⁹² The animation was intended to aid the testimony of Susan Roe, an assistant medical examiner for Ramsey and Washington counties, regarding Basta's internal injuries.⁹³ A motion in limine was filed by Stewart's attorney regarding the computer animation and *Spreigl* evidence⁹⁴

84. *Id.*

85. *Id.*

86. *Id.*

87. *Id.*

88. *Id.*

89. *Id.* Stewart claimed that McNeill and Angus intended to kill Basta, but that his objective was only just to scare him. *Id.*

90. *Id.* The three stopped to meet Angus' girlfriend; later they returned to the scene of the shooting but left because the street was blocked off by police. *Id.*

91. *Id.* at 286.

92. *Id.*

93. *Id.* The state alleged that the animation would help the medical examiner explain the autopsy findings because the bullet path was not readily understandable due to the fact that the shot came from a moving vehicle and Basta was on a moving bicycle when he was shot. *Id.*

94. Other-crimes evidence is often referred to as "*Spreigl* evidence" in Minnesota after the court's decision in *State v. Spreigl*, 272 Minn. 488, 139 N.W.2d 167 (1965). *Id.* at 286 n.2. In *Stewart*, the state sought to introduce evidence that

that the state was also seeking to introduce.⁹⁵

The animation was presented to the judge by use of Microsoft PowerPoint and consisted of four sequences.⁹⁶ The first sequence showed Basta facing the viewer, bicycling on the side of the road.⁹⁷ The car moved up from behind Basta, and as it approached him, the front seat passenger, who was holding a gun, placed his arm outside the car.⁹⁸ The passenger rested his arm with the gun pointed at the ground until the car was alongside Basta.⁹⁹ When the passenger turned to look at Basta, he extended his arm toward Basta, and fired the gun.¹⁰⁰ The bullet's path was indicated in the animation by a red beam from the gun to where the bullet struck Basta.¹⁰¹ The remaining three sequences contained the same events as the first with the only difference being the vantage point of the viewer.¹⁰²

At a pretrial hearing, "the state requested that the court rule quickly on the admissibility of the animation."¹⁰³ Stewart "opposed the admissibility of the animation on the grounds that (1) the medical examiner could explain the shooting without the animation and (2) there was no adequate foundation for the animation."¹⁰⁴ He further argued that because no testimony had been taken in the case, no foundation had been laid for the "state's argument that the animation constituted an objective re-creation of the shooting."¹⁰⁵ The state responded to this argument by explaining that foundation for the animation would be laid throughout the trial.¹⁰⁶ The prosecutor argued that "the animation

Stewart and Angus had both previously participated in a burglary and conspiracy to commit first-degree murder. *Stewart*, 643 N.W.2d at 286.

95. *Stewart*, 643 N.W.2d at 286.

96. *Id.* "The animation originally contained five sequences depicting different views of the shooting." *Id.* at 286 n.4. While all five were admitted for demonstrative purposes, only four were shown during Roe's testimony. The fifth was never used. *Id.*

97. *Id.* at 286.

98. *Id.*

99. *Id.*

100. *Id.*

101. *Id.*

102. *Id.* The second sequence showed the back of Basta as he bicycled down the road with the car approaching Basta from behind; the third sequence provided a view of the passenger side of the car; the fourth and final sequence showed a frontal view of the car. *Id.*

103. *Id.* at 287.

104. *Id.*

105. *Id.*

106. *Id.*

is simply an indication upon time-honored courtroom practices of allowing courtroom demonstrations to show three dimensional things,” and “[t]his graphic is simply an animation that places a little bit more information in the same view to the jury to appreciate the point of fire and the direction of fire and how it impacted the victim’s body.”¹⁰⁷

The judge then questioned the prosecutor regarding the foundation for the animation.¹⁰⁸ The prosecutor informed the court that during the trial he could augment the record to show that the animation was consistent with the car’s size, the width of the road, and the bike path.¹⁰⁹ Stewart argued that some of the scenes from the animation, such as the scene depicting events within the car, “would have no basis at all to show the entry wound and the angle and all of that.”¹¹⁰ At that point, the judge decided that during the trial he would allow the medical examiner to testify outside the hearing of the jury in order to make a determination of whether the animation was accurate and would be helpful to her testimony.¹¹¹

Following the pretrial hearing, Stewart’s attorney submitted a motion to preclude the computerized animation.¹¹² In the motion, Stewart relied on *State v. Hopperstad*¹¹³ in support of his argument that the computerized animation was not relevant evidence.¹¹⁴ In *Hopperstad*, the court of appeals found that a re-creation of the incident that led to the defendant’s arrest was not relevant.¹¹⁵ Stewart argued that based on the fact that the animation was a re-creation of the shooting and that it did not tend to prove or

107. *Id.*

108. *Id.*

109. *Id.* He also told the court “that he expected the medical examiner to testify that the animation is a consistent reenactment” of where the gun was positioned at the time Basta was shot. *Id.*

110. *Id.*

111. *Id.*

112. *Id.*

113. 367 N.W.2d 546 (Minn. Ct. App. 1985). Relevant evidence is evidence having any tendency to make the existence of any fact that is of consequence to the determination of the action more or less probable than it would be without the evidence. *See* FED. R. EVID. 402.

114. *Stewart*, 643 N.W.2d at 288.

115. *Id.* *Stewart* distinguished *State v. Rasinski*, 464 N.W.2d 517 (Minn. Ct. App. 1990) (upholding the use of a videotaped reenactment of an automobile accident because it tended to show how the disputed accident occurred) by arguing that there is no dispute that Basta was shot while riding his bicycle. *Stewart*, 643 N.W.2d at 288.

disprove a fact of consequence, the court should exclude the evidence.¹¹⁶ Stewart further asserted that the animation was an improper aid for the medical examiner because the re-creation was “well-beyond” what the state needed in order to show the angle of entry.¹¹⁷ Finally, Stewart argued that even if the court determined that the animation was relevant, it should be excluded as cumulative and prejudicial.¹¹⁸

2. *Trial*

During trial, the investigator who interviewed Stewart testified about what Stewart told him during the three interviews.¹¹⁹ McNeill also testified for the prosecution regarding the events of that evening under an agreement allowing him to plead guilty to second-degree murder.¹²⁰ McNeill testified that he, Angus, and Stewart were traveling northbound on Mississippi River Boulevard on the evening of the shooting and that when they spotted Basta, Angus and Stewart said, “Let’s get him.”¹²¹ McNeill testified that when Angus and Stewart asked him to pull over, he turned the car around to follow Basta.¹²² He then asked Stewart and Angus if they were really going to do it, to which they both answered yes and that they were excited.¹²³ McNeill testified that, as they closed in on Basta, Stewart cocked the gun and “rested his arm out the window lazily.”¹²⁴ He testified that the gun was pointed toward the ground and the window was open.¹²⁵ As the car approached Basta, Stewart leaned out the window, extended his arm, and fired the gun.¹²⁶

A hearing outside the presence of the jury was held before the

116. *Stewart*, 643 N.W.2d at 288.

117. *Id.*

118. *Id.* The court in *Hopperstad* found that the re-creation was cumulative because it graphically restated the testimony of certain witnesses for the state; the court also held that the re-creation was prejudicial because seeing the events depicted exactly the way the state’s witnesses said they had happened was bound to affect the jury out of proportion to its value as evidence. *Hopperstad*, 367 N.W.2d at 549.

119. *Stewart*, 643 N.W.2d at 288. Tapes of these interviews were played for the jurors. *Id.*

120. *Id.*

121. *Id.*

122. *Id.*

123. *Id.*

124. *Id.*

125. *Id.*

126. *Id.* After McNeill testified, two other witnesses testified regarding discussions they had with Stewart concerning the shooting. *Id.* at 289.

close of the state's case to address the issues of "the admissibility of the computerized animation and the admissibility of the *Spreigl* evidence."¹²⁷ The court heard testimony from Dr. Roe to establish the appropriate foundation for the admissibility of the animation.¹²⁸ Dr. Roe testified that it was common for a medical examiner to document the distance of the firearm from the body of the victim at the time of the shooting (the point of fire), the trajectory of the bullet before it hit the body, where the bullet entered the body, and the track of the wound in the body.¹²⁹ Roe testified on cross-examination that the five sequences did not show the bullet entering Basta's body.¹³⁰ When the court asked Roe whether the animation would assist her testimony to the jury, she responded that it would.¹³¹ She further testified that using computerized animation was becoming state of the art.¹³² The court admitted the animation.¹³³

"[B]efore closing arguments, the court instructed the jurors that the animation was not evidence in the trial or proof of any fact and that they should disregard the animation if it did not correctly reflect the testimony or other evidence in the case."¹³⁴ The jury found Stewart guilty of first-degree premeditated murder, first-degree felony murder (drive-by shooting), and second-degree felony murder.¹³⁵

3. *Supreme Court Analysis*

The Minnesota Supreme Court acknowledged that the trial court admitted the computer animation "for illustrative purposes to aid the medical examiner in her testimony."¹³⁶ Rulings on the admission of evidence rest with the trial court's discretion; therefore, sufficient evidence must be presented to demonstrate

127. *Id.*

128. *Id.* at 290. The state offered the animation "as an illustrative or demonstrative exhibit in the course of Dr. Roe's direct testimony." *Id.*

129. *Id.* She testified that in making these determinations for this case, she used information collected by investigators as well as her own autopsy findings. *Id.*

130. *Id.*

131. *Id.* She testified that the animation would make it "somewhat easier" to explain to a jury and was "very effective." *Id.*

132. *Id.*

133. *Id.*

134. *Id.* at 292. The jurors were not permitted to take the animation into the jury room during deliberations. *Id.*

135. *Id.*

136. *Id.* at 292.

that the admission was both erroneous and prejudicial.¹³⁷ On appeal, Stewart argued that the computer animation was substantive evidence¹³⁸ and that insufficient foundation had been laid for its admission into evidence.¹³⁹ The court recognized that demonstrative evidence¹⁴⁰ “is ‘admitted, when properly verified, to illustrate or express the testimony of a competent witness, but [is] not original evidence.’”¹⁴¹ The court rejected Stewart’s argument that the evidence was substantive, holding that the animation was admitted and used for illustrative purposes and, therefore, it was considered demonstrative evidence.¹⁴² The court then looked at whether the admission was erroneous and prejudicial.¹⁴³

The court recognized that admissibility of computer-generated animation used to assist a witness testifying in a criminal case was a question of first impression in Minnesota.¹⁴⁴ The court determined that the same standard used for the admissibility of demonstrative evidence and visual aids¹⁴⁵ is applicable to computerized animations.¹⁴⁶ Demonstrative evidence must accurately represent the evidence in the record that it depicts.¹⁴⁷ The court has previously held that visual aids such as photographs, when accurate and relevant to a material issue, are admissible to aid a verbal description of an object or condition.¹⁴⁸ Because the cause of

137. See *State v. Kennedy*, 585 N.W.2d 385, 389 (Minn. 1998) (holding “[a]bsent a clear abuse of discretion, evidentiary rulings generally rest within the trial court’s discretion”) (citing *State v. Glaze*, 452 N.W.2d 655, 660 (Minn. 1990)); *State v. Rhodes*, 627 N.W.2d 74, 84 (Minn. 2001) (holding “[a] defendant claiming the district court erred in admitting evidence bears the burden of proving the admission was erroneous and prejudicial”) (citing *State v. Greenleaf*, 591 N.W.2d 488, 504 (Minn. 1999)).

138. “Substantive evidence” is defined as “evidence that is offered to support a fact in issue.” BLACK’S LAW DICTIONARY 580 (7th ed. 1999).

139. *Stewart*, 643 N.W.2d at 292-93.

140. “Demonstrative evidence” is defined as “evidence that is offered to clarify a statement.” BLACK’S, *supra* note 138, at 577.

141. *State v. Bauer*, 598 N.W.2d 352, 362 (Minn. 1999) (quoting *Strasser v. Stabeck*, 112 Minn. 90, 92, 127 N.W. 384, 385 (1910)).

142. *Stewart*, 643 N.W.2d at 293.

143. *Id.*

144. *Id.*

145. The standard for demonstrative evidence and visual aids is whether the evidence is relevant and accurate and assists the jury in understanding the testimony of a witness. *State v. DeZeler*, 230 Minn. 39, 46-47, 41 N.W.2d 313, 318-19 (1950).

146. *Stewart*, 643 N.W.2d at 293.

147. *DeZeler*, 230 Minn. at 46-47, 41 N.W.2d at 318-19.

148. *State v. Walen*, 563 N.W.2d 742, 748 (Minn. 1997) (citing *State v. Martin*, 261 N.W.2d 341, 344 (Minn. 1977)).

Basta's death was a material issue in the case, the court found that the medical examiner's testimony regarding the bullet's path through his body and the trajectory of the bullet was relevant to understanding the cause of Basta's death.¹⁴⁹ Therefore, the animation, while not original evidence, was relevant to the extent that it was an accurate expression or illustration that would assist the jury in understanding the medical examiner's testimony.¹⁵⁰ In order to determine whether the evidence was relevant, the court next examined the subject matter of the animation.¹⁵¹

The court believed that the first, second, and fourth sequences were helpful, as they clearly depicted both a shot being fired from a moving vehicle and the bullet path from the car to the victim.¹⁵² However, the problem with the animation, in the opinion of the court, rested with the depiction of the events inside the car.¹⁵³ The court held that the facial expressions and movements of the individuals depicted within the car prior to firing the gun did not express or illustrate the medical examiner's testimony,¹⁵⁴ and that the animation contained material that was based on a "great deal of conjecture."¹⁵⁵ The court was particularly concerned with the depiction of Stewart's face and eyes at the time of the shooting because it went to Stewart's intent, which was a "hotly disputed" element of the case.¹⁵⁶ According to the court, the existence of the facial expressions and movements did not merely re-create what was in the record, but created impressions depicting "deliberate, intentional actions favorable to the [s]tate's theory of the case."¹⁵⁷ The court held:

Because the animation's content exceeded what was in the record and created impressions that went right to the heart of what the [S]tate needed to prove as to intent, and because the animation exceeded the purpose for which it was admitted, the district court erred in admitting the entire animation.¹⁵⁸

149. *Stewart*, 643 N.W.2d at 294.

150. *Id.*

151. *Id.* at 295.

152. *Id.*

153. *Id.*

154. *Id.*

155. *Id.*

156. *Id.*

157. *Id.*

158. *Id.*

Despite the fact that the court reversed the trial court's admission of the entire animation, it stated that not every judicial error warrants reversal.¹⁵⁹ The court stated that the medical examiner's testimony was accurately illustrated by the animation regarding the path of the bullet.¹⁶⁰ The court further believed that there was "overwhelming evidence regarding the substantial preparations to find someone to shoot."¹⁶¹ The court then attempted to provide trial courts with the procedure to follow when faced with computer animations.¹⁶²

The decision in *Stewart* was not meant to prohibit the use of new technology such as computerized animations in court.¹⁶³ However, the court gave only limited help to trial courts. The court stated that "[i]n the future, if there is proper foundation for such evidence, the district court should issue a cautionary instruction relating to the animation before playing the animation to the jury and in final instructions to insure its proper use."¹⁶⁴ The decision lacks a clear, definitive test for the admissibility of computerized animation.

IV. ANALYSIS OF THE *STEWART* DECISION

In deciding *Stewart*, the Minnesota Supreme Court was faced for the first time with the challenge of analyzing when and under what circumstances computer-generated animations are admissible in court proceedings. Since each state adopts its own evidentiary standards, admissibility standards will differ among them.¹⁶⁵ The Minnesota Supreme Court's decision in *Stewart* is not alone in its

159. *Id.*; see also *State v. Bradford*, 618 N.W.2d 782, 794 (Minn. 2000) (holding that "[a]n error is harmless '[i]f the verdict actually rendered was surely [not attributable] to the error'" (citing *State v. Jones*, 556 N.W.2d 903, 910 (Minn. 1996))).

160. *Stewart*, 643 N.W.2d at 295.

161. *Id.* The court held that "[s]uch evidence, coupled with an overwhelming amount of corroborative and inculpatory evidence, including the testimony of appellant himself where he admitted the shooting, indicates that the verdict rendered was surely not attributable to the error." *Id.*

162. *Id.*

163. *Id.* The court held that the evidence must fairly express or illustrate the testimony of a witness in a way that is helpful in the jury's understanding of the testimony. *Id.*

164. *Id.* at 296.

165. See MUELLER & KIRKPATRICK, *supra* note 33, at § 9.1 (noting that the steps to authenticate and introduce computer-generated exhibits "vary among jurisdictions and judges and are very much a part of local custom and professional habit").

lack of direction for the lower courts. The few opinions from other states that address the issue also have not clearly explained their reasoning regarding the admissibility or provided specific guidelines for admissibility.¹⁶⁶ The common theme that emerges from these opinions is that computer-generated evidence must be relevant, authentic, and probative.¹⁶⁷ The general rule that is

166. See *Richard v. Firestone Tire & Rubber Co.*, 853 F.2d 1258, 1261 (5th Cir. 1988); *Oregon Natural Res. Council v. Marsh*, 820 F.2d 1051, 1058 (9th Cir. 1987); *United States v. 1,606.00 Acres of Land*, 698 F.2d 402, 403-04 (10th Cir. 1983); *Volkswagen of Am., Inc. v. Marinelli*, 628 So. 2d 378, 380 (Ala. 1993); *Soule v. Gen. Motors Corp.*, 882 P.2d 298, 308 (Cal. 1994); *R.B. Kent & Son, Inc. v. Planning Comm'n of Ledyard*, 573 A.2d 760, 763 (Conn. App. Ct. 1990); *Murphy v. Kentucky Utils. Co.*, 803 S.W.2d 582, 583-84 (Ky. Ct. App. 1991); *Hopper v. Crown*, 646 So. 2d 933, 937-38 (La. Ct. App. 1994).

167. See *Lori G. Baer & Christopher A. Riley, Technology in the Courtroom: Computerized Exhibits and How to Present Them*, 66 DEF. COUNS. J. 176, 182 n.31 (1999) (citing *Robinson v. Mont. Pac. R.R.*, 16 F.3d 1083, 1087 (10th Cir. 1994) (noting that animation was admitted where simulation of accident illustrated expert's theory and where trial court issued limiting instruction to jury not to consider the video as a true recreation); *Bledsoe v. Salt River Valley Water Users' Ass'n*, 880 P.2d 689, 691-93 (Ariz. Ct. App. 1994) (holding trial court erred in admitting videotaped computer simulation on ground that it did not "fairly and accurately depict what it represents"); *Hutchison v. Am. Family Mut. Ins. Co.*, 514 N.W.2d 882, 890 (Iowa 1994) (finding that video evidence was properly excluded where it did not have sufficient factual foundation and would have confused jury); *Louisiana v. Harvey*, 649 So. 2d 783, 788-89 (La. Ct. App. 1995) (affirming admission of computer-generated animations where they illustrated expert's theory and noting importance that reconstructions be "identical or very similar to the scene to have probative value") (citing *State v. Trahan*, 576 So. 2d 1, 7 (La. 1990)); *Pino v. Gauthier*, 633 So. 2d 638, 652 (La. Ct. App. 1995) (holding that computer simulation videotape was properly excluded as prejudicial where it portrayed outcomes favorable only to proponent of evidence); *Commercial Union Ins. Co. v. Boston Edison Co.*, 591 N.E.2d 165, 168 (Mass. 1992) (upholding the admittance of a computer model that was admitted, in part, on accuracy of input); *Richardson v. State Highway & Transp. Comm'n*, 863 S.W.2d 876, 881-82 (Mo. 1993) (affirming exclusion of computer simulation of accident because simulation was not conducted under substantially similar conditions to those at time of accident); *Bray v. Bi-State Dev. Corp.*, 949 S.W.2d 93, 99 (Mo. Ct. App. 1997) (admitting computer-generated chart because it was accurate and reflected expert's testimony); *Trageser v. St. Joseph Health Ctr.*, 887 S.W.2d 635, 636-37 (Mo. Ct. App. 1994) (holding animated videotape inadmissible where it did not accurately represent what it purported to depict); *Kudlacek v. FIAT*, 509 N.W.2d 603, 617 (Neb. 1994) (affirming admission of computer video simulation, in part, based on its conformity to actual dimensions of automobile, marks on roadway, speed, and angle at which vehicle left roadway); *State v. McHugh*, 476 N.Y.S.2d 721, 723 (N.Y. 1984) (computer reenactment permissible if it "fairly and accurately" reflects oral testimony and aids jury's understanding of issue); *State v. Clark*, 655 N.E.2d 795, 813 (Ohio Ct. App. 1995) (finding computer simulation of crime scene was properly admitted, in part, where it was based on actual dimensions of crime scene and relied on police calculations); *Deffinbaugh v. Ohio*

currently developing in state cases is that computer animations are admissible if they mirror the genuine facts of a case and support relevant testimony.¹⁶⁸

The Minnesota Supreme Court had several cases that it could have used to help develop a standard. The first of these cases, *Kehm v. Procter & Gamble Manufacturing Co.*,¹⁶⁹ was a decision by the Eighth Circuit. In *Kehm*, the Eighth Circuit held that in order to lay the proper foundation for admission of a demonstrative exhibit, counsel must show “substantial similarity” between the purported reenactment and the facts at issue.¹⁷⁰ In *Kehm*, survivors of consumers who died of toxic shock syndrome brought a products liability action against Procter & Gamble, a tampon

Turnpike Comm’n, 588 N.E.2d 189, 193-94 (Ohio Ct. App. 1990) (finding that computer simulations were properly admitted where they accurately depicted motion of vehicle in addition to other previously introduced facts); *Sommervold v. Grevlos*, 518 N.W.2d 733, 738 (S.D. 1994) (holding that demonstrative evidence that purports to recreate event must be “nearly identical” to event in order to protect against undue prejudice because computer-generated recreation is powerful visual device that stands out in jury’s mind and is likely to outweigh even spoken testimony of eyewitnesses)). See also Gregory P. Joseph, *A Simplified Approach to Computer-Generated Evidence and Animations*, 156 F.R.D. 327, 334 (1994); Fulcher, *supra* note 25, at 69-70; Evelyn D. Kousoubris, Comment, *Computer Animation: Creativity in the Courtroom*, 14 TEMP. ENVTL. L. & TECH. J. 257, 258, 270-71 (1995).

168. See L. Neal Ellis, Jr. et al., *Recent Developments in Trial Techniques*, 35 TORT & INS. L.J. 677, 695 (2000) (stating that “[a] computer-generated animation is admissible if it is a fair and accurate representation of the scene sought to be depicted” (citing *Cleveland v. Bryant*, 512 S.E.2d 360, 362 (Ga. Ct. App. 1999)); *Clark v. Cantrell*, 504 S.E.2d 605, 612 (S.C. Ct. App. 1998) (stating that “[a]nimated evidence [must] mirror the actual facts of the case and relevant testimony”). See also *Hutchinson*, 514 N.W.2d at 890 (upholding trial court’s refusal to admit an animation depicting how a closed-head injury occurs because it was not based upon the particular facts of plaintiff’s case); *Sommervold*, 518 N.W.2d at 738 (holding that “[a]nimation must fairly and accurately reflect the oral testimony of the witness and be an aid to the jury in understanding the issues”) (citing *People v. McHugh*, 476 N.Y.S.2d 721, 723 (N.Y. 1984)); James E. Carbine & Lynn McLain, *Proposed Model Rules Governing the Admissibility of Computer-Generated Evidence*, 15 SANTA CLARA COMPUTER & HIGH TECH. L.J. 1, 20 n.78 (1999) (citing *Bledsoe*, 880 P.2d at 692) (“At a minimum, the proponent must show that the computer simulation fairly and accurately depicts what it represents, whether through the computer expert who prepared it or some other witness who is qualified to so testify, and the opposing party must be afforded an opportunity for cross-examination”). But see Galves, *supra* note 3, at 214 n.159 (noting *Sommervold* and arguing that “courts should require the proponent of a re-creation or simulation CGE to make only a basic showing that it is generally similar to the conditions surrounding the original event, but not apply substantial similarity so stringently. . . .”) (emphasis added).

169. 724 F.2d 613 (8th Cir. 1983).

170. See *id.* at 624.

manufacturer.¹⁷¹ The Eighth Circuit reviewed the district court decision that allowed the plaintiffs to get reports of studies conducted regarding the tampons admitted into evidence.¹⁷²

To be admissible at trial, counsel must establish that the animation accurately portrays the facts at issue.¹⁷³ Only the most minimal variance may be permitted as not to be misleading.¹⁷⁴ The court in *Kehm* held that “admissibility of demonstration evidence depends upon a foundational showing of substantial similarity between the tests conducted and what they purport to represent.”¹⁷⁵ More importantly, the court held that “[a] trial court should use caution in permitting such demonstrations, but the trial court’s decision will not be overturned on appeal absent a clear showing of abuse of discretion.”¹⁷⁶ The court further held that “[p]erfect identity between experimental and actual conditions is neither attainable nor required.”¹⁷⁷ The only direction the court provided in *Stewart* was that a trial court should make sure there is proper foundation for the exhibit and that it should issue a cautionary instruction relating to the animation before playing the animation to the jury and in final instructions to ensure the animation’s proper use.¹⁷⁸ The direction contains nothing regarding “substantial similarity.”

In addition, the court also could have chosen to follow *Commercial Union Insurance Co. v. Boston Edison Co.*,¹⁷⁹ a Massachusetts Supreme Judicial Court decision that addressed computer-generated exhibit foundation issues and is often used as a starting point for their analysis.¹⁸⁰ In *Boston Edison*, customers sued the utility company seeking compensation for overcharges resulting from a faulty steam meter.¹⁸¹ Although *Boston Edison* deals with

171. *Id.* at 613.

172. *Id.* at 617.

173. See KENNETH S. BROUN ET AL., MCCORMICK ON EVIDENCE § 214 (John William Strong ed., 4th ed. 1992).

174. See *id.*

175. *Kehm*, 724 F.2d at 623.

176. *Id.*

177. *Ramseyer v. General Motors Corp.*, 417 F.2d 859 (8th Cir. 1969). “Dissimilarities affect the weight of the evidence, not its admissibility.” *Id.*

178. *Stewart*, 643 N.W.2d at 295.

179. 591 N.E.2d 165 (Mass. 1992).

180. See *Bledsoe*, 880 P.2d at 692; *Kudlacek*, 509 N.W.2d at 617; *State v. Clark*, 655 N.E.2d 795, 812 (Ohio Ct. App. 1995).

181. *Boston Edison*, 591 N.E.2d at 166.

computer simulations,¹⁸² it would have provided the court with analysis it could have used to establish a feasible standard.

Clearly, trial judges need to be wary of the potential prejudicial effects of a computer-generated exhibit. But, again, the Minnesota Supreme Court fails to provide the lower court with any direction on how to avoid prejudice. The only statement the court made with regard to prejudicial effect is “[b]ecause of its dramatic power, proposed animations must be carefully scrutinized for proper foundation, relevancy, accuracy, and the potential for undue prejudice.”¹⁸³ Other courts have determined that in order to avoid such possible prejudice, the admissibility of such exhibits has been strictly limited by the “substantial similarity” test.¹⁸⁴ This is the same test that the court would have adopted had it followed the Eighth Circuit decision in *Kehm* or the Massachusetts Supreme Judicial Court decision in *Boston Edison*.

V. CONCLUSION

The Minnesota Supreme Court failed to take advantage of its first opportunity to set out a standard for lower courts to follow when faced with a computer-generated exhibit. Under the current state of the law, trial judges can admit computer animations that they believe are admissible under the Rules of Evidence but face the possibility of reversal by the Minnesota Supreme Court based on a standard that it has not shared with the rest of the legal community. Perhaps the court is biding its time before providing the lower courts with more direction—sitting back to watch how the lower courts use new technology before the Minnesota Supreme Court develops a standard. In the meantime, judges faced with computer-generated exhibits should beware.

182. *Id.*

183. *Id.*

184. *See Campbell, supra* note 55, at 1467.