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THE TRICKY BUSINESS OF COMPUTER-GENERATED IMAGERY: WHEN COPYRIGHT LAW MEETS MOVIE MAGIC

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ABSTRACT

What do *Guardians of the Galaxy*, *Avengers: Age of Ultron*, and *Beauty and the Beast* have in common? Each film makes use of performance motion-capture technology known as "MOVA" to create the life-like characters, such as the "Hulk" or the "Beast," which are imperative to the success of live-action films.

However, because of the use of this technology, these three blockbuster hits have become the center of litigation involving Rearden, LLC, a visual effects firm, and some of Hollywood's biggest film studios including: Disney, Marvel, 20th Century Fox and Paramount. After the technology was found to be stolen by a former Rearden employee, and subsequently unlawfully licensed to Hollywood's cinematic giants, Rearden brought patent, trademark, and copyright infringement claims against the Mouse House.

In its complaint, Rearden notes: "Disney used the stolen MOVA Contour systems and methods, made derivative works, and reproduced, distributed, performed, and displayed at least *Guardians of the Galaxy*, *Avengers: Age of Ultron*, and *Beauty and the Beast*, in knowing or willfully blind violation of Rearden Mova LLC's intellectual property rights."[1]

This article does not analyze the patent or trademark claims. Instead, it focuses on the bold claims to copyright made by Rearden in the computer-generated characters its MOVA system helps bring to life. It argues that Rearden has no claim to

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[1] Complaint at 3, Rearden, LLC v. Walt Disney Co., 293 F. Supp. 3d 963 (N.D. Cal. 2018) (No. 3:17-cv-04006-JST).

copyright in these computer-generated characters because although the technology's contributions are substantial, it is not enough to establish ownership where the goal of any computer program is to take an input and deliver an output. Rearden ultimately lost on this claim as the court found it implausible that any output created by MOVA was done without considerable contributions from the actors or directors.

Lastly, this article argues that Rearden's new theory of copyright—that MOVA is a literary work of authorship fixed in a tangible medium of expression—is only likely to be upheld on the claim that MOVA retains copyright solely in the programming of the language that enables the software to operate. To extend this type of copyright protection to the computer-generated character outputs would broaden the scope of protection to a point that would ultimately hinder "the progress of Science and the useful Arts."[2]

I. INTRODUCTION

> There have been a lot of great [computer graphics] performances, but [the Beast] was a romantic hero, someone who was at the emotional center of the movie. I always said that we could get everything else in this movie right, but if we didn't get a Beast that people believed in then [the movie] wouldn't work.[3]
>
> -Bill Condon, Director, *Beauty and the Beast*

The history of animation can be traced back to 30,000 B.C., where archeological artifacts evidence that humans have been on a long journey to get to the art form recognized today.[4] From goats leaping on painting pottery bowls to Da Vinci's Vitruvian Man drawing; motion has always been necessarily

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[2] U.S. CONST. art. I, § 8, cl. 8.

[3] Brian Truitt, *Watch the Crazy Way 'Beauty and the Beast' Turned Dan Stevens into a Monster*, KSDK (May 29, 2017), https://www.ksdk.com/article/news/nation-now/watch-the-crazy-way-beauty-and-the-beast-turned-dan-stevens-into-a-monster/465-714f532a-8fe5-440e-a942-505c28b112cb.

[4] *The History of Animation*, https://history-of-animation.webflow.io/ (last visited Apr. 10, 2019).

inherent to human expression.[5] Fast-forward to 1833, Belgian physicist Joseph Plateau and Austrian Professor of Geometry Simon Stampfer, simultaneously invented the phenakistoscope.[6] This spinning cardboard disc is widely considered to be the first form of animation.[7] When observed by the naked eye, the phenakistoscope created the illusion of fluid motion as the hand-drawn images spun.[8] However, animation stagnated until 1906, when the film industry found a need for stop-motion photography to create action.[9] Stop-motion, where a camera repeatedly stops and starts again, allowed figurines and drawings to move when still image captures were placed and played in chronological order.[10] Stop-motion was the dominant form of animation in film for nearly a century, through the "Golden Age" where the rise of Walt Disney's iconic 2D animated characters forever changed the industry.[11] Then, computer-generated imagery ("CGI") exploded onto the scene, replacing frame-by-frame hand-drawings with 3D modeling.

Pixar's 1995 film *Toy Story* was the first feature-length film created entirely by computer.[12] Pixar's contribution captured the hearts of millions with the story of toys who come to life when nobody's looking. But perhaps more significant, the film closed a gap that had endured between animation and real-life motion pictures. CGI now allowed filmmakers to envision synchronizing fantasy and reality almost entirely organically across every genre.

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[5] *Id.*

[6] *Phenakistoscopes (1833)*, THE PUBLIC DOMAIN REVIEW, https://publicdomainreview.org/collections/phenakistoscopes-1833/ (last visited Mar. 20, 2019) (displaying pictorial examples of the phenakistoscope).

[7] *Id.*

[8] *Id.*

[9] *The History of Animation*, *supra* note 4.

[10] *Stop Motion Animation*, TECHOPEDIA, https://www.techopedia.com/definition/109/stop-motion-animation (last visited Mar. 20, 2019).

[11] *Id.*

[12] Julia Zorthian, *How 'Toy Story' Changed Movie History*, TIME (Nov. 19, 2015), http://time.com/4118006/20-years-toy-story-pixar/.

CGI is the application of three-dimensional computer graphics technology to create visual effects.[13] Its use has become mainstream across film, television, video games, and even printed media. Audiences recognize CGI as the technology that allows dinosaurs to appear in *Jurassic Park*, and Mark Ruffalo to transform into the "Hulk" in *The Avengers*. In 2017, the filmmakers behind *Beauty and the Beast* flaunted CGI as the tool allowing them to capture both Dan Stevens' facial and body expressions to create the "Beast."[14] However, with CGI's nearly ubiquitous blurring of fantasy and reality, another haze is cast over what might normally be considered a rather clear distinction: who owns the copyright's output—the Computer-Generated ("CG") characters?

The leading CGI technology is MOVA Contour Reality Capture ("MOVA"), an incredibly sophisticated photoreal facial capture and animation system, which has been used in many films and video games.[15] As such, MOVA is highly-guarded intellectual property with clear copyright, trademark, and patent protections. MOVA has been at the center of litigation for the last few years. That litigation has ushered in a new challenge to copyright law's protection of ownership over CG creative outputs. A personal feud between two former friends and co-workers sparked a lawsuit involving these novel issues. That lawsuit led to another, this time between MOVA's owner, Rearden, LLC ("Rearden"), and major film studios, including Disney and Paramount. To put the current state of the lawsuit between Rearden and the studios in context, this article must first explore the case's complex history.

II. PROCEDURAL HISTORY: A LEGAL STORM FOLLOWS BETRAYAL

A. REARDEN'S OWNERSHIP OF MOVA

The first Rearden lawsuit set the stage for Rearden's current copyright battle over who owns the copyright in a

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[13] *See Computer-Generated Imagery*, SCIENCEDAILY, https://www.sciencedaily.com/terms/computer-generated_imagery.htm (last visited Mar. 10, 2019) (defining the practice).

[14] *See* discussion *infra* Section V.A.1.

[15] *MOVA Contour Facial Capture System Recognized With Academy Award*, MARKET WIRED (Jan. 21, 2019), http://www.marketwired.com/press-release/movar-contourr-facial-capture-system-recognized-with-academy-awardr-1984911.htm.

technology's output. It is, itself, something out of a Hollywood movie. The story includes tales of friendship, innovation, betrayal, theft, and a Chinese shell company.[16]

As Rearden employees, Greg LaSalle and Ken Pearce oversaw the MOVA system from its inception.[17] Their long-time friend was Steve Perlman, MOVA's inventor and Rearden's CEO.[18] As employees, they were under strict employment and proprietary information/invention agreements to protect the intellectual property rights contained within both the physical equipment and intellectual property of MOVA.[19] After working on motion-capture technology with LaSalle and Pearce for several years, Perlman transferred MOVA to one of Rearden's subsidiaries, OnLive.[20] LaSalle and Pearce moved with the technology.[21] OnLive had several prominent customers, including Disney and Industrial Light and Magic.[22] All was seemingly well for LaSalle, Pearce, and Perlman before Perlman realized—MOVA was not profitable.[23]

Perlman re-structured OnLive and moved MOVA to a new company, OL2, which was run by its lead investor, Gary Lauder.[24] Lauder kept a significant portion of the old OnLive team, but he fired LaSalle and Pearce.[25] Perlman hired them back to work with him at Rearden, and he wanted MOVA back as well.[26] As part of a negotiation-tactic-gone-wrong, Perlman suggested that Lauder sell MOVA to LaSalle and Pearce for one dollar so they could continue working with it.[27] Perlman assumed that this maneuver would convince Lauder that MOVA was not so valuable enough that Perlman would want it back himself.[28] The goal was that after LaSalle and Pearce had recouped MOVA,

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[16] Shenzhenshi Haitiecheng Sci. & Tech. Co. v. Rearden, LLC, No. 15-CV-00797-JST, 2017 U.S. Dist. LEXIS 128105 (N.D. Cal. Aug. 11, 2017).

[17] *Id.* at *5.

[18] *Id.*

[19] *Id.* at *10–11.

[20] *Id.* at *8–9.

[21] *Id.* at *9.

[22] *Id.*

[23] *Id.*

[24] *Id.*

[25] *Id.*

[26] *Id.*

[27] *Id.* at *15.

[28] *Id.* at *13–14.

Perlman would re-assume control, and the three would continue business as normal.[29] Lauder appeared amenable to Perlman's one-dollar deal, but he diligently looked for other buyers.[30] Enter the betrayal; without consulting Perlman, Lauder asked LaSalle and Pearce if they would agree to share 25% of MOVA's sale proceeds if he found a third-party buyer.[31] Without Perlman's knowledge, they agreed.[32]

Somehow, Perlman found out about LaSalle and Pearce's secret deal.[33] He directed his anger at Pearce, whom he assumed to be the mastermind.[34] Perlman fired Pearce on the spot.[35] Lauder could not find a third-party buyer, so he sold MOVA to LaSalle's supposed company, MO2.[36] Perlman, however, created MO2 as a subsidiary of Rearden.[37] Perlman once again owned MOVA.[38]

Once the MOVA assets were safely under MO2, LaSalle began secretly emailing with Ed Ulrich, the CEO of Digital Domain 3.0 ("DD3") about DD3 purchasing MOVA from MO2.[39] DD3 was Rearden's direct competitor in the visual effects ("VFX") business.[40] LaSalle was convinced that he had the authority as MO2's manager to sell its assets.[41] Ulrich told LaSalle that he could move to DD3 from Rearden with MOVA to manage it without Perlman's supervision.[42] When the plans were in place to sell MOVA to DD3, LaSalle told Perlman about the sale.[43]

Perlman told LaSalle that MOVA belonged to Rearden and that LaSalle needed to turn over the management of MO2 to Perlman.[44] Both Perlman and Rearden's human resources department made unsuccessful attempts to reach LaSalle to

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[29] *Id.*
[30] *Id.* at *15.
[31] *Id.* at *16.
[32] *Id.* at *17.
[33] *Id.*
[34] *Id.*
[35] *Id.*
[36] *Id.* at *18.
[37] *Id.*
[38] *Id.*
[39] *Id.*
[40] *Id.*
[41] *Id.* at *20.
[42] *Id.* at *19.
[43] *Id.* at *21.
[44] *Id.* at *21–22.

remind him of his employment obligations under his employment and proprietary information/invention agreement.[45] The company also repeatedly urged him to return the MOVA assets on his own.[46] Perlman also contacted DD3's General Counsel to put DD3 on notice that LaSalle was not the owner of MOVA.[47] Nevertheless, on May 8, 2013, LaSalle closed the deal with DD3 and transferred the assets to a Chinese technology company, Shenzhenshi ("SHST") to shield DD3 from liability.[48] Following this transfer of the MOVA assets, SHST attempted to sell the assets to Virtue Global Holdings ("VGH") in order to further "frustrate Rearden's rights as a creditor and owner of MOVA."[49] Ultimately, Rearden came out victorious against SHST because it never actually had legal ownership of MOVA.

B. REARDEN'S OWNERSHIP OF MOVA'S OUTPUT

With MOVA's dramatic transactional history behind it, Rearden now faces a more complicated lawsuit. On July 17, 2017, Rearden sued Disney, Fox, and Paramount, along with their five major film studios, alleging copyright, patent, and trademark infringement for the unlicensed use of the MOVA technology in a slew of box office hits.[50] The film at the center of the suit is Disney's *Beauty and the Beast*. The Beast character was only possible through MOVA's Contour Reality Capture System, which enabled the filmmakers to capture every human reaction of Dan Stevens' performance with submillimeter precision. Stevens' reactive movements were then placed on the CG Beast mold, transmogrifying Stevens into the character audiences recognize. Stevens best describes what it was like working with MOVA to bring the Beast to life:

> The facial capture [for the Beast] was done separately using a technology called "MOVA." So, every ten days, two weeks, I'd go into a booth and spray my face with UV paint and 27 little cameras would capture the facial expressions of all the scenes we had done on previous

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[45] *Id.* at *23.
[46] *Id.* at *24.
[47] *Id.* at *25.
[48] *Id.* at *26.
[49] *Id.* at *28.
[50] Complaint, Rearden, LLC v. Walt Disney Co., 293 F. Supp. 3d 963 (N.D. Cal. 2018) (No. 3:17-cv-04006-JST).

> days . . . they would take that information and morph it onto the Beast, his face . . . .[51]

With the win against SHST in tow, Rearden pressed on, and pitted itself against the film studios that illegally contracted with DD3 to use MOVA.[52] However, the studios alike were unaware that LaSalle stole the patented and copyright-protected MOVA Contour system that was used to film, most recently, *Beauty and the Beast*.[53]

Rearden's lawsuit against the studios not only attracted headlines, but also threw into question the very landscape of intellectual property law—particularly copyright ownership. The core of Rearden's intellectual property argument was that *it owned* MOVA's output of CG characters as the MOVA programmer—not the film studio.[54] This has launched a call to action for the legal community to think about the future of copyright law as technology becomes increasingly "smarter" and indispensable to the development of creative works.[55] Currently, United States copyright protection extends only to works owing their origins to a human being.[56] Nevertheless, artificial intelligence ("AI") machines and systems can already create art, music, and literature,

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[51] *See* Press Conference, *Beauty and the Beast*, YOUTUBE (Feb. 20, 2017), https://www.youtube.com/watch?v=R9mKV_gklgw&feature=youtu.be&t=12m14s (actors describing MOVA and how it was uniquely utilized in this film).

[52] Rearden, LLC v. Walt Disney Co., 293 F. Supp. 3d 963 (N.D. Cal. 2018).

[53] Shenzhenshi Haitiecheng Sci. & Tech. Co. v. Rearden, LLC, No. 15-CV-00797-JST, 2017 U.S. Dist. LEXIS 128105, at *36 (N.D. Cal. Aug. 11, 2017) (the court makes a finding of fact that LaSalle was not the true owner of the MOVA assets and did not have authority to make a sale of the MOVA assets).

[54] Rearden, LLC v. Walt Disney Co., 293 F. Supp. 3d 963, 968 (N.D. Cal. 2018).

[55] Brian Kulp, *Rearden v. Walt Disney Co.: District Court Rejects Puzzling Copyright Allegation but Permits Patent and Trademark Claims to Move Forward*, JOLT Digest (Mar. 6, 2018), https://jolt.law.harvard.edu/digest/rearden-v-walt-disney-co-district-court-rejects-puzzling-copyright-allegation-but-permits-patent-and-trademark-claims-to-move-forward.

[56] 1 MELVILLE B. NIMMER & DAVID NIMMER, NIMMER ON COPYRIGHT § 1.06[A][C] (Matthew Bender, Rev. Ed. 2018).

some of which may even be financially viable.[57] With that viability, courts will inevitably have to consider the application of copyright protection for those non-human created works. Although MOVA is not an entirely non-human output, Rearden's assertions of what the technology is capable of has already challenged the future of copyright law.

III. THE ROLE OF COPYRIGHT LAW

Rearden claimed that it owned the output of the MOVA technology—the CG characters themselves. For Rearden's claims to succeed, a court would have to find that MOVA is an artificially intelligent program creating the CG character outputs. However, this would mean that copyright law, as it currently exists, would need to be over-hauled to accommodate non-human copyrightable works. Copyright law has an intricate history, but as technology becomes increasingly "smart" and able to function without much input from humans, the malleability and scope of copyright's traditional doctrines and theories will continue to be tested.

A. LEGAL ORIGINS

A dominant legal problem over the protection of literary or film characters is that none of the classic copyright doctrines apply perfectly. Copyright protections may exist for a character as part of a story, or in a drawing or painting, or perhaps even by trademark as a symbol of a product, but rights in the character itself, mined from the world in which that character has been placed by its author, are unclear.[58]

Copyright law owes its origins to seventeenth-century England, when Parliament granted a publishing monopoly for books to a group of London merchants.[59] The Statute of Anne,[60] signed into law in 1710, was the first law to ever recognize and

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[57] Erik Brynjolfsson & Andrew McAffee, *The Business of Artificial Intelligence*, HARVARD BUSINESS REVIEW (July 26, 2017), https://hbr.org/cover-story/2017/07/the-business-of-artificial-intelligence.

[58] *See* Alan J. Hartnick, *The Character Licensing Enigma*, 70 N.Y. ST. B.J. 18 (1998) (relaying an interview between the author and Richard Wincour, author of *The Art of Character Licensing*).

[59] *See* CRAIG JOYCE ET AL., COPYRIGHT LAW 16 (6th ed. 2003).

[60] 8 Ann., c. 19 (1710).

grant exclusive publishing rights to authors.[61] The purpose of the Statute of Anne was to curb the exploitation of authors, encourage widespread education through literature, and incentivize people to create new works.[62] With this statute, authors were at last recognized for their contributions through the grant of the exclusive right to print or reprint their works.[63] Further, a third party could no longer import, publish, or sell the work without the author's explicit consent.[64]

Copyright law only reached the United States in the eighteenth century. The United States Constitution grants Congress the power to "Promote the Progress of Science and Useful Arts, by Securing for limited Times, to Authors and Inventors, the Exclusive Right to their respective Writings and Discoveries."[65] In 1790, Congress enacted the first Federal Copyright Act, which protected only maps, charts, and books.[66] Similar to the Statute of Anne, authors were granted the exclusive right to print, publish, or sell these types of works.[67] As evidenced by its scope, the intent of the 1790 Copyright Act was to promote education.[68] Nonetheless, throughout the nineteenth century Congress expanded the reach of the 1790 Copyright Act to include different types of works and rights. Most notable was the Supreme Court's expansion in *White-Smith Music Publishing v. Apollo Co*.[69] There the court held that the "author, inventor, designer or proprietor of any book, map, chart, dramatic or musical composition retained the exclusive right to print, reprint, publish, complete, copy, and sell the copyrighted work."[70] *White-Smith* preceded the landmark 1909 Copyright Act by one year.

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[61] *Id.* (Typically, any rights in a published work were granted to its publisher, rather than its corresponding author).

[62] *See* Matthew Brett Freedman, *Machinima and Copyright Law*, 13 J. INTELL. PROP. L. 235 (2005) (providing a detailed history of copyright law).

[63] 8 Ann., c. 19 (1710).

[64] *Id.*

[65] U.S. CONST. art. I, § 8, cl. 8.

[66] Copyright Act of 1790, 1 Stat. 124 (1790).

[67] *Id.*

[68] Copyright Act of 1790, 1 Stat. 124 (1790) (stating the intent as "[a]n Act for the encouragement of learning . . . .").

[69] White-Smith Music Publ'g Co. v. Apollo Co., 209 U.S. 1, 9 (1908).

[70] *Id.*

The 1909 Copyright Act revised copyright law to include future-focused language for new media, as technology began to play a more prominent role in the creation of different types of works. This grew out of a plea by former President Theodore Roosevelt, who vehemently fought for a complete revision of copyright law, as opposed to simply amending it. In 1905, he urgently pressed members of Congress to act, stating:

> They are imperfect in definition, confused and inconsistent in expression; they omit provision for many articles which, under modern reproductive processes, are entitled to protection; they impose hardships upon the copyright proprietor which are not essential to the fair protection of the public; they are difficult for the courts to interpret and impossible for the Copyright Office to administer with satisfaction to the public.[71]

However, Congress' most important enactment was the Copyright Act of 1976—the pillar of contemporary copyright law. As amended, the 1976 Act protects: (1) literary works; (2) musical works, including any accompanying words; (3) dramatic works, including any accompanying music; (4) pantomimes and choreographic works; (5) pictorial, graphic, and sculptural works; (6) motion pictures and other audiovisual works; (7) sound recordings; and (8) architectural works.[72] It grants a copyright holder the exclusive right to reproduce the copyrighted material, create derivative works, distribute the work to the public, and to publicly perform or display the work.[73] The shift in the law accords with Congress' stated purpose "to promote the progress of the 'useful Arts' by rewarding creativity."[74]

B. FIXATION, ORIGINALITY, AND MINIMAL CREATIVITY

Copyright protects words, images, sounds, and other expressions used by the author to express an idea. The law does not protect the idea itself because an idea alone does not contain some identifiable or tangible apotheosis. Section 102 of the 1976

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[71] H.R. REP. No. 60-1108, at 1 (1909).

[72] 17 U.S.C. § 106 (2018).

[73] *Id.*

[74] Quality King Distrib., Inc. v. L'anza Research Int'l, Inc., 523 U.S. 135, 151 (1998).

Copyright Act establishes three requirements for a work to be copyrightable.[75]

1. *Fixation*

First the 1976 Copyright Act requires that the work be "fixed in a tangible medium of expression" to be eligible for copyright protection.[76] A work is "fixed" upon being "sufficiently permanent or stable to permit it to be perceived, reproduced, or otherwise communicated for a period of more than transitory duration."[77] There are many ways to "fix" a work, and courts have held that it makes no difference in what manner, form, or medium the fixation occurs. For example, a work may be expressed in "words, numbers, notes, sounds, pictures, or any other graphic or symbolic indicia," and the author's expression may be "fixed in a physical object in written, printed, photographic, sculptural . . . or any other stable form."[78] This requirement is not particularly difficult to meet, as most works are fixed organically in their creation.[79]

Williams Electronics, Inc. v. Artic International, Inc. provides a strong example of when a work is considered "fixed" for the purposes of copyright protection.[80] Williams Electronics, Inc. ("Williams") created a video game titled "DEFENDER," which displayed images of spaceships and aliens.[81] As a computer program, the game was hard-wired into a ROM-chip inside the game's physical container.[82] Artic, a competing video game company, produced a knock-off of Williams' game that used almost identical images, movements, *and* the program Williams actually created.[83] The court held Williams met the fixation requirement because the audiovisual features of "DEFENDER" repeat themselves over and over again, thus making the game

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[75] 17 U.S.C. § 102(a) (2018).

[76] *Id.*

[77] *Id.*

[78] H.R. REP. NO. 94-1476, at 52 (1976).

[79] *E.g.*, an article printed on paper, a song recorded in a digital audio file, or an audiovisual work captured on film.

[80] Williams Elecs., Inc. v. Artic Int'l, Inc., 685 F.2d 870 (3d Cir. 1982).

[81] *Id.* at 872.

[82] *Id.*

[83] *Id.* at 872–73.

"sufficiently permanent or stable to permit it to be perceived, reproduced, or otherwise communicated for a period of more than transitory duration." [84] The *Williams* court emphasized that "DEFENDER" is permanently embodied in a material object—the memory devices of the ROM-chip—from which it can be perceived with the help of the other elements of the game.[85]

2. *Originality & Minimal Creativity*

The second requirement for copyright protection is that a work must be an "original work of authorship."[86] Creativity is the definitive prerequisite for protection. Without it, copyists and plagiarists would essentially have the same rights as the author without having supplied any original contribution of their own to the already existing work. This is why originality is considered the "the bedrock principle of copyright." [87] To be eligible for copyright protection, "a work must be original to the author," which means that the work must be "independently created by the author" possessing at least "some minimal degree of creativity."[88] All independent creation means is that the author must create a work without copying another's work. Though, originality does not require that the work be novel. A work can satisfy the independent creation prong of the originality requirement even though it may closely resemble another work.[89] So long as the authors did not copy the expression from each other, independent creation is satisfied.[90]

As for the creativity prong of originality, what is required is some "minimal degree of creativity" present in the work.[91] The court in *Feist Publishing Inc. v. Rural Telephone Service Co., Inc.*[92] stated: "[t]he requisite level of creativity is extremely low. The vast majority of works make the grade quite easily, as they possess some creative spark, no matter how crude, humble, or

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[84] *Id.* at 874.

[85] *Id.*

[86] 17 U.S.C. § 102(a) (1990).

[87] Feist Publications Inc. v. Rural Tel. Serv. Co. Inc., 499 U.S. 340, 347 (1991).

[88] *Id.* at 345.

[89] *Id.*

[90] 3 MELVILLE B. NIMMER & DAVID NIMMER, NIMMER ON COPYRIGHT § 12.11[B][1] (Matthew Bender, rev. ed. 2018).

[91] *Feist*, 499 U.S. at 375.

[92] *Id.*

obvious it might be."[93] In *Feist*, Rural Telephone Services ("Rural") published an annual telephone directory that covers a small geographic area.[94] Feist Publications, Inc. ("Feist") was a competing directory publisher that serviced a much larger area than Rural.[95] Feist requested that Rural license its contacts, and when Rural refused, Feist used its contacts without consent.[96] The court held that because Rural's directory was a garden-variety compilation of phone numbers and addresses, it was not entitled to copyright protection.[97] In other words, Rural lacked the requisite originality to protect the contents of its directory.[98] Here the "creative spark" was so minimal to render it mechanical or routine, obvious, or "practically inevitable."[99]

C. AUTHORSHIP

The third requirement for copyright protection is authorship, which answers the question: who is entitled to claim copyright protection in any given work? The Constitution's Intellectual Property Clause[100] specifies that copyright is to be granted to "Authors."[101] Under United States copyright law, an author is either the person who actually creates the copyrightable work, or if the copyrightable work is created while under the regular course of employment, the employer of the person will retain authorship of the work as a work-made-for-hire.[102]

Initially, copyright protection of a work vests in the author.[103] However, the author may assign some or all of her rights to another person. With sole authorship, the single author can claim copyright over the entire work.[104] In a joint work, such as a film, the copyrightable subject matter is generally created by "two or more authors with the intent that their contributions be merged

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[93] *Id.*
[94] *Id.* at 342–43.
[95] *Id.*
[96] *Id.* at 343.
[97] *Id.* at 362.
[98] *Id.* at 363–64.
[99] *Id.* at 363.
[100] U.S. CONST. art. I, § 8, cl. 8.
[101] *Id.*
[102] 17 U.S.C. § 101 (2010).
[103] *Id.*
[104] *Id.*

into inseparable or interdependent parts of the unitary whole."[105] In the case of joint works, each author would be a co-owner of the copyright; meaning that each individual author retains the right to use, sell, reproduce, or copy the work.[106] In *Aalmuhammed v. Lee* the court held that a joint work is one that both parties *intended* to create as a joint work.[107] Jefri Aalmuhammed worked as a consultant to Spike Lee during the filming of *Malcolm X*.[108] He reviewed the script, rewrote certain scenes, and acted as consultant to Denzel Washington, the actor portraying Malcom X in the film.[109] The court reasoned that Aalmuhammed was correct in claiming that he contributed independent copyrightable subject matter to the film.[110] However, because it was not the intent of the parties to create a joint work, as Aalmuhammed had signed a work-for-hire agreement, he was not entitled to claim copyright in the film.[111]

Generally, parties can avoid confusion as to who can claim authorship through their contracting language.[112] The Second Circuit Court of Appeals in *16 Casa Duse, LLC v. Merkin* required that copyright in a film be owned by one person or entity, specifically identified in the contract as the "dominant author" of the film.[113] Typically, the dominant author is the production company responsible for hiring all of the actors, crew members, directors, as well as any outsourced third-party companies for any special visual effects the film may require.[114]

D. ESTABLISHING COPYRIGHT INFRINGEMENT

To win a copyright infringement case, the burden rests on the copyright holder to establish: (1) ownership of the copyright; (2) copyright validity; and (3) that one or more of the exclusive

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[105] *Id.*
[106] *Id.*
[107] Aalmuhammed v. Lee, 202 F.3d 1227 (9th Cir. 2000).
[108] *Id.* at 1229–30.
[109] *Id.*
[110] *Id.*
[111] *Id.*
[112] *Id.* at 1233–35.
[113] 16 Casa Duse, LLC v. Merkin, 791 F.3d 247, 258 (2d Cir. 2015).
[114] *Id.* at 260.

rights in the copyright have been breached by the infringing party.[115]

Establishing the first prong would appear simple enough; however, absent strong contract language, ownership over the copyright can become a battle royale when many people claim to have contributed to the creation of the work.[116] Typically, courts tend to defer to whoever fixed the work in its tangible medium of expression.[117]

As for the second prong, courts presume validity if a certificate of registration is filed with the United States Copyright Office.[118] Nevertheless, even if a certificate of registration has not been filed, copyright validity may still be established by proving the work is fixed in a tangible medium of expression, and that the work is original—being independently created by the author and possessing some minimal degree of creativity.[119]

After a valid copyright has been established by the claimant, the copyright owner must show that someone infringed upon his or her work in some way.[120] The copyright owner has the burden of proving that the infringer exercised one or more of the owner's exclusive rights without the owner's express permission. [121] These exclusive rights include: reproduction, preparation of "derivative works," public distribution of copies of the work, and public performance.[122] Without evidence of direct copying, proving infringement requires a fact-based showing that the infringer had "access" to the original work and that the two works are "substantially similar."[123]

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[115] Freedman, *supra* note 6262, at 243 (delineating the necessary requirements to establish a claim for copyright infringement).

[116] *Id.*

[117] *Id.*

[118] 17 U.S.C. § 410(c) (1976) (noting in any judicial proceeding, the certificate of registration made before or within five years after first publication of the work is prima facie evidence of the validity of the copyright).

[119] Freedman, *supra* note 62, at 243–244.

[120] Weintraub Firm, *The Complexity of Proving Copyright Infringement*, THE IP LAW BLOG (Feb. 20, 2007), https://www.theiplawblog.com/2007/02/articles/copyright-law/the-complexity-of-proving-copyright-infringement/.

[121] Freedman, *supra* note 62, at 245.

[122] 17 U.S.C. § 106 (2002).

[123] *See* Weintraub Firm, *supra* note 120.

IV. DESIGNING COMPUTER-GENERATED CHARACTERS: HOW MOVA WORKS

The MOVA Contour technology system is an exceptional tool for filmmakers using CGI in their movies. Its capabilities are vast, and as Rearden has stated, CG characters would not exist without it.[124] Nevertheless, as described below, MOVA is only as good as its programmers' inputs, as well as its embedded partnership with the work of the actor(s) and director(s) who create a realistic output.

Since its founding in 1999, Rearden's core technological focus has been performance motion capture.[125] Performance motion capture is used to create three-dimensional animated characters in a film or video game that look and move precisely as human actors would.[126] Rearden is credited as the inventor of the technology that can capture, track, and replicate the nuances of human facial reactions in a life-like manner.[127] In fact, Rearden's MOVA Contour can capture reactions expressed by the human face at a submillimeter precision so that there is hardly a distinction between what is real and what is fantasy when viewed on screen.[128]

The MOVA Contour system is entirely portable and can be set up on any light-sealed stage.[129] Once the rig is set up, the actor's skin is covered with an FDA-approved phosphorescent makeup, either alone or mixed with a skin-tone base color.[130] Filmmakers can also treat clothing with this makeup to digitally render it.[131] The stage is then lit with custom fluorescent light fixtures, which flash on and off at a rate of 90-120 frames per second—a speed beyond human perception.[132] This flashing is coordinated with two sets of cameras crucial to the capture: color cameras and geometry cameras.[133] The color cameras capture normally-lit surfaces only when the fluorescent lights are on,

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[124] Complaint at 5, Rearden, LLC v. Walt Disney Co., 293 F. Supp. 3d 963 (N.D. Cal. 2018) (No. 3:17-cv-04006-JST).

[125] *Id.*

[126] *Id.*

[127] *Id.* at 7.

[128] *Id.*

[129] *Id.* at 12.

[130] *Id.*

[131] *Id.*

[132] *Id.*

[133] *Id.*

providing the reference video.[134] The geometry cameras capture the phosphorescent patterns created by the makeup on the actor only when the lights are off.[135]

MOVA Contour is not just a portable stage. The entire system is controlled by a high-tech proprietary software that operates the system in real time to capture the actor's performance frame-by-frame. [136] It then creates original Contour Program output files based on the performance, again frame-by-frame.[137] This software begins operating prior to the facial capture sessions with the actor in order to prepare the system, and it also operates during the session to process the live facial capture, as well as after the session to create and record the tracked surfaces of the actor's face on the computers.[138]

Once the actor has applied the phosphorescent makeup, he or she will sit or stand in the arc shaped MOVA rig.[139] The actor then provides what is called a "facial performance," and MOVA transfers the output of each of the two types of cameras onto storage devices.[140] This first MOVA-created output is the "Skin Texture," where the first set of cameras captures the actor's skin.[141] The output looks as any viewer would expect—normal skin and facial features of the actor captured from multiple camera angles.[142] The second output creates the "Makeup Pattern," which looks like a random pattern of green or blue, depending on the color of the phosphorescent makeup. On this output file, the actor's skin and facial features cannot be seen. The computer can only see the applied makeup.[143] MOVA also uses the makeup pattern to compute a high-resolution, three-dimensional mesh that tracks the points on the actor's skin as it moves during the performance. [144] This third output is known as "Tracking

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[134] *Id.*
[135] *Id.*
[136] *Id.*
[137] *Id.* at 11.
[138] *Id.*
[139] *Id.* at 13.
[140] *Id.*
[141] *Id.*
[142] *Id.*
[143] *Id.*
[144] *Id.* at 14.

Mesh."[145] Tracking Mesh is crucial to the process because it is the output that follows the actor's exact movements.[146] For example, if the actor smiles, the Tracking Mesh will mark the precise cheek bulge on the actor's face, creating an exact replica of the three-dimensional movement a smile creates.[147]

Once these three sets of outputs have been captured, MOVA then calculates a high-resolution, three-dimensional surface that moves in the shape of the actor's skin.[148] This fourth output file is called the "Captured Surface."[149] When computers fully render the captured surface, the product looks like a three-dimensional bust of the actor's skin. All four outputs are used together to "retarget" the actor's facial performance onto another face model, depending on the needs of the individual film.[150] For example, the retargeting could occur on a real face, as when Ron Weasley turns into Harry Potter in *Harry Potter and the Deathly Hallows*, or it could occur on a fictional face, such as Brad Pitt's aging process in *The Curious Case of Benjamin Button*.[151]

MOVA is crucial to transforming an actor's facial performance into a computer-generated image. The software captures an actor's detailed facial motions and merges them with a three-dimensional computer-generated image, ultimately closing the gap between fantasy and reality. MOVA provides such control and precision to filmmakers that it clearly "promote[s] the progress of Science and the Useful Arts."[152] Thus the question remains: whether Rearden can claim copyright ownership in any of the characters born through MOVA?

V. MOVA LITIGATION GAINS TRACTION: RECLAIMING INTELLECTUAL PROPERTY CONTROL

The *Shenzhenshi* case was the first step in what has now become Rearden's fiery copyright battle against herculean film studios. During *Shenzhenshi*, DD3 released a photograph that shows the stolen MOVA Contour rig operated by the visual effects

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[145] *Id.*
[146] *Id.*
[147] *Id.*
[148] *Id.* at 13.
[149] *Id.*
[150] *Id.* at 15.
[151] *Id.*
[152] U.S. CONST. art. I, § 8, cl. 8.

company and licensed unlawfully in at least *Guardians of the Galaxy* and *Beauty and the Beast*.[153] The magnified portions of the image showed a Rearden Asset Tag and serial number, both of which match the exact numbers catalogued as stolen by Rearden in 2013.[154] Additional evidence that Rearden owned MOVA was that the technology has no operating manual,[155] the system must be hand-built by Rearden-trained MOVA employees, who are the only people who know how to install and operate it.[156] Further, Rearden subjected its employees and contractors to strict confidentiality obligations.[157]

The *Shenzhenshi* lawsuit was ultimately about regaining ownership over the stolen MOVA system. The evidence established a clear case for Rearden.[158] The court held that LaSalle was still an employee of Rearden during his transactions with DD3 and therefore breached his employment agreement.[159] Judge Tigar reasoned that LaSalle had established MO2, the new Rearden subsidiary, using money Rearden provided.[160] Further, under the terms of the proprietary information/invention agreements and his employment agreement, the MOVA assets LaSalle claimed as his own belonged to Rearden.[161] LaSalle's conduct, the court held, was not only wrongful, but also in explicit violation of his agreement as an employee of Rearden.[162] Additionally, Judge Tigar found that SHST, DD3, and VGH were on notice that they had no rights to use MOVA.[163] All three companies had actual knowledge that LaSalle did not own the MOVA assets, and he did not have actual or apparent authority to

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[153] Order Granting Motion to Intervene, Motion to Augment the Record, and Motion for De Novo Determination, Shenzhenshi Haitiecheng Sci. & Tech. Co. v. Rearden, LLC, No. 15-CV-00797-JST, 2017 U.S. Dist. LEXIS 128105 (N.D. Cal. Aug. 11, 2017) (Doc. 305).

[154] *Id.*

[155] *Id.*

[156] *Id.*

[157] *Id.*

[158] Shenzhenshi Haitiecheng Sci. & Tech. Co. v. Rearden, LLC, No. 15-CV-00797-JST, 2017 U.S. Dist. LEXIS 128105, at *29–37 (N.D. Cal. Aug. 11, 2017).

[159] *Id.* at *29–30.

[160] *Id.*

[161] *Id.*

[162] *Id.*

[163] *Id.* at *34.

sell them.[164] The court ordered that Rearden was entitled to regain possession and control over MOVA.[165]

This ruling armed Rearden to take on the studios that entered into agreements with DD3 for use of the stolen technology. It also helped Rearden show that the studios were aware of the litigation against SHST and nevertheless proceeded with use of the stolen MOVA assets.[166] Rearden moved from one lawsuit to another, now claiming copyright ownership in the CG characters the studios created with its stolen software.

A. REARDEN TAKES ON DISNEY, FOX, AND PARAMOUNT

After winning the case against SHST and DD3, Rearden subsequently sued the film studios, which had contracted with DD3 during the ongoing litigation, to "provide facial performance capture services and output files made with the patented and copyrighted MOVA Contour system and methods."[167] After alleging copyright, patent, and trademark infringement, Disney, Fox, and Paramount—the named studios—filed a motion to dismiss on all grounds.[168] Judge Tigar granted the motion in part, and denied it in part.[169] Rearden's major loss came on the heels of its bold argument that the company has ownership over the CGI characters created with its software because MOVA does the "lion's share of the work."[170] However, as the litigation is ongoing, Rearden may still find success in its amended complaint under patent and trademark infringement claims. Though it remains unlikely that the VFX firm will win on its new copyright theory, which claims that MOVA is a literary work entitled to copyright protection.

1. *The "Lion's Share" Doesn't Make the Cut*

In the motion to dismiss, the film studios argued that Rearden's copyright claims fail because Rearden "cannot show that the copyright in the software program extends to the output files; [and] Rearden cannot show that the [computer-generated]

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[164] *Id.*

[165] *Id.* at *36.

[166] *Id.* at *29.

[167] Rearden, LLC v. Walt Disney Co., 293 F. Supp. 3d 963, 975 (N.D. Cal. 2018).

[168] *Id.* at 967.

[169] *Id.*

[170] *Id.* at 971.

characters or the movies are derivative works of the film."[171] Rearden responded to this claim by attempting to show that the MOVA Contour program does "the lion's share" of the work in creating the output, and that this meets the standard for authorship because the CG characters both incorporate and are derived from MOVA's outputs.[172] Rearden would only succeed on this argument if MOVA were actually contributing a new original expression to the preexisting work which the film studios created in scripts.

The court looked to the Ninth Circuit, which recently recognized that some authorities do "suggest that the copyright protection afforded a computer program may extend to the program's output if the program does the lion's share of the work in creating the output such that the user's role is so marginal that the output reflects the program's contents."[173] The Ninth Circuit never fully ruled on this problem because evidence was not presented to effectively establish that the program does "the lion's share" of the work, or that the user's (*i.e.*, the film studio's) input is "marginal."[174]

To aid his analysis, Judge Tigar looked to *Torah Soft Ltd. v. Drosnin* ("*Torah Soft)*,[175] where the software at issue created a matrix in response to an end user's input of a particular item.[176] In *Torah Soft*, the court held that the program's user was not the author of the copyright, emphasizing the end-user's role in the actual creation of the matrix.[177] The court stated:

> In addition, an end-user's role in creating a matrix is marginal. Creating a matrix is unlike the creative process used in many computer art programs, which permit an end-user to create an original work of art in an electronic medium. It is fair to say that users of such programs often supply the lion's share of the creativity to create

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[171] *Id.* at 969.

[172] *Id.* at 970.

[173] Design Data Corp. v. Unigate Enter., Inc., 847 F.3d 1169, 1173 (9th Cir. 2017).

[174] *Id.*

[175] Torah Soft Ltd. v. Drosnin, 136 F. Supp. 2d 276, 283 (S.D.N.Y. 2001).

[176] *Id.*

[177] *Id.*

> the screen display. By contrast, an end-user of the Software merely inputs a word or phrase which the Software searches for in the Database. Thus, the Software does the lion's share of the work. In short Drosin is not the author of the matrixes.[178]

Rearden relied heavily on this standard set out by *Torah Soft* to substantiate its claim that it owns the copyright in MOVA's output.[179]

There is no record of anyone disputing that MOVA's contributions to any given film are substantial. However, MOVA itself is not responsible for the expressive, creative performance that is ultimately viewed on screen. MOVA is an enabling tool that allows filmmakers to fix their ideas in a tangible medium of expression. By itself, the software would not be able to bring, for example, "the Beast" to life. It is only through the contributions of the actors, directors, and film crew that MOVA can create the final output of the CG character.

The output for a film is considerably different than the output in creating a matrix on a computer program. Where Rearden's copyright infringement claim fails is precisely where the studios counter: (1) that another person is directing the performance of the actor to make the various facial motions; and (2) that the actor is contributing certain instincts and reactions contained in the scene, which undeniably determine the output MOVA captures.[180] The studios rightly point out that "the human contribution cannot be deemed 'marginal' in any sense."[181]

Rearden's argument is particularly interesting because it has attempted to narrow the court's focus on only MOVA's generation of output. The output, Rearden claims, is allegedly distinct from (1) the two-dimensional images of the actors' performances captured by MOVA's cameras, which are (2) generated by the program by synthesizing the two-dimensional captures into three-dimensional captured surface and tracking mesh outputs (which occurs after the director's work on the actor's performance), and (3) created entirely by MOVA without any contribution from the actors or directors.[182]

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[178] *Id.*

[179] Rearden, LLC v. Walt Disney Co., 293 F. Supp. 3d 963, 970 (N.D. Cal. 2018).

[180] *Rearden*, 293 F. Supp. 3d at 970.

[181] *Id.*

[182] *Id.*

Judge Tigar struggles with this argument in the opinion because no one presumes that the MOVA output is created without any substantial contribution from the actors or directors.[183] To assume this would anoint AI-like status upon MOVA—that is, MOVA itself creates outputs normally requiring human intelligence. MOVA is not capable of directing the actor, nor is it capable of creating a CG character without capturing an actor's facial performance. Thus, Rearden's claim must fail because although MOVA is essential to the creation of these CG characters, its ability to turn two-dimensional images into three-dimensional photorealistic movements and surfaces is not enough to establish ownership "since all computer programs take inputs and turn them into outputs."[184] As such, Rearden would have had to establish that MOVA does the "lion's share" of the original creative expression in generating the outputs of the system.[185]

Rearden's burden is incredibly difficult to meet, especially where the actors' and directors' contributions can hardly be separated from MOVA. In fact, in its complaint, Rearden continuously acknowledges the actors' contributions, stating: "[the] film's romantic hero, the Beast, was a [computer-generated] character played by Dan Stevens, with every human subtlety of his facial performance carried through to the animal like [computer-generated] face of the Beast."[186] Rearden was in no way successful in establishing that the contributions of the film studios were "marginal" and that MOVA did the "lion's share of the work." But Rearden has yet to give up hope: the VFX firm amended the lawsuit to test a new copyright theory—that MOVA is a literary work.[187]

B. REARDEN'S LAST-DITCH EFFORT: MOVA AS A LITERARY WORK

In copyright law, literary works are defined as "works other than audiovisual works expressed in words, numbers, or

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[183] *Id.*

[184] *Id.* at 971.

[185] *Id.*

[186] Complaint at 1, Rearden, LLC v. Walt Disney Co., 293 F. Supp. 3d 963 (N.D. Cal. 2018) (No. 3:17-cv-04006-JST).

[187] First Amended Complaint for Copyright, Patent, and Trademark Infringement at 60, Rearden, LLC v. Walt Disney Co., 293 F. Supp. 3d 963 (N.D. Cal. 2018) (No. 3:17-cv-04006-JST).

other verbal or numerical symbols or indicia regardless of the nature of the material objects . . . in which they are embodied."[188] With the 1976 Copyright Act, Congress chose to grant copyright protection to computer programs as a type of literary work.[189]

Rearden's amended complaint claims that MOVA is an original literary work of authorship by Rearden-employed and trained programmers.[190] The company argues that MOVA was fixed in a tangible medium of expression when it was stored on computer hard drives, CD, CD-R, DVD, or Blu-ray disks from which it may be perceived, reproduced, or otherwise communicated for more than a transitory period.[191] If the court should find these facts to be true, MOVA is entitled to copyright protection.

Questions surrounding a computer program's copyright ownership are the most analogous to those posed by the Rearden litigation. Courts in copyright infringement cases for computer programs often find themselves balancing a variety of factors, the outcome of which is highly fact-specific to each case. For example, in *Whelan Associates, Inc. v. Jaslow Dental Laboratory, Inc.*, the court granted broad protections to computer programs.[192] The case involved two computer programs that were used to manage a dental lab.[193] Jaslow owned and operated the lab, and hired Whelan, a computer programmer, to write a program for managing all business operations of the lab.[194] The parties agreed that Whelan would own the copyright in the program, while Jaslow would only use it.[195] Two years after Whelan had completed the program, Jaslow began selling a similar program that was designed using a different coding language than Whelan had used.[196]

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[188] 17 U.S.C. § 101 (2018); *see also* 66 OHIO JUR. 3d *Literary and Artistic Property* § 1 (2019).

[189] H.R. REP. NO. 94-1476, at 54 (1976) (stating the term "literary works" includes computer programs).

[190] First Amended Complaint for Copyright, Patent, and Trademark Infringement, Rearden, LLC v. Walt Disney Co., 293 F. Supp. 3d 963 (N.D. Cal. 2018) (No. 3:17-cv-04006-JST).

[191] *Id.*

[192] Whelan Assocs., Inc. v. Jaslow Dental Lab., Inc., 797 F.2d 1222, 1224 (3d Cir. 1986).

[193] *Id.*

[194] *Id.* at 1225.

[195] *Id.*

[196] *Id.* at 1226.

The Third Circuit emphasized that "the copyrights of other literary works can be infringed even when there is no substantial similarity between the works' literal elements."[197] The court turned back to the idea/expression dichotomy, attempting to deliver a bright-line rule on the scope of literary protection to computer programs.[198] It reasoned that "the line between idea and expression may be drawn with reference to the end sought to be achieved by the work in question."[199] Under this test, the *Whelan* court concluded that because any number of structures could have been used in coding the program, no one structure was a necessary part of the program's purpose and idea.[200] Thus, Whelan's expression of the code was particular to her and therefore protectable under copyright law.[201]

Computer Associates International, Inc. v. Altai, Inc. attempted to narrow the *Whelan* test. Computer Associates International ("Computer Associates") designed "CA-Scheduler," a job scheduling program containing a subprogram called "Adapter."[202] Adapter was a completely integrated part of CA-Scheduler and could not function independently.[203] Altai began to market and sell its own job-scheduling program named "Zeke."[204] It poached one of Computer Associates' employees, who took copies of the source code for Adapter and used them to design Altai's new component program "Oscar."[205] Computer Associates sued for copyright infringement.[206]

The Second Circuit articulated its disapproval of Congress' decision to use copyright law to protect computer programs.[207] The court also expressed distaste with the doctrines other courts have developed in an effort to adhere to Congress'

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[197] *Id.* at 1234.

[198] *Id.*

[199] *Id.* at 1235.

[200] *Id.* at 1236.

[201] *Id.* at 1239.

[202] Comput. Assocs. Int'l, Inc. v. Altai, Inc., 918 S.W.2d 453, 454 (Tex. 1996).

[203] *Id.*

[204] *Id.*

[205] *Id.*

[206] *Id.* at 455.

[207] Comput. Assocs. Int'l, Inc. v. Altai, Inc., 982 F.2d 693, 696 (2d Cir. 1992).

intent.[208] Nevertheless, the Second Circuit is bound by Congress and therefore utilized a new, three-prong test, to determine the scope of copyright protection for computer programs.[209] At the first prong, the court would apply what is known as the abstractions test in order to "dissect the allegedly copied program's structure and isolate each level of abstraction contained within it."[210] This process begins with the code and ends with an articulation of the program's ultimate function."[211]

Once the court determines the levels of abstraction that contain protectable expression, it then applies the second prong: filtration.[212] Filtration is where the court "sift[s] out all non-protectable material" by applying copyright doctrines such as merger,[213] scènes à faire,[214] and public domain.[215] The merger doctrine filters out "those elements of a computer program that are necessarily incidental to its function and are therefore unprotectable."[216] Scènes à faire filters out standard structural elements that "[flow] naturally from considerations external to the authors creativity."[217] Similarly, imposing a public domain filter sifts out any remaining element that is unprotectable because it is available to the public as a whole.[218]

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[208] *Id.*

[209] *Id.*

[210] *Id.*

[211] *Id.*

[212] *Id.*

[213] *Id.* at 707. The merger doctrine is triggered "[w]hen there is essentially only one way to express an idea, the idea and its expression are inseparable and copyright is no bar to copying that expression." *Id.* at 707–08 (quoting Concrete Mach. Co. v. Classic Lawn Ornaments, Inc., 843 F.2d 600, 606 (1st Cir. 1988)).

[214] Comput. Assocs. Int'l, Inc. v. Altai, Inc., 982 F.2d 693, 709 (2d Cir. 1992). Scènes à faire are not copyrightable because it may be impossible to write about a historical event or fictional theme without certain stock or standard literary devices. *Id.*

[215] Material in the public domain is not protected by copyright, even when it is used in a copyrightable work. *Id.* at 710.

[216] *Id.* at 705.

[217] *Id.* at 715 (quoting 4 MELVILLE B. NIMMER & DAVID NIMMER, NIMMER ON COPYRIGHT § 13.03 [F][3] (Matthew Bender, rev. ed. 2018)).

[218] Comput. Assocs. Int'l, Inc. v. Altai, Inc., 982 F.2d 693, 710 (2d Cir. 1992).

After applying filtration, the court is left with what is actually protectable expression in the software.[219] The court may now apply the third prong: comparison.[220] In this prong "the court's substantial similarity inquiry would focus on whether the defendant copied any aspect of this protected expression, as well as an assessment of any copied portion's relative importance with respect to the plaintiff's overall program."[221]

It is unlikely that a court would find the CG characters as part of MOVA's unique expression in its computer programming language. The *Whelan* court granted broad protections to computer programs. However, what distinguishes *Whelan* from Rearden's claims is that Rearden is attempting to extend the copyright of its unique expression in MOVA to the software's outputs in the unique expression of the CG characters.[222] Under *Whelan*, Rearden will likely only retain its copyright in the programming language enabling MOVA to operate, not in the outputs created as a function of that software.

It is true that Rearden has a copyright registration number for MOVA, though it would seem farfetched that a court would find the copyright protection in the software itself to extend to its CG characters. Were a court to do so, copyright protection would be so broad that Microsoft, for example, could claim ownership in anything written on Microsoft Word. Such a rule would ultimately hinder the "progress of Science and the useful Arts"[223] because there would be no incentive to create original works if ownership were to be granted to the tools that enable conception.

Perhaps Rearden would have been more successful if it had argued that MOVA's end purpose was the CG character final output, as that is the heart of the *Whelan* test. Still, a court determining the purpose of any literary work is highly problematic. The *Whelan* test, although widely used, is also strongly criticized for its inaccuracy and the manipulation in which it asks the courts to engage.[224] *Whelan* dictates that a

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[219] *Id.* at 707–11.

[220] *Id.* at 710–11.

[221] *Id.* at 710.

[222] Complaint at 60, Rearden, LLC v. Walt Disney Co., 293 F. Supp. 3d 963 (N.D. Cal. 2018) (No. 3:17-cv-04006-JST).

[223] U.S. CONST. art. I, § 8, cl. 8.

[224] Rick Sanders, *Copyright Protections of APIs After Oracle v. Google: Poppin' A Whalen*, THE IP BREAKDOWN, (Aug. 20, 2012),

computer program's purpose is found in its idea—uncopyrightable subject matter.[225] However, it asks courts to determine everything in the software that may be "less abstract" than its purported idea, which would be deemed protectable expression.[226]

The *Computer Associates* test would not support Rearden's claims either. Under that test, the Second Circuit focused on whether the elements of a program could be excluded from protection rather than whether the elements themselves were protectable and illegally copied.[227] Rearden argues that MOVA, as a literary work, finds protectable expression in both its software, and the CG characters the software makes possible.[228] The company claims that the MOVA elements are protectable, whereas a court would focus on whether MOVA could be excluded from protection of the CG characters. This is likely why Rearden included both direct and vicarious infringement in its amended complaint.[229]

Rearden's strongest copyright claim derives from the source of the entire controversy—the intellectual property theft. The company claims that each time DD3 operated MOVA, whether for facial performance capture or for processing those captures into output works, the computers made an unauthorized copy of MOVA in their central processing units and random access memory.[230] Rearden correctly argues that each of these copies is a violation of its exclusive right to authorized copies of MOVA.[231] The court will likely rule in favor of Rearden on this claim because to reproduce and distribute copyrighted works is an exclusive right granted to copyright holders under the 1976 Copyright Act. DD3 operated and licensed MOVA unlawfully, consisting of a direct infringement on Rearden's copyright.

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http://ipbreakdown.com/blog/copyright-protection-of-apis-after-oracle-v-google-poppin-a-whelan/ (explaining the problem with the Whelan test as being overbroad).

[225] *Id.*

[226] *Id.*

[227] *Id.*

[228] Complaint at 60, Rearden, LLC v. Walt Disney Co., 293 F. Supp. 3d 963 (N.D. Cal. 2018) (No. 3:17-cv-04006-JST).

[229] First Amended Complaint at 59, Rearden, LLC v. Walt Disney Co., 293 F. Supp. 3d 963 (N.D. Cal. 2018) (No. 3:17-cv-04006-JST).

[230] *Id.* at 60.

[231] *Id.*

Nevertheless, this claim does not entitle Rearden to then claim copyright over the CG characters MOVA produces. Such rights would greatly broaden the scope of copyright protection to a point beyond the intent of Congress in protecting computer programs.

Rearden also alleges that Disney, Fox, and Paramount either directly or through entities subject to the film companies' direction and control contracted in bad faith, argues that the film studios are both vicariously and contributorily liable for DD3's infringement.[232] In order to prove vicarious copyright liability, Rearden must prove the students (1) had the right and ability to supervise the infringing conduct and (2) had a direct financial interest in the infringing activity.[233] Rearden contends that at all times Disney, Fox, and Paramount were in a position to police, supervise, and control DD3's actions.[234] The claim also alleges that the studios had actual knowledge of DD3's specific acts of infringement and by continuing production of the films using MOVA, "induced, caused and materially contributed" to DD3's infringement.[235] The studios answered by filing a motion to dismiss, but the court disagreed finding that the amended complaint sufficiently alleged the studios were in a position to police and monitor DD3's infringing conduct, including the ability to observe and evaluate the services DD3 was providing.[236]

Rearden also attempts to resurrect its previously losing argument to bolster its vicarious and contributory liability claims. Its amended complaint further alleges that for each facial capture session, the film studios supplied a director, acting as the studio's supervising agent, to control and direct DD3's use of MOVA by beginning and ending each capture session, starting and stopping each take, ordering DD3 to provide additional takes, and choosing

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[232] *Id.* at 60–63.

[233] Perfect 10, Inc. v. Visa Int'l Serv. Ass'n, 494 F.3d 788, 802 (9th Cir. 2007).

[234] First Amended Complaint at 60-63, Rearden, LLC v. Walt Disney Co., 293 F. Supp. 3d 963 (N.D. Cal. 2018) (No. 3:17-cv-04006-JST).

[235] *Id.* at 63.

[236] Kevin M. Littman, *When Can a Company Be Liable for Its Vendor's Copyright or Patent Infringement?: Hollywood Studios' IP Headache*, THE NATIONAL LAW REVIEW, https://www.natlawreview.com/article/when-can-company-be-liable-its-vendor-s-copyright-or-patent-infringement-hollywood (Aug. 20, 2018).

"selects" (the good takes) for further MOVA processing to create the Tracking Mesh and Captured Surface.[237] The complaint states:

> So extensive is Disney MPG's directors' supervision and control over the facial motion capture sessions performed by DD3, that defendants contend that the directors' contribution "is substantial and performs 'the lion's share of the creativity' in the facial motion capture," and that consequently the directors are the authors of the results of the facial motion capture.[238]

Although this may prove that Disney, Fox, and Paramount knew of DD3's infringement and acted in bad faith by contracting with DD3, it still does not provide any evidence that Rearden owns the final output of the CG characters. Rather, by directly linking the studios to infringement, Rearden only highlights its obvious financial interests in recouping lost profits from the unauthorized use of MOVA. However, Rearden will likely fail to establish a plausible and convincing link between MOVA and the CG characters it enables filmmakers to create.

VI. CONCLUSION

In its attempt to claim complete ownership of CG characters, Rearden has demonstrated predicting the future of copyright law will be difficult. Granting Rearden copyright ownership in MOVA-generated characters would recognize that MOVA has the requisite artificial intelligence to raise questions of so-called "robot-rights." "Robo-rights" and copyright law will undoubtedly have to find some common ground as technology progresses. Although no law currently grants ownership over software where no human input is present, *Torah Soft* gives rise to the inference that where the end-users input is marginal, the software *itself* may have the stronger copyright.

Rearden does not attempt to argue that MOVA can create and operate an original work of expression without human contribution. Rather, the core of Rearden's argument is that MOVA's programmers assign their rights to Rearden as works-for-hire, and therefore Rearden owns the characters. To be sure,

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[237] First Amended Complaint at 61, Rearden, LLC v. Walt Disney Co., 293 F. Supp. 3d 963 (N.D. Cal. 2018) (No. 3:17-cv-04006-JST).

[238] *Id.*

Rearden's programmers allow the software to function—but they are only part of the input. The other measure of input comes from the actors and directors, without whom the software is useless. MOVA is simply a tool that allows for the creation of believable and compelling characters. If Rearden's copyright ownership theory were to hold up in court, copyright law would be so broad that writers who created their novels on Microsoft Word, or artists who built songs in Logic, would not be the owners of their works. Whether Rearden can claim copyright in the characters as a literary work has yet to be decided. Though, seeing as MOVA is not responsible for a movie's script, nor is the technology credited with an actor's facial performance, it is unlikely that any court would extend Rearden's current copyright to MOVA's on-screen CG characters.

Rearden's vicarious and contributory liability claims survived the studios' motion to dismiss, and the case is now proceeding on the remaining copyright and trademark claims. Although not discuss extensively above, the copyright infringement risks when entering into a service agreement with a vendor are important to understand. Specially, it is important to know when a party may be liable for vicarious copyright infringement particularly if it is feasible to stop the infringing conduct and if the party obtains a financial benefit from the infringement. Rearden has footing on both grounds. The court held that the film studios could have observed the infringing conduct and directed DD3 to stop using the software, even without directly interacting with MOVA. Rearden's attempts to find a new frontier in copyright law are noble. Though, fighting for copyright ownership of the movie studios' CG characters appear more vengeful, like the *Beauty and the Beast* character Gaston, rather than Rearden appearing thoughtful like the character Belle.