


July 2015

Intellectual Property Rights in Virtual Environments: Considering the Rights of Owners, Programmers and Virtual Avatars

Woodrow Barfield

Please take a moment to share how this work helps you [through this survey](#). Your feedback will be important as we plan further development of our repository.

Follow this and additional works at: <http://ideaexchange.uakron.edu/akronlawreview>

 Part of the [Environmental Law Commons](#), and the [Intellectual Property Law Commons](#)

Recommended Citation

Barfield, Woodrow (2006) "Intellectual Property Rights in Virtual Environments: Considering the Rights of Owners, Programmers and Virtual Avatars," *Akron Law Review*: Vol. 39 : Iss. 3 , Article 2.

Available at: <http://ideaexchange.uakron.edu/akronlawreview/vol39/iss3/2>

This Article is brought to you for free and open access by Akron Law Journals at IdeaExchange@UAkron, the institutional repository of The University of Akron in Akron, Ohio, USA. It has been accepted for inclusion in Akron Law Review by an authorized administrator of IdeaExchange@UAkron. For more information, please contact mjon@uakron.edu, uapress@uakron.edu.

INTELLECTUAL PROPERTY RIGHTS IN VIRTUAL ENVIRONMENTS: CONSIDERING THE RIGHTS OF OWNERS, PROGRAMMERS AND VIRTUAL AVATARS

*Woodrow Barfield**

I. INTRODUCTION

A virtual environment is an interactive computer simulation¹ which lets its participants see, hear, use, and even modify the simulated objects in the computer-generated environment.² Within a virtual environment, the user may be stimulated by a range of sensory information, including spacialized sound,³ stereoscopic imagery,⁴ and force⁵ or tactile feedback⁶

* Woodrow Barfield received a PhD in Industrial Engineering from Purdue University and a JD from the University of North Carolina. He received an LLM in intellectual property law and policy from the University of Washington and is currently a non-resident fellow with the Center for Internet and Society, Stanford University. The author acknowledges David Orange for assistance in legal research, and Bob Gomulkiewicz and Jonathan Franklin for comments on an earlier draft of the manuscript.

1. Science fiction author William Gibson is credited with coining the term cyberspace in his novel *Neuromancer* (Ace Books 1984). See generally William S. Byassee, *Jurisdiction of Cyberspace: Applying Real World Precedent to the Virtual Community*, 30 WAKE FOREST L. REV. 197, 220 (1995).

2. TOM FURNESS III & WOODROW BARFIELD, *Introduction to VIRTUAL ENVIRONMENTS AND ADVANCED INTERFACE DESIGN*, in *VIRTUAL ENVIRONMENTS AND ADVANCED INTERFACE DESIGN* (Woodrow Barfield & Tom Furness III eds., Oxford University Press 1995).

3. ELIZABETH M. WENZEL, SCOTT S. FISHER, PHILIP. K. STONE & SCOTT. H. FOSTER, *A System for Three-Dimensional Acoustic "Visualization" in a Virtual Environment Workstation*, in *PROCEEDINGS OF THE FIRST CONFERENCE ON VISUALIZATION* 329-37 (IEEE Computer Society Press 1990); see also Elizabeth M. Wenzel, Frederic L. Wightman & Scott H. Foster, *Development of a Three-Dimensional Auditory Display System*, 20 ACM SIGCHI BULLETIN 52 (1988).

4. The viewing of stereoscopic imagery within a virtual environment may or may not be head tracked using a multi-degree of freedom position tracker. When head tracked, the view of the virtual world changes in response to movements of the user's head.

5. Pietro Buttolo, Roberto Oboe & Blake Hannaford, *Architectures for Shared Haptic Virtual Environments*, 21 COMPUTERS & GRAPHICS 421 (July-Aug. 1997).

6. See Grigore C. Burdea & Philippe Coiffet, *VIRTUAL REALITY TECHNOLOGY* (2d ed., 2003).

delivered by input devices paired to virtual objects.⁷ Some commentators have argued that developments in virtual environments are occurring so rapidly that humans may “inhabit” them within the foreseeable future.⁸ Although this may seem like a bold prediction, many people are already spending significant amounts of time in virtual environments.⁹ One reason for this is that the participants within virtual environments may experience a sense of presence.¹⁰ Presence is the suspension of disbelief that one is viewing a simulation. That is, the sense of actually “being there,” in the computer simulation.¹¹ More realistic virtual environments lead to a higher sense of presence, and it has been shown that one way to increase the realism of a virtual environment is by projecting virtual avatars in the environment that have the ability to interact with humans.¹²

One type of virtual environment that is accessed by millions of users, and that has generated significant interest from legal scholars, is the massively multi-player online role-playing game (MMORPG).¹³ Once a player enters a MMORPG, they engage in a variety of activities with other players who are accessing the game the same way from all over the world. MMORPG developers are in charge of supervising the virtual world and guarantee the continuing interest of players by offering an updated set of tasks and activities to perform in the virtual environment.¹⁴ Most MMORPGs have been designed for profit- a player

7. The author will use the terms “virtual environment” and “virtual reality” interchangeably; both refer to a computer-generated simulation designed to allow a user to experience a sense of presence in the computer simulation.

8. Beth Simone Noveck, *Introduction: The State of Play*, 49 N.Y.L. SCH. L. REV. 1 (2004-2005).

9. See J. D. LASICA, DARKNET (2005).

10. Woodrow Barfield & Suzanne Weghorst, *The Sense of Presence Within Virtual Environments: A Conceptual Framework*, in HUMAN COMPUTER INTERACTION: SOFTWARE AND HARDWARE INTERFACES 699-704 (Gavriel Salvendy & Michael Smith eds., Elsevier Science Publishers 1993).

11. *Id.*

12. But see generally Kristine L. Nowak, *The Influence of Anthropomorphism and Agency on Social Judgment in Virtual Environments*, 9 JCMC (2004), available at <http://jcmc.indiana.edu/vol9/issue2/nowak.html> (last visited May 14, 2006).

13. Caroline Bradely & A. Michael Froomkin, *Virtual Worlds, Real Rules*, 49 N.Y.L. SCH. L. REV. 103, 121 (2004-2005).

14. Cory Ondrejka, *Escaping the Gilded Cage: User Created Content and Building the Metaverse*, 49 N.Y.L. SCH. L. REV. 81 (2004-2005). See also Nicholas Yee, *The Psychology of MMORPGs: Emotional Investment, Motivations, Relationship Formation, and Problematic Usage*, in AVATARS AT WORK AND PLAY: COLLABORATION AND INTERACTION IN SHARED VIRTUAL ENVIRONMENTS (R. Schroeder & A. Axelsson eds., London: Springer-Verlag 2005), available at http://www.nickjee.com/daedalus/archives/02_04/Yee_Book_Chapter.pdf (last visited May 14, 2006).

must either purchase the client software or pay a monthly fee in order to access the virtual world.¹⁵ An interesting feature of a MMORPG is that it allows its participants to design a virtual representation of their identity which is displayed in the online virtual environment. Such an identity is termed an avatar.

An emerging issue in online role-playing games is whether the licensor or participant owns the virtual property (such as a virtual avatar) created while the game is being played.¹⁶ In the online game, *Second Life*,¹⁷ the Terms of Service Agreement gives residents of the virtual world the right to retain full intellectual property protection for the digital content they create in the game, including avatar characters, clothing, scripts, textures, objects and designs. Such rights have real-world consequences for the objects created in the virtual world. For example, as stated on *Second Life*'s webpage, "This right is enforceable and applicable both in-world and offline, and for non-profit and commercial ventures."¹⁸

Generally, the term "virtual avatar" is often to describe the simulation of a graphical form representing a particular person in a virtual environment.¹⁹ The most sophisticated avatars can become a sort of visual and cognitive prosthesis, representing an extension of self in the virtual world, or what the virtual environment visitor would like to be, or appear to be, in the virtual world. Virtual avatars may also represent the actions of a user, different aspects of a user's persona, or the user's social status in the virtual environment.²⁰ A virtual avatar can take on almost any form, such as a realistic representation of the human that owns or created the avatar, another person's identity (such as a living or deceased actor or historic figure), an animal, or even a mythical

15. There are some free online games, but their quality is generally lower than their pay-to-play counterparts.

16. Some foreign courts have begun to accept the notion of virtual property; e.g., a Beijing court ordered the restitution of one player's stolen virtual weapons. See, e.g., Amy Kolz, *Virtual IP Rights Rock Online Gaming World* AM. LAW. (2004), available at <http://www.law.com/jsp/article.jsp?id=1101738506769> (last visited Apr. 21, 2006).

17. *Second Life*, available at <http://secondlife.com/commerce/ip.php> (last visited Oct. 31, 2005).

18. *Id.*

19. It is possible to purchase virtual avatars of different levels of fidelity. See, e.g., Stratagem Corp., *Dreamscape Body Catalog* (2005), available at <http://ds.avatarwares.com/awbodiesds.htm> (last visited May 26, 2006). Avatars are also called: characters, players, virtual actors, icons, or virtual humans.

20. The traditional avatar used on many internet forums is a small square shaped area close to the user's forum post. John Suler, *The Psychology of Avatars and Graphical Space in Multimedia Chat Communities*, available at <http://www.rider.edu/suler/psycyber/psyav.html> (last visited March 4, 2006).

creature.

How easy is it to create a virtual avatar? Commercial software has been designed to allow people to create their own interactive, emoting 3D avatar using photographs of their individual faces, and their own unique voice as templates.²¹ Further, when a person chats in a 3D online world or plays an online computer game, they are operating a synthetic character or avatar. What makes for an interesting and effective avatar depends on the purpose for which the avatar is used. In the case of a virtual world where communication is important, facial features and expressiveness must be well supported. In the case of action games, the physics of the virtual world and interaction within the world must be well supported.

A recent development in virtual avatars is that they are getting smarter.²² Capable of performing a range of tasks, virtual avatars can write poetry, play chess, compose music, and portray a range of emotions and facial expressions.²³ In electronic commerce,²⁴ avatars are forming contracts,²⁵ in the field of entertainment they are replacing actors,²⁶ and in online games,²⁷ avatars are interacting with humans and other virtual avatars.²⁸ Further, in medicine, virtual avatars are helping to train medical students by playing the role of patient. For example, the Virtual Standardized Patient is an avatar that interacts with medical

21. See Haptek's *PeoplePutty*, available at <http://www.haptek.com/> (last visited Oct. 31, 2005).

22. W. Lewis Johnson & Jeff W. Rickel, *Animated Pedagogical Agents: Face-to-Face Interaction in Interactive Learning Environments*, 11 INT'L J. OF ARTIFICIAL INTELLIGENCE IN EDUC. 47 (2000), available at http://aied.inf.ed.ac.uk/members00/archive/vol_11/johnson/full.tml (last visited Oct. 31, 2005).

23. Talking Heads, available at <http://www.haskins.yale.edu/haskins/heads.html> (last visited Oct. 31, 2005).

24. Ian R. Kerr, *Bots, Babes and the Californication of Commerce*, 1 UNIV. OF OTTAWA L. AND TECH. J. 285 (2004) (discussing intelligent software that has made significant advances in the field of electronic commerce, and stating that there is a trend in automated electronic commerce to animate avatars and other electronic entities and use them to build relationships with consumers through the illusion of friendship).

25. See Jeff C. Dodd & James A. Hernandez, *Contracting in Cyberspace*, 1998 SMU COMPUTER L.J. 1, 12 (1998).

26. Joseph J. Beard, *Clones, Bones, and Twilight Zones: Protecting the Digital Persona of the Quick, the Dead and the Imaginary*, 16 BERKELEY TECH. L. J. 1165 (2001).

27. Norman I. Badler, Rama Bindiganavale, Juliet Bourne, Jan Allbeck, Jianping Shi & Martha Palmer, *Real Time Virtual Humans*, Center for Human Modeling and Simulation, Department of Computer and Information Science, University of Pennsylvania, available at <http://www.cis.upenn.edu/~badler/bcs/Paper.htm> (last visited Oct. 31, 2005).

28. See generally AVATARS IN NETWORKED VIRTUAL ENVIRONMENTS (Tolga K. Capin et al eds. 1999); see also generally Peter Plantec, *Virtual Humans: A Build-It-Yourself Kit, Complete With Software and Step-By-Step Instructions* (American Management Association; Bk&CD-Rom edition 2004).

practitioners in much the same way an actor would if hired to play the role of patient.²⁹ The Virtual Standardized Patient uses natural language, emotion, behavior modeling, and composite facial expression and lip-shape modeling to produce a natural patient-practitioner dialogue.³⁰

Virtual environments can be designed for single inhabitants, such as a solo flight trainee, or for many, simultaneous participants. When a virtual environment supports multiple users, it can give rise to a virtual community. It has been estimated that many of the 20 million to 30 million³¹ people who visit virtual worlds spend more time in the virtual environment than the real world.³² These people are not just passively viewing the environment. They, or their virtual representatives, are interacting with other people or with virtual avatars of increasing intellectual capabilities. Further, people who spend significant amounts of time in virtual environments are doing more than playing video games. According to one commentator, they are creating virtual worlds where they can assume identities, build wealth and social status, and generally participate in creating new worlds.³³

A. *Issues in Virtual Reality*

The present format for the protection of the rights of virtual avatars is based on determining who their owner is and then analyzing that person's rights with respect to the avatar or the avatar's actions.³⁴ In this model, the rights protected are those of the owner and not those of the virtual avatar. However, as virtual avatars gain in intelligence and create works independent of human input, this analysis may be outdated. In this scenario, avatars themselves may need legal protection. If avatars do gain in intelligence and people spend more time in virtual worlds interacting with virtual avatars, significant legal and policy issues will

29. Robert C. Hubal, Paul N. Kizakevich, Curry I. Giunn, Kevin D. Merino & Suzanne L. West, *The Virtual Standardized Patient: Simulated Patient-Practitioner Dialogue for Patient Interview Training*, available at <http://www.cs.duke.edu/~cig/papers/MMVR.doc> (last visited Oct. 31, 2005).

30. *Id.*

31. Dan Hunter & F. Gregory Lastowka, *Norrath, To Kill an Avatar*, available at http://www.legalaffairs.org/issues/July-August-2003/feature_hunter_julaug03.html (last visited Oct. 31, 2005) (stating that the online world created by Sony, has more residents than Miami and a bigger GNP than Bulgaria).

32. Yee, *supra* note 14, at 10.

33. Noveck, *supra* note 8, at 2.

34. See generally Woodrow Barfield, *Issues of Law for Software Agents Within Virtual Environments*, 14 PRESENCE: TELEOPERATORS AND VIRTUAL ENTS, 741-48 (2005).

arise.³⁵ For example, since many virtual worlds are created by private companies for their subscribers and are thus controlled by the game's creators, should the participants, the creators, or the virtual avatars (or some combination) set and control the permissible actions in the virtual environment?³⁶ In contrast, should the users of the virtual environment set the rules of social interactions, the physical laws that govern the virtual world, or the laws and statutes that people and avatars live by?³⁷ And as virtual avatars become more autonomous from human input and decision-making, and begin to self-program,³⁸ how should such entities be treated by the law?³⁹

While there have been no cases dealing directly with the rights of intelligent virtual avatars, there have been a few cases dealing with issues relating generally to virtual reality.⁴⁰ A brief review of these cases provides background for the emerging issues relating to the use of intelligent virtual avatars in virtual environments. One emerging area where virtual environments have been used is in the reconstruction of evidence of a crime scene.⁴¹ For example, in a criminal law case, the defendant was convicted and sentenced to confinement for 20 years.⁴² As part of the evidence presented, a virtual reality recreation of the route driven to strike the victim was shown. The Court of Appeals upheld the allowance of this evidence concluding that the probative value of the

35. Michael B. Sapherstein, *The Implications of Virtual Reality Games for Tort Lawyers*, B.C. INTELL. PROP. & TECH. F. 112106 (1996) (discussing the tort consequences of using virtual reality games such as reports that users may suffer from side effects including vertigo and dizziness after exposure to virtual environments), available at http://www.bc.edu/bc_org/avp/law/st_org/iptf/headlines/content/1996112106.html (last visited Nov. 1, 2005).

36. Richard A. Bartle, *Virtual Worldliness: What Imaginary Asks of the Real*, 49 N.Y.L. SCH. L. REV. 19 (2004-2005) (the elements of an end-user license agreement could effectively limit the range of permissible actions allowed in a virtual environment). See generally Lawrence Lessig, *The Limits in Open Code: Regulatory Standards and the Future of the Net*, 14 BERKELEY TECH. L.J. 759, 763 (1999).

37. See generally Lessig, *supra* note 36, at 759 (on the topic of regulatory standards applied to the net).

38. There are several commercial products on the marketplace that claim to self-learn. See, e.g., Evolution Robot Lawn Mower, available at <http://www.robotshop.ca/home/shoppingguide/suppliers/zucchetti-en/ambrogio-evolution-robot-mower.html> (last visited Nov. 7, 2005) (claiming an electronic lawn mower has the capability to "self-program in complete autonomy"). Many computer vision systems are also said to have the ability to learn. See, e.g., ipd Releases Sherlock (Sept. 23, 2003), available at <http://news.thomasnet.com/fullstory/26591> (last visited Nov 6, 2005).

39. See generally Curtis E.A. Karnow, *Liability for Distributed Artificial Intelligences*, 11 BERKELEY TECH. L. J. 147 (1996).

40. Ian R. Kerr, *Spirits in a Material World: Intelligent Agents as Intermediaries in Electronic Commerce*, 22 DALHOUSIE L.J. 190, 208 (2001) (describing how neural nets work in the context of electronic commerce).

41. *Harris v. State*, 152 S.W.3d 786 (2004).

42. See *id.*

virtual reality crime scene re-creation was not substantially outweighed by the danger of misleading the jury.⁴³

Another case dealing with the general area of virtual reality concerned a defendant's claim that she was a cyborg.⁴⁴ Here, the district court dismissed the claim *sua sponte*.⁴⁵ To summarize the facts presented in the "cyborg" case, the plaintiff asserted that she was a cyborg and received her information through "proteus."⁴⁶ Among other things, the plaintiff alleged that former President Jimmy Carter was the secret head of the Ku Klux Klan, and that he, Bill Clinton and Ross Perot were responsible for the murder of at least ten million black women in concentration camps.⁴⁷ The court held that the standard for dismissal of claims under 28 U.S.C. § 1915 was met.⁴⁸ In a similar case,⁴⁹ the defendant, a *pro se* Michigan prisoner, appealed the district court's order dismissing as frivolous his civil rights complaint.⁵⁰ The defendant based his claims for monetary and injunctive relief upon alleged violations of his Eighth Amendment protection against cruel and unusual punishment.⁵¹ He alleged that he was the victim of defendants' experiments in cybernetics; and maintained that his psychological and physical well-being was undermined by defendants' use of a computer-generated "virtual reality."⁵² The Sixth Circuit concluded that the district court had not abused its discretion by dismissing the complaint as frivolous within the meaning of 28 U.S.C. § 1915(d).⁵³

A more traditional action concerning virtual reality dealt with the issue of patent infringement for an input device used to manipulate objects in virtual environments.⁵⁴ In *Robinson*, the plaintiff alleged that

43. *Id.*; Fed. R. Evid. 403 (2004).

44. *Tyler v. Carter*, 151 F.R.D. 537 (S.D.N.Y. 1993).

45. *Id.*

46. *Id.* at 537.

47. *Id.*

48. Proceedings *in forma pauperis* are frivolous when such claims describe fantastic or delusional scenarios. *Id.* at 540. The court applied the same standard and found that a judge could dismiss claims *sua sponte* under Federal Rule of Procedure 12(b)(6) for claims that describe fantastic or delusional scenarios. *Id.*

49. *Nunnery v. Mich. Dep't of Corrections*, 966 F.2d 1453 (6th Cir. 1992).

50. See 42 U.S.C. § 1983 (Civil Action for Deprivation of Rights). If an avatar gained legal status, could such an entity claim that its civil rights had been violated? For a discussion of equal protection law in the context of enhanced humans, see George Wright, *Personhood: 2.0: Enhanced and Unenhanced Persons and the Equal Protection of the Laws*, 23 QUINNIPIAC L. REV. 1047 (2005).

51. *Nunnery*, 966 F.2d at 1453.

52. *Id.*

53. *Id.*

54. See *Robinson v. Fakespace Labs, Inc.*, No. 02-1152, 2003 U.S. App. LEXIS 3914 (Fed.

the “Robinson glove” used to manipulate virtual objects was infringed by a similar glove produced by Fakespace.⁵⁵ The court held that the allegedly offending glove did not infringe the Robinson patent under either literal infringement⁵⁶ or the doctrine of equivalents.⁵⁷ Fakespace argued that its Pinch Glove System did not literally infringe the Robinson patent because it lacked four of the claim limitations shown in the Robinson patent.⁵⁸ Because failure to demonstrate equivalency for any single element in the accused device is enough to defeat an assertion of infringement under the doctrine of equivalents,⁵⁹ the court upheld the grant of summary judgment of non-infringement.⁶⁰

In summary, what one can conclude from the above cases is that as people and virtual avatars spend significant amounts of time in virtual reality, more cases will be litigated across a broad range of legal topics, from intellectual property to criminal law, and from contracts to torts. Given the increased use of virtual avatars in virtual environments for tasks such as psychotherapy,⁶¹ teaching,⁶² and electronic commerce,⁶³ future causes of action could be directed at the virtual avatars themselves. If avatars continue to gain in intelligence a host of compelling issues will be raised. For example, would intelligent avatars be able to bring forth claims involving their own civil liberties?⁶⁴ And

Cir Mar. 5, 2003), *cert. denied*, 540 U.S. 1074 (2003).

55. *Id.*

56. *Id.* See generally *Riles v. Shell Exploration & Prod. Co.*, 298 F.3d 1302, 1308 (Fed.Cir. 2002) (to prove literal infringement, the patentee must show that the accused device contains every limitation in the asserted claims).

57. *Robinson*, 2003 U.S. App. LEXIS 3914; see generally *Graver Tank Mfg. Co. v. Linde Air Prod. Co.*, 339 U.S. 605, 608 (1950) (discussing the doctrine of equivalents).

58. *Robinson*, 2003 U.S. App. LEXIS 3914; see generally *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17 (1997) (discussing the issue of claim limitations in a patent infringement case).

59. See generally *Eagle Comtronics, Inc. v. Arrow Commc'ns Labs., Inc.*, 305 F.3d 1303 (Fed. Cir. 2002) (discussing the doctrine of equivalents).

60. *Robinson*, 2003 U.S. App. LEXIS 3914.

61. J. Ku, W. Cho, J.-J. Kim, A. Peled, B.K. Wiederhold, M.D. Wiederhold, I. Y. Kim, J.H. Lee & S.I. Kim, *A Virtual Environment for Investigating Schizophrenic Patients' Characteristics: Assessment of Cognitive and Navigation Ability*, 6 CYBERPSYCHOLOGY & BEHAVIOR 397 (2003).

62. Jeffrey Young, *Virtual Reality on a Desktop Hailed as New Tool in Distance Education*, *The Chronicles of Higher Education, Information Technology* (Oct. 6, 2001), available at <http://chronicle.com/free/v47/i06/06a04301.htm> (last visited Oct. 30, 2005).

63. See Anthony J. Bellia, *Contracting with Electronic Agents*, 50 EMORY L.J. 1047 (2001).

64. A legal person, as opposed to a natural person, enjoys many of the rights and obligations of individual citizens, such as the ability to own property, sign binding contracts, and pay taxes; but they do not retain all the rights of a natural person, e.g., they do not have the right to vote or hold public office. See generally *Curtis M. Vazquez, Direct v. Indirect Obligations of Corporations Under International Law*, 43 COLUM. J. TRANSNAT L. REV. 927, 944 (2005). A legal person (or artificial person), as opposed to a natural person, enjoys many of the rights and obligations of

just what civil liberties would be awarded to intelligent virtual avatars? Professor George Wright has discussed the issue of equal protection under the law in the context of “enhanced humans,” concluding that “if there develops a typically unbridgeable gulf separating groups of contemporaries, we must adopt a substantially realistic understanding of equal protection that involves significant resource and opportunity transfers.”⁶⁵ Wright’s comments were directed at the differences between enhanced and unenhanced humans; however, the possibility of intelligent avatars raise a host of new issues concerning equal protection under the law. In the context of humans, it may be technically possible to provide those requesting upgrades access to the appropriate technology. However, if intelligent avatars surpassed humans in intelligence, would technology be available to upgrade the humans to the level of the intelligent avatars? And if an intelligent avatar gained a level of intelligence such that they were superior to humans, would humans then be able to bring forth an equal protection claim against intelligent avatars? To best serve humanity’s interests, public policy may benefit by granting intelligent entities legal rights; if for no other reason than they could then be regulated.

II. CREATING INTELLIGENT VIRTUAL AVATARS

The field of artificial intelligence has provided many of the algorithms and techniques that have lead to intelligent actions by virtual avatars.⁶⁶ The software and algorithms that control virtual avatars, and artificial entities in general, are getting more sophisticated and “smarter.”⁶⁷ As some commentators have argued, the smarter they get, the more the current law will be strained when deciding how to account for their actions.⁶⁸ In general, advances in algorithms have resulted in levels of creativity exhibited by artificial entities that traditionally were considered only within the domain of humans.⁶⁹ This raises several

individual citizens, such as the ability to own property, sign binding contracts, and pay taxes, but they do not retain all the rights of a natural person, e.g., they do not have the right to vote or hold public office. *See Blacks Law Dictionary* 1178 (Bryan A. Garber ed., 8th ed., West 2004) (defining legal and natural persons).

65. Wright, *supra* note 50, at 1095.

66. Algorithms are used to produce goal solutions by means of a series of tests, while another artificial intellgence technique, heuristics, solves a problem by intuition and anticipation of the forthcoming data.

67. *See generally* Laura Daly, *Present and Future Avatars*, E3D NEWS (Dec. 2001), available at <http://www.e3dnews.com/e3d/Issues/200112-Dec/lead.html> (last visited Nov. 1, 2005).

68. *See generally* Barfield, *supra* note 34; *see generally* Karnow, *supra* note 39.

69. *See generally* Bob Fink, *Serendipity: Computer Program Composes Beautiful Melodies*

perplexing questions - can a virtual avatar be an author, or an inventor, own and sell intellectual property, or be liable for its actions?⁷⁰

Many software programs which result in creative output use either knowledge-based systems,⁷¹ genetic algorithms,⁷² or neural networks.⁷³ Neural networks differ from traditional artificial intelligence applications because they do not require explicit symbolic representations to solve problems.⁷⁴ Instead, they process and store information as patterns to represent information. Specifically, the knowledge contained within a neural network is represented by the connection strengths between processing elements in the network,⁷⁵ and the mutual reinforcement or inhibition of elements in the network by other elements. One area where neural networks have been used to create virtual avatars which display intelligent behavior is in the design of facial expressions.⁷⁶ For intelligent avatars to be able to act as alter-

(1996), available at <http://www.greenwych.ca/serend4.htm> (last visited Nov. 1, 2005). The Serendipity computing system is described as taking not only notes of the scale and making melodies of them, but also using 2 or 3-note sub-sets based on how frequently certain basic music structures are used in the music style desired and drawing upon these sub-sets. *Id.* See also *Artificial Intelligence in Music and Art*, 18th INT'L FLAIRS CONF. (May 15 to 17, 2005); see generally Chris Dobrian, *Music and Artificial Intelligence* (1993), available at <http://music.arts.uci.edu/dobrian/CD.music.ai.htm> (last visited Nov. 1, 2005).

70. See Pamela Samuelson, *Allocating Ownership Rights in Computer-Generated Works*, 47 PITT. L. REV. 1185 (1985-1986) (providing a comprehensive overview of issues associated with whether a computer can be an author); see generally Karnow, *infra* note 350.

71. See Tom R. Addis, *DESIGNING KNOWLEDGE-BASED SYSTEMS* (1986).

72. See generally DANIEL E. GOLDBERG, *GENETIC ALGORITHMS IN SEARCH, OPTIMIZATION, AND MACHINE LEARNING* (Addison-Wesley 1989) (stating that genetic algorithms consist of programs based on strings of symbols that behave analogous to genes). These programs may compete in a common soup and reproduce and mutate their basic gene strings over time.

73. See Bruce Damer, *Glossary of Common Terms Used in Virtual Worlds* (1997), available at <http://www.digitalspace.com/avatars/book/appendix/glossary.htm> (last visited Nov. 1, 2005).

Neural networks consist of software that replicates the behavior of biological neural networks, carrying symbolic or numeric signals around pathways which sum and split the signals. Neural networks are used in pattern recognition and learning and lie at the heart of behaviors of agents, bots, biota and virtual pets. Neural networks are expected to provide a more fundamental 'wiring' of virtual cyberspace in the near future.

Id.

74. See generally Nicolas D. Georganas & Emil M. Petriu, *VEHICLE: Virtual Environments for Human Interaction, Communication and Learning*, available at <http://www.mcrlab.uottawa.ca/research/VEHICLE.html> (last visited Nov. 1, 2005).

75. See *Artificial Neural Networks*, available at <http://www.psych.utoronto.ca/~reingold/courses/ai/nn.html> (last visited Oct. 26, 2005).

76. See generally Norman I. Badler, Rama Bindiganavale, Juliet Bourne, Jan Allbeck, Jianping Shi & Martha Palmer, *Real Time Virtual Humans*, Center for Human Modeling and Simulation, Department of Computer and Information Science, available at <http://www.cis.upenn.edu/~badler/bcs/Paper.htm> (last visited June 3, 2005).

egos of their human owner, they may need to incorporate a high degree of similarity with their owner, including facial expressions.⁷⁷ Neural networks can be trained to recognize and reproduce patterns such as those associated with facial expressions, and to produce such patterns based on external stimuli.

Another type of computing paradigm which has resulted in intelligent behavior for virtual avatars is an expert, or knowledge-based, system.⁷⁸ Knowledge-based systems are those in which the computer algorithms are able to “learn” which solutions are retainable or usable by a series of comparisons with previously-stated material.⁷⁹ This type of programming is often referred to as an “expert system” because the system is based on imitating the methods of particular human practitioners, or experts, within a particular domain.⁸⁰ As with neural networks, an expert-system approach has been used to model facial expressions for virtual avatars. When avatars interact with humans, facial expressions are key for communicating emotions in face-to-face conversation made simultaneously with speech. In current virtual avatar designs, most collaborative virtual environments force the user to explicitly set avatar emotions after they have entered text or voice input.⁸¹ However, some researchers are investigating a procedure based on an expert system that can be used to parse emotive expressions so that these emotions can be automatically displayed on the corresponding virtual avatar’s appearance.⁸² In many online games, a user must input avatar body language and facial expressions via key presses which means it is almost impossible for users to chat and emote at the same time.⁸³ To appear realistic, an avatar must react like humans do when communicating with each other, and facial expressions are a step toward designing “human-like” avatars.⁸⁴

77. See generally J.J. Ventrella, *Avatar Physics and Genetics, Social Aspects*, in VIRTUAL WORLDS (J.C. Heudin ed. 1999), available at http://www.ventrella.com/Alife/Avatar/avatar_4.html (last visited Nov. 1, 2005).

78. Jimena Olveres, Mark Billingham, Jesus Savage & Alistair Holden, *Intelligent, Expressive Avatars*, in Proceedings of the First Workshop on Embodied Conversational Characters (WECC 1998), Lake Tahoe, California, (October 12-15, 1998).

79. *Id.*

80. Joseph C. Giarratano & Gary D. Riley, *Expert Systems: Principles and Programming* (4th ed., PWS Publishing Co. 2004).

81. Olveres et al., *supra* note 78.

82. Michael Gerhard & David Moore, *User Embodiment in Educational CVEs: Towards Continuous Presence*, available at <http://www.lmu.ac.uk/ies/conferences/Gerhard.html> (last visited Nov. 1, 2005).

83. Olveres et al., *supra* note 78.

84. *Id.*

Genetic algorithms⁸⁵ are another technique used to create “intelligent acting” avatars in virtual reality. Generally, genetic algorithms are search procedures that use the principles of natural selection and genetics to solve problems. Genetic algorithms use evolutionary techniques based on optimization to develop a solution to a problem.⁸⁶ The basic operation of a genetic algorithm is straightforward. First, a population of possible solutions to a problem are developed, then the better solutions are recombined with each other to form some new solutions. Finally, the new solutions are used to replace the poorer of the original solutions and the process is repeated.

Many avatars are designed to display appropriate social behavior in reaction to other avatars and people in a virtual environment.⁸⁷ Genetic algorithms are useful for designing avatars that can display a range of social behaviors. The diversity of genetic customization is important in creating a unique avatar in a virtual world, and in being a part of a large, diverse community. To use a genetic algorithm to create various facial expressions, the design methodology of the avatar includes identifying variations in the parameters used in the computer code which control facial expressions, setting ranges for these parameters, and placing them into an array, which can be manipulated in a variety of ways.⁸⁸ The array is called the genotype. Every unique avatar designed using genetic algorithms will have a different genotype. The gene ranges will provide an overall genetic space within which all possible avatars can exist. These genes will affect, for example, body shapes, colors, motions, facial proportions, and walking styles of an avatar.⁸⁹

III. VIRTUAL AVATARS AND WORKS OF AUTHORSHIP

Computers using methods in artificial intelligence have been programmed to compose music, write poetry, and write parts of a book. These are all areas deemed to reflect a high level of human creativity,

85. Peter Small, *MAGICAL A-LIFE AVATARS: A NEW PARADIGM FOR THE INTERNET* (Manning Publications Co. 1998); Kenrick J. Mock, *Wildwood: The Evolution of L-System Plants for Virtual Environments*, available at <http://www.math.uaa.alaska.edu/~afkjm/papers/Wildwood.doc> (last visited June 1, 2005).

86. See Tom S. Ray, *Neural Networks, Genetic Algorithms and Artificial Life: Adaptive Computation*, in *PROCEEDINGS OF THE 1994 ALIFE, GENETIC ALGORITHM AND NEURAL NETWORKS SEMINAR 1*, INSTITUTE OF SYSTEMS, CONTROL AND INFORMATION ENGINEERS (1994).

87. Olveres et al., *supra* note 78.

88. Craig Reynolds, *Flocks, Herds, and Schools: A Distributed Behavioral Model*, 21 *COMPUTER GRAPHICS* 25 (July, 1987).

89. Jeffrey Ventrella, *Disney Meets Darwin - An Evolutionary-Based Interface for Exploration and Design of Expressive Animated Behavior*, MIT Master's Thesis (MIT Press 1994).

and which result in copyrightable works of authorship. Once virtual avatars create works of authorship, especially if they do so independent from human input, traditional copyright notions of authorship and originality will need to be addressed.⁹⁰ This section raises the question of whether the copyright law as currently enacted can adequately address issues of authorship in a world of increasingly intelligent artificial entities. Generally, if a work is completely attributable to an intelligent avatar, then that work will be outside the ambit of federal copyright law.⁹¹ In contrast, if a human author can be associated with the work of an intelligent avatar, copyright law as it currently exists may adequately account for the output generated by the avatar.

Under the Copyright Act, the author of a work is the initial owner of the copyright in it, and may exploit the work herself or transfer some or all of her rights in that work to others.⁹² The author is generally the person who conceives of the copyrightable expression and fixes it, or causes it to be fixed, in a tangible form.⁹³ The Ninth Circuit, in *MAI Systems Corp. v. Peak Computer, Inc.*, held that the loading of software into a computer's random access memory, was sufficiently permanent for it to be deemed fixed.⁹⁴ Given this decision, an avatar that creates a work may be thought to have fixed it at the moment of creation.⁹⁵ Therefore, in a copyright dispute involving a virtual avatar the issue for a court will not be whether the work is fixed, but whether the virtual avatar or another party "conceived" of the work and can serve as the author. In some cases, an avatar's owner or programmer may be so far removed from the avatar's output that they may not have any knowledge that the output exists, or even recognize that it resulted from their original input. In this case, should such a person be considered an author? Given the increased complexity of virtual avatars it is pertinent to ask – how would this decision serve the policy of encouraging authors to create?

90. See Samuelson, *supra* note 70, at 1199 (one of the main reasons why computers should not be held an author under the Copyright Act is that such entities do not need an incentive to create works of authorship). However, once a particular bar has been raised prohibiting authorship for intelligent entities, such as lack of incentive to create their works, that bar may be reached given the advances in artificial intelligence to create smart machines. It is interesting to note that since Samuelson's 1986 article, human chess grandmasters are regularly beaten by software and the field of electronic commerce is populated by intelligent software agents.

91. See generally Timothy L. Butler, *Can a Computer Be an Author? Copyright Aspects of Artificial Intelligence*, 4 HASTINGS COMM. & ENT. L.J. 707 (1982).

92. 17 U.S.C. § 201 (2005).

93. See generally, Samuelson, *supra* note 70.

94. *MAI Sys. Corp. v. Peak Computer, Inc.*, 991 F.2d 511, 518 (9th Cir. 1993).

95. *Id.* at 519.

Are there any existing doctrines under copyright law where a copyright can vest in an entity that did not conceive the work or fix it in a tangible medium of expression? The answer is yes, for example, the “work made for hire” doctrine is an important exception to the rule that the party who conceived of the idea is the author of a work. When a work is made for hire, within the meaning of the Copyright Act, the employer or commissioning party, who pays for the creation of the work, is deemed the author, rather than the employee who may actually have conceived of the work and fixed the expression.⁹⁶ One possible way to solve the problem of ownership of the intellectual property created by intelligent avatars is to always deem them as works for hire, in which case the employer or commissioning party would be the author. However, can a virtual avatar serve as an employee?⁹⁷ Could a programmer be considered the employer of an intelligent avatar? If yes, then why not assume that as an employee the intelligent avatar would have rights, either contractual or under the Copyright Act, to the intellectual property they created?⁹⁸

Other legal theories may also be useful for thinking about the rights of virtual avatars. For example, could the intellectual property created by avatars be considered a joint work between the avatar, programmer or avatars owner?⁹⁹ The Copyright Act defines a joint work as “a work prepared by two or more authors with the intention that their contributions be merged into inseparable or interdependent parts of a unitary whole.”¹⁰⁰ The programmer’s contribution to the joint work would be the algorithms to direct the avatar’s behavior and the programming required to create the avatar’s appearance.¹⁰¹ The owner’s contribution would be the input directing the avatar’s output. The

96. See generally Darin Glasser, *Copyrights on Computer-Generated Works: Whom, If Anyone, Do We Reward?* 2001 DUKE L. & TECH. REV. 24 (2001).

97. Currently, software may be licensed by one party to another to assist that party in many tasks that have traditionally been performed by humans, such as the production of documents and the manipulation of symbols and data.

98. Even if an intelligent avatar was deemed an employee, one would then have to determine whether the work was a work for hire under the Copyright Act. 17 U.S.C. §§ 101, 201. As with humans, could avatars “contract out” of their employee duties to an employer? Here it is interesting to note that “intelligent software agents” are contracting independently of humans in the domain of electronic commerce; see Dodd & Hernandez, *supra* note 25; see generally Kerr, *supra* note 40.

99. See generally Tarcisio Queiroz Cerqueira, *Some Common and Civil Thoughts on Computer Generated Works*, available at <http://www.camera-e.net/-uploadCOMMON%20AND%20CIVIL%20THOUGHTS.pdf> (last visited Nov. 3, 2005); see generally Samuelson, *supra* note 70.

100. 17 U.S.C. § 101 (1976) (defining a “joint work”); see also Samuelson, *supra* note 70 at 1221.

101. *But see* sources cited *supra* note 38 (containing citations to self-learning systems).

avatar's contribution would vary, from significant to less meaningful depending on the amount of input supplied by the programmer or owner and the algorithms used to design the avatars. For example, if using techniques such as neural nets or genetic algorithms, the avatar could make significant contributions to a joint work.

For a joint work under the Copyright Act, the authors are considered co-owners of a single copy of the work. Thus, if a joint work was found, the programmer and avatar would each own an undivided interest in the copyright. But what if the avatar is learning within the virtual environment, and creates an output completely independent of the programmer's original effort? Should the court then view the avatar's output as an original work of authorship, or as a derivative of the programmer's original input? If so, who would the court consider to be the author of the avatar's output? Would the court deem the work original if created by an avatar, and thus award a copyright to the avatar?

Under the Copyright Act, copyright subsists "in original works of authorship fixed in any tangible medium of expression, now known or later developed, from which they can be perceived, reproduced or otherwise communicated, either directly or with the aid of a machine or device."¹⁰² For a work to be original, the author must have engaged in some intellectual endeavor of their own, and not just have copied from a preexisting source, and the work must exhibit a minimal amount of creativity.¹⁰³ In the context of intelligent avatars, important issues are whether an avatar can be considered to be an author, and if so, whether the "works" of an avatar can be considered original. If avatars create original works of authorship eligible for copyright protection, who will the court determine to be the author of such works, the original programmer(s), the employer of the programmer, the avatar's owner, the avatar, or as discussed above, will the work be considered a joint work under the copyright law with multiple owners?¹⁰⁴ The issue of whether computer-generated output can be eligible for copyright protection has received some attention in the past, with some commentators concluding that a computer can be an author under the Copyright Act,¹⁰⁵ and some

102. 17 U.S.C. § 102(a) (2005).

103. *Id.*

104. See Samuelson, *supra* note 70; see generally Tal Vigderson, *Hamlet II: The Sequel? The Rights of Authors vs. Computer-Generated "Read-Alike" Works*, 28 LOY. L.A. L. REV. 401 (1994) (discussing whether a romance novel written by an AI that was programmed to mimic author Jacqueline Susann might inappropriately copy Susann's style).

105. See generally Karl F. Milde, Jr., *Can a Computer be an "Author" or an "Inventor?"*, 51 J. PAT. OFF. SOC'Y. 378 (1969).

commentators reaching the alternative conclusion.¹⁰⁶

The process of creating a work involving a virtual avatar involves the efforts of a programmer to create the avatar, the software used to create the avatar's appearance and behavior, and a computer to store the code used to design the avatar. The software can consist of rules that allow little or no autonomous actions by the avatar, or can consist of neural nets or genetic algorithms which allow the avatar to learn and act in significantly different ways than the original set of parameters used to design the avatar. In order to determine whether an avatar can be an author and receive copyright protections for its works, the interests of the programmer, employer, and avatar will need to be addressed. For example, it would be difficult to argue that an avatar with no ability to make decisions on its own, or perform in the capacity as an employee could be considered an author under § 101 of the Copyright Act.¹⁰⁷

Granting authorship rights to an intelligent avatar will be difficult under the current copyright law.¹⁰⁸ One reason is enforceability of the rights enumerated under the Copyright Act. Would an avatar be capable of enforcing such rights, or have standing to initiate an action?¹⁰⁹ Further, awarding copyright protection to an avatar would imply that the avatar can have ideas that led to original works of authorship.¹¹⁰ What separates avatars that act with intelligence¹¹¹ from avatars which are designed to perform a limited set of actions strictly under human control is the ability of the "intelligent avatar" to apply existing knowledge to a new set of facts or problems.¹¹² Here the relevant inquiry into whether the avatar's actions translate into an original work of authorship is whether the avatar is simply reinterpreting another author's work, and whether the avatars output is completely dependant on the programmer's

106. Arthur R. Miller, *Copyright Protection for Computer Programs, Databases, and Computer-Generated Works: Is Anything New Since CONTU?*, 106 HARV. L. REV. 977 (1993) (concluding that AIs should not be authors because computers need no incentive to produce their output); see Samuelson, *supra* note 70 (arguing against copyright protection for artificially intelligent entities).

107. The owner of the avatar might argue that the avatar is neither an independent contractor creating work on her own time, nor an employee working for the owner.

108. See Samuelson, *supra* note 70; Milde, *supra* note 105.

109. Rothblatt, *infra* note 372; REGAN, *infra* note 352; see generally Evan H. Farr, *Copyrightability of Computer-Created Works*, 15 RUTGERS COMPUTER & TECH. L.J. 63, 65 (1989).

110. See Butler, *supra* note 91, at 726-33.

111. That is, avatars designed with genetic algorithms or neural nets which allow a rudimentary level of learning and autonomous behavior to occur. See generally Karnow, *supra* note 39.

112. See generally Bob Ryan, *AI's Identity Crisis*, BYTE 239, 240 (1001) (describing Turing's conjecture that in time computing machines by manipulating symbols could think).

instructions.

The standard for what constitutes an original work under the Copyright Act has been decided by the U.S. Supreme Court.¹¹³ Discussing the requirement for originality, the Supreme Court found that telephone white page listings did not satisfy the originality requirement because they lacked minimal creativity.¹¹⁴ The Court noted that the author's "selection and arrangement of the facts could not be so mechanical or routine as to require no creativity whatsoever."¹¹⁵ As the Court discussed, "[o]riginal, as the term is used in copyright, means only that the work was independently created by the author, and that it possesses some minimal degree of creativity."¹¹⁶ Under this analysis, the Court may determine that an avatar using algorithms is simply performing in a mechanical or routine manner. In this case, the avatar could not receive copyright protection for its work. However, what about an avatar with the capability to learn and respond to events in the virtual environment? In this case, the problem-solving would be far from mechanical or routine. Even so, before copyright protection is awarded to the output of an avatar, the work must be deemed original. This does not, in itself, seem to be an obstacle for an intelligent avatar. However, the avatar would have to be deemed an author. This is a more difficult bar to overcome. Interestingly, there is some precedent for the assertion that an "author" need not be a human being. As noted above, under the work for hire doctrine a corporation may be deemed the author of a work,¹¹⁷ although this conclusion seems to conflict with some case law.

Analysis of whether a nonhuman can be an author has been addressed previously in a Ninth Circuit case.¹¹⁸ This case involved a questionable claim that a superior being authored a particular work, but for purposes here, the analysis the court used to decide the case offers an interesting insight into how the law might view authorship rights for intelligent avatars. The case involved a copyright dispute between

113. Feist Publ'ns, Inc. v. Rural Tel. Serv. Co., Inc., 499 U.S. 340 (1991).

114. *Id.* at 362.

115. *Id.*

116. *Id.* at 345.

117. See generally Jisuk Woo, *Genius with Minimal Creativity? The Continuity of and Transformation of the "Authorship" Construct on Copyright Case Law Regarding Computer Software*, 15 ALB. L. J. SCI. & TECH. 109, 116 (2004). See U.S.C. 17 § 101 (1976); 17 U.S.C. § 201(b) (1976); see also Scherr v. Universal Match Corp., 417 F.2d 497 (2nd Cir. 1969), *superseded by statute*, The Copyright Act, Pub. L. 94-553, Title 1, § 101. In *Scherr*, Justice Friendly stated in his dissent that "in the Constitution and in the Copyright Act, the emphasis is on protecting the 'author' and that any principle depriving him of copyright and vesting this in another without his express assent must thus be narrowly confined." *Id.* at 502.

118. *Urantia Found. v. Maaherra*, 114 F.3d 955 (9th Cir. 1997).

parties who believed the copyrighted work, the Urantia Book, was authored by celestial beings and transcribed, compiled and collected by “mere mortals.”¹¹⁹ The plaintiff, Urantia Foundation, claimed that the defendant Maaherra infringed the Foundation’s copyright when she distributed a computerized version of the Urantia book on disk.¹²⁰ Maaherra conceded copying, so the issue before the court was whether the Foundation owned a valid copyright in the book.¹²¹ Both parties believed that the words in the book were “authored” by non-human spiritual beings described in terms such as the “Divine Counselor,” the “Chief of the Corps of Superuniverse Personalities,” and the “Chief of the Archangels of Nebadon.”¹²² These spiritual entities were claimed to have delivered the teachings that were eventually assembled in the Book, through a patient of a Chicago psychiatrist.¹²³

A threshold issue in this case was whether the work, because it was claimed to embody the words of celestial beings rather than human beings, was copyrightable at all.¹²⁴ In *Feist Publications, Inc. v. Rural Television Service Co., Inc.*, the Court in discussing a threshold requirement for copyright said, “To qualify for copyright protection, a work must be original to the author.”¹²⁵ The core statute from the Copyright Act provides: “[C]opyright protection subsists . . . in original works of authorship fixed in any tangible medium of expression, . . . from which they can be perceived, reproduced, or otherwise communicated, either directly or with the aid of a machine or device.”¹²⁶ As the Court reasoned, “[o]riginal, as the term is used in copyright, means only that the work was independently created by the author (as opposed to copied from other works), and that it possesses at least some minimal degree of creativity.”¹²⁷

119. *Id.* at 956.

120. *Id.* at 958.

121. *Id.*

122. *Id.* at 956.

123. *Id.*

124. *Id.* at 958; *see also* *Oliver v. Saint Germain Found.*, 41 F.Supp. 296 (S.D.Cal. 1941). In *Oliver*, the plaintiff’s religious text proclaimed that the facts contained in the text had come straight from a spirit, and that the spirit was the author of the history in the text. *Id.* at 297. The plaintiff (unsuccessfully) claimed copyright protection in the divine revelations themselves, and in the methods of spiritual communication, rather than in the plaintiff’s specific selection or arrangement of these divine revelations. *Id.* at 299. The defendant in *Oliver* had not copied that arrangement and selection, but simply had written another text using the same divine “facts.” *Id.* The court in *Oliver* made it clear that, had the claim been that the selection and arrangement of the divine revelations had been infringed, the plaintiff’s copyright infringement claim might have had merit. *Id.*

125. *Feist Publ’ns, Inc. v. Rural Tel. Serv. Co., Inc.*, 499 U.S. 340, 345 (1991).

126. 17 U.S.C. § 102(a) (1976).

127. *Feist*, 499 U.S. at 345.

Maaherra claimed that there can be no valid copyright in the book because it lacked the requisite ingredient of human creativity, and that therefore the book was not a “work of authorship” within the meaning of the Copyright Act.¹²⁸ Nowhere in the copyright laws, is there an express requirement for “human” authorship, and considerable controversy has arisen in recent years over the copyrightability of computer-generated works.¹²⁹ The *Urantia* court argued that the copyright law does not protect the “creations of divine beings,” but that the copyright laws protect some element of human creativity.¹³⁰ The court stated, “At the very least, for a worldly entity to be guilty of infringing a copyright, that entity must have copied something created by another worldly entity.”¹³¹

For copyright purposes, the *Urantia* court reasoned, a work is copyrightable if copyright is claimed by the first human beings who compiled, selected, coordinated, and arranged the *Urantia* teachings, “in such a way that the resulting work as a whole constitutes an original work of authorship.”¹³² The court said that the party who was responsible for the creation of a tangible literary form that could be read by others, could claim copyright for themselves as “authors.”¹³³ They were responsible for the religious revelations appearing “‘in such a way’ as to render the work as a whole original.”¹³⁴ Thus, notwithstanding the *Urantia* Book’s claimed non-human origin, the papers in the form in which they were originally organized and compiled by the members of the Contact Commission were at least partially the product of human creativity.¹³⁵ The court reasoned that the papers did not belong to that “narrow category of works in which the creative spark is utterly lacking or so trivial as to be virtually nonexistent.”¹³⁶ From the Ninth Circuit’s analysis in *Urantia*, one can summarize the decision as calling for a human author to find a copyrightable work even if the author did not

128. *Urantia*, 114 F.3d at 958.

129. Samuelson, *supra* note 70, at 1197 (“While Congress may never have anticipated machine authorship, the statute itself says nothing about what kind of being one has to be in order to qualify as an author.”); *see generally* Miller, *supra* note 106, at 1042-72.

130. *Urantia*, 114 F.3d at 958.

131. *Id.* at 958. It would be interesting to consider whether an intelligent avatar would constitute a “worldly entity” under the courts reasoning.

132. *Id.* at 958; *see also* 17 U.S.C. § 101 (1976) (defining a “compilation”); *see* 17 U.S.C. § 103 (1976) (providing that compilations are copyrightable). Under this logic, the user of the avatar would be deemed the author.

133. *Urantia*, 114 F.3d at 960.

134. *Id.* at 958.

135. *Feist Publ’ns, Inc. v. Rural Tel. Serv. Co., Inc.*, 499 U.S. 340, 359 (1991); *see also Urantia*, 114 F.3d at 958.

136. *Urantia*, 114 F.3d at 958.

conceive of the original work. However, under § 201(b) of the copyright statute, a non-human entity such as a corporation, can be deemed the author of a work. This apparent conflict in the law will be even further revealed as artificial entities gain more intelligence, self-program, and make decisions independent from any human. Could an avatar be registered as a corporation, and thus be deemed the author of a work for hire, such as the work of another avatar?

One obstacle to gaining copyright protection is determining whether the avatar is self-aware that it created the work.¹³⁷ If the avatar is not self-aware, it can be argued that its output is merely a digital reinterpretation of what it has been programmed to do. Thus, it is not exhibiting any level of creativity required for copyright protection. In this case, if copying were found, the avatar's owner, and not the avatar, would be liable for copyright infringement.¹³⁸ Under copyright law, in order for a human author to be liable for copyright infringement, a significant amount of copying would have to be found.¹³⁹ In the future it may be argued that a virtual avatar that is self-aware and producing creative works of authorship is no different than a human author- liable for copyright infringement if a significant amount of copying is found; or producing a copyrightable work, if the requisite level of creativity exists in the work, and no copying occurred.¹⁴⁰

One issue that has impacted the debate over whether the output of virtual avatars should be eligible for copyright protection is the lack of human-like performance by avatars.¹⁴¹ That is, in many cases, virtual avatars and software agents have performed tasks within a narrow range as defined by a human owner; without showing any creativity beyond the original parameters of the software used to create the avatar. However, recent advances in neural networks have led to works that are different in nature from conventional computer-generated works.¹⁴² The human owner of a neural network can be quite removed from the authorship process and output of the neural network.¹⁴³ Procedures used by neural nets mimic human brain processes, and are relevant for the issue of whether the avatar is aware of its own creations. One

137. See generally Barfield, *supra* note 34 (discussing personhood rights for intelligent entities).

138. See generally Karnow, *supra* note 39, at 181-83.

139. See, e.g., *Midler v. Ford Motor Co.*, 849 F.2d 460, 462 (9th Cir. 1988).

140. See generally Cerqueira, *supra* note 99.

141. See generally Barfield, *supra* note 34.

142. Donald L. Wenskay, *Neural Networks: A Prescription for Effective Protection*, 8 COMPUTER LAWYER 12 (1991).

143. See generally Glasser, *supra* note 96.

commentator has argued that the issue of copyrighting neural network weights confronts the intelligent entity-authorship issue head-on.¹⁴⁴ On this point, the Copyright Office has already registered a set of neural network weights.¹⁴⁵ Note that avatars may be designed using neural networks and that the structure of the neural network may change as the avatar learns. Thus, one can wonder whether the output of an intelligent avatar operating using a neural network would be eligible for copyright protection since the weights assigned to the neural networks can be registered.¹⁴⁶ That is, neural network architectures embodied in conventional software are copyrightable, just as are other forms of software. Interconnection weights derived by training a neural network represent a new and valuable form of intellectual property, and courts are typically inclined to protect economic rights.¹⁴⁷ Therefore, copyright law seems to offer one possible means to protect neural network weights and therefore the output of virtual avatars.¹⁴⁸

In the area of creative writing, according to one commentator, “computer technology is advancing to the point where a computer may soon be able to generate works in the style of any author that it is programmed to duplicate.”¹⁴⁹ In one example, a program was written to write in the style of best selling author Jacqueline Susann. The result was a published book, *Just This Once*.¹⁵⁰ To create this work, the programmer used two of Ms. Susann’s novels, *Valley of the Dolls*¹⁵¹ and *Once Is Not Enough*,¹⁵² to extract rules which represented the author’s style.¹⁵³ The rules, numbering in the thousands, were input into a computer to produce the tone and plot of the book.¹⁵⁴

It has been argued that current copyright law is not equipped to deal

144. Wensky, *supra* note 142.

145. *Id.* (discussing a Wall Street Journal article, October 4, 1990, at B5, on the copyright registration of a neural network).

146. *Id.*

147. *Id.*

148. *Id.*

149. Viderson, *supra* note 104, at 402 (discussing whether a romance novel written by an AI that was programmed to mimic author Jacqueline Susann might inappropriately copy Susann’s style).

150. SCOTT FRENCH, *JUST THIS ONCE* (1994) (French invested eight years and \$50,000 to use artificial intelligence techniques to generate a novel in the style of Jacqueline Susann).

151. JACQUELINE SUSANN, *VALLEY OF THE DOLLS* (1966).

152. JACQUELINE SUSANN, *ONCE IS NOT ENOUGH* (1973).

153. John Boudreau, *A Romance Novel with Byte; Author Teams Up with Computer to Write Book in Steamy Style of Jacqueline Susann*, L.A. TIMES at E6 (Aug. 11, 1993).

154. Viderson, *supra* note 104 (French identified 200 idiosyncrasies in Susann’s writing. These idiosyncrasies related to language, character, and action. The rules French programmed were designed to teach the 200 idiosyncrasies to the computer).

with the potential legal ramifications of such computer-generated works.¹⁵⁵ Copyright law protects the expression of an idea, but not the idea itself.¹⁵⁶ And protection extends to works fixed in a tangible medium of expression.¹⁵⁷ Protection does not extend to procedures, processes, systems, methods of operation, concepts, principles, or discoveries.¹⁵⁸ Once an avatar gains intelligence, to make a claim for copyright protection, it must use more creativity in producing an output than a standard procedure or method. If the writing style of an author is characterized as a system or method of operation, then it may not be protectable.¹⁵⁹ To determine if a writer's style can be protected, it must first be defined. In copyright terms, this is referred to as "dissection."¹⁶⁰ In order to duplicate the style of Jacqueline Susann, the programmer wrote thousands of computer-coded rules relating to how characters interacted, all based on Ms. Susann's works.¹⁶¹

In the above example, the programmer admitted using Susann's style, reducing her style to thousands of rules equaling thousands of lines of computer code.¹⁶² Most human authors create works by improving on another's style, and generally such improvements are copyrightable.¹⁶³ However, as noted by one commentator, "when a computer is programmed to specifically imitate an author's style, the human interpretive element is removed."¹⁶⁴ If we assume an avatar with artificial intelligence has developed to the point where it can interpret an author's style and then create a new work based on that style, and if we also assume that no human was involved in the work being written, still something worthy of copyright protection has been created, but who should receive a copyright for this work?¹⁶⁵ If an artificially intelligent entity cannot be the author of a work, the choice for authorship is either

155. Glasser, *supra* note 96.

156. 17 U.S.C. § 102(a), (b) (1976).

157. 17 U.S.C. § 102(a) (1976).

158. 17 U.S.C. § 102(b) (1976).

159. *See generally* Vigderson, *supra* note 104.

160. *See* Computer Assocs. Int'l v. Altai, Inc., 982 F.2d 693 (2d Cir. 1992) (Altai enunciated the abstraction test from Nichols v. Universal Pictures Corp., 45 F.2d 119 (2d Cir. 1930), *cert. denied* 282 U.S. 902 (1931) (upon any work a great number of patterns of increasing generality will fit equally well, as more and more of the incident is left out). *See also* Brown Bag Software v. Symantec Corp., 960 F.2d 1465, 1475 (9th Cir. 1992) (endorsing "analytic dissection" of computer programs in order to isolate protectable expression), *cert. denied*, 113 S. Ct. 198 (1992).

161. Vigderson, *supra* note 104, at 405.

162. *Id.* at 405.

163. *Id.* at 406.

164. *Id.* Perhaps the human interpretative elements can be found in the software?

165. *Id.*

the programmer or user of the software. If the user simply turns on the computer and runs the program, no requisite level of creativity for copyright is shown. As for the programmer's rights, the right to copyright a program is clear, but what about the programmer's rights to the output of the program? If the program is not run by the programmer, but by another person, or by the avatar itself, the programmer would not be the person who "fixed" the work, nor embodied it in a tangible medium of expression, both requirements for copyright. Therefore, when an intelligent avatar creates a work on its own, determining who the author should be is problematic.

In discussing who should be the author of a work generated by an intelligent avatar, the issue of whether the avatar is creating a derivative work in copying the style of a human author should be considered. The Copyright Act¹⁶⁶ defines a derivative work as "a work based upon one or more preexisting works."¹⁶⁷ If *Just This Once*, a computer-generated work, is viewed as a derivative work,¹⁶⁸ then it could be covered under an expansive interpretation of copyright law. However, if an author recognized that his writing style was copied by a virtual avatar but that the words had changed such that no case for copying could be made, then the author would have no cause of action for copyright infringement because under a traditional infringement analysis there would be no substantial similarity. Nimmer defines authorship as "a *sine qua non* for any claim of copyright . . . the person claiming copyright must either himself be the author, or he must have succeeded to the rights of the author."¹⁶⁹ The Ninth Circuit expressed a narrow interpretation of a derivative work in *Litchfield v. Spielberg*.¹⁷⁰ In *Spielberg*, the plaintiffs argued that substantial similarity was not a requirement to find that an infringing work was derivative.¹⁷¹ The *Spielberg* court soundly rejected this argument, stating that substantial similarity was necessary.¹⁷² It seems reasonable that the "substantial

166. 17 U.S.C. § 103 (1976).

167. 17 U.S.C. § 101 (1976).

168. A "derivative work" is a work based upon one or more preexisting works, such as a translation, musical arrangement, dramatization, fictionalization, motion picture version, sound recording, art reproduction, abridgment, condensation, or any other form in which a work may be recast, transformed, or adapted. A work consisting of editorial revisions, annotations, elaborations, or other modifications which as a whole, represent an original work of authorship, is a "derivative work." 17 U.S.C. § 101 (1976).

169. MELVILLE B. NIMMER & DAVID NIMMER, NIMMER ON COPYRIGHT § 5.01 [A], at 5-3 (1993).

170. *Litchfield v. Spielberg*, 736 F.2d 1352 (9th Cir. 1984), *cert. denied* 470 U.S. 1052 (1988).

171. *Id.*

172. *Id.*

similarity” standard could also be used to analyze the work of virtual avatars.

IV. DESIGN AND USE OF VIRTUAL AVATARS

This section presents various intellectual property schemes that can be used to protect the rights of the virtual avatar’s owner, and given legal rights for virtual avatars, the rights of the intelligent avatar itself. As a basic principle, one needs to consider that a virtual avatar is more than the graphical image that appears in a virtual environment; an avatar also includes the software and algorithms used to design the avatar. Under the Copyright Act, the visual image of the avatar appearing in the virtual environment can receive protection as a pictorial character.¹⁷³ However, characters may also be created with words, in which case they receive protection under the Copyright Act as a literary work.¹⁷⁴ Under the copyright statute, the protection of literary characters normally is distinguished from the protection of pictorial characters.¹⁷⁵ Due to the unique nature of virtual avatars, existing in the form of software and in the form of an image appearing in a virtual environment, avatars may be eligible for dual protection as a pictorial character and as a literary character.

The less common way of thinking about copyright protection for virtual avatars is as a literary character. Support for the argument that an avatar could be protected as a literary work is provided by *Universal City Studios v. Reimerdes*, where the court held that code is eligible to receive First Amendment protection as speech.¹⁷⁶ The court held that code is a means of expressing ideas, and thus “the First Amendment must be considered before its dissemination may be prohibited or regulated.”¹⁷⁷ If software is used to describe the visual appearance of a virtual avatar, how it reacts in a virtual environment, even its possible range of speech, then software may be protectable as speech under the First Amendment. Based on the decision in *Universal City Studios*,¹⁷⁸ one could argue that an avatar could receive protection under the

173. 17 U.S.C. § 102 (a)(5) (1976).

174. 17 U.S.C. § 102 (a)(1) (1976).

175. See generally *Walt Disney Prod. v. Air Pirates*, 581 F.2d 751 (9th Cir. 1978).

176. *Universal City Studios v. Reimerdes*, 111 F.Supp.2d 294, 327 (S.D.N.Y. 2000).

177. *Id.* See generally *Junger v. Daley*, 209 F.3d 481, 485 (6th Cir. 2000); *Bernstein v. U.S. Dept. of State*, 922 F.Supp 1426, 1436 (N.D.Cal. 1996) (first Amendment extends to source code); see *Karn v. U.S. Dept. of State*, 925 F.Supp. 1, 10 (D.D.C. 1996) (assuming First Amendment protection extends to source code).

178. *University City Studios*, 111 F.Supp.2d 294.

Copyright Act as a literary character given that the code used to design the avatar could be protectable as speech. Also supporting this argument are cases involving cartoon, movie, or television characters; the Ninth Circuit has been willing to find copyright protection when the character at issue has a visual representation, as well as a personality described by a word or character line.¹⁷⁹ Therefore, the more the virtual avatar displays a unique character, the more likely the court is to find the avatar to be more than idea, but expression deserving of copyright protection.¹⁸⁰

That code may be protected under the first Amendment as speech has significance for the rights of virtual avatars should they continue to get smarter. In *Universal City Studios*,¹⁸¹ the court concluded that communications do not lose constitutional status as speech simply because they are expressed in the language of computer code.¹⁸² This conclusion begs the question of whether the software used to design the avatar itself is protected under the First Amendment. Although the *Universal City Studios* case did not deal with the issue of whether the First Amendment right applied to virtual avatars, the case does provide insight as to what rights may someday be awarded intelligent virtual avatars, even suggesting that they may receive Constitutional rights.¹⁸³

The increased complexity of visual images has led one commentator to conclude that the situation existing in many courts has resulted in the convergence of distinct bodies of law, such as copyright, trademark and unfair competition, into a new body of law formulated solely to protect characters.¹⁸⁴ According to this commentator, the interplay of many factors has resulted in this convergence of the law.¹⁸⁵ These factors include: (1) the profits that can be made from the commercialization of characters, such as virtual avatars who are able to take on a life of their own in settings that differ from those in which the avatar was originally designed to inhabit;¹⁸⁶ (2) the ability of avatars to

179. See *Gardner v. Nike, Inc.*, 279 F.3d 774 (9th Cir. 2002.); *Wrench LLC v. Taco Bell Corp.*, 256 F.3d 446 (6th Cir. 2001).

180. See *Seals-McClellan v. Dreamworks, Inc.*, 120 Fed.Appx. 3 (9th Cir. 2004); *Murray Hill Publ'ns, Inc. v. Twentieth Century*, 361 F.3d 312 (6th Cir. 2004).

181. *Universal City Studios*, 111 F.Supp.2d 294.

182. *Id.* at 327.

183. *Id.*

184. Michael Todd Helfand, *When Mickey Mouse Is as Strong as Superman: The Convergence of Intellectual Property Laws to Protect Fictional Literary and Pictorial Characters*, 44 STAN. L. REV. 623, 641 (1992).

185. *Id.* at 628.

186. *Id.*; see generally Derral Fralish, Crystal Mario, Elaine Mitchell, Matthew Peterson & Lisa Smith, *Update on Virtual Reality: Avatars and 3D-Chat*, available at <http://www.emory.edu/>

function as entertainment products that are recognized under federal, state, and common law because they “suggest, if not clearly indicate, origin” of the products or services which the avatar is associated with; and (3) the quality that a virtual avatar through extended use, can lead the public to relate to the character as being human.¹⁸⁷

In the context of virtual avatars, the copyrightable expression of a character is much more than just the character’s physical appearance. It includes the specific name, physical appearance, and character traits of that character. In *Warner Bros. Inc. v. American Broadcasting Companies, Inc.*, the court noted that, in determining whether a character in a second work infringed a cartoon character, “courts have generally considered not only the visual resemblance but also the totality of the characters’ attributes and traits.”¹⁸⁸ A similar result was shown in *Detective Comics, Inc. v. Bruns Publications*.¹⁸⁹ Here, the court found that the character “Superman” was infringed in a competing comic book publication featuring the character “Wonderman.”¹⁹⁰ The court held that the infringing work “appropriated the pictorial and literary details embodied in” the copyrights protecting Superman.¹⁹¹ To summarize the above courts’ decisions for virtual avatars, a copyright infringement action will involve more than just a showing of the physical similarity between two virtual avatars; the court will also consider the range of behaviors exhibited by the avatars, and even the avatar’s digital speech.¹⁹²

One of the more difficult problems of applying copyright law analysis and protection to virtual avatars will be to ascertain how such protection will be extended to protect a particular virtual avatar after that avatar has taken on a life of its own and no longer exists in the original context in which it first appeared. Will copyright protection be lost if the virtual avatar’s appearance has changed? For virtual avatars designed using genetic algorithms, once they have mutated their appearance and behavior, will they still be eligible for copyright protection? In order to ascertain whether a virtual avatar might be entitled to copyright protection, the courts likely will follow the “character delineation” test

BUSINESS/et/avatar (last visited June 9, 2005) (discussing how avatars may be used in advertisement and promotion).

187. See generally Helfand, *supra* note 184, at 628.

188. *Warner Bros. Inc. v. Am. Broadcasting Cos, Inc.*, 720 F.2d 231, 241 (2nd Cir. 1983).

189. *Detective Comics, Inc. v. Bruns Publ’ns*, 111 F.2d. 432 (2nd Cir. 1940).

190. *Id.* at 433-34.

191. *Id.* at 433.

192. See generally *Midler v. Ford Motor Co.*, 849 F.2d 460 (9th Cir. 1988).

which is used to analyze the copyrightability of graphical images.¹⁹³ Under this test, the critical issue is whether the avatar is sufficiently and distinctively delineated so that it warrants protection.¹⁹⁴ Because copyright law does not protect ideas from infringement, but instead only protects the expression of those ideas, courts do not protect character types.¹⁹⁵ Therefore, while a court would likely not extend copyright protection to a virtual avatar possessing super powers, the courts will likely extend copyright protection to a specifically delineated “super powered” virtual avatar, without bestowing a monopoly on the mere character of a “super avatar.” Based on this conclusion, a good way to protect a virtual avatar under copyright law will be to ensure that the avatar’s appearance and personality are specific and unique. Past characters that have received copyright protection have displayed consistent, widely identifiable, traits.¹⁹⁶

V. RIGHT OF PUBLICITY FOR VIRTUAL AVATARS

What if the appearance of an avatar resembles that of a famous personality and is used for commercial gain in a virtual environment? If the avatar resembling a famous person is used for commercial purposes, the person whose image is appropriated may have a claim for damages under the right of publicity doctrine.¹⁹⁷ The right of publicity prevents the unauthorized commercial use of an individual’s name, likeness, or other recognizable aspect of one’s persona.¹⁹⁸ It gives an individual the exclusive right to license the use of their identity for commercial promotion.¹⁹⁹ Thus far, the right of publicity cause of action has been used to protect humans, but not the likeness of a nonhuman character. For example, in *White v. Samsung Electronics America, Inc.*, a non-human entity was found to be a sufficient likeness to Vanna White to support a right of publicity claim.²⁰⁰ Given that the *White* decision

193. *Metro-Goldwyn-Mayer, Inc. v. American Honda Motor Co., Inc.*, 900 F.Supp. 1287 (C.D.Cal. 1995); *Anderson v. Stallone*, No. 87-0592 WDK, 1989 U.S. Dist. LEXIS 11109 (C.D.Cal. Apr. 25, 1989).

194. See generally *Metro-Goldwyn*, 900 F.Supp. at 1296.

195. See 17 U.S.C. § 102(b) (1976).

196. See, e.g., *Toho Co., Ltd. v. William Morrow and Co., Inc.*, 33 F.Supp.2d 1206, 1215 (C.D.Cal. 1998) (*Godzilla*); *Metro-Goldwyn-Mayer*, 900 F.Supp. at 1297 (*James Bond*); *Anderson*, 1989 U.S. Dist. LEXIS 11109 (*Rocky Balboa*).

197. *Winter v. DC Comics*, 69 P.3d 473 (Cal. 2003); *Eastwood v. Superior Court*, 149 Cal.App.3d 409 (1983).

198. *Toney v. L’Oreal USA, Inc.*, 406 F.3d 905 (7th Cir. 2005).

199. See *White v. Samsung Elec. Am., Inc.*, 971 F.2d 1395 (9th Cir. 1992).

200. *Id.*

involved a nonhuman character in the analysis, the court's reasoning in *White* begs the question, could it be possible that some day the right of publicity doctrine could be expanded to protect a virtual avatar should the avatar gain in intelligence and contribute to its own physical and personality identity?

"In the United States, the right of publicity is largely protected by state common or statutory law."²⁰¹ Of the states that recognize a right of publicity, many do not recognize a right by that name but protect it as part of the right of privacy.²⁰² The Restatement (Second) of Torts recognizes four types of invasion of privacy: intrusion, appropriation of name or likeness, unreasonable publicity and false light.²⁰³ Under the Restatement's formulation, the invasion of the right of publicity is most similar to the unauthorized appropriation of one's name or likeness.²⁰⁴ According to the Legal Information Institute,

[i]n other states the right of publicity is protected through the law of unfair competition. Actions for the tort of misappropriation or for a wrongful attempt to 'pass off' the product as endorsed or produced by the individual help to protect the right of publicity . . . The Federal Lanham Act can also provide protection where a person's identity is used to falsely advertise a product or designate its origin.²⁰⁵

The *White* decision provides some insight as to how the court may view right of publicity claims brought by intelligent avatars or the owners of avatars. In *White*, Vanna White sued Samsung for creating an ad that included a robot in a blond wig and fancy dress standing on a game show set similar to the set used on the television show "Wheel of Fortune."²⁰⁶ The Ninth Circuit rejected a parody defense asserted by Samsung because the ad's spoof of Vanna White was secondary to its main purpose; to sell Samsung VCR's.²⁰⁷ If avatars were to receive legal rights, under the *White* decision, the use of an avatar that is not an exact replica of another avatar, even one that is an obvious parody of the other avatar, could be actionable if the other elements of a right of publicity claim were met. The court's decision in *White* also implies that a virtual

201. *Legal Information Institute*, available at <http://www.law.cornell.edu/topics/publicity.html> (last visited Nov. 1, 2005) (hereinafter *Legal Information Institute*). See Cal.Civ. Code § 3344 (California's Right of Publicity Statute).

202. See generally *Legal Information Institute*, *supra* note 201.

203. See RESTATEMENT (SECOND) OF TORTS § 652 (1976).

204. See RESTATEMENT (SECOND) OF TORTS § 652C, comments a & b (1976).

205. *Legal Information Institute*, *supra* note 201; see 15 U.S.C. § 1125 (2000) (Lanham Act).

206. *White*, 971 F.2d 1395.

207. *Id.* at 1401-02.

avatar could be found to have violated a human's right of publicity.

Another case with relevance for virtual avatars involved a voice sound-alike. In *Midler v. Ford Motor Co.*, the Ninth Circuit found that a sound-alike of the actress and singer Bette Midler used in a commercial was a violation of Midler's right of publicity.²⁰⁸ This decision has relevance for digital speech that could be produced by a virtual avatar. To avoid a right of publicity claim, the avatar should not be designed to copy the voice of a famous person (although this is technically possible). Further, could the court find a right of publicity violation if an avatar's voice was copied, assuming the avatar had gained celebrity status, and the copied voice was used for commercial gain? A major issue for such a claim would be whether the avatar's recognized voice had commercial value. In *Pesina v. Midway Manufacturing Company*, the plaintiff brought an action against a video game manufacturer challenging use of his image on the home version of *Mortal Kombat* and *Mortal Kombat II* (he had been hired to model for characters of the arcade version).²⁰⁹ The defendant's motion for summary judgment was granted and the court held that the alleged use of the martial artist's name, likeness, or persona did not violate his common law right of publicity because there was no evidence that prior to his association with the game, his name, likeness or persona had commercial value.²¹⁰ Also, there was no evidence that his likeness was recognizable by the games' users.²¹¹ Therefore, under a right of publicity theory, avatars that lack celebrity status leading to commercial value, may not receive protection if copied.²¹²

VI. PROTECTION OF VIRTUAL AVATARS UNDER TRADEMARK AND UNFAIR COMPETITION LAW

Other avenues for the protection of the rights of the owner of the virtual avatar may include trademark and unfair competition law. Federal, state and common law protection will protect the avatar from being used by another party without authorization when the avatar functions as a form of identification and is recognized by the public as

208. *Midler v. Ford Motor Co.*, 849 F.2d 460 (9th Cir. 1988).

209. *Pesina v. Midway Mfg. Co.*, 948 F. Supp. 40 (N.D.Ill. 1996).

210. *Id.* at 42.

211. *Id.*

212. But some avatars have already gained notoriety. See, e.g., John Alderman, *From Earth to Avatars*, WIRED NEWS, available at <http://wired-vig.wired.com/news/culture/0,1284,16439-,00.html> (last visited Nov. 11, 2005) (discussing an avatar beauty contest); see generally Sean Egen, *The History of Avatars*, available at <http://www.oddcast.com/home/news/2005/06202005-3.html> (last visited Nov. 2, 2005). There could also be other causes of action directed against the infringer by the owner of the avatar.

paired to a product.²¹³ This protection could prevent the exact duplication of the trademark owner's avatar, or the imitation of that avatar where the likely result would be to cause public confusion, mistake or deception with regard to the source of the products or services that carry the likeness of the avatar.²¹⁴ Trademark law will not permit a graphic character to be trademarked solely for its own protection. However, it does permit the character's name and likeness to be trademarked when the function of that trademark is to indicate the source of the products and services bearing that mark.²¹⁵

As may be expected, there will be advantages and disadvantages to protecting a virtual avatar as a trademark. On the positive side, to obtain a trademark, the avatar will not have to include the originality attributes that are required under copyright law.²¹⁶ In addition, in order to prove trademark infringement, the trademark owner will not need to prove that the infringer had access to the avatar, as is required under copyright law,²¹⁷ but only that the mark was used by a party other than the owner of the mark without permission. Finally, the longer term of protection, potentially perpetual just as long as the registration requirements are fulfilled, the mark is not abandoned, or the mark loses its status as a trademark, can be valuable and profitable.²¹⁸ This is especially true for successful and highly marketable graphic characters, such as many of the Disney and Warner Brothers characters. On the negative side, federal trademark protection for an avatar can be costly.²¹⁹ This will be especially true if the avatar is extensively used or licensed for use in multiple media formats, or in merchandising programs for many different categories of products and/or services. In addition, because trademark protection is territorial, the avatar serving as a mark²²⁰ may

213. See generally RESTATEMENT (THIRD) OF UNFAIR COMPETITION, § § 13, 16, 17.

214. See generally *Kellogg Co. v. Exxon Corp.*, 209 F.3d 562 (6th Cir. 2000) *overruled on other grounds by* *Moseley v. V Secret Catalogue, Inc.* 537 U.S. 418 (2003).

215. Lloyd L. Rich, *Protection of Fictional Characters*, available at <http://www.publaw.com/fiction.html> (last visited Oct. 26, 2005). See *Two Pesos, Inc. v. Taco Cabana, Inc.*, 505 U.S. 763, 769 (1992).

216. The originality requirement for copyright is expressed in *Feist*, 499 U.S. at 346; 17 U.S.C. § 101; and U.S. Const. art. I, § 8, cl. 8.

217. See generally U.S. Copyright Office, *Copyright Basics (Circular 1)*, available at <http://www.copyright.gov/circs/circ1.html> (last visited Oct. 25, 2005).

218. See Rich, *supra* note 215.

219. *Id.*

220. If an avatar gains in intelligence, could it then serve as a trademark? The subject matter of trademark covers "any word, name, symbol, or device," 15 U.S.C. § 1127 (2000). Could an avatar that produced its own output serve as either a symbol or device? It seems that an avatar that gained legal rights would not be appropriate subject matter for trademark law.

need to be registered in countries other than the United States to provide the maximum degree of protection.²²¹ Because neural nets and genetic algorithms allow an avatar to learn and change their appearance, and any changes in the appearance of the avatar could destroy the original trademark protection, additional trademark registrations may be necessary to ensure that the current appearance of the avatar remains protected.

Another legal theory which may be used to protect an avatar is unfair competition law.²²² Unfair competition laws involve a variety of different causes of action that primarily fall into three categories: (1) misrepresentation, (2) sponsorship, and (3) misappropriation.²²³ Misrepresentation occurs when a party represents that a particular character is associated with their product or service, when, in reality, it is not.²²⁴ Sponsorship occurs when a party indicates that a particular character has endorsed its product or service when it has not.²²⁵ Misappropriation, which may be most relevant for the protection of virtual avatars, may occur when a party steals another's avatar in order to associate it with their product or service.²²⁶ Therefore, when one brings an unfair competition action, the injured party is claiming that their character has been wrongly associated with another party's product, service, person, company, or idea.²²⁷ If such misuse of a graphic character occurs, and it is determined under the reasonable person standard²²⁸ that the graphic character had been misrepresented, used falsely as a sponsor, or misappropriated, then the party engaged in such misuse could be found liable for trademark infringement.²²⁹ Most courts

221. See, e.g., Nisha Vosa, USINFO.STATE.GOV, *International Policy and Accords*, available at <http://usinfo.state.gov/products/pubs/intelprp/accords.htm> (last visited Nov. 8, 2005) (discussing treaties related to international intellectual property rights); Paul E. Salmon, A SHORT GUIDE TO INTERNATIONAL IPR TREATIES, available at <http://usinfo.state.gov/products/pubs/intelprp/guide.htm> (last visited May 14, 2006).

222. See *Nike, Inc. v. Kasky*, 539 U.S. 654 (2003).

223. Rich, *supra* note 215.

224. See Mary LaFrance, *When You Wish Upon a Dastar: Creative Provenance and the Lanham Act*, 23 CARDOZO ARTS & ENT. L.J. 197 (2005).

225. See Joseph R. Dreitler, *The Tiger Woods Case – Has the Sixth Circuit Abandoned Trademark Law*, *ETW Corp. v. Jireh Publishing, Inc.*, 38 AKRON L. REV. 337 (2005).

226. See Peter S. Menell, *Regulating “Spyware”: The Limitation of State “Laboratories” and the Case for Federal Preemption of State Unfair Competition Laws*, 20 BERKELEY TECH. L.J. 1363 (2005). For an example of a real world case dealing with images, see *Kellogg*, 209 F.3d 562.

227. See *Mitsubishi Motors Corp. v. Soler Chrysler-Plymouth, Inc.*, 473 U.S. 614 (1985).

228. See generally Joseph Gibbons Llewellyn, *Semiotics of the Scandalous and the Immoral and the Disparaging: Section 2(A) Trademark Law After Lawrence v. Texas*, 9 MARQ. INTELL. PROP. L. REV. 187 (2005).

229. See generally *Freeman v. Time, Inc.*, 68 F.3d 285, 289 (9th Cir. 1995).

have recognized trademark protection for graphic characters and have found trademark infringement liability under both trademark and unfair competition law.²³⁰ Therefore, if avatars are used for commercial purposes, in addition to copyright protection, other claims to protect avatars can be brought, including right of publicity and trademark or unfair competition. An example of case law in this area is *Walt Disney Productions v. Air Pirates*,²³¹ where the court appeared to commingle copyright and trademark infringement criteria by stating that the Disney characters used by the defendants had “achieved a high degree of ‘recognition’ and ‘identification’” and that these elements helped make the characters protectable under copyright law.²³²

VII. TECHNIQUES TO MANIPULATE THE VISUAL APPEARANCE OF VIRTUAL AVATARS

There are various ways that a digital image can be altered. Some of the commonly used techniques to alter the original design and appearance of an image include colorization, letterboxing, panning and scanning, lexiconning, morphing, deletion of material, and the digital replacement of the full image or some aspect of the image.²³³ The question posed in this section of the article is whether such alternations, if made to a virtual avatar, can be actionable.

A. Colorization

Colorization has been used extensively to add color to black and white film, and could also be used to alter the color characteristics of virtual avatars and virtual environments. Colorization, in the context of film, is a process that matches selected colors with the grey-scale²³⁴ of the black-and-white original image and then alters the image frame by frame based on the colors selected.²³⁵ Specifically, an art director

230. *Fisher v. Star Co.*, 132 N.E. 133 (1921), *cert. denied*, 257 U.S. 654 (1921) (the cartoon characters Mutt and Jeff were protected by the court under trademark and unfair competition principles which found the Star Company liable for their unauthorized use of the characters).

231. *Walt Disney Prod. v. Air Pirates*, 581 F.2d 751 (1978).

232. Helfand, *supra* note 184, at 643-45.

233. Janine V. McNally, *Congressional Limits on Technological Alterations to Film: The Public Interest and the Artists' Moral Right*, 5 HIGH TECH. L.J. 129, 132-33 (1990).

234. Dan Renberg, *The Money of Color: Film Colorization and the 100th Congress*, 11 HASTINGS COMMUN. & ENT. L.J. 391, 394 (1989).

235. McNally, *supra* note 233, at 132-33; *see also* James Thomas Duggan & Neil V. Pennella, *The Case for Copyrights in Colorized Versions of Public Domain Feature Films*, 34 J. COPY. SOC'Y 333, 336 (1987) (the colors in a black-and-white film are represented by blacks, whites, and greys. A computer scans a videotape of the black-and-white film and determines what true colors should

chooses a “key” frame and selects the colors for each part of that frame. This key frame is used as a standard for all the other frames in a particular scene.²³⁶ The film’s “palette” is thus re-created and a computer electronically overlays the new color scheme onto a videotape copy of the film.²³⁷ Given that virtual avatars exist as digital images, the color characteristics of avatars can be changed with standard paint packages. To colorize an image, the colorist may assign one of over approximately 50,000 hues to each of the pixels that comprise the given frame.²³⁸ Once the frame has been colorized, the computer monitors each object as it moves from frame to frame until the scene changes.²³⁹ At the change of the scene, the process is then repeated.²⁴⁰

In the context of colorization techniques, a basic question is whether the colorization of an avatar or virtual environment scene would be sufficiently original as to satisfy the Copyrights Act’s originality requirement.²⁴¹ In *Feist*, the Supreme Court held that the Intellectual Property clause of the United States Constitution²⁴² required that a work be “original” to receive copyright protection.²⁴³ Although the level of originality needed is not very high, in *Feist* it was determined that the white pages of a phone book were not protectable because the selection of the data (all customers in a geographic area) and the arrangement of the data (in alphabetical order) were not sufficiently original as to come under the protection of the Copyright Act.²⁴⁴ If read broadly, the *Feist* decision would withhold copyright protection from certain works that society has a clear interest in seeing created, but which do not possess the sufficient amount of originality. In particular, a broad reading of *Feist* would leave some colorized films²⁴⁵ without copyright protection; similarly, a broad reading of *Feist* would also leave copyright protection for colorized avatars and virtual environments unprotected..

The ability to colorize old black-and-white films has generated

be used to replace the grey-scale tones).

236. McNally, *supra* note 233, at 133.

237. Anne Marie Cook, *The Colorization of Black and White Films: An Example of the Lack of Substantive Protection for Art in the United States*, 63 NOTRE DAME L. REV. 309, 323 (1988).

238. David J. Kohs, *Paint Your Wagon—Please!: Colorization, Copyright, and the Search for Moral Rights*, 40 FED.COMM. L.J. 1, 4 (1988).

239. *Id.* at 4.

240. *Id.*

241. 17 U.S.C. § 102 (a) (1976).

242. U.S. Const. art. I, § 8, cl. 8.

243. *Feist Publ’ns, Inc. v. Rural Tel. Serv. Co., Inc.*, 499 U.S. 340, 346 (1991).

244. *Id.* at 364 -65.

245. Specifically, *Feist* may affect colorized versions of black and white films in the public domain. *See Feist*, 499 U.S. 340.

considerable controversy.²⁴⁶ Colorization of film is not that far removed from the idea of changing the color characteristics of virtual environments, as the avatars in virtual environments can serve as actors in digital movies shown in virtual reality.²⁴⁷ Persons who oppose colorization include film directors, screenwriters, and avid black-and-white film fans. Opponents of colorization believe that colorization will ruin the original filmmaker's intent as captured on black-and-white film.²⁴⁸ Using similar reasoning, changing the color characteristics of an avatar or virtual environment may receive opposition from the virtual world designers and users. Proponents of colorization technology include colorization firms, as well as film copyright owners, who have invested millions of dollars in this market with the hope of generating large revenues from sales of colorized films in the television syndication and home video markets.²⁴⁹ Under current law, an original filmmaker may prevent colorization if she is the copyright owner.²⁵⁰ However, once the filmmaker transfers her proprietary interests in the copyright, the original filmmaker no longer retains control over the future disposition of the film.²⁵¹ This basic finding would also apply to virtual avatars and virtual environments.

Generally, directors and screenwriters are employed on a work-for-hire basis.²⁵² Section 201 of the Copyright Act provides that the copyright vests initially in the author of the work, but that in the case of a work-for-hire, the employer is considered the author.²⁵³ As such, the employer owns the copyright to the film, unless the creative author signs a written agreement to the contrary.²⁵⁴ If a virtual avatar obtained work-for-hire status, without a contract to the contrary, the avatar's employer would have ownership rights as enumerated under the Copyright Act. In

246. Michael C. Penn, *Colorization of Films: Painting a Moustache on the "Mona Lisa"?* 58 U. CIN. L. REV. 1023 (1990).

247. Carlton Reeve, *Presence in Virtual Theatre*, available at <http://www.eimc.brad.ac.uk/research/presence.html> (last visited Nov. 2, 2005); see also *Televirtual*, available at <http://www.televirtual.com/> (last visited June 9, 2005).

248. Elise K. Bader, *A Film of a Different Color: Copyright and the Colorization of Black and White Films*, 5 CARDOZO ARTS & ENT. L.J. 497, 499 (1986).

249. *Id.* at 498.

250. *Id.* at 499.

251. *Id.*

252. Cook, *supra* note 237, at 325.

253. EDMUND W. KITCH & HARVEY S. PERLMAN, LEGAL REGULATION OF THE COMPETITIVE PROCESS: CASE MATERIALS, AND NOTES ON UNFAIR BUSINESS PRACTICES, TRADEMARKS, COPYRIGHTS, AND PATENTS 508 (3d. ed., 1986). Under the Copyright Act a work made for hire is defined to include a work prepared by an employee within the scope of his employment. 17 U.S.C. § 101 (1976).

254. KITCH & PERLMAN, *supra* note 253, at 508.

the context of film, the copyright allows its owner to prevent the unauthorized duplication of an original film as well as the unauthorized creation of a derivative version of the same film.²⁵⁵

A derivative work is one that is substantially copied from a prior work.²⁵⁶ Because the colorized version of a film is substantially copied from the original black-and-white version, it is considered to be a derivative of the original film. Therefore, the owner of the copyright to a black-and-white film may preclude the conversion of the film into color for the term of the copyright.²⁵⁷ A creative author, either one who is hired on a work-for-hire basis or one who originally owned the copyright and subsequently assigned his copyright to another, can contract to prevent the copyright owner from altering his work.²⁵⁸ If the author does so, the copyright owner would be precluded from colorizing the film for the duration of the copyright.²⁵⁹ However, once the work enters the public domain, any person would be free to colorize the film. As long as courts narrowly construe the *Feist*²⁶⁰ decision, colorized films should continue to receive copyright protection.²⁶¹ For those artists who base their selection of colors on personal taste or reasons other than factual accuracy, colorized films should be able to demonstrate the requisite level of originality; the same reasoning should also hold for the colorization of avatars and virtual environments.

B. Letterboxing

This section of the article summarizes a few additional techniques which can be used to alter the appearance of an avatar or virtual environment. Letterboxing is the process by which a film retains its original aspect ratio when it is viewed on television.²⁶² In some cases,

255. *Id.* at 623

256. MELVILLE NIMMER & DAVID NIMMER, NIMMER ON COPYRIGHT § 3.01, at 3-2 (1987); *see id.* at § 3.06 (a derivative work is non-infringing if it is created pursuant to the consent of the copyright owner of the underlying work or if it is based on a work in the public domain).

257. *See generally* Kohs, *supra* note 238, at 21.

258. *See* Schoenberg v. Shapolsky Publishers, 971 F.2d 926 (2d Cir. 1992).

259. *See generally* Raphael Winick, *Intellectual Property, Defamation and the Digital Alteration of Visual Images*, 21 COLUM.-VLA J.L. & ARTS 143 (1997).

260. *Feist Publ'ns, Inc. v. Rural Tel. Serv. Co., Inc.*, 499 U.S. 340, 340 (1991).

261. Many commentators believe that *Feist* was intended to check the expansion of copyright to include numerical paging or alphabetical order. *See generally* Michael F. Finn, "Just the Facts Ma'am": The effect of the Supreme Court's Decision in *Feist Publications, Inc. v. Rural Telephones Service Co. on the Colorization of Black and White Films*, 33 SANTA CLARA L. REV. 859 (1003) (discussing how the Court's interpretation of the *Feist* decision affects protection of colorized films). As such, it is not improper to construe *Feist* narrowly.

262. The Academy of Motion Pictures Arts and Sciences has set a projection standard for

when an image is viewed on a TV screen a dark band may appear along the top and bottom of the screen, but with letterboxing the full movie theater image can be seen on a home television without any appreciable cropping of the original picture.²⁶³

Panning and scanning are techniques where the central characters in a scene are “followed” in such a way that those characters will appear in the middle of the screen and will not be cropped when the film is shown on television.²⁶⁴ These techniques are similar to the concept of “zoom” in film, which in the design of virtual avatars corresponds to moving the virtual camera eye in relation to the computer graphics viewport.²⁶⁵ Panning is used as somewhat of a substitute for letterboxing.²⁶⁶ Another technique, lexiconning alters the speed of a film, which can affect the total running time as much as six to seven percent.²⁶⁷ These changes are not very noticeable to the naked eye; but in the context of virtual reality, adding more objects such as realistic-appearing avatars in a virtual environment has the effect of increasing the polygon count in the scene, and may slow down the simulation. However, unlike the five to seven percent decrease in running time for film, increased polygon complexity can significantly slow down the speed of the virtual environment simulation, with noticeable lag in movements within the virtual environment. If not monitored properly, lexiconning may extend beyond the acceptable level and affect the overall aesthetic composition of the film.²⁶⁸ Causes of action for altering the appearance of an image or scene could potentially be under contract law or the moral rights doctrine²⁶⁹ as expressed in the Copyright Act, and the Berne convention for the Protection of Literary and Artistic Works.²⁷⁰

feature films of 1.85:1 where the image is 1.85 times as wide as it is high. Certain films with a more “panoramic” look may utilize aspect ratios as high as 2.35:1. In contrast, the National Television System Committee standard is 1.33:1. McNally, *supra* note 233, at n. 30.

263. McNally, *supra* note 233, at 133.

264. *Id.* at 133-34.

265. The effect on the image is either a magnification or minification which could greatly change the appearance of the virtual environment.

266. McNally, *supra* note 233, at 134.

267. *Id.*

268. *Id.* at 134.

269. 17 U.S.C. Sec. 106A (1990) (describing rights of certain authors to attribution and integrity). However, see the discussion forthcoming; if virtual avatars are viewed as film, then they will not receive protection under the Visual Rights Artists Act.

270. *Berne Convention for the Protection of Literary and Artistic Works, Article 6bis, moral rights*, available at <http://www.law.cornell.edu/treaties/berne/6bis.html> (last visited Oct. 25, 2005).

C. Addition and Deletion of Material

Deletion of material from a film occurs under several circumstances such as when film portions are edited or removed to allow for censorship requirements or television commercials. For example, a film that is two hours in length will not fit into a two hour television time slot and provide time for commercials; thus, the film must be edited. Further, the computer generation of images may involve the insertion of people or objects into existing videotapes or films. This technique has been used to add famous personalities to older films.²⁷¹ In *Preminger v. Columbia Pictures Corp.*,²⁷² a New York court held that when a filmmaker grants the television rights to his work to another party he implicitly grants the rights to cut and edit the film.²⁷³ Director and producer Otto Preminger complained that his film, "Anatomy of a Murder," was to be shown on television with several portions of the film edited out.²⁷⁴ The studio that owned the copyright to the film sold the rights to Columbia Studios, which had an agreement with its licensee television stations allowing the stations to cut portions of the film for commercials.²⁷⁵ Preminger sought an injunction to prevent this editing, but the court denied his request.²⁷⁶ However, the court held that should the level of cutting and editing become so great as to become "mutilation" of the film, then Preminger may have a proper cause of action.²⁷⁷ Thus, a director, without express contract reservations, cannot prevent minor editing of a work when it is to be shown on television.²⁷⁸ This finding has implications for virtual avatars which can easily be transported into other media formats using the internet and edited using commercially available software packages.

271. See generally *Virtual Product Placement*, available at http://www.ad-mkt-review.com/public_html/air/ai200008.html (last visited Apr. 24, 2006); see generally Lauri Deyhimi, *Why Seeing is No Longer Believing: Misappropriation of Image and Speech*, 19 Loy. L.A. ENT. L. REV. 51 (1998). In recent years television commercials for Diet Coke have digitally inserted current celebrities into classic films pairing them with deceased actors. See Stuart Elliot, *New Spots are Set for Diet Coke, Pepsi*, N.Y. TIMES, July 24, 1992, at D4.

272. *Preminger v. Columbia Pictures Corp.*, 267 N.Y.S.2d 594 (N.Y. Sup. Ct. 1966).

273. *Id.* at 600.

274. *Id.* at 596.

275. *Id.* at 600.

276. The court held that "the right to interrupt the exhibition of a motion picture on television for commercial announcements and to make minor deletions to accommodate time segment requirements or to excise those portions which might be deemed, for various reasons, objectionable, has consistently been considered a normal and essential part of the exhibition of motion pictures on television." *Id.* at 599-600.

277. *Id.* at 603.

278. See *id.* at 600. See also Gail H. Cline, *On a Clear Play, You Can See Whatever: Copyright and Trademark Issues Arising from Unauthorized Film Editing*, 27 HASTINGS COMM. & ENT. L.J. 567 (2005).

Would the court apply the same standard to virtual avatars, and if so, how much “mutilation” would have to occur for an injunction to be issued?

A more drastic example of deletion of material occurred in *Gilliam v. American Broadcasting Co.*²⁷⁹ *Gilliam* involved the British comedy group, “Monty Python,” and a U.S. broadcast of special presentations of Python’s half-hour series “Monty Python’s Flying Circus.”²⁸⁰ The court found that the American Broadcasting Company (ABC), successor to the broadcast rights from the British Broadcasting Corporation (BBC), had grossly altered the program by deleting approximately 27 percent of the material.²⁸¹ The court further held that ABC had “impaired the integrity of appellants’ work and represented to the public as the product of appellants what was actually a mere caricature of their talents.”²⁸²

Monty Python based its cause of action on the moral rights doctrine; however, while finding in favor of Monty Python, the court did not adopt this approach.²⁸³ Rather, the court granted relief founded in the economic rights of the author.²⁸⁴ The court premised this approach on section 43(a) of the Lanham Act.²⁸⁵ The *Gilliam* court found that since alterations to the program represented a different product than the original, potential Monty Python fans might be driven away.²⁸⁶ The edited program represented something that was markedly different from the original, yet ABC continued to project the work as that of Monty Python.²⁸⁷ This resulted in unfair competition and economic injury, thus allowing the application of the Lanham Act to the facts of the case.²⁸⁸ In an age of digital avatars consisting of bits, movies with virtual actors, and the commercialization of virtual reality, the potential that an image will be pirated and altered is great. This should lead to increased

279. *Gilliam v. Am. Broadcasting Co.*, 538 F.2d 14 (2nd Cir. 1976).

280. *Id.* at 17.

281. *Id.* at 19.

282. *Id.* at 25.

283. *Id.*

284. “American copyright law, as presently written, does not recognize strong moral rights or provide a cause of action for their violation, since the law seeks to vindicate the economic, rather than the personal, rights of authors.” *Id.* at 24.

285. *Id.* The Lanham Act provides in part: “Any person who, on or in connection with any goods or services, . . . uses in commerce any word, term, name, symbol, or device, or any combination thereof, or any false designation of origin, false or misleading description of fact, or false or misleading representation of fact . . . shall be liable in a civil action by any person who believes that he or she is or is likely to be damaged by such act.” 15 U.S.C. § 1125(a) (2000).

286. *Gilliam*, 538 F.2d at 24.

287. *Id.* at 24.

288. *Id.*

disputes and litigation with some causes of action based on the Lanham Act.

D. Morphing of Images

Morphing is a term used in computer graphics that represents a technique that allows one image to be gradually changed into another.²⁸⁹ A morphed image is generated by creating intermediate images that represent “interpolations” between the start and end image.²⁹⁰ One key question to ask, should virtual avatars gain in intelligence, is whether they would have any legal rights, such as the right to seek an injunction should one want to morph a particular avatar without consent (which would be the equivalent of forced digital plastic surgery).²⁹¹ In the area of virtual pornography, an interesting set of cases with relevance to virtual avatars has been litigated.

In 1996, Congress, in its effort to stem the flow of child pornography, passed the Child Pornography Prevention Act (CPPA) of 1996.²⁹² Section 2256(8)(A) of the CPPA covers the use of underage “real” children.²⁹³ Section 2256(8)(C), prohibits “morphing” or the changing of images of actual children to make them appear as though they are engaging in acts which, in actuality, they are not.²⁹⁴ In *Free Speech Coalition v. Reno*,²⁹⁵ the constitutionality of section 2256(8)(B) of the CPPA, which prohibits any visual depiction, including any film, video, picture, or computer or computer-generated image or picture that “is, or appears to be” of a minor engaging in sexually explicit conduct was disputed.²⁹⁶ The “appears to be” aspect of the statute has great significance for the rights of virtual avatars.

The literal language of the CPPA would prevent activities that did not involve the use of real children. One example is “virtual child

289. See About, Inc., *Morphing Software and Information*, available at <http://graphicssoft.about.com/od/morphing/> (last visited Nov. 3, 2005) (examples of software packages for morphing).

290. Generally speaking, based on how to establish the correspondence between the two images, morphing techniques can be classified into two groups, landmark-based approaches and image-based approaches. The first techniques require pairs of points or line segments, which are referred to as landmarks and normally specified manually while the second techniques use features given by the images alone, such as pixel intensities to establish the morphing.

291. See generally Barfield, *supra* note 34.

292. Child Pornography and Prevention Act, 18 U.S.C. §§ 2241, 2251-2252A, 2256 (2000).

293. *Id.*

294. *Id.*

295. *Free Speech Coalition v. Reno*, 198 F.3d 1083 (9th Cir. 1999) aff'd by *Ashcroft v. Free Speech Coalition*, 535 U.S. 234 (2002).

296. *Reno*, 198 F.3d at 1089.

pornography,” in which no real child is used to create the pornography. In contrast, morphing could involve a real child, or virtual avatar. In *Free Speech Coalition v. Reno*,²⁹⁷ the court described that in “morphing,” the “picture of a real person is transformed into a picture of a child engaging in sexually explicit activity . . . Although the computer-generated image looks real, the children depicted in the image do not actually exist;”²⁹⁸ the picture is therefore 100% virtual. Because the definitions in subsections (B) and (D) of the CPPA could be applied to situations where no actual child could be harmed by the production or distribution of the image, the Supreme Court struck them down.²⁹⁹ One aspect of this finding when considering morphing of virtual avatars, is that they will have no right to bring an action under the CPPA because they do represent the image of a real child. Further, since an avatar is not a legal person at all, any pornographer would be free to morph its image³⁰⁰ without violating the CPPA. The attempts by the government to regulate pornography, brings up an interesting issue – that is, whether a virtual avatar could be considered a person, and if so, would the avatar be considered a legal adult? For humans, age is the criteria used to distinguish a minor from an adult, but this criteria is not relevant for avatars that do not age. If avatars gained personhood status, then would their appearance be the determining characteristic as to whether they were considered to be a minor? Such a criteria, would seem unworkable as age is sometimes difficult to judge. Therefore, some other criteria, such as the complexity of the algorithms that enable the avatar to solve problems and make decisions, may be considered.

Another case with relevance for virtual avatars and morphing is *Greenberg v. National Geographic Society*.³⁰¹ This case involved a freelance photographer who brought a copyright infringement suit against National Geographic, which published a searchable electronic collection of its prior issues, including those in which the photographer’s copyrighted pictures had appeared.³⁰² The Eleventh Circuit Court of Appeals held that the use of a copyrighted cover photograph to create a morphing video montage infringed the photographer’s exclusive rights to prepare derivative works.³⁰³ Further, a magazine publisher’s use in

297. *See generally id.*

298. *Id.* at 1098 n.1 (Ferguson J., dissenting).

299. *Ashcroft v. Free Speech Coalition*, 535 U.S. 234, 242 (2002).

300. Assuming no objection from a third party owner of the graphical image.

301. *Greenberg v. National Geographic Soc.*, 244 F.3d 1267 (11th Cir. 2001).

302. *Id.* at 1269.

303. *Id.* at 1275.

this instance was not fair use. The photographs were transformed, and thus became part of larger, new collective work.³⁰⁴ Note that in order to qualify as a derivative work, the resulting work (including “revisions”) after transformation must qualify as an “original work of authorship.”³⁰⁵

The court found that, with respect to the montage and its unauthorized use of Greenberg’s copyrightable photograph, “the Society had infringed upon the photographer’s exclusive right under § 106(2) to prepare derivative works based upon his copyrighted photograph.”³⁰⁶ The Society selected ten preexisting works, photographs included in covers of ten issues of the Magazine, including Greenberg’s, and transformed them into a moving visual sequence that morphed one into the other.³⁰⁷ The court stated: “This sequence, an animated, transforming selection and arrangement of preexisting copyrighted photographs constitutes at once a compilation, collective work, and, with reference to the Greenberg photograph, was a derivative work.”³⁰⁸ Given the nature of avatars, existing as bits and normally accessible on the Internet, such transformative uses may also apply to avatars. This could bring up a host of issues concerning the protection of avatars. However, based on case law to date, the decision in *Greenberg* provides support that the morphing of avatars, while not actionable under the CPPA, given the *Ashcroft* decision, may be actionable under copyright law – especially if the court views the morphed image as a violation of the owner’s derivative rights.

Cases dealing with patent law may also have relevance for the protection of virtual avatars. *Bloomstein v. Paramount Pictures Corp.* involved issues of claim construction in the area of matching the lip movements of actors to a dubbed language added to a film.³⁰⁹ Plaintiff Bloomstein filed suit alleging that techniques Paramount and Lucas used to digitally alter facial features in the movie *Forrest Gump* infringed Bloomstein’s patents.³¹⁰ Bloomstein’s two patents essentially described

304. *Id.* at 1274; *See also* 17 U.S.C. § 107 (1976).

305. *Id.* at 1270 n.3.

306. *Id.* at 1274.

307. *Id.* at 1269.

308. *Id.* at 1274; *see generally* Warren Publishing Company, Inc. v. Microdos Data Corp., 522 U.S. 963 (1997).

309. *Bloomstein v. Paramount Pictures Corp.*, No. C-95-1864 MHP, 1998 U.S. Dist. LEXIS 20839 (N.D. Cal. March 10, 1998). Plaintiff Bloomstein filed action against defendants Paramount Pictures Corporation (“Paramount”) and Lucas Digital Ltd. (“Lucas”), alleging that special effects “morphing” techniques used in the movie “Forrest Gump” infringed United States Patent Nos. 4,600,281 (“the ‘281 patent”) and 4,827,532 (“the ‘532 patent”), issued to Bloomstein. *Id.* at 3.

310. *Id.*

the same invention.³¹¹ The court reasoned, “When one wishes to dub a new soundtrack containing a new language over the original soundtrack of a motion picture, the differences in the languages may be significant enough to make the lip movements of the faces in the unaltered film fail to conform to the new, dubbed language.”³¹² Bloomstein invented a process by which the lip movements of a face in the unaltered film could be digitized and altered to conform to the new language.³¹³ While this case was litigated mainly on the issue of patent infringement, and focused on claim construction, some insights can be made regarding virtual avatars in general. Much of the technology that an avatar may use to express itself, such as techniques to morph, or digitized speech, are under patent protection. As the *Bloomstein* case highlights, holders of patents are inclined to protect their rights. Therefore, it should be interesting to see if, in the future, a patent infringement action may be brought based on an avatar’s conduct, and whether the avatar, or avatar’s owner, would respond seeking a declaratory judgment.

VIII. MORAL RIGHTS FOR VIRTUAL AVATARS

The doctrine of moral rights refers to rights regarding the personality of the artist and to the preservation of the integrity of his intellectual creations.³¹⁴ The Visual Artists Rights Act of 1990 (VARA)³¹⁵ provides moral rights protection for artists and protects the personal interests in their work, even after the copyright is transferred to a third-party purchaser.³¹⁶ VARA was the result of efforts of moral rights advocates to overcome Congress’ failure to adopt the moral rights provision of the Berne Convention.³¹⁷ The legislation protects works of visual art³¹⁸ and gives the artist two kinds of moral rights—the right of

311. *Id.*

312. *Id.* at 5.

313. *Id.* at 3.

314. See Ronald B. Standler, *Moral Rights of Authors in the USA* (1988), available at <http://www.rbs2.com/moral.htm> (last visited Oct. 10, 2005).

315. 17 U.S.C. §§ 101, 106A, 113, 301, 501(a) (1990).

316. William A. Tanenbaum & Jeffrey M. Butler, *The Impact of the Visual Artists Rights Act*, 9 N.Y. L.J., 1 (1993) (the moral rights provided in VARA are independent of the usual copyright and are retained by the artist, even if the economic copyrights are sold or assigned).

317. Since Congress felt that U.S. law already provided such protection in the form of unfair competition, privacy, defamation and misrepresentation causes of action and in certain provisions of the Copyright Act, it chose not to include the moral rights section of Berne in the ratification legislation. *Id.*

318. “A work of visual art is - (1) a painting, drawing, print, or sculpture, existing in a single copy, in a limited edition of 200 copies or fewer . . . (2) a still photographic image produced for exhibition purposes only. . . .” 17 U.S.C. § 101 (1990).

attribution and the right of integrity.³¹⁹ The right of attribution allows the artist to claim authorship of a work and prevent the use of her name as the author of any work which she did not create.³²⁰ Presently, no intelligent avatar is awarded attribution rights for its output, but in the future this might be a necessary outcome given the avatar's ability to create unique and creative works beyond the original programming. The right of attribution allows the artist the right to prevent the use of her name in connection with a mutilated, distorted or otherwise modified work, if that alteration would be "prejudicial to . . . her honor or reputation."³²¹ Likewise, the right of integrity gives an artist the right to prevent intentional mutilations, distortions and other modifications of a work, which would be prejudicial to her honor or reputation.³²² The rights granted under VARA may not be transferred, but may be waived by the artist.³²³

VARA's passage was a big step toward recognizing moral rights in the United States. However, the enacted version does not protect motion pictures, even though the original version did provide such protection.³²⁴ Without the protection that VARA provides other artists, film directors can have altered works attributed to them.³²⁵ One difference, however, between works protected by VARA and motion pictures is that when films are colorized or otherwise altered, the original generally still exists.³²⁶ When a "painting or sculpture is altered, the original work is changed forever."³²⁷ Virtual avatars seem to fit better into the film category, since the concept of an "original" is difficult to apply to virtual avatars given that they exist as bits. If courts follow this reasoning, a virtual avatar would not be protected under VARA.

319. "The right of attribution [is] known as the right of paternity in European practice." Tanenbaum & Butler, *supra* note 316, at 11, col. 1.

320. 17 U.S.C. § 106A(a)(1) (1990).

321. 17 U.S.C. § 106A(a)(2) (1990).

322. 17 U.S.C. § 106A(a)(3) (1990).

323. 17 U.S.C. § 106A(e)(1) (1990).

324. Timothy M. Casey, *The Visual Artists Rights Act*, 14 HASTINGS COMM. & ENT. L.J. 85, 98 (1991).

325. *Id.*

326. 17 U.S.C. §101 fully defines "work of visual art" as "(1) a painting, drawing, print, or sculpture, existing in a single copy, in a limited edition of 200 copies or fewer that are signed and consecutively numbered by the author, or, in the case of a sculpture, in multiple cast, carved, or fabricated sculptures of 200 or fewer that are consecutively numbered by the author and bear the signature or other identifying mark of the author; or (2) a still photographic image produced for exhibition purposes only, existing in a single copy that is signed by the author, or in a limited edition of 200 copies or fewer that are signed and consecutively numbered by the author." 17 U.S.C. §101 (1990).

327. Casey, *supra* note 324, at 99.

The moral rights doctrine is included in the copyright laws of many European countries, as well as the laws of countries subscribing to the Berne Convention.³²⁸ Given that virtual avatars reside in a virtual environment which is most likely accessible on the internet, the moral rights doctrine as applied in Europe could be relevant for the protection of avatars created in the United States. Article 6bis of the Berne Convention requires that countries that are members recognize, independently of the author's economic rights, that "the author shall have the right to claim authorship of the work" – the right of paternity – and "to object to any distortion, mutilation or other modification of, or other derogatory action in relation to the said work, which would be prejudicial to his honor or reputation" – the right of integrity.³²⁹ The scope of moral rights protection varies among countries that recognize these rights.³³⁰ However, the doctrine encompasses three major elements: (1) the right of disclosure; (2) the right of paternity; and (3) the right of integrity.³³¹ Under the right of disclosure, the creator has the privilege of determining when to release his work.³³² The basis of this right is the theory that the creator is the sole judge of when a work is first ready for public dissemination.³³³

The second element of the doctrine of moral rights under the Berne Convention, is the right of paternity which entitles the author to have his name and authorship recognized.³³⁴ This right allows the creator to present himself to the public as the creator of a work.³³⁵ Furthermore, the right of paternity permits the author to require others to acknowledge his authorship.³³⁶ Additionally, this right enables the author to prevent others from attributing works to him which he did not originate.³³⁷ The third element, the right of integrity, is the right most pertinent to virtual avatars. The right of integrity enables the creator to prevent any

328. See Berne Convention Implementation Act of 1988, Pub. L. No. 100-568, 102 Stat. 2853 (1988).

329. Berne Convention for the Protection of Literary and Artistic Works, art 6bis (Sept 9, 1886; revised July 24 1974 and amended 1979; entered into force for the U.S. Mar. 1, 1989 (Sen. Treaty Doc. 99-127)) U.S.T. Lexis 160 or 1 B.D.I.E.L. 715.

330. Kohs, *supra* note 238, at 11-15.

331. *Id.* at 11-12.

332. *Id.*

333. *Id.* at 12.

334. *Moral Rights*, available at <http://art.ntu.ac.uk/liveart/issues/Chapter7.htm> (last visited Nov. 3, 2005).

335. *Id.*

336. *Id.*

337. Martin A. Roeder, *The Doctrine of Moral Rights: A Study in the Law of Artists, Authors and Creators*, 53 HARV. L. REV. 554, 561-62 (1940).

distortion of or modification to his work if the alteration would constitute a misrepresentation of his artistic expression.³³⁸ This right, like the other moral rights, is held by the creator and is independent of any economic rights that he may or may not have in the work.³³⁹

The United States enacted the Berne Convention Act in 1988.³⁴⁰ However, the implementing legislation indicated that the law in the United States as it existed on the date of enactment satisfied the United States' obligations under Article 6bis of the Berne Convention and that no further rights were to be recognized for that purpose.³⁴¹ Thus, the Implementation Act did not change the pre-Berne Convention precedents or balance of rights between authors and proprietors.³⁴² As section 3(b) of the Berne Convention Implementation Act stated, no change in American law regarding the right of paternity or the right of integrity occurred as the result of the implementation of this new legislation.³⁴³ Accordingly, the legal theories previously used to protect an author's moral rights, based upon provisions of the Lanham Act and common law principles, remain the law in the United States.

Another legal theory used by the courts to protect the integrity of a work prior to the United States' ratification of the Berne Convention is embodied in the law of defamation. An action for defamation protects an individual from harm to his reputation or his standing in the community.³⁴⁴ Given the ability of virtual avatars to take on the look of another person, this tort may still serve people who have been harmed by a "look-alike" avatar, especially if it portrays them in a false light. In *Clevenger v. Baker Voorhis & Co.*, a publisher revised an edition of a well-known attorney's law book.³⁴⁵ By including the author's name on

338. Kohn, *supra* note 238, at 12.

339. *Id.* at 12.

340. Berne Convention Implementation Act, *supra* note 328.

341. *Id.* (amending title 17 of the United States Code to make the changes in the United States copyright law that are necessary for the United States to adhere to the Berne Convention. Berne Convention Implementation Act of 1988).

342. *See id.*

343. Section 3(b) of the Act states:

Certain Rights Not Affected.—The provisions of the Berne Convention, the adherence of the United States thereto, and satisfaction of United States obligations thereunder, do not expand or reduce any right of an author of a work, whether claimed under Federal, State, or the common law: (1) to claim authorship of the work; or (2) to object to any distortion, mutilation, or other modification of, or other derogatory action in relation to, the work, that would prejudice the author's honor or reputation.

Berne Convention Implementation Act, *supra* note 328.

344. *See* Furine Blaise, *Game Over: Issues Arising When Copyrighted Work is Licensed to Video Game Manufacturers*, 15 ALB. L.J. SCI. & TECH. 517 (2005).

345. *Clevenger v. Baker Voorhis & Co.*, 168 N.E.2d 643 (N.Y. 1960).

the title page, the revision implicitly misrepresented that the author himself, rather than the publisher, had written the revision, which contained many errors.³⁴⁶ Because publishing in the name of a well-known author of a literary work tended to injure his position in the legal community, the court held that the plaintiff had a cause of action against the publisher based upon defamation.³⁴⁷ Similarly, in *Ben-Oliel v. Press Publishing Co.*, the Court of Appeals of New York held that attribution of an inaccurate newspaper article on the social customs of Palestine and Mosaic symbolism to a well-known authority, which she did not write, constituted libel.³⁴⁸ As the foregoing discussion demonstrates, section 43(a) of the Lanham Act, as well as the law of defamation, are used to preserve the integrity of an author's work. Both theories may aid a party who alleges that they have been harmed by an avatar. Could such theories also be used by intelligent virtual avatars to protect the integrity of their image and output?

IX. CONCLUSIONS: TOWARDS PERSONHOOD

There are three notable trends in virtual avatars: (1) they are getting smarter, (2) their physical appearance is becoming more photorealistic and human-like, and (3) their behavior is becoming more sophisticated. In regards to the three points above, imagine one day that a virtual avatar claims that it is a person,³⁴⁹ and that it is therefore entitled to certain constitutional rights. Should the law grant constitutional rights to intelligent avatars that have intellectual capabilities like those of humans? The answer may turn out to vary with the nature of the constitutional right and our understanding of the underlying justification for the right.³⁵⁰ For example, Samuelson, Miller, and other legal scholars have noted that a rationale for copyright is to provide an incentive for authors to create copyrightable works.³⁵¹ As they argue, since "software and machines" currently need no such incentive to create works, there

346. *Id.* at 644.

347. *Id.* at 645-46.

348. *Ben-Oliel v. Press Publ'g Co.*, 167 N.E. 432 (Ct. App. N.Y. 1929); *see also* *Am. Law Book Co. v. Chamberlayne*, 165 F. 313 (2nd Cir. 1908) (acknowledging possibility of recovering damages for libel resulting from publication of mutilated or altered form of author's work).

349. Hans Moravec, *MIND CHILDREN: THE FUTURE OF ROBOT AND HUMAN INTELLIGENCE* 59-68 (Harvard Univ. Press 1988) (estimating that it would take roughly ten trillion calculations per second to equal the speed of the human brain and that computers will reach this speed around 2020).

350. *See generally* Curtis E. A. Karnow, *The Encrypted Self: Fleshing Out the Rights of Electronic Personalities*, in *FUTURE CODES: ESSAYS IN ADVANCED COMPUTER TECHNOLOGY AND THE LAW* 117-36 (Curtis E. A. Karnow ed., Artech House Publisher 1997).

351. Samuelson, *supra* note 70; Miller, *supra* note 106.

can be no copyright awarded to such entities. The lack of incentive shown by a virtual avatar when producing an output under the direction of a human could conceivably be overcome when avatars evolve that self-program and pursue objectives of their own. The economic justification for producing an output when a human author is involved, may also provide an incentive for virtual avatars. An intelligent avatar that evolved to the point where it claimed to be conscious and deserving of legal rights, may need to purchase computing resources and memory, or even the assistance of humans for the performance of tasks. In addition, other incentives to motivate virtual avatars to produce outputs useful to society may become clear as virtual avatars evolve and interact with humans and other avatars.

Imagine, also that an intelligent avatar claims that it cannot be owned and has been forced into involuntary servitude. A lawyer takes its case, and files a civil rights action on its behalf, against its owner. How should the legal system deal with such a claim? Would the intelligent avatar have standing to pursue such an action?³⁵² And with regard to intellectual property rights, what if an intelligent avatar creates a work completely independent from a human's input that meets the requirements for copyright? Would the court then award the avatar a copyright for the work? The current answer is surely no, but why not? The work could clearly pass the copyright hurdles of an original work fixed in a tangible medium of expression.³⁵³ The argument of antagonists of awarding a copyright to an artificial entity comes down to a requirement that a human being be the author of a copyrightable work. For this reason, the issue of personhood for non-human entities becomes an important topic when discussing legal rights for intelligent avatars. Before exploring the issue of personhood for artificially intelligent entities in greater detail, it should be noted that granting legal recognition to non-human entities may not pose an insurmountable problem doctrinally. It is already done for corporations.³⁵⁴ In terms of policy considerations, Samuelson has previously argued that the ownership allocation between humans and software should not only make sense, but reflect the realities of the world.³⁵⁵ Those realities, in

352. See generally TOM REGAN, *THE CASE FOR ANIMAL RIGHTS* (1983); Christopher D. Stone, *Should Trees Have Standing? Toward Legal Rights for Natural Objects*, 45 S. CALIF. L. REV. 450, 458ff (1972); See generally Joseph Mendelson III, *Should Animals Have Standing? A Review of Standing Under The Animal Welfare Act*, 24 B.C. ENVTL. AFF. L. REV. 795 (1997).

353. 17 U.S.C. § 102(a) (1976).

354. See *Santa Clara Cty. v. S. Pac. Ry.*, 118 U.S. 394 (1886).

355. Samuelson, *supra* note 70, at 1192.

regard to intelligent systems, have changed dramatically since antagonists argued against the idea of copyright protection for artificially intelligent entities in the 80's and early 90's.³⁵⁶ Given the advances in autonomous machines, smart computer vision systems, and self-programming neural nets, Samuelson's past statement is even more relevant for these times than when it was first made.³⁵⁷

Karnow introduced the term "electronic person," or "epers," when discussing the issue of legal rights for "agents" or "avatars" existing within cyberspace.³⁵⁸ Taking a liberal view on legal rights for software agents, Karnow argued that epers should be allowed to own physical property, maintain bank accounts, enter into contracts, and be recognized as authors of expression, subject to constitutional protection.³⁵⁹ Solum³⁶⁰ and Karnow³⁶¹ have also previously addressed the issue of personhood for artificially intelligent entities. According to Solum, "the question whether an entity should be considered a legal person is reducible to other questions about whether or not the entity can and should be made the subject of a set of legal rights and duties."³⁶² For example, "the particular bundle of rights and duties that accompanies legal personhood varies with the nature of the entity."³⁶³ In this context, both corporations and natural persons are considered legal persons, but they have different sets of legal rights and duties.³⁶⁴

Intuitively, when one uses the term "person" she means to refer to a human being as opposed to a virtual avatar controlled by software.³⁶⁵ However, based on legal principles, the definition of a person is not as straight-forward as one might expect. Black's Law Dictionary defines a person as "[a]n entity (such as a corporation) that is recognized by law as having the rights and duties of a human being."³⁶⁶ Furthermore, an

356. See Samuelson, *supra* note 70; Miller, *supra* note 106.

357. One could argue that an intelligent avatar and the programmer could share rights to any intellectual property created by the avatar, since the programmer wrote the initial software to create the avatar. However, if the avatar were to become truly autonomous and create works independent from the initial programming, would granting the programmer rights to the avatar's property then be similar to the idea of granting property rights to one's parents once the child reached adulthood?

358. Karnow, *supra* note 350, at 128.

359. *Id.* at 128.

360. See Lawrence B. Solum, *Legal Personhood for Artificial Intelligences*, 70 N.C. L. REV. 1231 (1992).

361. Karnow, *supra* note 350, at 129-31.

362. Solum, *supra* note 360, at 1239.

363. *Id.*

364. *Id.* See generally Jonathan Chaplin, *Political Perspective: Toward A Social Pluralist Theory of Institutional Rights*, 3 AVE MARIA L. REV. 147 (2005).

365. See generally Barfield, *supra* note 34.

366. BLACK'S LAW DICTIONARY 1162 (7th Ed. 1999).

artificial person is defined as “[a]n entity, such as a corporation, created by law and given certain legal rights and duties of a human being; real or imaginary, who for purposes of legal reasoning is treated more or less as a human being (also termed a legal person).”³⁶⁷ Based on the latter definition, an intelligent avatar could be regarded as an artificial person and awarded some legal rights. While all human beings, regardless of intellectual capabilities (e.g., those severely retarded) are considered to be a “legal person,” not all persons are considered human beings.³⁶⁸ Indeed, under common law, corporations are regarded as “persons” with full rights to sue, be sued, hold property, and so on. However, as noted by Solum,³⁶⁹ corporations have [human] boards of directors which exert control over the corporation; in contrast, avatars in some domains already perform complex tasks without the supervision of a human.

Since corporations have the status of a person for some legal purposes, we can ask whether this legal principle should be considered as precedent for the issue of legal personhood for avatars. There are several reasons why legal personhood is denied to current implementations of avatars. One is the lack of a full repertoire of intellectual abilities similar to those of humans; to be granted legal personhood, it will not be enough for avatars to be an idiot savant, an expert in a narrow field of knowledge or conduct (such as making theatre reservations or playing chess). Instead, avatars will have to exhibit a broad range of intellectual abilities before they begin to approach human-like cognitive and perceptual capabilities, and thus warrant consideration of their status vis-à-vis legal personhood.³⁷⁰ Another reason why legal personhood is denied to current versions of avatars is the lack of self-awareness in such systems. Without self-awareness, not only is an avatar denied legal personhood, but also denied the characteristic of being alive. In fact, when the crucial aspects of personhood are irretrievably lost, it is generally assumed that an individual has died, i.e., is no longer a person.³⁷¹ Finally, another reason why avatars are denied legal personhood is based on legal precedent; no such entity has ever approached human levels of intelligence or self-awareness. Thus, the issue of legal personhood for such systems has not

367. *Id.* at 1162.

368. Barfield, *supra* note 34.

369. Solum, *supra* note 360, at 1239.

370. Barfield, *supra* note 34. However, note that corporations normally fulfill a need within a defined area, that is, they do not show a wide range of behavior characteristic of a human being.

371. Steven Goldberg, *The Changing Face of Death: Computers, Consciousness and Nancy Cruzan*, 43 STAN. L. REV. 659 (1991).

been considered.³⁷²

The debate on legal personhood for virtual avatars can benefit by a consideration of the legal status of humans and great apes, two species which clearly differ in levels of intelligence; although great apes are certainly intelligent creatures and have complex social structures.³⁷³ We deny legal personhood to great apes not only because they are not human beings, but also because they have a significantly lower level of intelligence than the “normal” human and it is unclear as to whether they exhibit self-awareness.³⁷⁴ Although some apes may have the capability to learn language as evidenced through signing at the level of a 3-4 year old child, they are not provided legal personhood.³⁷⁵ In contrast, people with severe cognitive defects are provided the legal protection of personhood, regardless of their intellectual capabilities; although the state may assume some responsibility toward their upkeep. So, if humans with cognitive defects and those severely retarded are awarded the status of a legal person, why then not consider such rights appropriate for intelligent avatars that may at the least be equally smart?

We can also consider the legal status of children in current society as legal precedent for the treatment of intelligent avatars.³⁷⁶ Under the law, children share several attributes of personhood with adults, but their immaturity disables them from receiving all the legal rights of an adult.³⁷⁷ Until fully possessed of mature reason and adult perspective, the law does not allow children to assume either the prerogatives or burdens of full legal personhood. However, upon the age of majority, the law fully invests its citizens of constitutional rights, giving them both legal prerogatives and burdens.³⁷⁸ Before the age of majority, the law

372. See generally Barfield, *supra* note 34; see generally Martine Rothblatt, *Bioethics: Should We Stop a Company From Unplugging an Intelligent Machine?*, available at <http://www.Kurzweil.ai.net/meme/frame.html?m=4> (last visited Nov. 9, 2005).

373. See *The Great Ape Legal Project*, available at <http://www.aldf.org/article.asp?cid=20> (last visited Oct. 30, 2005); See Jens David Ohlin, *Is the Concept of the Person Necessary for Human Rights?* 105 COLUM. L. REV. 209 (2005).

374. See Adam J. Kolber, *Standing Upright: The Moral and Legal Standing of Humans and Other Apes*, 54 STAN. L. REV. 163 (2001).

375. See Elizabeth L. Decoux, *In the Valley of the Dry Bones: Reuniting the Word “Standing” with its Meaning in Animal Cases*, 19 WM. & MARY ENVTL., L & POL’Y REV. 681, 755 (2005).

376. See generally Ralph C. Brashier, *Children and Inheritance in the Nontraditional Family*, 93 UTAH L. REV. 983 (1996); *Children’s Rights an Overview*, available at http://www.law.cornell.edu/topics/childrens_rights.html (last visited Nov. 5, 2005); *Children’s Rights*, available at <http://hrworg/children/child-legal.htm> (last visited Nov. 6, 2005).

377. Wendy Anton Fitzgerald, *Maturity, Difference, and Mystery: Children’s Perspectives and the Law*, 36 ARIZ. L. REV. 11 (1994).

378. See Kimberly M. Mutcherson, *Whose Body is it Anyway? An Updated Model of Healthcare Decision-Making Rights for Adolescents*, 14 CORNELL J.L. & PUB. POLICY 251 (2005).

seems to manifest a gradual investment in children of legal personhood, roughly corresponding to their gradual attainment of adulthood.³⁷⁹ Until the age of majority, however, the law views children as lacking in at least some essential attributes of adulthood necessary to their exercise of legal rights and assumption of legal burdens. Arguably, we exclude children from legal standing and personhood for their own protection, providing other remedies for their claims. Indeed, the law assigns children's claims to parents and the state, assuming one or the other party will best represent children's interests. Children cannot, the reasoning follows, know or do what is best for them. In the context of intelligent avatars, would it be prudent to treat such entities from a similar legal perspective as minors, affording them some legal rights, but not those of a mature adult? What the above examples seem to suggest is that granting significant rights to virtual avatars based solely on intellectual capability, is rife with contradictions.³⁸⁰ With the exception of corporations, the essential aspect of an entity that seems to lead to legal rights is self-awareness and human-like intelligence.³⁸¹

For the time being, virtual avatars will be regarded as computer programs consisting of datasets and algorithms, along with a visual representation. As such, they may receive the legal protection that is awarded software, and the protection awarded images from copyright and trademark law.³⁸² However, unlike standard software programs, intelligent avatars may deviate from their original programming until they are no longer recognizable to the original programmer(s).

Avatars may run on a single computer or local cluster, or in a distributed fashion across a public network. They may be designed using "classical," or deterministic, programming algorithms, in which case they should be able to summarize or "explain" their thought process, which could then be evaluated using step by step logic. More likely, however, intelligent avatars will have a substantial "neural network" component so their internal state may consist of a large number of unlabeled weight values. In this case, they may output an answer without being able to "explain" it. Intelligent avatars may have a reflective

379. *See id.*

380. Barfield, *supra* note 34.

381. Such self-awareness, according to Kurzweil, a leading futurist, may occur in this century. *See generally*, RAY KURZWEIL, *THE SINGULARITY IS NEAR: WHEN HUMANS TRANSCEND BIOLOGY* (Viking Press 2005).

382. *See Data Cash Sys. Inc. v. JS&A Group, Inc.* 480 F.Supp. 1063 (N.D.Ill. 1979) (dealing with the copyrightability of computer programs); *see generally* Pamela Samuelson, *CONTU Revisited: The Case Against Copyright Protection for Computer Programs in Machine Readable Form*, 1984 DUKE L.J. 663 (1984).

capability that can at least partly describe and summarize the weights used to reach a given conclusion. According to one commentator, one might expect avatars to become strong believers in intellectual property law (copyrights, patents, trade secrets, etc.), to prevent their code and data from being stolen and copied, thus dramatically lowering their potential wages due to competition with clones of themselves.³⁸³

Since all machines have owners who pay their rent, power, and network connection charges, under the current law we can always look to the owner, whether a human or a corporation, and hold them responsible for the acts of the avatar, while assuming that the avatar merely acts as their agent.³⁸⁴ Under this view, the avatars, no matter how smart or decentralized, is just an item of personal property. If the avatar enters into a contract, that agreement binds the owner (subject to the usual rules of contract formation) and not the avatar, and if the avatar commits a tort, its owner is liable to pay compensation for any damages.³⁸⁵

In conclusion, a major event in U.S. corporate law was the landmark Supreme Court decision to treat corporations as “persons” entitled to the equal protection of the laws under the 14th Amendment.³⁸⁶ Will there also be a similar landmark case for virtual avatars, or, as necessity dictates, will rights for avatars appear slowly without any particular landmark decision paving the way for their emancipation.³⁸⁷ Many questions remain unanswered, as there is literally no case law on the rights of artificially intelligent entities in general, and intelligent avatars specifically. However, given the increasing intelligence of avatars, significant legal disputes involving their actions very likely will arise in the future. This article provided a framework in which to consider how future litigation may develop, and potential causes of action which may be raised.

383. See Karnow, *supra* note 350 at 128 (including a discussion of the rights of electronic persons or “epers”).

384. See generally Solum, *supra* note 360.

385. See generally Karnow, *supra* note 39 (discussing the difficulty of finding a responsible party given a distributed computing system).

386. *Santa Clara Cty. v. S. Pac. Ry.*, 118 U.S. 394 (1886).

387. Barfield, *supra* note 34.