1. The law of virtual reality and increasingly smart virtual avatars

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1. INTRODUCTION

Advances in virtual and augmented reality technology, and in the software to produce virtual worlds, have allowed virtual avatars to be used with increasing frequency for a range of activities. But with improvements in the technology to create virtual and augmented reality worlds and decreases in equipment costs have come corresponding issues of law and policy applying to the avatars which represent the human presence in virtual environments. This chapter discusses several issues of law which relate to the design and use of virtual avatars, with a specific focus on avatars that are gaining in intelligence and operating with more and more autonomy from humans.¹ To introduce this topic we present an overview of legal disputes brought forth by virtual and augmented reality worlds, including those implicated when virtual avatars are used for commercial activities. After the initial discussion focusing on legal disputes within virtual and augmented reality worlds, the remainder of this chapter focuses on issues of law and policy which relate more specifically to the design and use of increasingly smart virtual avatars. For the purposes of this chapter, we note that virtual avatars are increasingly taking a form in which they are not simply computer-generated “puppets” manipulated by real-world users, as is the case in many online virtual reality games, but rather are becoming more autonomous actors, generating their own decisions and solutions to problems which may not always be intelligible or transparent to the real-world users they represent. Further, it is the case that “familiar” virtual avatars controlled almost entirely by real-world users bring up a host of legal issues, such as whether the avatar uses copyrighted or trademarked material and, if it does, who is liable. But while increasingly smart avatars operating with greater autonomy will raise many of the same legal issues as do current avatars, they will also raise further significant legal issues, such as whether the avatars themselves deserve rights. While many current avatars represent alter egos of real-world users in a virtual world, the concept of an avatar is expansive and can refer to any character or perhaps any object in the virtual world—and may even represent no natural person outside the virtual world.

A virtual environment (or virtual world) is an interactive computer simulation 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

¹ See generally, W. Barfield, *Intellectual Property Rights in Virtual Environments: Considering the Rights of Owners, Programmers and Virtual Avatars*, 39 AKRON L. REV. 649 (2006); W. Barfield (ed.), 2nd edition, *FUNDAMENTALS OF WEARABLE COMPUTERS AND AUGMENTED REALITY* (CRC Press 2015).

² W. Barfield and T. Furness (eds), *Virtual Environments and Advanced Interface Design* (Oxford University Press 1995).

a range of sensory information, including spacialized sound, stereoscopic imagery, olfactory cues, and force or tactile feedback. Some commentators have even suggested that developments in virtual environments are occurring so rapidly that humans may “inhabit” these environments within the foreseeable future. Although this may seem like a bold prediction, many people are already spending significant amounts of time in virtual environments engaging in activities such as learning skills or performing recreational activities. One reason for the time spent in virtual and augmented reality is that the participants may experience a sense of presence, which is generally regarded as the suspension of disbelief that one is viewing a simulation, that is, the experience of actually “being there” in the virtual or augmented reality world.³ 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 avatars in the virtual world that have the ability to interact with humans and, in some cases, to serve as an alter ego for a human creator.

Participation in a virtual world through the use of a virtual avatar is a compelling experience, especially for those who play massively multiplayer online roleplaying games and for those that experience virtual reality through head-mounted, stereoscopic 3D displays. The virtual avatar(s) representing people enable thousands of participants to interact simultaneously within the same virtual world, and in such settings these participants effectively become the avatars they have created, often looking through their eyes and engaging with other such virtual beings. Virtual avatars can be thought of 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. However, unlike standard software programs, intelligent avatars may deviate from their original programming until they are no longer recognizable to the original programmer(s), raising a host of legal issues beyond the scope of current virtual avatars. These issues are the focus of this chapter.

2. THE USE OF AVATARS FOR COMMERCIAL ACTIVITIES

Since increasingly “smart” avatars are being used more and more in commercial activities, in this section we introduce examples and legal issues which relate to the use of virtual avatars for marketing and branding purposes. We then move on to other issues of law relating to virtual worlds and increasingly smart virtual avatars. Certainly, introducing real-world brands, in some form or another, within virtual worlds is a viable means of engaging in commerce, and is an area that has generated several legal disputes. Additionally, an interesting question of commerce for virtual reality is whether avatars will actually buy real-world products that are marketed in virtual worlds, in effect purchasing real-world goods for their creators, just as those creators buy virtual-world paraphernalia for them. Could an avatar who currently spends Linden dollars to buy a virtual dress from another

³ W. Barfield and S. Weghorst, *The Sense of Presence within Virtual Environments: A Conceptual Framework*, in *HUMAN-COMPUTER INTERACTION: APPLICATIONS AND CASE STUDIES* (G. Salvendy and M. Smith eds) 699–704 (Elsevier 1993); W. Barfield, *Musings on Presence, 25 Years After “Being There,”* 2 PRESENCE: TELEOPERATORS AND VIRTUAL ENVIRONMENTS (2016).

avatar's designer clothing store in *Second Life* be enticed, while visiting an in-world Gap retail outlet, to click on a cash register and use his or her creator's credit card to buy a real-world Gap sweater that would be shipped to the creator's doorstep?⁴

In terms of efforts to market real-world products in virtual worlds, companies are beginning to look beyond the overall market itself and to think about the potential individual customer, which may be the person behind the avatar or, with increasing intelligence, the avatar itself rather than its creator.⁵ The virtual avatar, as a distinct creation of the user's psyche, can influence its creator's purchasing behavior and even make its own purchases of real-world products in the virtual world, deliverable to the user's real-world door. At the least, avatars offer a window into people's hidden preferences and a means for achieving sustained consumer engagement with a brand.⁶ According to writer Paul Hemp, the avatar arguably represents a distinctly different "shadow" consumer, one able to influence its creator's purchase of real-world products and conceivably make its own real-world purchases in the virtual world.⁷ At the least, it may offer insights into its creator's hidden tastes. Further, online virtual worlds offer untapped marketing potential for real-world products and services, particularly because of their ability to generate sustained consumer engagement with a brand. This occurs through interactions with "avatars," the "virtual beings" users create as representations of themselves and through which they live and relate to others in these worlds.

Increasingly smart virtual avatars might also be enlisted to play a direct role in marketing, in that they could use their virtual-world experience in creating virtual property to design products with real-world potential. For example, several *Second Life* clothing designers have been approached by real-world fashion houses, and at least one business makes real-world versions of furniture based on virtual "furni" designed by *Second Life* residents.⁸ Avatar brokers could link real-world companies with virtual landowners willing to rent space for the companies' marketing initiatives. This implicates the laws of property and of licensing. Avatars ultimately could run virtual-world stores selling real-world products and paid to publicize, overtly or not, those same products. This implicates the law of contract, and the terms of contracts for virtual reality games have already been an issue of dispute within virtual worlds. For example, in *Evans v. Linden Research, Inc.*⁹ the plaintiffs were in litigation with Linden Lab over their virtual property rights, arguing that by suspending their accounts Linden had deprived them of their virtual goods. The company asserted that, according to its terms of service agreement, the plaintiffs only had rights to the intellectual property of goods created in-world, not to the goods themselves.¹⁰

Further, many commercial brands that are placed in the virtual world will be protected by trademark law. In general, trademark law protects against the unauthorized use of a trademark in a manner that causes a reasonable consumer to believe that the trademark owner either was the source of the goods or endorsed or sponsored such goods. What if

⁴ Paul Hemp, Getting Real about Virtual Worlds, <https://hbr.org/2006/06/avatar-based-marketing>.

⁵ *Id.*

⁶ *Id.*

⁷ *Id.*

⁸ *Id.*

⁹ *Evans v. Linden Research, Inc.*, 763 F. Supp. 2d 735 (E.D. Pa. 2011).

¹⁰ *Id.*

the virtual reality experience lets a person drive a virtual Mercedes? Will the virtual-world participant think that Mercedes created the virtual reality experience or sponsored it? If so, the consumer may believe that Mercedes endorsed the use of their brand in the virtual world—and if the brand is shown in an unfavorable light, a trademark cause of action may be warranted. Further, what if the virtual environment participant and not the virtual reality company imported the trademarked item into the virtual world, and what if the user can sell the trademarked item they imported for virtual or actual cash?

Under US law, there are two pieces of legislation that provide significant liability protection for those who host interactive online media such as the virtual game world of *Second Life*. The Communications Decency Act (CDA) of 1996 (aimed at liability for defamation cases), and specifically Section 230, subsection (c)(1) of the Act, states: “No provider or user of an interactive computer service shall be treated as the publisher or speaker of any information provided by another information content provider.”¹¹ Additionally, under the Digital Millennium Copyright Act (DMCA)¹² an internet service provider may not be considered to be the publisher of the content itself, and therefore may not be liable for the actions of their users (this is the so-called safe harbor provision of the DMCA, applicable for copyright infringement).¹³ The concept behind the safe harbor Section 512 in the DMCA is that providers are shielded from the burdens of knowing and policing the contents of their network. The cumulative protections provided by the CDA and DMCA can potentially eliminate liability for copyright infringement (DMCA) and defamation (CDA) for those who host virtual environments populated by users’ avatars.

Under US law the safe harbor provisions of the DMCA do not protect virtual reality companies from trademark claims, but by analogy to general trademark infringement cases, such as *Tiffany v. eBay*,¹⁴ the virtual reality companies should be protected from contributory infringement claims as long as they either are not aware of the conduct or take action to remove the infringing content if they become aware of it. Furthermore, under the US Federal Trademark Anti-Dilution Act,¹⁵ nationally known brands can sue if the use of their trademark by others in advertising or branding a product “tarnishes” or “blurs” the trademark. This Act applies whether or not consumers are confused as to the source of the goods, so it is more analogous to a copyright claim than a trademark claim. Thus, virtual reality companies should be diligent not to include any images of nationally known brands in their advertisements, such as online trailers, teasers, or opening web pages.

In addition, augmented reality—which superimposes virtual imagery onto real-world environments, as popularized by the Pokémon Go craze—is also exploring the use of virtual images projected in the physical world for advertising purposes. For years, major

¹¹ 47 U.S.C. § 230(c) (2000), Communications Decency Act.

¹² See Pub.L. No. 105-304, 112 Stat. 2860 (1998) (codified in scattered sections of 17 U.S.C.), among others, the DMCA makes it illegal to circumvent measures that copyright owners use to control others’ access to their works.

¹³ Jonathan Band and Matthew Schruers, *Safe Harbors Against the Liability Hurricane: The Communications Decency Act and the Digital Millennium Copyright Act*, 20 CARDOZO ARTS & ENT. L. J. 295 (2002); see also David Sheridan, *Zeran v. AOL and the Effect of Section 230 of the Communications Decency Act upon Liability for Defamation on the Internet*, 61 ALB. L. REV. 147 (1997–8).

¹⁴ *Tiffany Inc. v. eBay Inc.*, 600 F.3d 93 (2d. Cir. 2010).

¹⁵ Federal Trademark Dilution Act of 1995, Pub. L. No. 104-98, 109 Stat. 985 (Jan. 16, 1996), amending the Trademark Act of 1946, codified at 15 U.S.C. § 1125 *et seq.*

brands have offered mobile augmented reality apps that create interactive 3D digital models of their product. But with augmented reality, some interesting issues of law have arisen as users view the virtual images throughout the real-world environment. For example, Pokémon Go allows users to “capture” Pokémon on private property, which has resulted in trespassing lawsuits and injuries to participants despite the game featuring warnings such as “Remember to be alert at all times. Stay aware of your surroundings.” Another issue is that with augmented reality there is a responsibility to ensure that the digital representations of a product faithfully convey the product’s actual features; if this is not the case, several causes of action are available. For example, if the augmented reality demonstration of a product materially misleads or misinforms the consumer about a product’s features, the advertiser could find itself liable for false advertising. In the US the primary legal authority creating the right to sue for such actions is the Lanham Act, which also regulates the use of trademarks. False advertising claims may be filed by a regulatory agency or by a private party whose interests may be negatively affected by the challenged activity. The difficulty involved in precise 3D rendering of virtual images could likewise result in augmented ads that are similarly unrealistic. In the automotive realm, for example, a digital artist may leave out or oversimplify important features when rendering a product, in ways that mislead consumers into believing things about the product that are not accurate. By definition, digitally enhancing physical reality is a fundamental element of what virtual and augmented reality do; yet without careful attention to the design or products displayed in the virtual worlds, a company may find itself subject to a lawsuit.

3. DISPUTES IN VIRTUAL AND AUGMENTED REALITY

Continuing the discussion on how the law applies to virtual worlds, we observe that the law of tort may be relevant if a person using virtual reality technology is injured or property is damaged.¹⁶ To illustrate this idea, consider the possibility of “real-world” injuries or property damage which may occur when one plays a virtual reality game. To proactively counter claims of negligence and product liability tort actions, virtual reality manufacturers and “publishers” of the content displayed in virtual reality typically use “warning” stickers and disclaimer language in license agreements, to limit liability for

¹⁶ For example, in a study published in the British Medical Journal, *BMJ* 2014;349:g7267, researchers from the Netherlands outlined the findings of previously published reports involving injuries and other problems related to the original Nintendo system, Nintendo 64, and Wii gaming consoles. Nearly 1,200 articles involving mild to life-threatening injuries were identified. Reports of Nintendo controller injuries ranged from tendonitis, fractures, and neurological and psychological problems to surgical concerns. See www.aboutlawsuits.com/nintendo-injury-study-75923/#sthash.jDWNKPH0.dpuf. According to a case report published in the *New England Journal of Medicine*, many of the more severe injuries were related to use of the Wii Fit balance board, which rests two inches off the ground and requires users to quickly adjust their balance while standing on the board to play certain video games. Most commonly, users suffered what doctors called “Wii-knee,” which is caused by frequent bending at the knee while using the balance board. In some cases, such injuries have involved the kneecap becoming dislocated. See www.webmd.com/fitness-exercise/news/20100203/when-wii-goes-wrong-video-game-injuries.

manufacturers of virtual reality technology and for software designers of virtual and augmented reality games.

Since the development of virtual reality games by companies such as Nintendo, various personal injury claims—such as for sprained wrists and dislocated shoulders arising from the use of the equipment to interact with the virtual world—have arisen. For example, Nintendo's *Wii Tennis* and *Wii Boxing* were both the subject of civil action,¹⁷ regarding use of the controller's safety strap.¹⁸ In *Elvig v. Nintendo of America, Inc.*, a class action lawsuit which involved, among others, breach of implied warranty, product liability, and negligence, the court held that the danger involved in losing possession of the Wii controller while playing a game, namely that it could act as a "damaging missile," were covered by the company's repeated warnings in that regard.¹⁹ More specifically, on the product liability claim, Nintendo argued that it gave players adequate warning of the need to retain possession of the controller and advised them of the possibility that release of the controller during vigorous motion could result in breakage of the strap and lead to damage to persons or property. In agreement, the court noted that Nintendo advised players via a safety card included with the Wii system that "If you use excessive motion and let go of the Wii Remote, the wrist strap may break and you could lose control of the Wii Remote. This could injure people nearby or cause damage to other objects."²⁰ This, coupled with repeated instructions on the safety card that advised players "DO NOT LET GO OF THE REMOTE DURING GAME PLAY," ensured that, if the player followed Nintendo's instructions and heeded its warnings, the Wii system would not pose an unreasonable danger. On the implied warranty action, the court cited a lack of evidence to indicate just what the intended purpose of the strap was. To withstand summary judgment, the plaintiff needed to show more than an alternate plausible theory on the purpose of the strap; rather, the plaintiff needed evidence of the ordinary purpose of the strap and proof that it failed the ordinary purpose (the plaintiff failed to provide this). Based on the above reasoning the court granted summary judgment for the defendant on all claims.²¹

Additionally, game platforms for virtual reality games and service providers have sought to limit their liability for user generated content and in particular, user comments which could result in a cause of action for defamation. This they do by refraining from actively moderating games, to avoid serving as a publisher of content.²² Further, to avoid liability, content providers may establish takedown policies and procedures to quickly remove infringing content, and also to require users of virtual worlds to sign robust terms of use policies regulating how users interact with one another in the virtual world. Defamation may also be relevant for avatars communicating in virtual worlds. An interesting question is: How will (or should?) real-world defamation laws be used to protect the rights of avatars, for example, avatars that appear in the popular online game *Second Life*? In general, defamation laws are designed to protect a person from having their reputation tarnished in their community by another person making false claims about

¹⁷ British Journal of Medicine, *ibid*.

¹⁸ *Elvig v. Nintendo of America, Inc.*, 696 F.Supp.2d 1207 (2010).

¹⁹ *Id*.

²⁰ *Id*.

²¹ *Id*.

²² See e.g., Defamation Act of 1996, Great Britain.

them. Additionally, an action for defamation may occur when a communication is made about a person that harms their reputation in the eyes of at least a substantial minority in the community, or deters others from associating with that person. But what happens if an avatar makes defaming communications about a second avatar that lowers the second avatar's reputation in a virtual world such as *Second Life* and as a result other avatars will not associate with them (commercially or socially)? What steps, if any, can the real person behind the defamed avatar take in order to rectify this situation? And with increasing intelligence and autonomy, would the avatar itself have any rights?²³

An interesting case involving virtual images, *Amaretto Ranch Breedables, LLC v. Ozimals, Inc.*, was litigated in a United States District Court and involved a DMCA takedown notice between companies that produced virtual animals in *Second Life*.²⁴ The plaintiff brought forth several legal issues such as copyright, defamation, and trade libel claims which were based on one *Second Life* trading entity competing against another.²⁵ The defamation action arose from comments made in-game with regard to a copyright dispute and potential damages it may have caused. For a takedown claim arising from activities in the virtual world, the DMCA permits content owners to prevent infringement by seeking a court order that requires an internet service provider to block or remove access to content that allegedly infringes copyrighted content. More specifically, the DMCA permits content owners to prevent infringement by seeking a court order that requires an internet service provider to block or remove access to content that allegedly infringes copyrighted content. In this case, Ozimals' copyright claim alleged that Amaretto Ranch Breedables' virtual horses infringed on their virtual bunnies and filed a takedown notice for their virtual horses and feed. Amaretto sued for a temporary restraining order and preliminary injunction, which was granted by the court and which barred Linden Research, the operator of *Second Life*, from removing their products. Had the DMCA order gone through, it would have cut off Amaretto's source of income before it could challenge Ozimal's copyright claim. Ultimately, the court granted Amaretto the temporary restraining order against Linden Research, stopping it from removing the horses until a preliminary injunction ruling was made.

A leading jurisdiction for tort law disputes is California. Under California law,²⁶ the elements of a defamation claim are: publication of a statement of fact that is false, that is unprivileged, and that has a natural tendency to injure or cause "special damage," where the defendant's fault in publishing the statement amounts to at least negligence. Publication could involve the output (or speech) of virtual avatars, may be written or oral, and involves communication to a third person (or avatar?) who understands the defamatory meaning of the statement and its application to the person to whom reference is made. Publication need not be to the "public" at large; communication to a single individual other than the plaintiff is sufficient. However, republication of a defamatory statement made by another is generally not protected. Further, under California law, a plaintiff need not show special damages—for example, damages to the plaintiff's

²³ Barfield, *supra* note 1.

²⁴ *Amaretto Ranch Breedables, LLC v. Ozimals, Inc.*, 29 (N.D. Cal. December 21, 2010).

²⁵ Scheck, Justin, *You Can Lead a Virtual Horse to Water, But You Might Get Sued Along the Way*, WALL STREET JOURNAL (2011).

²⁶ Cal. Civ. Code §§ 44, 45a, and 46.

property, business, trade, profession, or occupation, including expenditures that resulted from the defamation—if the statement is defamation *per se*. A statement is defamation *per se* if it defames the plaintiff on its face, that is, without the need for extrinsic evidence to explain the statement’s defamatory nature.²⁷ California courts recognize a number of privileges and defenses in the context of defamation actions, including the fair report privilege, the opinion and fair comment privileges, and substantial truth; all of these could be applicable to virtual worlds in a defamation action occurring with virtual avatars.

As indicated above, another major area of law, the law of property, is also being challenged by the buying and selling of virtual images/property. For example, Linden Lab, the company behind *Second Life*, allows users to lease virtual land to other players, on which they can build and sell virtual items and services within the game. This raises the interesting question of whether the ownership of virtual goods should be treated as analogous to ownership of real property and goods in the real world as opposed to a licensed service provided by the operator of the virtual reality world and governed by the End User License Agreement (EULA). An example case is *Bragg v. Linden Research, Inc.*,²⁸ in which players of *Second Life* were allowed to build objects, explore the world, interact with other players, and purchase land with real-world money. In 2003, Linden announced that it would recognize participants’ full intellectual property protection for the digital content they created or otherwise owned in *Second Life*, such as cars, homes, or slot machines. Players were also able to purchase “virtual land,” make improvements to that land, exclude other players from entering onto the land, rent the land, or sell the land to other players for a profit. The plaintiff, Bragg, had purchased numerous parcels of land in *Second Life*, including a parcel of virtual land named “Taesot.” However, Linden sent Bragg an email advising him that Taesot had been improperly purchased through an “exploit,” and as a result Linden took Taesot away. It then froze Bragg’s account, effectively confiscating the virtual property and currency that he maintained on his account with *Second Life*. When Bragg sued Linden, Linden argued that their agreement required mandatory arbitration, a clause which was central to the dispute.

Before a person is permitted to participate in *Second Life*, they must accept the terms of service by clicking a button indicating acceptance. Bragg resisted enforcement of the terms of service arbitration provision on the basis that it was “both procedurally and substantively unconscionable.” In California law, the procedural component of an unconscionable contract can be satisfied by showing oppression through the existence of unequal bargaining positions, and surprise through hidden terms common in the context of adhesion contracts. The court stated that a contract is procedurally unconscionable if it is a contract of adhesion.²⁹ A contract of adhesion is a “standardized contract, which, imposed and drafted by the party of superior bargaining strength, relegates to the subscribing party only the opportunity to adhere to the contract or reject it.” In this case, the *Second Life* terms of service comprised a standardized contract which only allowed the customer to agree to it or reject it.³⁰ The court held: “When the weaker party is presented the clause and told to ‘take it or leave it’ without the opportunity for meaningful

²⁷ See Cal. Civ. Code § 45a; *Yow v. National Enquirer, Inc.* 550 F.Supp.2d 1179, 1183 (E.D. Cal. 2008).

²⁸ *Bragg v. Linden Research, Inc.*, 487 F. Supp. 2d 593 (E.D. Penn. 2007).

²⁹ *Id.*

³⁰ *Id.*

negotiation, oppression, and therefore procedural unconscionability, are present.”³¹ An arbitration agreement that is an essential part of a “take it or leave it” employment condition, without more, is procedurally unconscionable. In this case, there was *no alternative* to *Second Life* in the market at the time—so if Mr Bragg did not accept these terms he could not play *Second Life* or any other similar game or service, which created an unconscionable take-it-or-leave-it situation. Linden also had superior bargaining strength over Mr Bragg, and the contract was therefore one of adhesion. The plaintiff’s suit was ultimately settled before a final decision was reached; however, the District Court decided that the *Second Life* terms of service’s mandatory arbitration provision was unenforceable and, interestingly, that interaction with a person visiting a virtual world could be a factor to satisfy a state’s “minimum contacts” requirement for personal jurisdiction.

If legal systems ultimately decide that virtual reality purchased and acquired content should be afforded similar status as real-world goods and property, this will have profound effects on the virtual reality business model and lead to further questions relating to common law contract law—and, in the US, the Uniform Commercial Code (UCC)—such as: Will users be able to buy and sell their virtual content in the real world? Does software used to create virtual worlds fall under the banner of goods or services? Are virtual images/objects used in virtual worlds goods or services? Will we see a move away from trying to deal with ownership and the rights around virtual content under the End User Terms and Conditions and a move toward discussing “leases” of virtual property, and therefore implicating the law of landlords and tenants? Furthermore, how will the theft of virtual goods and content by another user be dealt with? While courts in South Korea have, through the Game Industry Promotion Act, actively considered the question of the legal status of virtual reality goods,³² many jurisdictions have not addressed the issue of property rights in virtual and augmented reality. Surely this is an area requiring legislation, not to mention a body of case law to aid courts in deciding property disputes occurring in virtual and augmented reality worlds.

As another important issue involving virtual and augmented reality worlds, consider the problem of determining jurisdiction for the actions occurring within virtual worlds especially when virtual avatars perform activities across state and international boundaries. In the US, the Federal Rules of Civil Procedure and states’ long-arm statutes apply. If a dispute arises in the virtual world, which real-world law and jurisdiction applies? The answer can be complex and may in part depend upon the nature of the dispute and the jurisdiction laws of a particular physical location. In virtual worlds, the service provider will typically seek to rely upon the laws and jurisdiction set out in its terms of service agreement. However, where a contract is made between a business and a consumer domiciled in the European Union (EU), e-commerce regulations provide that the business-to-consumer contract cannot deprive the consumer of the protection of the laws of the country in which he or she resides. This is fine in a commercial dispute, but what about situations occurring in virtual reality where a criminal offense has taken place—for

³¹ *Id.*

³² Grubb, J., South Korea Blocks All Facebook Games as Part of a Government Crackdown, 2014, <https://venturebeat.com/2014/09/02/south-korea-blocks-all-facebook-games-as-part-of-a-government-crackdown/>.

example, where the avatar of one player is alleged to have virtually assaulted or stolen from another player? Should this be decided by the criminal courts or is this a commercial dispute, and in either case, which law and jurisdiction applies? Do the related terms of service provide the framework from which to derive jurisdiction for multiuser programs and in determining which governmental regulations should be brought forth to interpret them? As mentioned above, in *Bragg*, the defendant filed a motion to remove himself from the litigation based on a lack of personal jurisdiction. Although much of the court's discussion of minimum contacts is fairly boilerplate, the judge's analysis included a unique twist when he recognized that the defendant's avatar may have actually interacted with Bragg's avatar within the virtual world: Once inside *Second Life*, participants could view virtual property, read additional materials about purchasing virtual property, interact with other avatars who owned virtual property, and, ultimately, purchase virtual property themselves.³³ Significantly, participants could even interact with the defendant's avatar in *Second Life* during town hall meetings. These are factors occurring in virtual worlds that courts may consider in determining jurisdiction. As another example of an emerging area of law where virtual environments have been implicated, consider the reconstruction of evidence of a crime scene. For example, in a criminal law case, the defendant was convicted and sentenced to 20 years' confinement. As part of the evidence presented, a virtual reality recreation of the route driven to strike the victim was shown. The Court of Appeals of Texas upheld the allowance of this evidence, concluding that the probative value of the virtual reality crime scene recreation was not substantially outweighed by the danger of misleading the jury.³⁴

Additionally, a topic for a law of virtual reality is whether "real-world" crimes such as those listed in the US Model Penal Code can be committed in virtual worlds. Given that there are few cases or legislation specifically addressing how virtual acts map to real-world criminal law, we must examine related cases and statutes for a sense of how courts might decide such issues. In the United Kingdom, for example, an individual hacked into games publisher Zynga's social games platform and transferred 400 billion virtual poker chips into his account. Consider another example in which real-world crime bled into virtual worlds to the extent that the term "virtual mugging" was coined. It was argued that when some players of the virtual reality game *Lineage II* used bots to defeat other players' characters and take their items, they were essentially mugging virtual avatars. Some countries have even introduced special police investigation units to cover "virtual crimes." For instance, in the US the FBI's White Collar Crime Division investigates fraud committed by business and government professionals, and particularly money laundering—a number and variety of methods are used by criminals to launder money, including the use of virtual currency. Similar agencies exist in other law enforcement bodies which focus on cybercrimes, such as Homeland Security's Cyber Crimes Center, Europol's European Cybercrime Centre, and England's National Cyber Crime Unit. Undoubtedly, as virtual systems are increasingly used, examples of virtual crime will capture the attention of national and international enforcement agencies, with all of their established procedure and jurisdiction. Still, we expect that new legislation and international treaties will be

³³ Bragg, *supra* note 28.

³⁴ Harris v. State, 152 S.W.3d 786 (Tex. App. 2004).

needed to address the increasing incidences of virtual crime occurring across international boundaries.

Further, intellectual property law will have a major role to play in virtual worlds, and particularly in rights for virtual avatars. For instance, virtual reality software (object and source code) such as software for other applications is primarily protected under copyright, and database rights may also be available. Historically, computer programs were not effectively protected by copyrights because computer programs were not viewed as a fixed, tangible object, and in the early days object code was viewed as a utilitarian good produced from source code rather than as a creative work. Due to lack of precedent, this outcome was reached while deciding how to handle computer program copyright. In 1974 the Commission on New Technological Uses of Copyrighted Works (CONTU) was established, which decided that computer programs, to the extent that they embody an author's original creation, are proper copyright subject matter. In 1980, the United States Congress added the definition of "computer program" to 17 U.S.C. § 101 (the Copyright Act) and amended 17 U.S.C. § 117 to allow the owner of the program to make another copy or adaptation for use on a computer. In the US this legislation, plus court decisions such as *Apple Computer, Inc. v. Franklin Computer Corp* in 1983, clarified that the Copyright Act gave computer programs the copyright status of literary works.³⁵ In response, many companies began to claim that they "licensed" but did not sell their products, in order to avoid transfer of rights to the enduser via the doctrine of first sale.³⁶ These software license agreements are often labeled as EULAs.

In 1998 the US Congress passed the Digital Millennium Copyright Act (DMCA) (discussed above in *Amaretto Ranch Breedables*), which criminalized evasion of copy protection (with certain exceptions) and destruction or mismanagement of copyright management information, but included a clause to exempt ISPs from liability of infringement if one of their subscribers infringed. In addition, the DMCA extended protection to those who copied a program for maintenance, repair, or backup as long as these copies were "destroyed in the event that continued possession of the computer program should cease to be rightful."³⁷ In particular, "owners of copies" may make additional copies for archival purposes, "as an essential step in the utilization of the computer program," or for maintenance purposes. Furthermore, "owners of copies" have the right to resell their copies under the first sale doctrine and 17 U.S.C. § 109. These rights only apply to "owners of copies." Most software vendors claim that their products are "licensed, not sold," thus sidestepping 17 U.S.C. § 117 (which relates to limitations on exclusive rights and computer programs). American courts have taken varying approaches when confronted with these

³⁵ *Apple Computer, Inc. v. Franklin Computer Corp.*, 714 F.2d 1240 (3d Cir. 1983).

³⁶ *See Step-Saver Data Systems, Inc. v. Wyse Technology*, 939 F.2d 91 (1991 U.S. App. 16526). The first-sale doctrine is a legal concept playing an important role in US copyright and trademark law by limiting certain rights of a copyright or trademark owner. The doctrine enables the distribution chain of copyrighted products, library lending, giving, video rentals, and secondary markets for copyrighted works (for example, enabling individuals to sell their legally purchased books or CDs to others). In trademark law, this same doctrine enables reselling of trademarked products after the trademark holder put the products on the market. The doctrine is also referred to as the "right of first sale," "first sale rule," or "exhaustion rule."

³⁷ 17 U.S.C. § 117 (1998).

software license agreements. For example, in *MAI Systems Corp. v. Peak Computer, Inc.*³⁸ and *Microsoft v. Harmony*,³⁹ different federal courts held that “licensed, not sold” language in a EULA was effective. However, other courts have held that no brightline rule distinguishes mere licenses from sales. So, given the differences in court decisions, how will virtual avatars be viewed? Will they be licensed, or the property of those who create them? Under some EULAs, the owner of the avatar retains copyright to the avatar. Of course, the question arises: As avatars become smarter and create other avatars, who then is the owner?

4. VIRTUAL ENVIRONMENTS, GAMES, AND AVATARS

One type of virtual environment that is accessed by millions of users, and that has generated significant interest from legal scholars, is the massively multiplayer online roleplaying game (MMORPG).⁴⁰ Once a player enters a MMORPG, they engage in a variety of activities with other players who are accessing the game in 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.⁴¹ Many MMORPGs have been designed for profit: A player must either purchase the client software or pay a monthly fee in order to access the virtual world. 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. As noted throughout this chapter, such an identity is termed an avatar.

Generally, the term “virtual avatar” (or avatar) is used to describe the simulation of a graphical form representing a particular person in a virtual environment. 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. 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 creature. Interestingly, the form the avatar takes can implicate several areas of law, such as copyright, trademark, and right of publicity.

³⁸ *MAI Systems Corp. v. Peak Computer, Inc.*, 991 F.2d 511 (9th Cir. 1993).

³⁹ *Microsoft v. Harmony Computers & Electronics*, 846 F. Supp. 208 (E.D.N.Y. 1994).

⁴⁰ Caroline Bradely and A. Michael Froomkin, *Virtual Worlds, Real Rules*, 49 N.Y.L. SCH. L. REV. 103, 121 (2004–5).

⁴¹ Cory Ondrejka, *Escaping the Gilded Cage: User Created Content and Building the Metaverse*, 49 N.Y.L. SCH. L. REV. 81 (2004–5). 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.

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 voices, as templates. 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. Additionally, 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.⁴² 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. In electronic commerce, avatars are forming contracts;⁴³ in the field of entertainment they are replacing actors;⁴⁴ and in online games they are interacting with humans and other virtual avatars.⁴⁵ In addition, 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 practitioners in much the same way as an actor would if hired to play the role of patient.⁴⁶ The Virtual Standardized Patient uses natural language, emotion, behavior modeling, and composite facial expression and lipshape modeling to produce a natural patient–practitioner dialogue.⁴⁷ When avatars interact with humans, facial expressions are key for communicating emotions in face-to-face conversation made simultaneously with speech. In some virtual avatar designs, collaborative virtual environments may force the user to explicitly set avatar emotions after they have entered text or voice input. 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.⁴⁸ 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. To appear realistic, an avatar must react as humans do when communicating with each other, and facial expressions are a step toward designing “humanlike” avatars.

⁴² 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 www.cis.upenn.edu/~badler/bcs/Paper.htm.

⁴³ See Jeff C. Dodd and James A. Hernandez, *Contracting in Cyberspace*, 1998 SMU COMPUTER L. J. 1, 12 (1998).

⁴⁴ 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).

⁴⁵ 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).

⁴⁶ 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*, 70 STUD HEALTH TECHNOL INFORM. 133–8 (2000).

⁴⁷ *Id.*

⁴⁸ 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).

Additionally, 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 some of the millions of people who visit virtual worlds spend more time in the virtual environment than the real world. 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; they are creating virtual worlds where they can assume identities, build wealth and social status, and generally participate in creating new worlds.

An important issue in online roleplaying games is whether the licensor or participant owns the intellectual property (such as copyright to a virtual avatar) created while the game is being played.⁴⁹ In an early version of *Second Life*, the terms of service agreement gave 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. More recently, *Second Life* has indicated that users have “the non-exclusive, unrestricted . . . [full use of] . . . all or any portion of your User Content.”⁵⁰

An example of a legal dispute involving virtual worlds is *Eros LLC v. Doe*,⁵¹ in which a copyright and trademark infringement action was pursued against the defendant. Eros created adult entertainment products in the virtual world of *Second Life*, which it sold to other *Second Life* users for Linden dollars (which can be converted into US dollars). Another *Second Life* user, with the avatar name “Volkov Catteneo,” allegedly copied Eros’s products and sold them to other *Second Life* users without authorization. The products at issue are beds that allow users of *Second Life* to have virtual sex in them.⁵² To protect their identity, Eros initiated a “John Doe” lawsuit for copyright and trademark infringement in federal court in Florida. The amended complaint alleged that the company Leatherwood acted in concert with unknown parties to make and sell unauthorized copies of Eros’s products. Eros reached a settlement with the defendant (known only as *Second Life* avatar Volkov Catteneo).⁵³ The terms include an agreement that Leatherwood will not do any more copying; as noted, Eros had alleged that the defendant sold unauthorized copies of the company’s popular “SexGeb” avatar-animation products.⁵⁴

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

⁴⁹ Some foreign courts have begun to accept the notion of virtual property; for example, a Beijing court ordered the restitution of one player’s stolen virtual weapons.

⁵⁰ See www.daz3d.com/forums/discussion/29511/ot-linden-lab-second-life-will-now-own-your-uploaded-content.

⁵¹ *Eros LLC v. Doe*, United States District Court, Middle District of Florida (2007).

⁵² *Id.*

⁵³ *Id.*

⁵⁴ *Id.*

for tasks such as psychotherapy, teaching, and electronic commerce, future causes of action could be directed at the virtual avatars themselves. If avatars continue to gain in intelligence and autonomy a host of compelling legal issues will be raised. For example, would intelligent avatars be able to bring forth claims involving their own civil liberties?⁵⁵ And 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.”⁵⁶ Wright’s comments were directed at the differences between enhanced and unenhanced humans; however, the possibility of “enhanced” intelligent avatars raises a host of new issues concerning equal protection under the law. In the context of humans, it may be 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 that they could then be regulated.

5. TOWARD MORE INTELLIGENT VIRTUAL AVATARS

The present format for the protection of virtual avatars’ rights 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.⁵⁷ In this model, the rights protected are those of the owner and not those of the virtual avatar (which lacks legal person status). However, as virtual avatars gain in intelligence and create works independent of human input, this analysis may become outdated. In this scenario, avatars themselves may need legal protection based on their own actions and actions directed against them. If avatars do continue to gain in intelligence and people spend more time in virtual worlds interacting with them, significant legal and policy issues will arise.⁵⁸ For example, since many virtual worlds are created

⁵⁵ George Wright, *Personhood: 2.0: Enhanced and Unenhanced Persons and the Equal Protection of the Laws*, 23 QUINNIPIAC L. REV. 1047 (2005). 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, for example, 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 657.

⁵⁶ Wright, *id.* at 1095.

⁵⁷ *See generally* Woodrow Barfield, *Issues of Law for Software Agents within Virtual Environments*, 14 PRESENCE: TELEOPERATORS AND VIRTUAL ENVIS, 741–48 (2005).

⁵⁸ 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

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?⁵⁹ 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? And as virtual avatars become more autonomous from human input and decisionmaking, and begin to discern their own algorithms, how should such entities be treated by the law?⁶⁰

The field of artificial intelligence has provided the algorithms and techniques that have led to intelligent actions by virtual avatars. The software and algorithms that control virtual avatars, and artificial entities in general, are getting more sophisticated and "smarter." 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.⁶¹ 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. This raises several perplexing questions—for example, can a virtual avatar be an author or an inventor, own and sell intellectual property, or be liable for its actions?⁶²

Many software programs which result in creative output use either knowledge-based systems, genetic algorithms, neural networks, or, more recently, machine learning techniques. Neural networks differ from traditional artificial intelligence applications because they do not require explicit symbolic representations to solve problems. 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 and the mutual reinforcement or inhibition of elements in the network by other elements. As noted previously, one area where neural networks have been used to create virtual avatars which display intelligent behavior is in the design of facial expressions. For intelligent avatars to be able to act as alter egos of their human owner, they may need to incorporate a high degree of similarity with their owner, including facial expressions and body posture. 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.

Genetic algorithms 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. The basic opera-

games such as reports that users may suffer from side effects including vertigo and dizziness after exposure to virtual environments).

⁵⁹ Richard A. Bartle, *Virtual Worldliness: What Imaginary Asks of the Real*, 49 N.Y.L. SCH. L. REV. 19 (2004–5) (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).

⁶⁰ See generally Curtis E.A. Karnow, *Liability for Distributed Artificial Intelligences*, 11 BERKELEY TECH. L. J. 147 (1996).

⁶¹ *Id.*

⁶² See Pamela Samuelson, *Allocating Ownership Rights in Computer-Generated Works*, 47 PITT. L. REV. 1185 (1985–6) (providing a comprehensive overview of issues associated with whether a computer can be an author); see generally Karnow, *supra* note 60.

tion of a genetic algorithm is fairly straightforward. First, a population of possible solutions to a problem is 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. In addition to this, many avatars are designed to display appropriate social behavior in reaction to other avatars and people in a virtual environment. 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. 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. Another type of computing paradigm which has resulted in intelligent behavior for virtual avatars is an expert, or knowledge-based, system. 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. 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. As with neural networks, an expert system approach has been used to model facial expressions for virtual avatars. As these techniques mature, evolving ever more sophisticated avatars, the potential for legal issues will inevitably increase.

The New Zealand company Soul Machine has perhaps created the most realistic avatar to date, Nadia, using advanced modeling techniques to interact with customers on an emotional level.⁶³ Their design uses an intelligent model of how the human brain works and machine learning techniques to read, predict, and emulate human emotional responses. Further, the University of Southern California and Pinscreen have developed a method of generating photorealistic static avatars using a single input image and a “deep convolutional neural network.”⁶⁴ Additionally, Loom.ai has developed a method to create realistically animated avatar faces from a single static image.⁶⁵ Finally, Stanford’s Virtual Human Interaction Lab has been doing work for more than a decade utilizing virtual environments and avatars to study the science of human behavior.

If the avatar’s face mimics that of a celebrity, would this be actionable under a right of publicity statute? Consider California’s common law and statutory right of publicity law. Generally speaking, the right of publicity in California protects against unauthorized uses of a person’s name or likeness for commercial and certain other exploitative

⁶³ EllyStrang, *Soul Machines Unveils Its First Emotionally Intelligent, Lifelike Avatar*, *idealog*, <http://idealog.co.nz/tech/2017/02/soul-machines-unveils-its-first-emotionally-intelligent-lifelike-avatar>.

⁶⁴ S. Saito, L. Wei, L. Hu, et al, *Photorealistic Facial Texture Inference using Deep Neural Networks*, <https://arxiv.org/pdf/1612.00523v1.pdf>.

⁶⁵ Ben Popper, *This Tech Generates Realistic Avatars from a Single Selfie*, *The Verge*, www.theverge.com/2016/12/13/13919766/loomai-vr-avatar-digital-character-3d-visual-effect.

purposes. California has two systems of right of publicity law—a statute and a common law right—with some differences in coverage between the two. In California, the statutory right of publicity protects a person’s right in his or her name, voice, signature, photograph, and likeness.⁶⁶ The term “voice” applies only to a person’s actual voice, not to imitations.⁶⁷ However, as noted presently, the common law right of publicity might apply to voice imitators (and possibly an algorithm mimicking a well-known voice). The term “likeness” is the most difficult of the protected categories to precisely define. Courts have used the “readily identifiable” test to conclude that drawings, if sufficiently detailed, can constitute a “likeness.”⁶⁸ In another case, the court ruled that a robot, if sufficiently detailed, could be a “likeness.”⁶⁹ Less detailed robots (and virtual avatars?), though, may fall short of the “likeness” mark.⁷⁰

Under California’s common law right of publicity, courts generally describe a four-step test, in which a plaintiff must allege: the defendant’s use of plaintiff’s “identity”; the appropriation of plaintiff’s name or likeness to defendant’s advantage, commercially or otherwise; lack of consent; and resulting injury.⁷¹ Though the second prong of the standard four-step test mentions “name or likeness,” courts have held that the common law right is actually much broader.⁷² In California, courts have interpreted “identity” broadly, in such a way that it covers more uses than does the statutory right of publicity. For example, imitating someone’s voice is not a violation of the California statute, but it may violate the common law right.⁷³ A robot can constitute a common law violation, even if not sufficiently detailed to violate the statute.⁷⁴ Unlike the statute, the common law right is not explicitly limited to commercial uses of a plaintiff’s identity. However, the “less commercial” a use, the more that First Amendment concerns come into play. Purely commercial speech, such as advertising, does nothing more than “propose a commercial transaction”; if a defendant’s use falls outside the realm of the purely commercial, California’s common law right of publicity is less likely to apply.

There are limits to both the common law and the statutory right of publicity. A right of publicity claim (either statutory or under the common law) fails if it is too similar to a copyright claim; in such a case, the state right of publicity law is preempted by federal copyright law. For example, in *Laws v. Sony Music*, Sony licensed one of the plaintiff’s songs and sampled it in a new recording.⁷⁵ The plaintiff tried to bring a right of publicity claim, but the court ruled that Sony’s use of a licensed recording fell under copyright law, thus preempting the state claim. Generally speaking, if the allegedly infringing use of a

⁶⁶ Wright, *supra* note 55. 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.”

⁶⁷ See *Midler v. Ford*, 849 F.2d 460, 463 (9th Cir. 1988).

⁶⁸ *Newcombe v. Adolf Coors Co.*, 157 F.3d 686, 692–93 (9th Cir. 1998).

⁶⁹ *Wendt v. Host Intern., Inc.*, 125 F.3d 806, 810 (9th Cir. 1997).

⁷⁰ *White v. Samsung*, 971 F.2d 1395, 1397 (9th Cir. 1992).

⁷¹ *Id.* at 1397.

⁷² See *Abdul-Jabbar v. General Motors*, 85 F.3d 407, 413–14 (9th Cir. 1996).

⁷³ See *Waits v. Frito-Lay*, 978 F.2d 1093, 1098–100 (9th Cir. 1992).

⁷⁴ *White*, *supra* note 70.

⁷⁵ *Laws v. Sony Music*, 294 F.Supp.2d 1160 (C.D. Cal. 2003).

person's identity primarily involves use of copyrighted work, there is a chance that the state law claim will be preempted. The First Amendment also limits the extent to which rights of publicity can limit speech about matters of public interest. As one court put it, "[u]nder the First Amendment, a cause of action for appropriation of another's name and likeness may not be maintained against expressive works, whether factual or fictional."⁷⁶ As mentioned previously, the California statute contains exceptions for uses related to news, public affairs, sports, and politics and thus could relate to a virtual avatar serving as a news anchor or other TV personality. Courts often focus on this statutory safe harbor, rather than the First Amendment directly, when confronting statutory right of publicity claims.⁷⁷ The First Amendment is more often directly relevant in common law right of publicity cases, since there is no statutory safe harbor. But since cases often involve both common law and statutory claims, the First Amendment analyses often cover both the statute and the common law.

6. VIRTUAL AVATARS AND WORKS OF AUTHORSHIP

As indicated earlier, computers using methods of 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, and which result in copyrightable works of authorship. It has been argued that, through a process of copyright reform, the requirement of creativity should be modified to include a contextual and cultural analysis.⁷⁸ Under this system, it may be easier for artificially intelligent generated works to pass the requirement of creativity. 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. This 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.⁷⁹ 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.⁸⁰ 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. The Ninth Circuit, in *MAI Systems Corp. v. Peak Computer, Inc.*, held that the loading of software into a computer's random

⁷⁶ *Daly v. Viacom*, 238 F.Supp. 2d. 1118, 1123 (N.D. Cal. 2002).

⁷⁷ *See, e.g., Gionfriddo v. Major League Baseball*, 94 Cal. App. 4th 400, 415–17 (Cal. Ct. App. 2001).

⁷⁸ Julie Cohen, *Creativity and Culture in Copyright Theory*, 40 U.C. DAVIS L. REV. 1151–205 (2007), <http://scholarship.law.georgetown.edu/cgi/viewcontent.cgi?article=1062&context=facpub>.

⁷⁹ *See generally* Timothy L. Butler, *Can a Computer Be an Author? Copyright Aspects of Artificial Intelligence*, 4 HASTINGS COMM. & ENT. L. J. 707 (1982).

⁸⁰ 17 U.S.C. § 102(a) (2005).

access memory was sufficiently permanent for it to be deemed fixed.⁸¹ Given this decision, an avatar that creates a work may be thought to have fixed it at the moment of creation.⁸² 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 such a case, should this 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?

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 “legal” 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.⁸³ 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 under the Copyright Act. However, can a virtual avatar serve as an employee? Conversely, 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? Further complicating the issue, authorship, if indeed granted to an intelligent avatar, need not indicate copyright ownership.⁸⁴

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 avatar owner?⁸⁵ The US 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.”⁸⁶ 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. The owner’s contribution would be the input directing the avatar’s output. The 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.

⁸¹ MAI, *supra* note 38.

⁸² *Id.* at 519.

⁸³ See generally Darin Glasser, *Copyrights on Computer-Generated Works: Whom, If Anyone, Do We Reward?* 2001 DUKE L. & TECH. REV. 24 (2001).

⁸⁴ Jane Ginsburg, *The Concept of Authorship in Comparative Copyright Law*, 53 DEPAUL L. REV. 1063 (2003).

⁸⁵ See generally Tarcisio Queiroz Cerqueira, *Some Common and Civil Thoughts on Computer Generated Works*, <https://libros-revistas-derecho.vlex.es/vid/some-thoughts-computer-generated-works-107749>; see 17 U.S.C. § 101 (1976) (defining a “joint work”).

⁸⁶ 17 U.S.C. § 101 (1976) (defining a “joint work”).

For example, if using techniques such as neural nets, genetic algorithms, or deep learning, the avatar could make significant contributions to a joint work. For a joint work under the Copyright Act, the authors are considered coowners 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 US 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."⁸⁷ 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.⁸⁸ In the context of intelligent avatars, an important issue is 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?⁸⁹ 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,⁹⁰ and some suggesting extending copyright protection though not necessarily authorship.⁹¹ For example, Harvard law professor Arthur Miller argues against copyright protection for artificially intelligent entities since they need no incentive to produce a work of authorship.⁹²

The process of creating a work involving a virtual avatar involves the effort of a programmer to create the avatar, the software and algorithms used to create the avatar's appearance and behavior, and a computer (or nowadays the cloud) used 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 (or deep learning techniques) which allow the avatar to learn and act in significantly different ways than the original set of parameters used to design the

⁸⁷ 17 U.S.C. § 102(a) (subject matter of copyright).

⁸⁸ *Id.*

⁸⁹ 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).

⁹⁰ See generally Karl F. Milde, Jr., *Can a Computer Be an "Author" or an "Inventor?"* 51 J. PAT. OFF. SOC'Y 378 (1969).

⁹¹ See generally 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).

⁹² *Id.*

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.

Granting authorship rights to an intelligent avatar will be difficult under the current copyright law.⁹³ One reason for this 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 for copyright infringement? Under current law, the answer is no. Further, awarding copyright protection to an avatar would imply that the avatar can have ideas that led to original works of authorship.⁹⁴ What separates avatars that act with intelligence 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. 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 avatar’s output is completely dependent on the programmer’s instructions.

The standard for what constitutes an original work under the Copyright Act has been decided by the US Supreme Court in the seminal case *Feist Publ’ns, Inc. v. Rural Tel. Serv. Co., Inc.*⁹⁵ 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.⁹⁶ 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.”⁹⁷ 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.”⁹⁸ Under this analysis, a 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, due to lack of creativity. However, consider 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. As discussed throughout this section, this is a more difficult bar to overcome, given the current copyright statute. Interestingly, there is some precedent for the assertion that an “author” need not be a human being (see the case discussed in the following paragraph). As noted previously, under the work for hire doctrine a corporation may be deemed the author of a work, although this conclusion seems to conflict with some case law.

In an interesting and somewhat odd case, the issue of whether a nonhuman can be an author was addressed by the Ninth Circuit in *Urantia Found. v. Maaherra*.⁹⁹ This case

⁹³ Milde, *supra* note 90.

⁹⁴ See Butler, *supra* note 79, at 726–33.

⁹⁵ *Feist Publ’ns, Inc. v. Rural Tel. Serv. Co., Inc.*, 499 U.S. 340 (1991).

⁹⁶ *Id.* at 362.

⁹⁷ *Id.*

⁹⁸ *Id.* at 345.

⁹⁹ *Urantia Found. v. Maaherra*, 114 F.3d 955 (9th Cir. 1997).

involved a questionable claim that a superior being authored a particular work, but for our 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 parties who believed the copyrighted work, the “Urantia Book,” was authored by celestial beings and only transcribed, compiled, and collected by “mere mortals.”¹⁰⁰ 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.¹⁰¹ Maaherra conceded copying, so the issue before the court was whether the Foundation owned a valid copyright in the book. Complicating matters, both parties believed that the words in the book were “authored” by nonhuman 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.”¹⁰² These spiritual entities were claimed to have delivered the teachings that were eventually assembled in the book, through a patient of a Chicago psychiatrist.¹⁰³

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.¹⁰⁴ 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.”¹⁰⁵ 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.”¹⁰⁶ 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.”¹⁰⁷ 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.¹⁰⁸

Interestingly, nowhere in the US copyright laws is there an express requirement for “human” authorship, and considerable controversy has arisen in recent years over

¹⁰⁰ *Id* at 956.

¹⁰¹ *Id* at 958.

¹⁰² *Id* at 956.

¹⁰³ *Id*.

¹⁰⁴ See *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. 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. The defendant in *Oliver* had not copied that arrangement and selection, but simply had written another text using the same divine “facts.” 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.

¹⁰⁵ Feist, *supra* note 95.

¹⁰⁶ 17 U.S.C. § 102(a) (1976).

¹⁰⁷ Feist, 499 U.S. at Clevenger v. Baker Voorhis & Co., 168 N.E.2d. 643 (N.Y. 1960).

¹⁰⁸ Urantia, *supra* note 99 at 958.

the copyrightability of computer-generated works. 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.¹⁰⁹ 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.”¹¹⁰ 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.”¹¹¹ 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.”¹¹² They were responsible for the religious revelations appearing “in such a way as to render the work as a whole original.”¹¹³ Thus, notwithstanding the *Urantia* Book’s claimed nonhuman 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.¹¹⁴ 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.”¹¹⁵ 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 conceive of the original work. However, the issue may not be settled as under § 201(b) of the copyright statute: If the work is a work for hire, a nonhuman entity such as a corporation can be deemed the author of a work.

17 U.S. Code § 201(b) (1976):

In the case of a work made for hire, the employer of other person for whom the work was prepared is considered the author for purposes of this title, and unless the parties have expressly agreed otherwise in a written instrument signed by them, owns all of the rights comprised in the copyright.

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? Some commentators suggest a “grantable” framework for personhood by which nonhuman entities could assume legal personhood status by the grant of someone already held as such.¹¹⁶ Under such a framework, personhood

¹⁰⁹ *Id* at 958.

¹¹⁰ *Id* at 958. It would be interesting to consider whether an intelligent avatar would constitute a “worldly entity” under the court’s reasoning.

¹¹¹ *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.

¹¹² *Urantia*, *supra* note 99 at 960.

¹¹³ *Id* at 958.

¹¹⁴ Feist, *supra* note 95; *see also* *Urantia*, *supra* note 99 at 958.

¹¹⁵ *Urantia*, *id* at 958.

¹¹⁶ Shawn Bayern, *The Implications of Modern Business-Entity Law for the Regulations of Autonomous Systems*, 19 STAN. TECH. L. REV. 93 (2015) available online at: https://journals.law.stanford.edu/sites/default/files/stanford-technology-law-review/print/2015/10/19-1-4-bayern-final_0.pdf.

status could easily be given to an avatar or artificially intelligent system insofar as it is working for a (human) person.

One obstacle to gaining copyright protection is determining whether the avatar is self-aware that it created the work. 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.¹¹⁷ 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.¹¹⁸ In the future it may be argued that a virtual avatar that is self-aware (if possible) 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 on the other hand producing a copyrightable work if the requisite level of creativity exists in the work, and no copying occurred.¹¹⁹

One issue that has impacted the debate over whether the output of virtual avatars should be eligible for copyright protection is the lack of humanlike performance by avatars.¹²⁰ 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. The human owner of a neural network can be quite removed from the authorship process and output of the neural network.¹²¹ Procedures used by neural nets mimic human brain processes to some extent, and are relevant for the issue of whether the avatar is aware of its own creations. One commentator has argued that the issue of copyrighting neural network weights confronts the issue of intelligent entity authorship head-on.¹²² On this point, the Copyright Office has already registered a set of neural network weights. 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 and other artificially intelligent techniques would be eligible for copyright protection, since the weights assigned to the neural networks can be registered. 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. Therefore, copyright law seems to offer one possible means to protect neural network weights and therefore the output of virtual avatars.¹²³

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

¹¹⁷ See generally Karnow, *supra* note 60, at 181–3.

¹¹⁸ See, e.g., *Midler v. Ford Motor Co.*, 849 F.2d 460, 462 (9th Cir. 1988).

¹¹⁹ See generally Cerqueira, *supra* note 85.

¹²⁰ See generally Barfield, *supra* note 57.

¹²¹ See generally Glasser, *supra* note 83.

¹²² Donald L. Wenskay, *Neural Networks: A Prescription for Effective Protection*, 8 COMPUTER LAWYER 12 (1991).

¹²³ *Id.*

style of any author that it is programmed to duplicate.”¹²⁴ In one example, a program was written to write in the style of bestselling author Jacqueline Susann. The result was a published book, *Just This Once*. To create this work, the programmer used two of Ms Susann’s novels, *Valley of the Dolls* and *Once Is Not Enough*, to extract rules which represented the author’s style.¹²⁵ In order to duplicate Ms Susann’s style, the programmer wrote thousands of computer-coded rules relating to how characters interacted, all based on Ms Susann’s works. The rules, numbering in the thousands, were input into a computer to produce the tone and plot of the book.¹²⁶ It has been argued that current copyright law is not equipped to deal with the potential legal ramifications of such computer-generated works.¹²⁷ Copyright law protects the expression of an idea, but not the idea itself.¹²⁸ And protection extends to works fixed in a tangible medium of expression¹²⁹—it does not extend to procedures, processes, systems, methods of operation, concepts, principles, or discoveries.¹³⁰ Once an avatar gains sufficient 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.¹³¹ To determine if a writer’s style can be protected, it must first be defined. In copyright terms, this is referred to as “dissection.”¹³²

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. Most human authors create works by improving on another’s style, and generally such improvements are copyrightable. However, as noted by one commentator, “when a computer is programmed to specifically imitate an author’s style, the human interpretive element is removed.”¹³³ 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? If an artificially intelligent entity cannot be the author of a work, the choice for authorship is either the programmer or user of the software. If the user simply turns on

¹²⁴ Vigderson, *supra* note 89, at 402.

¹²⁵ 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).

¹²⁶ Vigderson, *supra* note 89 (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).

¹²⁷ See generally Glasser, *supra* note 83.

¹²⁸ 17 U.S.C. § 102(a), (b) (1976).

¹²⁹ 17 U.S.C. § 102(a) (1976).

¹³⁰ 17 U.S.C. § 102(b) (1976).

¹³¹ Vigderson, *supra* note 89.

¹³² 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).

¹³³ Vigderson, *supra* note 89, at 406. Perhaps the human interpretative elements can be found in the software?

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 or 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.

Further, 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 Act defines a derivative work as "a work based upon one or more preexisting works."¹³⁴ If *Just This Once*, a computer-generated work, is viewed as a derivative work,¹³⁵ then it could be covered under an expansive interpretation of copyright law. However, if an author recognized that his writing style had been copied by a virtual avatar but 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. Copyright expert Melville 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."¹³⁶ The Ninth Circuit expressed a narrow interpretation of a derivative work in *Litchfield v. Spielberg*.¹³⁷ In *Spielberg*, the plaintiffs argued that substantial similarity was not a requirement to find that an infringing work was derivative. The *Spielberg* court soundly rejected this argument, stating that substantial similarity was necessary. It seems reasonable that the "substantial similarity" standard could also be used to analyze the work of virtual avatars.

7. DESIGN AND USE OF VIRTUAL AVATARS

This section presents several intellectual property schemes that can be used to protect the rights of the virtual avatar's owner and, in the future, with 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. We first note that under the Copyright Act, the visual image of the avatar appearing in the virtual environment can receive protection as a pictorial character.¹³⁸ However, characters may

¹³⁴ 17 U.S.C. § 101 (1976).

¹³⁵ 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).

¹³⁶ Melville B. Nimmer and David Nimmer, NIMMER ON COPYRIGHT § 5.01 [A], at 5–3 (1993).

¹³⁷ *Litchfield v. Spielberg*, 736 F.2d 1352 (9th Cir. 1984), *cert. denied* 470 U.S. 1052 (1988).

¹³⁸ 17 U.S.C. § 102 (a)(5) (1976).

also be created with words, in which case they receive protection under the Copyright Act as a literary work.¹³⁹ Under the copyright statute, the protection of literary characters normally is distinguished from the protection of pictorial characters.¹⁴⁰ 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, we surmise an avatar may be eligible for dual protection as a pictorial character and as a literary character.

The mode of thinking about copyright protection for virtual avatars as literary characters is a less common one. 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.¹⁴¹ 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.”¹⁴² 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 the question becomes whether software may be protectable as speech under the First Amendment. Based on the decision in *Universal City Studios*,¹⁴³ one could argue that an avatar could receive protection under the 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.¹⁴⁴ Therefore, the more the virtual avatar displays a unique character, the more likely the court is to find the avatar to be more than an idea, but rather expression deserving of copyright protection.¹⁴⁵

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*, the court concluded that communications do not lose constitutional status as speech simply because they are expressed in the language of computer code.¹⁴⁶ This conclusion raises 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 even receive constitutional rights.¹⁴⁷

¹³⁹ 17 U.S.C. § 102 (a)(1) (1976).

¹⁴⁰ See generally *Walt Disney Prod. v. Air Pirates*, 581 F.2d 751 (9th Cir. 1978).

¹⁴¹ *Universal City Studios v. Reimerdes*, 111 F.Supp.2d 294, 327 (S.D.N.Y. 2000).

¹⁴² *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).

¹⁴³ *University City Studios*, 111 F.Supp.2d 294.

¹⁴⁴ 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).

¹⁴⁵ 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).

¹⁴⁶ *University City Studios*, 111 F.Supp.2d 327.

¹⁴⁷ *Id.*

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.¹⁴⁸ According to this commentator, the interplay of many factors has resulted in this convergence of the law.¹⁴⁹ 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;¹⁵⁰ (2) the ability of avatars to 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 with which the avatar is associated; and (3) the quality that a virtual avatar through extended use, can lead the public to relate to the character as being human.¹⁵¹

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 and character traits of that character as well. 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.”¹⁵² A similar result was shown in *Detective Comics, Inc. v. Bruns Publications*.¹⁵³ Here, the court found that the character “Superman” was infringed in a competing comic book publication featuring the character “Wonderman.” The court held that the infringing work “appropriated the pictorial and literary details embodied in” the copyrights protecting Superman.¹⁵⁴ To summarize the above courts’ decisions in the context of 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.¹⁵⁵

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, so to speak, 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

¹⁴⁸ 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).

¹⁴⁹ *Id.* at 628.

¹⁵⁰ *Id.*

¹⁵¹ See generally Helfand, *supra* note 148 at 628.

¹⁵² *Warner Bros. Inc. v. Am. Broadcasting Cos, Inc.*, 720 F.2d 231, 241 (2d Cir. 1983).

¹⁵³ *Detective Comics, Inc. v. Bruns Publ’ns*, 111 F.2d. 432 (2d Cir. 1940).

¹⁵⁴ *Id.* at 433.

¹⁵⁵ See generally *Midler v. Ford Motor Co.*, 849 F.2d 460 (9th Cir. 1988).

“character delineation” test used to analyze the copyrightability of graphical images.¹⁵⁶ Under this test, the critical issue is whether the avatar is sufficiently and distinctively delineated so that it warrants protection.¹⁵⁷ Because copyright law does not protect ideas from infringement but instead only protects the expression of those ideas, courts considering copyright do not protect character types.¹⁵⁸ Therefore, while a court would likely not extend copyright protection to a virtual avatar possessing superpowers, the courts will likely extend copyright protection to a specifically delineated “superpowered” 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.¹⁵⁹

8. 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, and someday the rights of the virtual avatar itself, 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 paired to a product.¹⁶⁰ This protection could prevent the 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.¹⁶¹ 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.¹⁶²

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

¹⁵⁶ *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).

¹⁵⁷ See generally *Metro-Goldwyn*, 900 F.Supp. at 1296.

¹⁵⁸ See 17 U.S.C. § 102(b) (1976).

¹⁵⁹ 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*).

¹⁶⁰ See generally RESTATEMENT (THIRD) OF UNFAIR COMPETITION, §§ 13. 16. 17.

¹⁶¹ See generally *Kellogg Co. v. Exxon Corp.*, 209 F.3d 562 (6th Cir. 200) *overruled on other grounds* by *Moseley v. Secret Catalogue, Inc.* 537 U.S. 418 (2003)

¹⁶² Mark Fowler, Copyright in Fictional Characters: Can I Have Don Draper Make a Cameo Appearance in My Novel? 2011, www.rightsofwriters.com/2011/04/copyright-in-fictional-characters-can-i.html (last visited August 29, 2017); see *Two Pesos, Inc. v. Taco Cabana, Inc.*, 505 U.S. 763, 769 (1992).

have to include the originality attributes that are required under copyright law.¹⁶³ 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,¹⁶⁴ 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 and the mark is not abandoned or does not lose its status as a trademark—can be valuable and profitable.¹⁶⁵ 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.¹⁶⁶ 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 mark may need to be registered in countries other than the United States to provide the maximum degree of protection.¹⁶⁷ 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 (incurring costs) 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.¹⁶⁸ Unfair competition laws involve a variety of different causes of action that primarily fall into three categories: (1) misrepresentation; (2) sponsorship; and (3) misappropriation.¹⁶⁹ Misrepresentation occurs when a party represents that a particular character is associated with their product or service, when in reality it is not.¹⁷⁰ Sponsorship occurs when a party indicates that a particular character has endorsed its product or service when it has not.¹⁷¹ 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.¹⁷² Therefore, when one brings an unfair competition action, the injured party is

¹⁶³ 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.

¹⁶⁴ See generally U.S. Copyright Office, *Copyright basics (Circular 1)* available at www.copyright.gov/circs/circ01.pdf.

¹⁶⁵ See generally Graeme B. Dinwoodie and Mark D. Janis, *Trademarks and Unfair Competition: Law and Policy*, 2nd edition (Aspen Casebook Series 2014).

¹⁶⁶ *Id.*

¹⁶⁷ 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 (200). 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 an appropriate subject for trademark law.

¹⁶⁸ See *Nike, Inc. v. Kasky*, 539 U.S. 654 (2003).

¹⁶⁹ See Dinwoodie and Janis, *supra* note 165.

¹⁷⁰ See Mary LaFrance, *When You Wish upon Dastar: Creative Provenance and the Lanham Act*, 23 CARDOZO ARTS & ENT. L. J. 197 (2005).

¹⁷¹ See Joseph R. Dreidler, *The Tiger Woods Case—Has the Sixth Circuit Abandoned Trademark Law*, *ETW Corp. v. Jireh Publishing, Inc.*, 38 AKRON L. REV. 337 (2005).

¹⁷² 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 word case dealing with images, see *Kellogg*, 209 F.3d 562.

claiming that their character has been wrongly associated with another party's product, service, person, company, or idea.¹⁷³ If such misuse of a graphic character occurs, and it is determined under the reasonable person standard that the graphic character had been misrepresented,¹⁷⁴ used falsely as a sponsor, or misappropriated, then the party engaged in such misuse could be found liable for trademark infringement.¹⁷⁵ Most courts have recognized trademark protection for graphic characters and have found trademark infringement liability under both trademark and unfair competition law.¹⁷⁶ 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*,¹⁷⁷ 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.¹⁷⁸

9. THE DOCTRINE OF 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 an artist's intellectual creations.¹⁷⁹ The Visual Artists Rights Act of 1990 (VARA)¹⁸⁰ 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.¹⁸¹ VARA was the result of efforts on the part of moral rights advocates to overcome Congress' failure to adopt the moral rights provision of the Berne Convention. The legislation protects works of visual art and gives the artist two kinds of moral rights—the right of attribution and the right of integrity.¹⁸² 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.¹⁸³ 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

¹⁷³ See *Mitsubishi Motors Corp. v. Soler Chrysler-Plymouth, Inc.*, 473 U.S. 614 (1985).

¹⁷⁴ See generally Joseph Gibbons Llewellyn, *Semiotics for 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).

¹⁷⁵ See generally *Freeman v. Time, Inc.*, 68 F.3d 285, 289 (9th Cir. 1995).

¹⁷⁶ *Fisher v. Star Co.*, 132 N.E. 133 (1921), cert. denied, 257 U.S. 654 (1921).

¹⁷⁷ *Walt Disney Prod. v. Air Pirates*, 581 F.2d 751 (1978).

¹⁷⁸ Helfand, *supra* note 148, at 643–5.

¹⁷⁹ See Ronald B. Standler, *Moral Rights of Authors in the USA* (1988), www.rbs2.com/moral.pdf.

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

¹⁸¹ William A. Tanenbaum and 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).

¹⁸² "The right of attribution [is] known as the right of paternity in European practice." Tanenbaum and Butler, *id.* at 11, col. 1.

¹⁸³ 17 U.S.C. § 106A(a)(1) (1990).

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.”¹⁸⁴ 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.¹⁸⁵ The rights granted under VARA may not be transferred, but may be waived by the artist.¹⁸⁶

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.¹⁸⁷ Without the protection that VARA provides other artists, film directors can have altered works attributed to them. 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.¹⁸⁸ When a “painting or sculpture is altered, the original work is changed forever.”¹⁸⁹ 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.

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.¹⁹⁰ 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.¹⁹¹ The scope of moral rights protection varies among countries that recognize these rights. However, the doctrine encompasses three major elements: (1) the right of disclosure; (2) the right of paternity; and (3) the right of integrity.¹⁹²

¹⁸⁴ 17 U.S.C. § 106A(a)(2) (1990).

¹⁸⁵ 17 U.S.C. § 106A(a)(3) (1990).

¹⁸⁶ 17 U.S.C. § 106A(e)(1) (1990).

¹⁸⁷ Timothy M. Casey, *The Visual Artists Rights Act*, 14 HASTINGS COMM. & ENT. L. J. 85, 98 (1991).

¹⁸⁸ 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).

¹⁸⁹ Casey, *supra* note 187, at 99.

¹⁹⁰ See Berne Convention Implementation Act of 1988, Pub. L. No. 100-568, 102 Stat. 2853 (1988).

¹⁹¹ 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.

¹⁹² David J. Kohs, *Paint Your Wagon—Please! Colorization, Copyright, and the Search for Moral Rights*, 40 FED. COMM. L. J. 1, 4 (1988).

Under the right of disclosure, the creator has the privilege of determining when to release his work. 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.¹⁹³

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.¹⁹⁴ This right allows the creator to present himself to the public as the creator of a work.¹⁹⁵ Furthermore, the right of paternity permits the author to require others to acknowledge his authorship and prevent others from attributing works to him which he did not originate.¹⁹⁶ 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 distortion of or modification to his work if the alteration would constitute a misrepresentation of his artistic expression.¹⁹⁷ 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.

The United States enacted the Berne Convention Act in 1988. 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.¹⁹⁸ Thus, the Implementation Act did not change the pre-Berne Convention precedents or balance of rights between authors and proprietors. 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 implementation of this new legislation. 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. As stated earlier, an action for defamation protects an individual from harm to his reputation or his standing in the community.¹⁹⁹ 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 "lookalike" 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.²⁰⁰ By including the author's name on the title page, the revision implicitly misrepresented that the author himself, rather than the publisher, had written the revision, which contained many errors.²⁰¹ Because publishing in the name of a

¹⁹³ *Id* at 12.

¹⁹⁴ Berne Convention, *supra* note 191.

¹⁹⁵ *Id.*

¹⁹⁶ *Id.*

¹⁹⁷ Kohs, *supra* note 192, at 12.

¹⁹⁸ Berne Convention Implementation Act, *supra* note 191 (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).

¹⁹⁹ See Furine Blaise, *Game Over: Issues Arising When Copyrighted Work is Licensed to Video Game Manufacturers*, 15 ALB. L. J. SCI. & TECH. 517 (2005).

²⁰⁰ *Clevenger v. Baker Voorhis & Co.*, 168 N.E.2d 643 (N.Y. 1960).

²⁰¹ *Id* at 644.

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.²⁰² 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, who did not in fact write it, constituted libel.²⁰³ As the foregoing discussion demonstrates, both Section 43(a) of the Lanham Act and 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?

Section 43(a) of the Lanham Act provides two general theories of liability:²⁰⁴

- (1) *false representations* regarding the origin, endorsement or association of *goods* or *services* through the wrongful use of another's *distinctive mark*, name, *trade dress*, or other device ("*false endorsement*" or "*false association*"), and
- (2) *false representations* in *advertising* concerning the quality of services or *goods* ("*false advertising*").²⁰⁵

To prevail under Section 43(a) of the Lanham Act, a plaintiff must show that it has "a valid, protectible trademark and that the defendant's use of a colorable imitation of the trademark is likely to cause confusion among consumers."²⁰⁶

²⁰² *Id* at 645–6.

²⁰³ *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 (2d Cir. 1908) (acknowledging possibility of recovering damages for libel resulting from publication of mutilated or altered form of author's work).

²⁰⁴ The text of Section 43(a) of the Lanham Act provides that:

(1) Any person who, on or in connection with any goods or services, or any container for goods, 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, which—(A) is likely to cause confusion, or to cause mistake, or to deceive as to the affiliation, connection, or association of such person with another person, or as to the origin, sponsorship, or approval of his or her goods, services, or commercial activities by another person, or (B) in commercial advertising or promotion, misrepresents the nature, characteristics, qualities, or geographic origin of his or her or another person's goods services, or commercial activities, 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. (2) As used in this subsection, the term "any person" includes any State, instrumentality of a State or employee of a State or instrumentality of a State acting in his or her official capacity. Any State, and any such instrumentality, officer, or employee, shall be subject to the provisions of this Act in the same manner and to the same extent as any nongovernmental entity. (3) In a civil action for trade dress infringement under this Act for trade dress not registered on the principal register, the person who asserts trade dress protection has the burden of proving that the matter sought to be protected is not functional.

²⁰⁵ *See* *L.S. Heath & Son, Inc. v. AT&T Infor. Sys., Inc.*, 9 F.3d 561, 575 (7th Cir. 1993).

²⁰⁶ *Washington Speakers Bureau, Inc. v. Leading Authorities, Inc.*, 33 F.Supp.2d 488, 493 (E.D. Va. 1999).

10. CONCLUSIONS: TOWARD AVATAR PERSONHOOD

There are three notable trends in virtual avatars: (1) they are getting smarter; (2) their physical appearance is becoming more photorealistic and humanlike; and (3) their behavior is becoming more sophisticated. With regard to the three points above, imagine one day that a virtual avatar claims that it is a person,²⁰⁷ 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 considered and our understanding of the underlying justification for the right. For example, Professors Samuelson and Miller, as well as other legal scholars, have noted that a rationale for copyright is to provide an incentive for authors to create copyrightable works.²⁰⁸ As they argue, since “software and machines” currently need no such incentive to create works, there can be no copyright awarded to such entities. The lack of incentive shown by a virtual avatar (at least current versions) 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 at which it could claim to be conscious and deserving of legal rights may need to purchase computing resources and memory, or even require the assistance of humans or other artificially intelligent entities 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 further 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?²⁰⁹ 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. To some, 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 nonhuman entities becomes an important topic when discussing legal rights for intelligent avatars. Before exploring the issue

²⁰⁷ Hans Moravec, *MIND CHILDREN: THE FUTURE OF ROBOT AND HUMAN INTELLIGENCE* 5968 (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).

²⁰⁸ Samuelson, *supra* note 62.

²⁰⁹ See generally Tom Regan, *THE CASE FOR ANIMAL RIGHTS* (University of California Press 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).

of personhood for artificially intelligent entities in greater detail, it should be noted that granting legal recognition to nonhuman entities may not pose an insurmountable problem doctrinally. It is already done for corporations.²¹⁰ In terms of policy considerations, Professor Samuelson of Berkeley has previously argued that the ownership allocation between humans and software should not only make sense, but also reflect the realities of the world.²¹¹ Those realities, in regard to intelligent systems, have changed dramatically since antagonists argued against the idea of copyright protection for artificially intelligent entities in the 1980s and early 1990s. 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 it was when first made.²¹²

Judge Curtis Karnow introduced the term "electronic person," or "epers," when discussing the issue of legal rights for "agents" or "avatars" existing within cyberspace.²¹³ 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.²¹⁴ Karnow,²¹⁵ as well as Solum,²¹⁶ have 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."²¹⁷ For example, "the particular bundle of rights and duties that accompanies legal personhood varies with the nature of the entity."²¹⁸ In this context, both corporations and natural persons are considered legal persons, but they have different sets of legal rights and duties.²¹⁹

Intuitively, when one uses the term "person" she means to refer to a human being as opposed to a virtual avatar controlled by software.²²⁰ However, based on legal principles, the definition of a person is not as straightforward 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."²²¹ Furthermore, an artificial

²¹⁰ See *Santa Clara Cty. v. S. Pac. Ry.*, 118 U.S. 394 (1886).

²¹¹ Samuelson, *supra* note 62, at 1192.

²¹² 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?

²¹³ Karnow, *supra* note 60, at 128.

²¹⁴ *Id.* at 128.

²¹⁵ 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).

²¹⁶ See Lawrence B. Solum, *Legal Personhood for Artificial Intelligences*, 70 N. C. L. REV. 1231 (1992).

²¹⁷ *Id.* at 1239.

²¹⁸ *Id.*

²¹⁹ *Id.* See generally Jonathan Chaplin, *Political Perspective: Toward A Social Pluralist Theory of Institutional Rights*, 3 AVE MARIA L. REV. 147 (2005). See *supra* note 34.

²²⁰ See generally Barfield, *supra* note 57.

²²¹ BLACK'S LAW DICTIONARY 1162 (7th ed. 1999).

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).”²²² Based on the latter definition, an intelligent avatar could be regarded as an artificial person and awarded some legal rights. While every human being, regardless of intellectual capabilities, is considered to be a “legal person,” not all persons are considered human beings.²²³ 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,²²⁴ corporations have [human] boards of directors which exert control over the corporation; in contrast, avatars in some domains already perform complex tasks without human supervision.

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 idiot savants, experts in a narrow field of knowledge or conduct (such as making theater reservations or playing chess). Instead, avatars will have to exhibit a broad range of intellectual abilities before they begin to approach humanlike cognitive and perceptual capabilities, and thus warrant consideration of their status vis-à-vis legal personhood. Another reason why legal personhood is denied to current versions of avatars is the lack of self-awareness in such systems. Without self-awareness, an avatar is not only 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, that is, is no longer a person.²²⁵ 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 been considered.²²⁶

The debate on legal personhood for virtual avatars can benefit from 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, have complex social structures, and are genetically similar to humans.²²⁷ 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. Although some apes may have the capability to learn language, as evidenced through signing at the level of a three- to four-year-old child, they

²²² *Id* at 1162.

²²³ Barfield, *supra* note 57.

²²⁴ Solum, *supra* note 216, at 1239.

²²⁵ Steven Goldberg, *The Changing Face of Death: Computers, Consciousness and Nancy Cruzan*, 43 STAN L. REV. 659 (1991).

²²⁶ See generally Barfield, *supra* note 57; see generally Martine Rothblatt, *Bioethics: Should We Stop a Company From Unplugging an Intelligent Machine?* <http://www.Kurzweil.ai.net/meme/frame.html?m=4>.

²²⁷ See *The Great Ape Legal Project*, www.aldf.org/article.asp?cid=20; see Jens David Ohlin, *Is the Concept of the Person Necessary for Human Rights?* 105 COLUM L. REV. 209 (2005).

are not provided legal personhood. In contrast, people with severe cognitive deficits 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 deficits are awarded the status of 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.²²⁸ 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. Until fully possessed of mature reason and adult perspective, children are not legally allowed to assume either the prerogatives or burdens of full legal personhood. However, upon the age of majority, the law fully invests its citizens with constitutional rights, giving them both legal prerogatives and burdens. Before the age of majority, the law seems to manifest a gradual investment in children of legal personhood, roughly corresponding to their gradual attainment of adulthood. 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 ripe with contradictions.²²⁹ With the exception of corporations, the essential aspect of an entity that seems to lead to legal rights is self-awareness and humanlike intelligence.

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.²³⁰ 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" or deep

²²⁸ 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; *Children's Rights*, available at <http://hrworg/children/child-legal.htm> (last visited Nov. 6, 2005).

²²⁹ Barfield, *supra* note 57.

²³⁰ 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).

learning component so their internal state may consist of a large number of unlabeled weight values or sophisticated algorithms. In this case, they may output an answer without being able to “explain” it. Intelligent avatars may have a reflective 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.²³¹

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. 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.²³²

In conclusion, a major event in US 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. 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? 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 chapter has provided a framework in which to consider how future litigation may develop, and potential causes of action which may be raised, especially in the context of virtual avatars.

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²³¹ See Karnow, *supra* note 215 at 128 (including a discussion of the rights of electronic persons or “epers”).

²³² See generally Karnow, *supra* note 60 (discussing the difficulty of finding a responsible party given a distributed computing system).

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