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# Bitproperty and Commercial Credit

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# BITPROPERTY AND COMMERCIAL CREDIT

**CHRISTOPHER K. ODINET**[*]

ABSTRACT

*In the past several years, the growth of virtual property in today's economy has been explosive. The everyday use of virtual assets, ranging from Twitter and Facebook to YouTube and virtual world accounts, is nearly absolute. Indeed, by one account, Americans check social media over seventeen times per day. Further, a growing number of savvy virtual entrepreneurs are reporting incomes in the six- and seven-figure range, derived solely from their online businesses. Nevertheless, although the commercial world has come to embrace these newfound markets, commercial law has done a poor job of keeping up. Scholars have argued that laws governing everything from taxation, to bankruptcy, to privacy rights have not kept pace with our ever-changing virtual world. And nowhere is this truer than in the law of secured credit. Doubtlessly, virtual property has come to represent significant wealth and importance, yet its value as a source of leveraged capital remains, in large part, untapped. This unrealized potential is not without good reason; the law—specifically Article 9 of the U.C.C. and the law of property more broadly—suffers from a number of deficiencies and anomalies that make the use of virtual property in secured credit transactions not only overly complex and expensive, but almost entirely untenable. This Article shines light on these shortcomings, and, in doing so, advances a number of guiding principles and specific legislative recommendations, all geared toward a reformation of the law of secured credit in virtual property.*

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## INTRODUCTION

> *"We need to make sure people trust the technology on their desks and in their pockets. And people won't trust technology if they lose their rights when they hit the send button on an email. It's important that we find ways to preserve our values while advancing technology."*
>
> —Brad Smith, General Counsel, Microsoft Corporation[1]

Americans spend literally countless hours interfacing with virtual, or what one might call "bit" property.[2] Whether scrolling through one's Facebook newsfeed while waiting in the doctor's office or posting a picture to Twitter while riding the elevator to work, the ubiquity of virtual property's impact on everyday life is undeniable.[3] According to one study, in 2015 alone Americans checked social media seventeen times a day, totaling nearly two hours of social media interaction in a 24-hour period.[4] Not only this, but the number of users of virtual property is huge.[5] As of October 2016, there were 1.7 billion active Facebook users,[6] 73.5 million Pinterest users,[7] and over 695 million Twitter accounts.[8]

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1. Jeff Bennion, *Who Owns Your Email? An Interview With Brad Smith, General Counsel Of Microsoft*, ABOVE THE LAW (Aug. 18, 2015), http://abovethelaw.com/2015/08/who-owns-your-email-an-interview-with-brad-smith-general-counsel-of-microsoft/ [https://perma.cc/P6NX-78MQ].

2. The term "bitproperty" was most prominently used by Professor Joshua Fairfield to describe digital or virtual assets and the theory and concepts that underpin them. *See* Joshua A.T. Fairfield, *BitProperty*, 88 S. CAL. L. REV. 805, 841 (2015) ("The limits of cyberproperty theory demonstrate the need for well-conceived online property systems.").

3. *See* Maeve Duggan, Nicole B. Ellison, Cliff Lampe, Amanda Lenhart & Mary Madden, *Social Media Update 2014*, PEW RESEARCH CENTER (Jan. 9, 2015), http://www.pewinternet.org/2015/01/09/social-media-update-2014/; *Social Networking Fact Sheet*, PEW RESEARCH CENTER (Dec. 27, 2013), http://www.pewinternet.org/fact-sheets/social-networking-fact-sheet/.

4. *See* Jason Mander, *Daily Time Spent on Social Networks Rises to 1.72 Hours*, GLOBAL WEB INDEX (Jan. 26, 2015), http://www.globalwebindex.net/blog/daily-time-spent-on-social-networks-rises-to-1-72-hours [https://perma.cc/49D3-94WE]; *see also* Lulu Chang, *Americans Spend an Alarming Amount of Time Checking Social Media on Their Phones*, DIGITAL TRENDS (June 13, 2015, 6:32 PM), http://www.digitaltrends.com/mobile/informate-report-social-media-smartphone-use/ [https://perma.cc/T6EB-KYUT] (explaining that people in the United States check social media accounts seventeen times a day, and people in countries like Thailand and Mexico check their accounts up to forty times daily); NM INCITE & NIELSEN HOLDINGS N.V., STATE OF THE MEDIA—THE SOCIAL MEDIA REPORT 8 (2012) [hereinafter NIELSEN], http://www.nielsen.com/content/dam/corporate/us/en/reports-downloads/2012-Reports/The-Social-Media-Report-2012.pdf (explaining that the total minutes spent on social media apps like Facebook reach twenty-seven billion minutes a year).

5. *See* NIELSEN, *supra* note 4, at 8.

6. *See Facebook Company Statistics*, STATISTIC BRAIN, http://www.statisticbrain.com/facebook-statistics/ [https://perma.cc/LSJ8-FZRA] (last visited Oct. 8, 2016).

7. *See Pinterest Company Statistics*, STATISTIC BRAIN, http://www.statisticbrain.com/pinterest-company-statistics/ [https://perma.cc/5RHJ-5LU4] (last visited Oct. 8, 2016).

8. *See Twitter Statistics*, STATISTIC BRAIN, http://www.statisticbrain.com/twitter-statistics/

Perhaps because of their ubiquity, websites are tremendously valuable in many respects. Hardly any campaign, organization, or cause can claim even a shred of credibility without its own domain name.[9] Organizations spend a great deal of time, money, and human capital in determining the correct website name, branding, structure, and design.[10] In fact, some SEC rules even require that certain information be specifically disclosed on a corporation's website.[11] Similarly, political campaigns will often purchase a number of different domain names when preparing to enter a political race.[12] Some presence on the web, mostly through a website, is practically a prerequisite to relevance in today's economy.[13] The world of websites and their connected domain names is tremendous. At the end of 2013 there were a total of 271 million registered domain names, representing an increase of 18.5 million (or 7.3%) from 2012.[14] While not all of these domain names come with a heavy price tag, many cost a substantial sum.

[https://perma.cc/F738-KRG8] (last visited Oct. 8, 2016).

9. *See* Charles Jackson, *Importance of Having a Website*, HOUSTON CHRONICLE, http://smallbusiness.chron.com/importance-having-website-48042.html [https://perma.cc/S8HZ-N2DU] (last visited April 10, 2015).

10. For a discussion of the constant need to keep websites updated and responsive in order to be economically competitive, see Eric Fischgrund, *The Importance of Responsive Design for New Websites*, HUFFINGTON POST (Mar. 17, 2015, 4:27 PM), http://www.huffingtonpost.com/eric-fischgrund/the-importance-of-respons_1_b_6880800.html [https://perma.cc/ANR3-C6UK].

11. *See, e.g.*, 17 C.F.R. § 229.407(a)(2) (2016) (discussing disclosure by a corporation as to whether its definition of an independent director is on its website and provide a URL if it is).

12. Jackie Kucinich, *Presidential Campaigns Buy Up Domain Names for 'Microsites'*, USA TODAY (Aug. 8, 2012, 9:13 AM), http://usatoday30.usatoday.com/news/politics/story/2012-08-07/romney-microsites-domain-names/56863680/1; *see also Running for President? Better Name Your Website Domain Early*, N.Y. TIMES: FIRST DRAFT (May 4, 2015, 11:30 AM), http://www.nytimes.com/politics/first-draft/2015/05/04/running-for-president-register-your-domain-names-early/ ("A message to anyone considering a political campaign: buy your domain names. Every possible one. And do so early. The latest example of a candidate who did not secure a website URL: Carly Fiorina, whose failure to register carlyfiorina.org allowed a group to use that Web address to host a site critical of her tenure at Hewlett-Packard on the day she announced her candidacy. The domain was only registered in December, well after rumors about Ms. Fiorina's possible campaign had been circulating.").

13. *See, e.g.*, Kurt Schimmel, Darlene Motley, Stanko Racic, Gayle Marco & Mark Eschenfelder, *The Importance of University Web Pages in Selecting a Higher Education Institution*, 9 RES. HIGHER ED. J (2010), http://www.aabri.com/manuscripts/10560.pdf; *see also* Nicole Leinbach-Reyhle, *3 Reasons Websites Are Vital for Small Businesses*, FORBES (Sept. 29, 2014, 12:39 PM), http://www.forbes.com/sites/nicoleleinbachreyhle/2014/09/29/websites-for-small-businesses/; TOM ROSENSTIEL, AMY MITCHELL, KRISTEN PURCELL & LEE RAINIE, PEW RESEARCH CENTER, HOW PEOPLE LEARN ABOUT THEIR LOCAL COMMUNITY 22–28 (2011), http://www.pewinternet.org/files/old-media/Files/Reports/2011/Pew%20Knight%20Local%20News%20Report%20FINAL.pdf.

14. VeriSign, DOMAIN NAME INDUSTRY BRIEF, Apr. 2014, at 2, http://www.verisigninc.com/assets/domain-name-report-april2014.pdf.

For instance, Insurance.com and Sex.com both sold in 2010 for $35.6 million and $13 million, respectively.[15]

But virtual property extends beyond these platforms to even more complex models. For instance, the worlds of There.com, Second Life, World of Warcraft, and similar systems are immensely popular. With these platforms individuals can create their own virtual worlds—complete with mountains, fields, buildings, weather, and essentially anything the imagination can conjure—that work to turn the wheels of a digital economy.[16]

As time goes on the realm of virtual property continues to grow and develop in ways that could hardly have been imagined when the digital age first began. And along with this growth has come an increasing recognition of the tremendous value of virtual property.[17] Nevertheless, with traditional property law virtual property is a bit of a poor fit.[18] It is different from tangible property in that although its various parts—networks, cables, software, chips, servers, hardware, and other related technological items—all enjoy a level of physicality, the true value is not in these sundry parts, but rather in the intangible good and service that they can together produce.[19] Virtual property has a number of other unique aspects. For instance, its value and utility often rely upon the recognition of the thing's existence by other servers and users across a vast network

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15. *See* Alyson Shontell, *Million-Dollar URLS: The Most Expensive Domain Names of All Time*, BUSINESS INSIDER (July 22, 2014; 4:08 PM), http://www.businessinsider.com/most-expensive-domain-names-2014-7 [https://perma.cc/Z4AT-R5HW].

16. *See The Second Life of Judge Richard A. Posner*, NEW WORLD NOTES (Dec. 11, 2006), http://nwn.blogs.com/nwn/2006/12/the_second_life.html [https://perma.cc/9PWX-3XDW] (quoting Judge Posner, who says of the virtual world in Second Life: "If you buy an island, you have a counterpart to a physical property right; if you design a dress, you have or should have some kind of intellectual property right, if you want to motivate people to enter the world and transact in it.").

17. *See* Avnita Lakhani, *Introduction* to COMMERCIAL TRANSACTIONS IN THE VIRTUAL WORLD: ISSUES AND OPPORTUNITIES 3, 7 (Avnita Lakhani ed., 2014) [hereinafter COMMERCIAL TRANSACTIONS IN THE VIRTUAL WORLD] ("Despite the fact that there may be some key differences between real world and virtual economies, these virtual economies have proven to be very profitable for real world persons and have significant real world implications for commercial transactions and commercial law.") (footnotes omitted).

18. *See* Fairfield, *supra* note 2, at 839 ("Yet traditional property law has struggled to find secure footing online. Traditional property, a system designed through a long tradition of common-law deliberation to govern interests in scarce and rival resources, did not seem at the time of the rise of the Internet to be immediately applicable to an environment in which many resources were neither scarce nor rival. At that time, the critical application of Internet technologies seemed to be unlimited duplication of non-scarce and non-rival information, rather than the frictionless transfer of scarce and rival resources. As a result, intellectual property, the law governing non-rival resources, became the dominant structure for online assets. Yet this structure is enormously inefficient for those who prefer to own rather than license.").

19. *Id.*

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that can cover the globe.[20] For instance, a Facebook account is only valuable to the extent that the Facebook corporation's servers grant that account space and allow the user to upload and receive data.[21] The same can be said of Twitter. And surely Second Life accounts and other virtual world-platforms can only exist by computers talking to computers and sharing data and information through both wired and unwired channels.[22] Even when conceptualized as purely an intangible asset, the law of property struggles with how and when bitproperty can be bought, sold, bequeathed, or otherwise transferred from one person to another.[23] Is one free to alienate one's Facebook or Twitter account? And for that matter, does one even really own such a thing? Or rather does the host company grant a mere license of use that allows the individual to create a profile, post pictures, and manipulate his newsfeed, but only for so long as the host company allows it? Or perhaps it is a mixture of all of the above that makes virtual property what we know today.

In thinking about these questions, commercial and property law scholars have explored the complex world of bitproperty and how it might fit into existing legal schemes in the United States and abroad.[24] One topic, however, that has been little discussed by commercial law scholars and commentators is what were to happen if a user desired to collateralize his particular piece of virtual property.[25] Without question, virtual property is

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20. CHARLES PETZOLD, CODE: THE HIDDEN LANGUAGE OF COMPUTER HARDWARE AND SOFTWARE (2000).

21. *See id.*

22. *See generally* RON WHITE, HOW COMPUTERS WORK: THE EVOLUTION OF TECHNOLOGY (10th ed. 2015).

23. *See* Christopher J. Cifrino, *Virtual Property, Virtual Rights: Why Contract Law, Not Property Law, Must Be the Governing Paradigm in the Law of Virtual Worlds*, 55 B.C. L. REV. 235 (2014) (suggesting that contract law, not property law, is more competent to deal with virtual worlds).

24. *See generally* Fairfield, *supra* note 2, at 806 (theorizing digital property as an "information communication and storage system"); Jennifer Gong, Note, *Defining and Addressing Virtual Property in International Treaties*, 17 B.U. J. SCI. & TECH. L. 101 (2011) (suggesting a new international treaty be established to deal with virtual property and interests specifically); M. Scott Boone, *Virtual Property and Personhood*, 24 SANTA CLARA COMPUTER & HIGH TECH. L.J. 715 (2008) (applying Margaret Jane Radin's personhood theory to virtual world property); Victoria Blachly, *Uniform Fiduciary Access to Digital Assets Act: What UFADAA Know*, PROB. & PROP., July/Aug. 2015, at 8, 9 (discussing the Uniform Fiduciary Access to Digital Assets Act of 2014 and how it would "extend a fiduciary's authority over a person's traditional assets to include the person's digital assets"); Sandi S. Varnado, *Your Digital Footprint Left Behind at Death: An Illustration of Technology Leaving the Law Behind*, 74 LA. L. REV. 719 (2014) (proposing that both federal and state action is required to handle the numerous legal issues triggered by digital assets).

25. *See* Joshua A.T. Fairfield, *The End of the (Virtual) World*, 112 W. VA. L. REV. 53, 81–87 (2009) (providing one of the few scholarly discussions on the topic of virtual asset collateralization within the context of the bankruptcy of virtual worlds); *see also* Steven Chang, Note, *Collateral Damage:* In*security Assets in the Rising Virtual Age of E-Commerce*, 2 CASE W. RES. J.L. TECH. &

valuable[26]—and that is particularly true in the business and entrepreneurial sense: the context which concerns this Article. For instance, people use social media, surf the web, and spend time in Second Life on a regular basis[27]—and that presents an opportunity for businesses and entrepreneurs to engage with their potential customers through these mediums. The results of making use of this opportunity are valuable. Most of the value likely is tied to the ongoing nature of the virtual or online business (such as with a virtual shop in Second Life), but sometimes the use's value can be divorced from the business (such as with URL website addresses). Regardless, the value that a business gets from making use of these opportunities is value that businesses may want to borrow against on a securitized basis. To that point, what would happen if a lender, eager to extend credit but equally concerned with collateralizing the debt, wanted the virtual entrepreneur to grant a security interest in his Facebook account, Second Life account, or website domain name?[28] Could this be done? Should it be done? And, if it should, what body of law would apply?[29] Further, can such a task be effective against third parties and therefore give the creditor the legal preference upon which secured lending so heavily relies?

The most obvious contender to govern these types of transactions is the law in Article 9 of the Uniform Commercial Code (U.C.C. 9).[30] Since U.C.C. 9 covers personal property that is otherwise generally intangible, and since all virtual property meets this general definition, the provisions of this widely adopted statutory framework seem most appropriate. There is some argument to be made, however, that virtual property should not be able to be securitized. In other words, perhaps societal goals—such as

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INTERNET 67 (2011) (discussing virtual property security through the narrow lens of foreclosure and enforcement).

26. *See generally* COMMERCIAL TRANSACTIONS IN THE VIRTUAL WORLD, *supra* note 17 (discussing the immensely value that virtual transactions have come to represent in the digital economy).

27. *See supra* note 4.

28. *See* Brent R. Cohen & Thomas D. Laue, *Acquiring and Enforcing Security Interests in Cyberspace Assets*, 10 J. BANKR. L. & PRAC. 423, 433 (2001); Jonathan C. Krisko, *U.C.C. Revised Article 9: Can Domain Names Provide Security for New Economy Businesses?*, 79 N.C. L. REV. 1178, 1185–88 (2001).

29. *See generally* Adam Chase, *A Primer on Recent Domain Name Disputes*, 3 VA. J.L. & TECH. 3 (1998) (discussing recent disputes in domain names and how traditional legal principles were applied to these new areas of dispute); Paul J.N. Roy, John P. Brockland & John F. Lawlor, *Security Interests in Technology Assets and Related Intellectual Property: Practical and Legal Considerations*, 16 COMPUTER LAWYER, Aug. 1999, at 3 (discussing whether intellectual property law should apply to technology and technology-related companies).

30. *See generally* U.C.C. § 9 (AM. LAW INST. & NAT'L CONF. COMM'RS ON UNIF. STATE LAWS 2014).

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spurring creativity and challenging existing norms with an aim toward greater efficiency—may be frustrated by allowing virtual property to serve as collateral. This Article argues that such arguments are misplaced due to the fact that using U.C.C. 9 to facilitate this type of secured transaction furthers larger U.C.C. and public policy goals, such as increasing the flow of credit and augmenting the potential for economic growth and further innovation. By allowing for the collateralization of virtual property under U.C.C. 9 one can translate the value and uniqueness of these assets into further wealth and capital creation. Approaching virtual property from this perspective—rather than viewing it as being too idiosyncratic or singular to serve as collateral—furthers not only the purpose of U.C.C. 9 but is also aligned with the spirit of innovation that underpins bitproperty in general. As Margaret Jane Radin once posited, certain types of property—even while in large supply and abundant—can become so valuable to society that the underwriting of their "propertization" is warranted.[31] As discussed further below, virtual property fits that bill and conceptualizing it as property that can be used in secured credit transactions is more than merited.[32]

However, U.C.C. 9, much like the law governing property,[33] presents a number of issues when it comes to intangible assets,[34] and particularly virtual property. In general, one perfects a security interest in general intangibles merely by filing a financing statement in the jurisdiction where the debtor is located.[35] But when recognition of the collateral by third parties—both for its value and utility, as well as its very existence—is essential, does this generalized process suffice? Admittedly, there are other forms of intangible personal property that have required the creation of special rules that operate in conjunction or outside U.C.C. 9 in order for collateralization to be possible—such as with patents, copyrights, and other forms of intellectual property.[36] But in other cases where courts have been confronted with unusual forms of general intangible collateral—such

31. Margaret Jane Radin, *Property Evolving in Cyberspace*, 15 J.L. & COM. 509, 517 (1996).

32. *See infra* Part I and accompanying discussion.

33. *See* Fairfield, *supra* note 2, at 839.

34. *See generally* Christopher K. Odinet, *Testing the Reach of UCC Article 9: The Question of Tax Credit Collateral in Secured Transactions*, 64 S. C. L. REV. 143 (2012) (describing the difficulty experienced by courts when met with instances where parties have attempted to collateralize tax credits—a form of intangible property).

35. U.C.C. §§ 9-301, 307 (AM. LAW INST. & NAT'L CONF. OF COMM'RS ON UNIF. STATE LAWS 2014).

36. *See* Raymond T. Nimmer, *Revised Article 9 and Intellectual Property Asset Financing*, 53 ME. L. REV. 287 (2001) (describing revisions to secured lending law in order to facilitate IP financing).

as tax credits and a number of common place digital assets—they have adopted divergent views.[37] Further, the ability to use and enjoy many of the rights of virtual property is made possible by license agreements, which make creditor enforcement quite difficult.[38] In essence, the one-size-fits-all approach that U.C.C. 9 adopts with regard to general intangibles has never been particularly strong in a broad sense, and it is acutely weak with regards to virtual property.[39]

This Article explores the idea of virtual property as a form of security and challenges the effectiveness of current law in providing a legally sufficient vehicle for its collateralization. Part I gives an overview of the rise of virtual property, specifically highlighting the form, substance, and value of its major types. Part II discusses secured credit broadly, specifically under the U.C.C. 9 regime, and describes the law that currently governs the collateralization of general intangibles, including intellectual property, which is most analogous to rights in virtual property. After describing the U.C.C. 9 framework, Part III analyzes and critiques this system and points out its many insufficiencies when it comes to addressing bitproperty credit transactions. Lastly, Part IV sets forth guiding principles and makes specific recommendations for the development of a new legal framework that might be devised for virtual property in secured credit transactions. This Article concludes by arguing that the adoption of a new framework built upon these principles can improve and bring clarity and stability to the current legal uncertainty regarding the use of bitproperty in secured credit relationships.

## I. THE RISE OF BITPROPERTY AND ITS VALUE

One of the main reasons virtual property causes such vexation in the law is that traditional property concepts and even more modern commercial law institutions are ill-equipped to deal with it. Property, as a general proposition, adheres to a very conservative view of the world and prefers static and unchanging rules that provide certainty and stability in property-related transactions.[40] This is true particularly with respect to real

37. *Compare* Chicago v. Mich. Beach Hous. Coop., 609 N.E.2d 877 (Ill. App. Ct. 1993) *with* Kremen v. Cohen, 337 F.3d 1024 (9th Cir. 2003).

38. *See infra* Part III.A.

39. *See infra* Part III.

40. *See* Fairfield, *supra* note 2 at 810–11; *see also, e.g.*, Henry E. Smith, *Mind the Gap: The Indirect Relation Between Ends and Means in American Property Law*, 94 CORNELL L. REV. 959 (2009). As an example of property's sometimes rigid rules, take the example of the race recording system that exists in some American jurisdictions. Under this scheme a purchaser who knows the

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property, but also in the context of personal property as well.[41] Indeed, of all areas of the law, property is arguably one of the least dynamic and, for this reason, has been the subject of great scholarly debate regarding the foundational principles that underlie the system itself.[42]

In the face of this relatively immovable body of law, virtual property is an outsider. While it can be compellingly argued that it is a form of personal property, its intangible nature makes it hard to consistently apply simple rules to its use and alienability.[43] This is particularly true due to the fact that its value is inherently contingent and its ownership often uncertain because of the way it interfaces with contract concepts.[44] In order to better understand virtual property and its uneasy fit within the traditional property system, the following discussion focuses on virtual property broadly, and then gives an overview of some of its more salient examples.

### *A. Overview of BitProperty*

Before one can think about virtual property as a form of collateral, it is necessary to define what exactly virtual property is. Society often wants to think of virtual property as being spatial in that it takes up space and has some physicality, even if only in the most ethereal sense.[45] And to some extent, there is some truth to this notion of spatial existence. As one of the most noteworthy virtual property scholars, Professor Joshua Fairfield, notes, "a chat room is, in many ways, similar to a conference room; a URL

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property was already conveyed to another person can nevertheless become the owner of it (despite his bad faith) if he records his deed into the real estate records of the county before the first purchaser is able. *See* Ray E. Sweat, *Race, Race-Notice and Notice Statutes: The American Recording System*, PROB. & PROP., May/June 1989, at 27 (giving an overview of the recording statutes in the United States); *see also* McDuffie v. Walker, 51 So. 100 (La. 1909) (exemplifying the harshness of the rule that even a bad faith purchaser who records his deed first becomes the owner of the property).

41. *See generally* Thomas W. Merrill, *Property and the Right to Exclude*, 77 NEB. L. REV. 730 (1998) (discussing the importance of the power of exclusive dominion over all property, in all its forms, as being the cornerstone of ownership).

42. *See* John A. Lovett, *Progressive Property in Action: The Land Reform (Scotland) Act 2003*, 89 NEB. L. REV. 739, 743–52 (2011) (summarizing the property theory debate); *see also* THOMAS W. MERRILL & HENRY E. SMITH, PROPERTY: PRINCIPLES AND POLICIES 15–22 (2d ed. 2012). *See generally* Gregory S. Alexander, Eduardo M. Peñalver, Joseph William Singer & Laura S. Underkuffler, *A Statement of Progressive Property*, 94 CORNELL L. REV. 743 (2009) (setting forth the major tenets of the progressive property movement).

43. *See infra* Part III and accompanying discussion.

44. *See infra* Part III.A.3 (discussing issues relative to third party control and license rights).

45. *See* Joshua A.T. Fairfield, *Virtual Property*, 85 B.U. L. REV. 1047, 1066 (2005) (". . . [P]roperty rights in virtual property are emerging as the software networks take on new characteristics - those of actual spaces and objects").

is similar to real estate in the real world."[46] Other commentator notes that "most virtual property is deliberately designed to behave like traditional property."[47] Jeff Leblanc notes that "[v]irtual property is a non-tangible digital asset that meets many of the characteristics of more traditional forms of property."[48] In many ways virtual property is built upon basic property principles. As Judge Easterbrook noted in the late 1990s, "the law of cyberspace was no different than writing about the law of horses. There is no 'law of the horse.' The horse is just an animal governed by the laws that governed everything else."[49]

*1. A Techie's "Bundle of Sticks" Analogy*

In fact, one can, in some sense, describe virtual property very much through the lens of many traditional property concepts that are quite familiar to the property law canon. Professor Fairfield has famously described virtual property as having three defining characteristics: general rivalrousness, persistence, and interconnectivity.[50] Essential to understanding these concepts is to know something about the concept of "computer code" or, put simply, "code."[51] Code is a mode of communication between computer programs, which is often described as consisting of methods, data structures, and algorithms, that allow various parties to exchange information concisely and efficiently.[52] As one scholar put it, "[c]omputer source code is the lifeblood of the Internet. It is also the brick and mortar of cyberspace."[53] And without the computer to act as conduit, "source code is simply an array of symbols, letters, and

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46. *See id.*

47. Charles Blazer, Note, *The Five Incidica of Virtual Property*, 5 PIERCE L. REV. 137, 140 (2006).

48. Jeff W. Leblanc, *The Pursuit of Virtual Life, Liberty, and Happiness and its Economic and Legal Recognition in the Real World*, 9 FLA. COASTAL L. REV. 255, 256 (2008).

49. Greg Lastowka, *Paving the Path of Cyberlaw*, 38 WM. MITCHELL L. REV. 1, 1 (2011) (citing Frank H. Easterbrook, *Cyberspace and the Law of the Horse*, 1996 U. CHI. LEGAL F. 207).

50. Fairfield, *supra* note XX, at 1054.

51. *See generally* CHARLES PETZOLD, *supra* note 20 (describing the operation of computer code); NELL DALE & JOHN LEWIS, COMPUTER SCIENCE ILLUMINATED (5th ed. 2013) (giving further explication of source code and its role in data sharing).

52. *See* Bernard E. Nodzon, Jr., *Free Speech in a Digital Economy: An Analysis of How Intellectual Property Rights Have Been Elevated at the Expense of Free Speech*, 36 J. MARSHALL L. REV. 109, 116–117 (2002); *see also* Ryan Christopher Fox, *Old Law and New Technology: The Problem of Computer Code and the First Amendment*, 49 UCLA L. REV. 871 (2002) (describing the interaction of computer code with free speech concerns).

53. Jorge R. Roig, *Decoding First Amendment Coverage of Computer Source Code in the Age of YouTube, Facebook, and the Arab Spring*, 68 N.Y.U. ANN. SURV. AM. L. 319, 319 (2012).

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numbers."[54] The computer, however, in processing the code, can "monitor and control application programs running on the computer, to read other programs, and to manage data."[55]

In turning back to Fairfield's description of virtual property, he states that code can be rivalrous in that, if the programmer so wishes, the concept of exclusion can exist with virtual property.[56] If so designed, code that grants to someone a particular email address can only be accessed by that particular person.[57] No one else can have that exact email address.[58] A similar concept exists in the way of domain names.[59] A specific website's code is usually created once and cannot be replicated.[60] For instance, "[i]f person A owns a given internet address, person B cannot put her website up at that address."[61] This particular characteristic is incredibly similar to the fundamental right of exclusion that underpins traditional property theory.[62] The U.S. Supreme Court has often held that the right to exclude is the most universal and fundamental element of all property law.[63] As Professor Thomas Merrill, one of the great property scholars of the twenty-first century, states, "[T]he right to exclude is the *sine qua non* of property."[64] In other words, "[g]ive someone the right to exclude others from a valued resource . . . and you give them property. Deny someone the

54. John P. Collins, Jr., Case Note, *Speaking in Code*, 106 YALE L.J. 2691, 2694 (1997).

55. *Id.*; *see also* James J. Carter, Comment, *The Devil and Daniel Bernstein: Constitutional Flaws and Practical Fallacies in the Encryption Export Controls*, 76 OR. L. REV. 981, 997–99 (1997) (discussing how source code, which is readable by humans, is then translated into a binary code of numerals known as object code that only computers can read).

56. *See* Fairfield, *supra* note XX, at 1053–55.

57. *See id.* at 1054.

58. *See id.*

59. *See id.*

60. *See id.*

61. *Id.*

62. *See* Jerry L. Anderson, *Comparative Perspectives on Property Rights: The Right to Exclude*, 56 J. LEGAL EDUC. 539 (2006) (describing the right to exclude across legal systems); Eric R. Claeys, *The Right to Exclude in the Shadow of the* Cathedral*: A Response to Parchomovsky & Stein*, 104 NW. U. L. REV. 391 (2010) (expanding on the right to exclude as a theory of property); Gideon Parchomovsky & Alex Stein, *Reconceptualizing Trespass*, 103 NW. U. L. REV. 1823 (2009) (describing the right to exclude in the context of trespass actions); John A. Lovett, *The Right to Exclude Meets the Right of Responsible Access: Scotland's Bold Experiment in Public Access Legislation*, PROB. & PROP., Mar./Apr. 2012, at 52 (describing the limitations of the right to exclude under Scotland's land reform legislation).

63. *See, e.g.*, Kaiser Aetna v. United States, 444 U.S. 164, 180 n.11 (1979) ("As stated by Mr. Justice Brandeis, [a]n essential element of individual property is the legal right to exclude others from enjoying it." (quoting Int'l News Serv. V. Associated Press, 248 U.S. 215, 250 (1918) (Brandeis, J., dissenting))). For similar decisions by lower federal courts, see United States v. Pueblo of San Ildefonso, 513 F.2d 1383, 1394 (Ct. Cl. 1975); United States v. Lutz, 295 F.2d 736, 740 (5th Cir. 1961).

64. Merrill, *supra* note 41, at 752.

exclusion right and they do not have property."[65] In this way, virtual property shares this attribute. The exclusive ability to use one's email address, website domain name, Facebook account, or Twitter handle makes these items valuable to society. The fundamentals of the code creating these items prevent their duplication.[66]

Fairfield also describes virtual property as being persistent, in that is does not normally fade, decay, wear, or disappear through persistent use.[67] Once code is created, it theoretically lasts forever.[68] In other words, virtual property represents a form of nonconsumable in that regardless of how many times, how long, or by whom it is utilized, its substance will not be diminished or used up (although it may, like traditional property, change forms[69]). Fairfield compares this to a statue in a town square that, once erected, will ostensibly last forever and stand the test of time, absent other variables.[70] He also notes that virtual property's persistence characteristics are not spatially limited either.[71] The property can often be used and accessed at various different locales and through various vehicles, even at the very same time.[72] For instance, one can access a Twitter account on a smart phone, while someone else with the user name and password for that handle can also access the account on a laptop, both doing so at the same time and in different places.

Lastly, all virtual property is interconnected.[73] Just like how property in the real world can impact how other real-world property is experienced, multiple people can experience virtual property at the same time.[74] Fairfield uses the example of a website whereby although one person may have control over the content of the site and its design, countless others can view, interact with, and otherwise experience the website simultaneously.[75]

Putting these characteristics together, one can see how virtual property has the potential for incredible value, much in the same way and for the

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65. *Id.* at 730.
66. *See* Fairfield, *supra* note XX, at 1056.
67. *See id.* at 1054.
68. *Id.*
69. WALTER GREINER, LUDWIG NEISE & HORST STÖCKER, THERMODYNAMICS AND STATISTICAL MECHANICS 33, 41 (Dirk Rischke trans. 1995) (explaining the rule of conservation of energy that is derived from the first law of thermodynamics, stating that energy can be neither created nor destroyed, but can energy can change forms and may energy flow from one place to another.).
70. Fairfield, *supra* note 56, at 1054.
71. *Id.*
72. *See id.*
73. *See id.*
74. *Id.*
75. *See id.*

same reasons as traditional property. The rivalrous/exclusionary nature of virtual property allows, by design, a market for the sale, transfer, and use of the property to come into existence since the law, or rather the code, can be designed so as to prevent others from intruding into the owner's exclusive use of and dominion over the property.[76] Similarly, the persistence or perpetual aspect of virtual property allows the owner to invest in and expend resources on the digital asset—usually in an effort to increase its value or capacity—with the confidence of knowing that the property will remain constant.[77] And lastly, the interconnectedness of property allows others, aside from the owner or controller, to use, interact, and generally avail themselves of it and thereby create a marketplace and the accompanying demand that creates value.[78]

### 2. *A Poor Fit for Traditional Property Frameworks*

Nevertheless, there are a number of ways in which virtual property is *not* like traditional property. For instance, as Professor Fairfield notes, while some virtual property is rivalrous, it would be untrue to say that all share this characteristic.[79] Indeed, many forms of virtual property can be duplicated an infinite number of times if the code so allows.[80] Further, the very value of virtual property is inherently tied to computers talking with other computers. Without this form of cyber communication, the entire structure of the "property" at issue would be worthless and essentially nonexistent. In other words, the existence of the property depends entirely upon the act of one or more third parties, and the thing cannot maintain its existence without such acknowledgment. Moreover, the fact that many virtual assets are intertwined with rights under a license contract makes this type of property interest subject to many more contingencies than what is experienced with other, more traditional, assets.[81] Thus, the interconnectedness of virtual assets has more and different facets than seen in traditional tangible property.

76. *See id*.

77. *Id.*

78. *See id.* at 1055.

79. *See id.* at 1053.

80. Oliver Herzfeld, *What Is The Legal Status Of Virtual Goods?*, FORBES (Dec. 4, 2012, 1:09 PM), http://www.forbes.com/sites/oliverherzfeld/2012/12/04/what-is-the-legal-status-of-virtual-goods/.

81. *See* Fairfield, *supra* note XX, at 1050 n.6 ("[V]irtual property is governed under a regime where initial rights are allocated to intellectual property holders, and subsequent rights are governed by license agreements . . . .").

Further, the persistence of virtual property goes far beyond the persistence of tangible assets envisioned by Fairfield. While it is true that a statue in a town square will ostensibly last forever, in reality wear, tear, and decay will eventually play a role in diminishing the substance of the object. Virtual assets, on the other hand, truly can last forever because of the lack of physicality, and therefore corporeal deterioration.

### *B. The Matter and the Money of BitProperty*

In order to better understand the non-traditional nature and the incredible value of virtual property, the following sections provide a discussion of the nuts and bolts of a number of major categories of virtual property. Moreover, the following sections highlight the wealth and economic resources that these virtual assets both represent and produce.

#### *1. Website Domain Names*

The easiest virtual assets to start with are website URLs. Websites represent a virtual asset of enormous importance and value.[82] Essentially a website—or a domain name, more specifically—is the gateway to the Internet.[83] Without a domain name, one cannot achieve access to the many things the web has to offer.[84]

Although not quite a perfect analogy, the "landlord" for all domain names across the globe is a non-profit, semi-governmental entity known as the Internet Corporation for Assigned Names and Numbers (ICANN).[85] This organization, created under the corporate laws of the state of the California, basically regulates the functioning of the Internet.[86] Its most important task is to make sure the system for registering and tracking domain names is kept up to date and stable, in coordination with a number of domain name registrars. As Sprankling notes, "A domain name is essentially the address for a particular computer server, which functions as a portal by allowing all Internet users to interact with the content on that server."[87] Without ICANN's involvement, computers and servers would

82. *See e.g.*, Andrew Allemann, *Domain Holdings Reports $4.75 Million Domain Name Sales in Q1*, DOMAIN NAME WIRE (May 12, 2015), http://domainnamewire.com/2015/05/12/domain-holdings-reports-4-75-million-domain-name-sales-in-q1/.

83. *See* JOHN G. SPRANKLING, THE INTERNATIONAL LAW OF PROPERTY 89–90 (2014).

84. *See id.*

85. *See id.*

86. *See id.*; *see also* INTERNET CORP. FOR ASSIGNED NAMES & NUMBERS, https://www.icann.org [https://perma.cc/P88A-KMJH] (last visited June 9, 2015).

87. SPRANKLING, *supra* note 83, at 90.

not be able to communicate and share information with one another—essentially, there would be no Internet. Sprankling argues that, "[i]n a broad sense, ICANN effectively subdivides cyberspace and assigns rights to use portions of that 'space.'"[88]

Unlike many of the other forms of virtual property—whereby the company that owns the social media platform or the virtual world program is the sole regulator of that particular asset—domain names are somewhat privately and also somewhat publicly controlled.[89] ICANN, through a contract with the U.S. Department of Commerce, operates the Internet Assigned Numbers Authority that serves the role of domain name allocator and data keeper.[90]

The actual legal nature of domain names as a form of property, as articulated by Professor Sprankling, is somewhat unresolved.[91] On the one hand, some view them as mere contracts between ICANN and the user.[92] But a more favored approach, so argues Sprankling, is to consider them under the law of property.[93] In fact, at least one U.S. federal circuit court has held that a domain name is "an intangible property right" and has declared that such a right is similar to "staking a claim to a plot of land" and then recording title to it in a registry system to put others on notice.[94] Similarly, U.S. bankruptcy courts have held that rights in a domain name are deemed assets of the bankrupt estate.[95] In this way, domain names are quite similar to holding title to land, albeit intangible, and one might easily imagine how other aspects of property law—such as those involving encumbrances like mortgages and U.C.C. 9—might similarly be incorporated into this conception of the nature of domain names.

88. *Id.*

89. *See id.* at 80–90

90. *Id.* at 89

91. *See id.* at 90

92. *See* SPRANKLING, *supra* note 83, at 90. *See also* WARREN E. AGIN, BANKRUPTCY AND SECURED LENDING IN CYBERSPACE § 2:28 (2014) ("Possibly, the domain name registration is like a street address listing; the post office provides a mechanism for describing where you are and acknowledges that you are there, but exercises no control over your right to be there. Similarly, Verisign and other domain name registries' roles may be limited to operating Internet machinery and keeping track of which domain name is identified with which server. As a mere address, a domain name may have no real value because it does not constitute a property right."); Oppedahl & Larson v. Network Sols., Inc., 3 F. Supp. 2d 1147 (D. Colo. 1998) (taking a contract-based view of a domain name right); Dorer v. Arel, 60 F. Supp. 2d 558 (E.D. Va. 1999) (same).

93. *See* SPRANKLING *supra* note 83, at 90.

94. Kremen v. Cohen, 337 F.3d 1024, 1030 (9th Cir. 2003)).

95. *See, e.g.*, In re Larry Koenig & Assoc., LLC, Nos. 01-12829, 03-1063, 2004 WL 3244582, at *6–7 (Bankr. M.D. La. Mar. 31, 2004) (finding that the domain name is an asset that belongs to the debtor company).

When the Internet was first taking shape, most businesses and companies thought very little of domain names, and certainly did not think they were of any significant value.[96] That however, has changed dramatically over time.[97] Domain names go for big money, sometimes in the millions.[98] For instance, in 2015 adopting.com sold for $125,000 and mera.com sold for $132,000.[99] And with a bigger sticker price, 345.com sold for $800,000 and porno.com sold for $8.8 million.[100]

Further, it is not always the use of the domain name by a company that signifies its value. Rather, holding a domain name that someone else wants can, in and of itself, generate immense value.[101] To that end, a number of companies hold domain names for purely investment purposes. For instance, in 1998, Compaq Computer Corp. paid AltaVista Technology Inc. over $3 million for the domain name "Altavista.com."[102] AltaVista, a small company in the computer digital-imaging business, had registered the domain name before Digital Equipment Corporation developed its AltaVista search engine.[103] Domain names are sold and transferred from holder to holder by working with the individual ICANN-affiliated registrar with whom the domain name is connected.[104] Essentially, the process operates such that the registrar of the domain name transfers control of it from one holder to another, with often large sums of money being passed back and forth.[105]

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96. *See* AGIN, *supra* note 92, at § 2:23.

97. *Id.*

98. Melanie Cohen, *Sex.com Seeks to Sell Itself for $13 Million*, WALL ST. J. (Oct. 21, 2010), http://blogs.wsj.com/bankruptcy/2010/10/21/sexcom-seeks-to-sell-itself-for-13-million/ ("The bankrupt owner of Sex.com is seeking to sell the domain name to offshore holding company Clover Holdings Ltd. for a hot $13 million.").

99. *Six New Domains Complete Our Final 2015 Top 100 Domain Sales Chart*, DOMAIN INDUSTRY NEWS MAG. http://www.dnjournal.com/archive/domainsales/2015/2015-top-100-sales-charts.htm (last visited June 9, 2015).

100. *Id.*

101. *See* AGIN, *supra* note 92, at § 2:23.

102. Christopher S. Lee, *The Development of Arbitration in the Resolution of Internet Domain Name Disputes*, 7 RICH. J.L. & TECH. 2 (2000).

103. *Compaq Buys AltaVista Domain*, CNET (Aug. 11, 1998), https://www.cnet.com/news/compaq-buys-altavista-domain/. For a discussion of businesses that speculate in domain names in anticipation of big returns when the URLs come into high demand, see Malia Wollen, *Marijuana Web Names Snapped Up, in Case of Legalization*, N.Y. TIMES (Oct. 27, 2010), http://www.nytimes.com/2010/10/28/us/28pot.html; Saul Hansell, *Domaining: A Field Guide*, N.Y. TIMES (July 7, 2007, 6:13 PM), http://bits.blogs.nytimes.com/2007/07/02/domaining-a-field-guide/.

104. *Id.* at § 2:32.

105. *Id.*

### *2. Virtual World Accounts*

The newest—or at least the most dynamic—type of bitproperty comes from the virtual worlds. These are digital environments/communities where individual users "come to play, trade, create, and socialize."[106] These platforms allow individuals—typically through a computer customized graphic rendering known as an avatar—to form friendships, establish romantic relationships, purchase and sell property, build and construct improvements and terrains, engage in role play, participate in social networks, and essentially live out a part of their lives in an online reality.[107]

There are a number of virtual world platforms that vary in their content and gameplay.[108] But for purposes of this Article, the virtual world platform that best exemplifies the potential value of this particular type of bitproperty is that of Second Life.[109] Aptly named, it essentially embodies the idea of all the virtual world platforms—a place where one can go and be whatever they want, do whatever they want, and create a world around them that meets their whims and desires.[110] Second Life was developed and is owned by a company called Linden Labs, which launched the virtual world in 2003.[111]

The way the Second Life economy works is by allowing users to exchange money for various goods and services across the different worlds that comprise Second Life. For instance, one user may digitally

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106. F. Gregory Lastowka & Dan Hunter, *The Laws of the Virtual Worlds*, 92 CALIF. L. REV. 1, 3 (2004).

107. *Id.* at 5–6.

108. *Id.* at 5 (footnotes omitted) ("In South Korea, the game *Lineage* is currently more popular than television, with some four million registered participants. In the United States, *EverQuest*'s Norrath is the most popular virtual world, with over 440,000 subscribers at last count. *Ultima Online* and *Dark Age of Camelot* are serious competitors, having 250,000 and 200,000 participants, respectively."). For instance, *ourWorld* is a virtual world for teens that allows the user to create his own world by playing other users in a series of games. OURWORLD, http://web2.ourworld.com/ow/?env=home [https://perma.cc/U2AW-WUJT] (last visited May 26, 2015). In *Meez*, the user can explore different regions of a large, real-life neighborhood community and hangout and chat with other avatars. MEEZ, http://www.meez.com [https://perma.ccQZJ2-MTVM] (last visited May 26, 2015). For an entirely different experience, avatars in the form of knights, orcs, wizards, and other mythical creatures can battle, fight, and form relationships with one another in a large multi-player quest-centered virtual world known as the *World of Warcraft*. WORLD OF WARCRAFT, http://us.battle.net/wow/en/ [https://perma.cc/U6NY-P4WE] (last visited May 26, 2015).

109. *Who We Are*, LINDEN LAB, http://www.lindenlab.com/about (last visited May 30, 2015); *see also Terms of Service*, LINDEN LAB, http://www.lindenlab.com/tos [https://perma.cc/GB7V-QUER] (last visited May 31, 2015).

110. *See Living a Second Life,* ECONOMIST (Sept. 28, 2006), http://www.economist.com/node/7963538.

111. *See Who We Are*, *supra* note 109.

construct an elaborate structure (a castle, penthouse, villa, or other residential improvement) using their particular skill and creativity and can then put this structure up for sale.[112] The Second Life Marketplace website also provides a way to access the LindeX Currency Exchange system whereby the user can purchase or sell Linden dollars in exchange for real-world currency.[113] For instance, $1 U.S. dollar will purchase about 250 Linden dollars, taking into account a very slight exchange rate fluctuation.[114] If a user wants to sell Linden Dollars, they access the LindeX and then enter the amount of Linden dollars for sale.[115] The system will then match the seller with individuals who desire to purchase Linden dollars.[116]

It is worth noting that the Second Life economy is not insignificant. In 2014 alone, users "cashed out over $60 million . . . by selling their Linden Dollars for good old USD."[117] With about 600,000 active users, and assuming that about 20% of them are engaged in the buying and selling of goods and services on Second Life (and exchanging Linden dollars for U.S. currency), that equates to a "very very rough guess" of a $500 average payout.[118] According to Linden Lab's Chief Executive Officer in a 2015 interview, "[t]here's a woman in New Zealand who makes hundreds of thousands of dollars making hands and feet for avatars and feeds her family by doing that."[119] By another account, in 2009 one Second Life user "makes close to $1 million a year" making avatar shoes.[120]

The buying and selling of goods is not, however, the only way in which a Second Life user can monetize her virtual world experience. Users can

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112. *See Lawsuit Over Video Game Furniture*, 9 NO. 7 E-COMMERCE L. REP. 13 (2007); Elizabeth Townsend Gard & Rachel Goda, *The Fizzy Experiment:* Second Life*, Virtual Property, and a 1L Property Course*, 24 SANTA CLARA COMPUTER & HIGH TECH. L.J. 915, 926 (2008).

113. *Buy L$*, SECOND LIFE, https://secondlife.com (log in to Second Life account; then follow "Buy L$" hyperlink under "Linden Exchange" in the left column) (last visited May 30, 2015).

114. *See id.*; Grace Wong, *How Real Money Works in Second Life*, CNNMONEY (Dec. 8, 2006, 12:15 PM). http://money.cnn.com/2006/12/08/technology/sl_lindex/ [https://perma.cc/4pjg-t6x8].

115. *See Buy L$*, *supra* note 113; Wong, *supra* note 114.

116. *See Buy L$*, *supra* note 113.

117. James Au Wagner, *Second Life Content Creators Cashed Out $60M Last Year, Says Linden CEO*, NEW WORLD NOTES (May 20, 2015), http://nwn.blogs.com/nwn/2015/05/second-life-economy-feet-and-hands.html [https://perma.cc/XW8X-VSRG].

118. *Id.*

119. *See id.*

120. *Id.* ("Notably, Linden Lab also once reported that a maker of Second Life avatar *shoes* makes close to $1 million a year."); *see also* James Au Wagner, *Top Second Life Entrepreneur Cashing Out US $1.7 Million Yearly; Furnishings, Events Management Among Top Earners*, NEW WORLD NOTES (Mar. 24, 2009), http://nwn.blogs.com/nwn/2009/03/million.html [https://perma.cc/XSF2-53EV] (explaining that the top ten earners on Second Life include a company that "designs virtual goods including shoes").

also rent or acquire their own real estate.[121] The "land" itself merely represents space on the Second Life servers that individuals can come to acquire rights in for a limited duration.[122] But, practically speaking, within the virtual world this server space manifests itself as actual acreage. To acquire rights in land in Second Life, a user can "rent" the land from Linden Labs or from some other renter of land for a weekly or monthly price.[123]

One purpose of having land in Second Life is that it gives the user a place to customize her surroundings and make them look like whatever she desires.[124] One can "invite friends to hang out, hold events," and even build a "a house, a garden, or an entire forest."[125] But another purpose, and one that drives a large part of the Second Life economy, involves the selling or renting out of land by users to other users.[126]

Owners set a rental rate and through skillful marketing enter into term agreements with other users.[127] These tenant-users can then, in turn, sublet the land to other users.[128] In many ways, this system of estates in land is very much like the traditional English common law feudal system that gave birth to the United States' law of property.[129] Linden Labs, as the monarch, owns the actual land itself through its server space, but grants various rights to users (lords) who then rent those rights down to other users (vassals) and so on to others (farmers/peasants).[130] And interestingly,

121. *See* Glenn Setzer, *Second Life Businesses Can Rake in Some Surprising Profits and Participants*, MORTGAGE NEWS DAILY (May 16, 2007, 7:00 AM), http://www.mortgagenewsdaily.com//5162007_Second_Life_Real_Estate.asp [https://perma.cc/6VXB-VN9K].

122. *See Buying Land*, SECOND LIFE, https://community.secondlife.com/t5/English-Knowledge-Base/Buying-land/ta-p/700043 [https://perma.cc/9H2Q-4E94] (last visited May 30, 2015).

123. One can either rent land from other users, in the case of private island estates, or one can rent mainland directly from Linden Labs. *Id.* ("Instead of buying land, you can rent land . . . .").

124. *See id.*

125. *Id.*

126. *See id.*

127. *Id.*

128. *Id.*

129. *See* James Grimmelmann, *Virtual World Feudalism*, 118 YALE L.J. POCKET PART 126, 127–28 (2009) ("A tenant seised of land had sworn homage to the lord from whom he held. In exchange, the lord symbolically delivered the tenant into possession. Thereafter, the tenant owed the lord various services and feudal incidents, and in return the lord was obliged to defend his possession against outsiders to the relationship. Every element of this system maps cleanly onto Second Life. A user swears homage by clicking "I agree" to Linden's terms and conditions; Linden delivers her into possession by changing an appropriate database entry. She owes tier fees in place of feudal incidents; Linden defends her possession via software-based access controls."); *see also* 1 FREDERICK POLLOCK & FREDERIC WILLIAM MAITLAND, THE HISTORY OF ENGLISH LAW BEFORE THE TIME OF EDWARD I, 66–69 (Liberty Fund, Inc. 2d ed. 2010) (1898) (describing the English feudal system of land tenures); S.F.C. MILSOM, THE LEGAL FRAMEWORK OF ENGLISH FEUDALISM (1976) (further explaining the common law land system).

130. *See* Grimmelmann, *supra* note 129, at 127–28.

the economic substance of the feudal hierarchy is somewhat mirrored in the Second Life estates system.[131] Linden Labs generates a substantial profit through their real estate program, and some of the larger real estate holding users have become incredibly wealthy, in real life dollars, through the management of these virtual land assets.[132] One individual in particular, Anshe Chung, began "purchasing" land in Second Life in the early stages of the program's development and has become "the first video game player on the planet to become a millionaire by buying and selling virtual real estate."[133]

And many more users have come to use their Second Life real estate assets to supplement, or even serve as the primary source of, household income.[134] One man left a thirteen-year long job in 2009 at Merrill Lynch to devote all his work time to Second Life real estate development.[135] He pays Linden Labs $295 monthly for an island estate, which he subdivides into 16 distinct parcels (about $17 a piece).[136] He then rents out these individual parcels for between $24-25 dollars, making roughly over $100 profit for each island.[137] With over 150 islands, the income generated from this virtual real estate empire is significant.[138] He reports that he makes slightly less than his former salary of over $70,000.[139] Moreover, he and

131. *See id.*

132. *See* Glenn Setzer, *Is Virtual Real Estate More Than An Oxymoron?*, MORTGAGE NEWS DAILY (May 15, 2007, 7:00AM), http://www.mortgagenewsdaily.com/5152007_Virtual_ Real_ Estate.asp [https://perma.cc/J2V9-PZB6]; Benjamin Genocchio, *Flying Avatars Admire the Artwork*, N.Y. TIMES (Mar. 12, 2008), http://www.nytimes.com/2008/03/12/arts/artsspecial/ 12second.html; Bruce Sterling, *The Second Life Real-Estate Bubble Is Holding Just Fine, Thanks*, WIRED (Mar. 8, 2010, 5:00 PM), http://www.wired.com/2010/03/the-second-life-real-estate-bubble-is-holding-just-fine-thanks/ [https://perma.cc/NNL6-HDT6].

133. *See* Kruege, *Second Life: Cashing in on Virtual Real Estate*, G2G BLOG (Aug. 5, 2014), https://www.g2g.com/blog/second-life-cashing-in-on-virtual-real-estate/ [https://perma.cc/L9R2-EGEN]. For a look at Anshe Chung's total virtual asset portfolio, see http://anshechung.com [https://perma.cc/94YK-DTER].

134. *See* Michael S. Rosenwald, *Second Life's Virtual Money Can Become Real-Life Cash*, WASHINGTON POST (Mar. 8, 2010), http://www.washingtonpost.com/wp-dyn/content/article/ 2010/03/07/AR2010030703524.html ("As in physical reality, these land barons are few in number but generate a big chunk of the world's gross domestic product. The top 25 Second Life earners are mostly land barons, making a combined $12 million."); Rob Hof, *Second Life's First Millionaire*, BLOOMBERG BUSINESS (Nov. 26, 2006, 11:00 PM), http://www.bloomberg.com/news/articles/2006-11-25/second-lifes-first-millionaire; Setzer, *supra* note 121.

135. *Second Life's Real Estate Barons*, CNNMONEY (Mar. 17, 2010), http://money.cnn.com/ video/news/2010/03/17/n_real_estates_second_life.cnnmoney/.

136. *See id.*

137. *Id.*

138. *See id.*

139. *Id.*

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his business partner provide 24-hour client support, and employ a number of other users as sales agents and administrative support specialists.[140]

But, it is not just individual users who have plunged into the virtual real estate market. A number of well-known businesses have also invested in the Second Life land game. For instance, H&R Block rents land and opened a branch office in Second Life.[141] In fact, "[r]eal-life tax professionals in avatar form were available to answer questions for free during tax preparation season and Block was offering Second Life residents an opportunity to buy Tango[,] its new tax software[,] for $100 Linden Dollars. Off line it sells for $70."[142] Coldwell Banker, one of the largest real estate brokerage companies in the U.S., is also engaged in the selling of land and homes in Second Life.[143] Even academic institutions—such as the University of California-Davis, the Harvard Law School, and others[144]—have come to integrate virtual worlds into their curriculum.[145]

With such a broad scope of participants and such a substantial amount of money changing hands, virtual world accounts like those on Second Life are far more than mere video games. Rather, they comprise very real and economically significant digital assets.

### 3. *Social Media Accounts*

No discussion of virtual property would be complete without addressing social media. Social media accounts are, by one definition, "web-based services that allow individuals to (1) construct a public or semi-public profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3) view and traverse their list of connections and those made by others within the system."[146] The

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140. *Id.*

141. *See* Setzer, *supra* note 121.

142. *Id.*

143. Ashley Phillips, *Coldwell Banker Puts Real House on Second Life Block*, ABCNEWS (Aug. 2, 2007), http://abcnews.go.com/Technology/story?id=3437446.

144. *See, e.g.*, Michael Erard, *A Boon to Second Life Language Schools*, MIT TECH. REV. (Apr. 10, 2007), https://www.technologyreview.com/s/407667/a-boon-to-second-life-language-schools/ [https://perma.cc/K456-5YHA].

145. *Living a Second Life*, *supra* note 110; *see also* Grace Wong, *Educators Explore 'Second Life' Online*, CNN (Nov. 14, 2006, 5:45 PM), http://www.cnn.com/2006/TECH/11/13/second.life.university/; Jessica Shepherd, *Universities Discover Second Life*, THE GUARDIAN (May 8, 2007, 4:51 AM), https://www.theguardian.com/education/2007/may/08/students.elearning.

146. Sally Brown Richardson, *Classifying Virtual Property in Community Property Regimes: Are My Facebook Friends Considered Earnings, Profits, Increases in Value, or Goodwill?*, 85 TUL. L. REV. 717, 755 (2011) (quoting Danah M. Boyd & Nicole B. Ellison, *Social Network Sites: Definition, History, and Scholarship*, 13 J. OF COMPUTER-MEDIATED COMM. 210, 211 (2007)).

ability to store a high volume of digital assets and share them across limited or vast spectrums is what makes these services particularly attractive.[147] By one account, the total number of social media users is expected to reach over 2.34 billion by the end of 2016.[148]

Facebook is by far the most well known and most successful of all the social media platforms[149]—although Myspace came before it, Facebook has certainly defined what it means to live in the social media age.[150] Through Facebook, individuals create online profiles for both commercial and consumer purposes.[151] The platform allows users to send messages, upload files, share, and sometimes edit the posts of others, and generally distribute news and information across a robust, multi-faceted network.[152] As of November 2016, Facebook has over 1.7 billion active monthly users.[153] Facebook made its first public offering in 2012 with an initial market capitalization of $104 billion, and as of November 2016, Facebook reached a market capitalization of $371 billion.[154]

147. *See* Kristina Sherry, Comment, *What Happens to Our Facebook Accounts When We Die?: Probate Versus Policy and the Fate of Social-Media Assets Postmortem*, 40 PEPP. L. REV. 185 (2012).

148. *See Number of Social Network Users Worldwide from 2010 to 2020 (in Billions)*, STATISTA, http://www.statista.com/statistics/278414/number-of-worldwide-social-network-users/ [https://perma.cc/F564-UWTL] (last visited Nov. 9, 2016).

149. *See Statement of Rights and Responsibilities*, FACEBOOK, https://www.facebook.com/legal/terms [https://perma.cc/2BNQ-TEGQ] (last visited May 31, 2015).

150. *See* Adam Hartung, *How Facebook Beat MySpace*, FORBES (Jan. 14, 2011, 12:36 AM), http://www.forbes.com/sites/adamhartung/2011/01/14/why-facebook-beat-myspace/ [https://perma.cc/PK3T-5DUG]; Henry Blodget, *The 13 Secrets To Facebook's Success*, BUSINESS INSIDER (May 17, 2012, 11:31 AM), http://www.businessinsider.com/secrets-to-facebooks-success-2012-5; Miguel Helft, *Facebook Makes Headway Around the World*, N.Y. TIMES (July 7, 2010), http://www.nytimes.com/2010/07/08/technology/companies/08facebook.html; Mark Scott, *As Facebook Sweeps Across Europe, Regulators Gird for Battle*, N.Y. TIMES (May 25, 2015), http://www.nytimes.com/2015/05/26/technology/as-facebook-sweeps -across-europe-regulators-gird-for-battle.html.

151. *See* Sherry, *supra* note 147, at 199.

152. *Id.* at 199–200. One popular feature that Facebook offers is the ability to upload and share live streaming videos. These videos proved to be a tremendous resource during the attempted coup d'état in Turkey during summer 2016. *See* Jonathan Vanian, *The Coup Attempt in Turkey Will Be Livestreamed*, FORTUNE (July 15, 2016, 8:44 PM), http://fortune.com/2016/07/15/turkish-military-coup-facebook-live-twitter-periscope/ ("Television and cable news networks have traditionally broadcast live video of previous coups, such as the military uprising against Libyan Prime Minister Ali Zeidan in 2013, along with various wars like those in Iraq. But the advent of two popular live video streaming services like Facebook Live and Twitter's Periscope service have made it possible for people to film and share in real time the chaotic scenes of military roughing up citizens and people climbing on tanks.").

153. *Facebook Statistics and Facts* (Nov. 2016), DMR, http://expandedramblings.com/index.php/by-the-numbers-17-amazing-facebook-stats/ [https://perma.cc/BKW9-CBKB] (last visited Nov. 10, 2016).

154. *Facebook Market Cap*, YCHARTS, http://ycharts.com/companies/FB/market_cap (log in to YCharts account, search for time period including Nov. 1, 2016 on the above link) (last visited Nov. 10, 2016).

A similar social media platform is LinkedIn.[155] It represents the "world's largest professional network on the Internet"[156] and is often called "Facebook for Business."[157] Through its platform individuals create their own business/employee profiles and then make "connections" between themselves and others, usually with the aim of creating or solidifying business relationships.[158] The platform serves a number of other functions as well. It can help individuals find jobs and employment and can assist employers in evaluating potential job candidates.[159] The company was launched in May 2003, and a year later had roughly 175 million members.[160] As of September 2016, the company reports a total of 450 million users spanning across the globe,[161] adding two new users per second.[162] In early 2011, the company went public and shortly thereafter achieved a market value of 8.8 billion[163] and by 2016 earned a market capitalization of a little over $25 billion.[164] In 2016 Microsoft acquired LinkedIn for $26.6 billion, the largest acquisition in the tech giant's history.[165]

155. *User Agreement*, LINKEDIN, https://www.linkedin.com/legal/user-agreement [https://perma.cc/BZ7M-PJPQ] (last visited Oct. 10, 2016).

156. *See* Sherry *supra*, note 147, at 202.

157. Erik Qualman, *LinkedIn IPO on NYSE (LNKD) $3 Billion Valuation*, GOODREADS (May 9, 2011), https://www.goodreads.com/author_blog_posts/1190553-linkedin-ipo-on-nyse-lnkd-3-billion-valuation.

158. *Help Center*, LINKEDIN, https://help.linkedin.com/app/home [https://perma.cc/SAZ3-6VYG] (last visited May 26, 2015).

159. *See* Rebekah Campbell, *Why I Do All My Recruiting Through LinkedIn*, N.Y. TIMES: YOU'RE THE BOSS (Aug. 19, 2014, 7:00 AM), http://boss.blogs.nytimes.com/2014/08/19/why-i-do-all-of-my-recruiting-through-linkedin/; Leslie Kaufman, *LinkedIn Builds Its Publishing Presence*, N.Y. TIMES (Jun. 16, 2013), http://www.nytimes.com/2013/06/17/technology/sharing-business-insights-linkedin-builds-its-publishing-presence.html.

160. *See* Sherry *supra*, note 147, at 202.

161. *Statistics and Facts About LinkedIn*, STATISTA, http://www.statista.com/topics/951/linkedin/ [https://perma.cc/U7SA-WLWT] (last visited Sept. 21, 2016).

162. Craig Smith, *By the Numbers: 133 Amazing LinkedIn Statistics*, DMR, http://expandedramblings.com/index.php/by-the-numbers-a-few-important-linkedin-stats/ [https://perma.cc/XFD7-38LB] (last visited May 26, 2015).

163. Ari Levy & Lee Spears, *LinkedIn Retains Most Gains Second Day After Surging in IPO*, BLOOMBERG (May 20, 2011, 3:58 PM), http://www.bloomberg.com/news/articles/2011-05-18/linkedin-raises-352-8-million-in-ipo-as-shares-priced-at-top-end-of-range.

164. *LinkedIn Market Cap*, Y-CHARTS, http://ycharts.com/companies/LNKD/market_cap [https://perma.cc/FJ6J-XR7F] (log in to Y-Charts account, then search for date Sept. 22, 2016 at the link above) (last visited September 22, 2016).

165. Jay Greene, *Microsoft to Acquire LinkedIn for $26.2 Billion*, WALL ST. J. (Jun. 14, 2016, 12:58 AM), http://www.wsj.com/articles/microsoft-to-acquire-linkedin-in-deal-valued-at-26-2-billion-1465821523.

Yet another social media platform worthy of mention is Twitter.[166] Essentially, Twitter creates a space for small-scale blogging whereby the user posts—or "tweets"—messages (limited to 140-characters), uploads videos and images, and shares the posts of others along a continuously updating feed.[167] The company itself was created in 2006 and raised about $200 million through a venture capital offering in 2010,[168] then it went public in November 2013.[169] As of November 2016, Twitter had a market capitalization of $12.5 billion,[170] and in September 2016 Twitter has over 342 million active users.[171] Moreover, this is a wildly popular form of microblogging and instant communication, particularly for celebrities. Lady Gaga, for instance, was the most followed person on Twitter as of September 2013; in fact, with thirty-three million followers at the time, she was "gain[ing] followers faster than Twitter adds new accounts."[172] Moreover, Twitter's influence even extends to financial markets, as shown from a 2013 tweet by hedge fund manager Carl C. Icahn regarding his eagerness to purchase Apple stock, which resulted one hour later in a jump in Apple's market capitalization by nearly $17 billion.[173]

While perhaps not as obvious as with URLs and virtual world assets, simple aspects of social media accounts such as the number of "likes" one has on Facebook have been found to have tremendous value.[174] For instance, the court in *In re CTLI, LLC* ordered an insolvent business owner to transfer the user name and password of the Twitter account he used to promote his business to the reorganized company, comparing the

166. *Terms of Service*, TWITTER, https://twitter.com/tos?lang=en [https://perma.cc/RHT9-HWTM] (last visited May 31, 2015).

167. *See* Julia Angwin, *How to Twitter*, WALL ST. J. (Mar. 7, 2009, 11:59 PM), http://www.wsj.com/articles/SB123638550095558381.

168. *See* Alexei Oreskovic, *Twitter Financing Values Company at $3.7 Billion*, REUTERS (Dec. 15, 2010, 5:24 PM), http://www.reuters.com/article/us-twitter-idUSTRE6BE67M20101215 [http://perma.cc/P77V-53TC]; *see also* Mark Milian, *Twitter Gets $35 Million in New Venture Funds*, L.A. TIMES (Feb. 14, 2009), http://articles.latimes.com/2009/feb/14/business/fi-twitter14.

169. Victor Luckerson, *LIVE UPDATES: Twitter Goes Public*, TIME (Nov. 7, 2013), http://business.time.com/2013/11/07/live-updates-twitter-goes-public/.

170. *Twitter Market Cap*, Y-CHARTS, http://ycharts.com/companies/TWTR/market_cap (log in to Y-Charts account, then search for Nov. 1, 2015 on the link above) (last visited Nov. 10, 2015).

171. *See Twitter Statistics*, *supra* note 8.

172. Allison Stadd, *50 Twitter Fun Facts*, SOCIALTIMES, (Jan. 11, 2013, 12:00 PM), http://www.adweek.com/socialtimes/50-twitter-fun-facts/475073.

173. *See* David Carr, *Using Twitter to Move the Markets*, N.Y. TIMES (Oct. 6, 2013), http://www.nytimes.com/2013/10/07/business/media/using-twitter-to-move-the-markets.html .

174. *See* Christopher Hopkins, *Bankruptcy Court "Right-Swipes" Debtor's Property Interest in Its Social Media Accounts*, BANKR. BLOG (Apr. 21, 2015), http://business-finance-restructuring.weil.com/property-of-the-estate/bankruptcy-court-right-swipes-debtors-property-interest-in-its-social-media-accounts/ [https://perma.cc/32H3-H5WN] (describing the collateral value of social media accounts in bankruptcy proceedings).

followers list to a customer list and declaring it part of the bankruptcy estate.[175]

While Facebook and Twitter allow for a limited amount of video sharing, the last social media site worthy of mention here—YouTube[176]—is built entirety around video sharing.[177] Individuals can create accounts and post a seemingly limitless amount of video content—including television shows, music videos, blog clips, tutorials, and home movies—to YouTube, or, even without an account, browse an endless library of videos on almost any and every topic imaginable.[178] YouTube has over one billion users and, according to the company's estimates, 300 hours of new video are posted to YouTube every minute, with content available in 88 countries and available in 76 languages.[179] The company began in 2005, and over the course of the next year raised over $11 million in venture capital funding.[180] Then, in 2006, YouTube was purchased for $1.65 billion by Google, Inc. and has been operating as one of its most successful subsidiaries since.[181]

Importantly for purposes of thinking of YouTube as having collateral value, YouTube users can also make money from their accounts by joining a program known as YouTube Partners whereby the company "runs advertisements across partners' videos or makes them available for rent, then gives the 'majority' of ad-generated money to the Partners."[182] As long as the videos meet certain criteria (i.e., do not contain copyrighted music/material or inappropriate content), users can monetize their

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175. *See In re* CTLI, LLC, 528 B.R. 359, 366-67 (Bankr. S.D. Tex. 2015).

176. *Terms of Service*, YOUTUBE, https://www.youtube.com/static?gl=US&template=terms [https://perma.cc/LM6Y-MYQD] (last visited May 31, 2015).

177. *See* Sherry, *supra* note 147, at 203.

178. *See Help Center*, YOUTUBE, https://support.google.com/youtube/?hl=en#topic=4355266 (last visited May 26, 2015).

179. *Statistics*, YOUTUBE, http://www.youtube.com/yt/press/statistics.html [https://perma.cc/HX3N-5ZKG] (last visited May 26, 2015); Craig Smith, DMR, *145 Amazing YouTube Statistics* (Oct. 2016) (last visited Dec. 3, 2016), http://expandedramblings.com/ index.php/youtube-statistics/.

180. Miguel Helft & Matt Richtel, *Venture Firm Shares a YouTube Jackpot*, N.Y. TIMES (Oct. 10, 2006), http://www.nytimes.com/2006/10/10/technology/10payday.html ("Sequoia, which is among the most successful venture firms in Silicon Valley, invested a total of $11.5 million in YouTube from November 2005 to April 2006. It may be walking away with more than 43 times that amount. Its stake in YouTube has been estimated at roughly 30 percent, which would give it a value of $495 million.").

181. *See* Kevin J. Delaney, *Google Looks to Boost Ads with YouTube*, WALL ST. J. (Oct. 10, 2006, 12:01 AM), http://www.wsj.com/articles/SB116039852999986783; Tom Warstall, *Google's YouTube Ad Revenues May Hit $5.6 Billion in 2013*, FORBES (Dec. 12, 2013, 3:50 AM), http://www.forbes.com/sites/timworstall/2013/12/12/googles-youtube-ad-revenues-may-hit-5-6-billion-in-2013/.

182. *See* Sherry, *supra* note 147, at 203.

YouTube experience, with some users generating significant profits.[183] For instance, the YouTube channel Blogilates, run by fitness instructor Casey Ho, has garnered over three hundred ninety million views.[184] Through her channel she sells a number of fitness items such as gym bags and Pilates gear.[185] Through this and the YouTube Partners program, Ho states that she earns well over six figures a year in income.[186] According to a 2014 report, YouTube is estimated to be worth $40 billion, with a projected $8.9 billion in advertisement revenue in 2015.[187] While YouTube is certainly the most recognizable, other types of file sharing-centered platforms dominate the market, such as DropBox, Instagram, Flickr, and others.[188]

In conclusion, virtual property takes many forms—everything from Facebook accounts, to rights in virtual real estate, to owning one's own dot com—but the one thing they all have in common is that they are becoming a source of incredible wealth potential for business financing even though the contours of what exactly these assets represent are unclear. As such, it is only natural that, being of such value, they too will pique the interest of the financial sector as a viable and even desirable form of collateral. Indeed, property that commands such a significant market demand is precisely the type of asset that the policies behind U.C.C. 9 would support securitizing.[189] And because of this, bitproperty has a significant role to play as a source of borrowed capital.

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183. *See Monetization*, YOUTUBE, https://www.youtube.com/account_monetization?referrer=creator [https://perma.cc/Y538-B8JU] (last visited May 26, 2015).

184. *See* Alan Farnham, *More People Getting Rich Off YouTube*, ABCNEWS (Aug. 30, 2012), http://abcnews.go.com/Business/youtube-making-people-rich/story?id=17104798 [http://perma.cc/K4NA-ADW6] (discussing entrepreneurship via YouTube); *see also About* BLOGILATES (last visited Dec. 3, 2016), https://www.youtube.com/user/blogilates/about.

185. *See id.*

186. *Id.*; *see also* Brian Stelter, *YouTube Videos Pull in Real Money*, N.Y. TIMES (Dec. 10, 2008), http://www.nytimes.com/2008/12/11/business/media/11youtube.html; Will Wei, *Meet The YouTube Stars Making $100,000 Plus Per Year*, BUSINESS INSIDER (Aug. 19, 2010, 11:16 AM), http://www.businessinsider.com/meet-the-richest-independent-youtube-stars-2010-8; Felix Gillette, *On YouTube, Seven-Figure Views, Six-Figure Paychecks*, BLOOMBERG BUSINESSWEEK (Sept. 23, 2010, 4:00 PM), http://www.bloomberg.com/news/articles/2010-09-23/on-youtube-seven-figure-views-six-figure-paychecks; *How We're Cashing In On YouTube: Thousands Are Pulling in SIX-FIGURE Incomes with Home-Made Videos*, DAILY MAIL (Aug. 30, 2012, 7:40 PM), http://www.dailymail.co.uk/news/article-2196110/THOUSANDS-people-making-SIX-FIGURE-income-home-YouTube-videos.html.

187. *See* Garett Sloane, *YouTube May Be Worth Up to $40 Billion—More Than Twitter*, ADWEEK (Sept. 3, 2014, 3:03 PM), http://www.adweek.com/news/technology/youtube-may-be-worth-40-billion-more-twitter-159861.

188. *See generally* CARBONITE, INC., SYNCING UP WITH BUSINESS MOBILITY (2015), https://www.carbonite.com/globalassets/files-white-papers/carb-sync-share-whitepaper.pdf (describing file sharing and the connectivity of mobile devices through emerging IT infrastructure).

189. Melissa Bradford Springer, Note, *Perfecting a Security Interest in "Electronic Chattel Paper" Under Revised Article 9*, 31 U. MEM. L. REV. 491, 496 (2001) ("Many considered Article 9 'to

## II. CONVENTIONAL LENDING, SECURED CREDIT, AND INTANGIBLE COLLATERAL

Despite the unquestionable value that virtual property commands, the issue remains as to whether current law provides an adequate vehicle whereby such property can be collateralized. Certainly commercial policies and market forces would push for the legal flexibility needed in order to make such collateralization happen.[190] But, then again, the law of property has not always kept pace with changing commercial practices.[191] Rather, with its rigid rules and its tending toward constancy—combined with the unusual, amorphous, and non-traditional nature of virtual assets—it is difficult to imagine that traditional property law would neatly and clearly address these issues.[192] And this is equally true with regard to commercial law when it comes to digital property. Sometimes even the sophisticated frameworks of commercial law cannot keep pace with changing technological innovations.[193] The sections that follow explore the law that governs the ability to grant a security interest over personal property—the law of Article 9 of the Uniform Commercial Code—and explain how U.C.C. 9 struggles to deal with the collateralization of intangible assets.

### *A. U.C.C. 9 and Conventional Lending*

The availability of credit is a cornerstone of any economy.[194] A robust credit system turns the wheels of the market, specifically by allowing

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be the UCC's most innovative and important contribution.' Original Article 9 was first amended in 1972 to accommodate 'innovations in the structure and uses of secured credit.' As would be expected, during the twenty-eight years since Article 9 was first revised, the secured credit markets have experienced marked innovations and growth.").

190. *See id.* (discussing how innovations in commercial lending served as the impetus for the enactment of Article 9 of the Uniform Commercial Code).

191. *See, e.g.*, Odinet, *supra* note 34 (describing the struggle by courts in conceptualizing tax credits as a form of property-based collateral).

192. For a discussion of property law's historically fixed rules and rigid standards, see Yun-chien Chang & Henry E. Smith, *An Economic Analysis of Civil Versus Common Law Property*, 88 NOTRE DAME L. REV. 1 (2012); Roderick R.M. Paisley, *Real Rights: Practical Problems and Dogmatic Rigidity*, 9 EDINBURGH L. REV. 267 (2005); Joseph William Singer, *The Rule of Reason in Property Law*, 46 U.C. DAVIS L. REV. 1369 (2013); *see also* Rashmi Dyal-Chand, *Sharing the Cathedral*, 46 CONN. L. REV. 647, 682 n.186 (2013) (describing servitude law as being "full of 'rigid categories, silly distinctions, and unreconciled conflicts over basic values"' (quoting Susan F. French, *Servitudes Reform and the New Restatement of Property: Creation Doctrines and Structural Simplification*, 73 CORNELL L. REV. 928, 928 (1988))).

193. *See* Springer, *supra* note 189 (discussing the evolution of electronic chattel paper as a form of collateral).

194. Costantino Panayides, *The Federal Response to the Credit Crisis*, 28 REV. BANKING & FIN.

businesses to provide a variety of goods and services and by allowing consumers to avail themselves of such items.[195] Lenders, in turn, who provide credit, are allowed under the law to take a form of property interest called security in assets of the debtor in order to entice the lenders to extend credit.[196] In doing so, creditors are given a mechanism whereby they can reduce the risk of being unpaid in the event of a default and, as a result, will ostensibly agree to extend a larger volume of credit across the economy.[197] For instance, in the case of automobile credit markets, lenders are routinely advancing credit to less than creditworthy borrowers, based merely on the lender's ability to take a security interest in the vehicle being purchased.[198] The same principles operate with virtual businesses, particularly in the case of start-up companies with few tangible assets but with the potential for large economic gains through bitproperty development.

*1. Secured v. Unsecured Credit Generally*

That is not to say that all creditors require collateral in making a loan.[199] Large and established companies—particularly those that are publicly traded with a wide range of financial information available to the public—with significant assets, cash, and healthy credit histories are often advanced funds even without the provision of collateral.[200] While even these debtors can take a financial turn for the worse, creditors generally take the position that routine monitoring and reporting requirements are sufficient to guard against undue credit risk.[201]

But without a doubt a large number of majority of borrowers must post some form of collateral to secure their obligation to repay any funds

L. 13, 13 (2008) ("The United States federal government has always understood that the importance of credit is not limited to a purely economic function. As Senator Daniel Webster suggested over 170 years ago, the urgency for the country to keep afloat its credit system was as much of a concern for national security as it was for the economic health of the nation.").

195. *See* WILLIAM D. WARREN & STEVEN D. WALT, SECURED TRANSACTIONS IN PERSONAL PROPERTY 2–3 (2007).

196. *See* LYNN M. LOPUCKI & ELIZABETH WARREN, SECURED CREDIT: A SYSTEMS APPROACH, at xxxi (7th ed. 2012).

197. *See* Ronald J. Mann, *Explaining the Pattern of Secured Credit*, 110 HARV. L. REV. 625, 646 & n.74 (1997); Ronald J. Mann, *The Role of Secured Credit in Small-Business Lending*, 86 GEO. L.J. 1, 5–6 (1997).

198. *See generally* Jim Hawkins, *Credit on Wheels: The Law and Business of Auto Title Lending*, 69 WASH. & LEE L. REV. 535 (2012) (describing the lending patterns of auto financing companies).

199. *See* WARREN & WALT, *supra* note 195, at 2.

200. *See id.*

201. *See id. See also* Carl S. Bjerre, *Secured Transactions Inside Out: Negative Pledge Covenants, Property and Perfection*, 84 CORNELL L. REV. 305 (1999).

advanced.[202] Secured loans typically allow the borrower to receive more money and more favorable terms.[203] Usually this comes in the form of equipment, real estate, inventory, accounts receivable, or forms of instruments or investment property, such as stocks and bonds.[204] Of these, perhaps the most prominent are real estate-related loans whereby the credit obligation is secured by a mortgage or related security right over real property of the debtor.[205] In the event the borrower fails to make payments or otherwise defaults on his obligations, the creditor may have the property seized and sold pursuant to a public or private sale.[206] In the realm of personal property, inventory financing is the most prominent in asset-based lending.[207] Here, Wal-Mart, Best Buy, car dealerships, and other retail-related companies will use the proceeds from a loan to acquire a significant amount of inventory for sale to their customers. In exchange, the companies will grant a security interest in the acquired inventory in favor of their creditor to secure the obligation to repay.[208] This scenario plays out in many other business contexts as well.[209] Indeed, credit markets essentially depend upon the law of security rights.[210]

*2. Secured Credit Under U.C.C. Article 9*

As stated by Professor Grant Gilmore, one of the lead drafters of U.C.C. 9, "[u]ntil early in the nineteenth century the only security devices which were known in our legal system were the mortgage of real property and the pledge of chattels. Security interests in personal property which remained in the borrower's possession during the loan period were

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202. WARREN & WALT, *supra* note 195, at 3 (discussing the different types of secured and unsecured loans available to borrowers).

203. *Id.*

204. *See id.*

205. *See generally* GRANT S. NELSON ET AL., REAL ESTATE TRANSFER, FINANCE, AND DEVELOPMENT: CASES AND MATERIALS (8th ed. 2009) (describing the anatomy of a financed real estate transaction).

206. *See id.*

207. *See* WARREN & WALT, *supra* note 195, at 3; *see also* Mark B. Wessman, *Purchase Money Inventory Financing: The Case for Limited Cross-Collateralization*, 51 OHIO ST. L.J. 1283, 1303 (1990).

208. *See generally* Ford Motor Credit Co. v. Jackson, 47 So.3d 558 (La. Ct. App. 2010); Homer Kripke, *Inventory Financing of Hard Goods*, 74 BANKING L.J. 1013 (1957); Michael Allen Birrer, Note, *The Priority Battle Over Returned and Repossessed Goods: Inventory Financers Versus Chattel Paper Financers*, 44 VAND. L. REV. 1101 (1991).

209. Mann, *Secured Credit in Small-Business Lending, supra* note 197, at 11–18; *see also* Lynn M. LoPucki, *The Death of Liability*, 106 YALE L.J. 1, 14 (1996).

210. *See generally* WARREN & WALT, *supra* note 195 (describing the importance of secured lending in credit markets in a host of contexts).

unknown."[211] The borrower was always dispossessed of the property, which usually made the production of income impossible.[212] Later in the 1880s, two legal devices developed that allowed a limited way in which a creditor could obtain a non-possessory interest in the personal property of the debtor—these devices consisted of the conditional sale and the chattel mortgage.[213] However, both were problematic, confined to fairly simplistic transactions, and ineffective for more dynamic forms of property such as inventory or accounts receivable.[214] Later institutions arose—such as assignments of accounts, factoring liens, and trust receipts—to deal with these difficulties, but the rules governing them became complex and varied widely from state to state.[215] In essence, the law of secured transactions in personal property was imperfect, overly complex, and often economically limited.[216]

Starting in 1962, scholars and practitioners under the aegis of the Uniform Law Commission and the American Law Institute came together to produce a new unified statutory framework, significantly updated in 1999, that would simplify and replace the then-existing patchwork scheme of security devices so as to produce one clear, flexible, and modernized system for collateralizing personal property of any type.[217] This new system included a series of special rules that were triggered depending upon the type of property being sought as collateral.[218] It was called Article 9 of the U.C.C., and by many accounts, "Article 9, with its unitary concept, revolutionized the American law of secured transactions in personal property, and its success has influenced the law of Canada and other nations."[219]

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211. 1 GRANT GILMORE, SECURITY INTERESTS IN PERSONAL PROPERTY 24 (1965).

212. *See* WARREN & WALT, *supra* note 195, at 18.

213. *Id.* at 18; *see also* Thor W. Kolle, Jr., *Commercial Credit Law Letter*, 73 BANKING L.J. 366, 366 (1956); *see also* Note, *The Distinction Between the Conditional Sale and a Chattel Mortgage*, 36 HARV. L. REV. 740 (1923) ("if the contract gives a right of action upon the debt without passing title to the buyer, and if the debt is not extinguished by enforcing the security, the courts construe the agreement a chattel mortgage. On the side of the seller's duties, since one reclaiming goods under a chattel mortgage must sell at a foreclosure, and apply the proceeds, an agreement so providing is treated as a chattel mortgage. But an agreement imposing no such duty is looked upon as a conditional sale.").

214. WARREN & WALT, *supra* note 195, at 18.

215. *Id.* at 18–19.

216. *See id.*; *see also* Jason J. Kilborn, Note, *Securing Russia's Future: A Plea for Reform in Russian Secured Transactions Law*, 95 MICH. L. REV. 255 (1996) (describing the slow progress made by Russia law in dealing with security in personal property).

217. WARREN & WALT, *supra* note 195, at 19–20.

218. *See id.*

219. *Id*. at 20.; *see also* Margit Livingston, *Certainty, Efficiency, and Realism: Rights in Collateral Under Article 9 of the Uniform Commercial Code*, 73 N.C. L. REV. 115 (1994) (discussing

Broadly speaking, granting a security interest under U.C.C. 9 consists of a two-step process.[220] First, the security interest must become effective as between the creditor and the debtor. This process is called "attachment" and usually, although not always, requires the execution of a document setting forth the basic terms of the transactions, known as a security agreement.[221] The second step, known as "perfection," requires the security interest to be made effective against third parties.[222] Typically this is accomplished by filing an abbreviated version of the security agreement—called a financing statement—into an official U.C.C. registry for that state.[223] In doing so, the creditor ensures that in the event of a default by the debtor, it will be able to avail itself of the equity in the collateral in order to recoup its loss ahead of other competing creditors.[224]

### *B. Security in General Intangible Property*

The principal drafters of U.C.C. 9, specifically those involved in the 1999 revision, recognized the ever-evolving need to expand the scope of the law of secured credit to meet the changing needs and desires of parties to commercial and consumer transactions.[225] Without a wide-ranging and robust framework, U.C.C. 9 could over time become as uncertain and cumbersome as were the former rules.[226]

To that end, the drafters created a number of collateral-specific categories, ranging from equipment and inventory to instruments and investment property.[227] In most cases, parties use these broad categories to describe the collateral rather than overly detailing the particulars of the

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the benefits of the Article 9 system); Nimmer, *supra* note 36 (discussing advances in Article 9 to deal with intellectual property collateral); Timothy R. Zinnecker, *Scholarship on Revised Article 9*, 55 CONSUMER FIN. L.Q. REP. 168 (2001) (listing scholarly research and commentary on UCC 9's 1999 revision).

220. 8 WILLIAM D. HAWKLAND, UCC SERIES § 9-101:1 (2016) (giving an overview of UCC article 9).

221. *See id.* §§ 9-201 to 9-208.

222. *See id.* §§ 9-301 to 9-318.

223. *See id.* §§ 9-401 to 9-408.

224. *See id.* §§ 9-501 to 9-507 (describing the remedies upon default).

225. WARREN & WALT, *supra* note 195, at 20.

226. *See id.*; *see also* Stephen L. Harris & Charles W. Mooney, Jr., *A Property-Based Theory of Security Interests: Taking Debtors' Choices Seriously*, 80 VA. L. REV. 2021 (1994).

227. *See* Odinet, *supra* note 34, at 154–55; *see also* LESTER E. DENONN, SECURED TRANSACTIONS UNDER THE UCC 36-38 (rev. ed. 1965).

property in question.[228] The category with which this Article is most concerned is that of "general intangibles."[229]

Despite the great deal of specificity that U.C.C. 9 accords the various other categories, the definition of general intangibles is left quite open-ended.[230] Section 9-102(a)(42) states that this category consists of "any personal property, including things in action, other than accounts, chattel paper, commercial tort claims, deposit accounts, documents, goods, instruments, investment property, letter-of-credit rights, letters of credit, money, and oil, gas, or other minerals before extraction. The term includes payment intangibles and software."[231] In essence, the definition is residual and is meant to form a net into which collateral excluded from the other U.C.C. 9 categories may be caught.[232]

As the definition and the comments thereto bear out, U.C.C. 9 states that general intangibles include intellectual property as well as software.[233] Both are important in the context of understanding the collateralization of virtual property due to the fact that many forms or aspects of virtual property involve intellectual property rights (although there is great divergence among lawyers and commentators as to when rights are and are not intellectual property-related).[234] First, as a broad matter the way in which all general intangibles are collateralized (both for attachment and perfection) is fairly uniform.[235] The debtor, through the security agreement, grants an interest to the creditor in his general intangibles, and then the creditor files a financing statement describing the same in the U.C.C. records of the jurisdiction.[236] From U.C.C. 9's perspective, nothing else need be done.[237] However, the process is not quite as simple as the

228. *But see* Terry M. Anderson, Marianne B. Culhane & Catherine Lee Wilson, *Attachment and Perfection of Security Interests Under Revised Article 9: A "Nuts and Bolts" Primer*, 9 AM. BANKR. INST. L. REV. 179, 187 (2001) ("Whatever record the debtor adopts must contain a description of the collateral . . . [S]uper-generic descriptions like 'all personal property' will not be sufficient for security agreements.").

229. *See* U.C.C. § 9-102(a)(42) (AM. LAW INST. & NAT'L CONF. OF COMM'RS ON UNIF. STATE LAWS 2014).

230. *See* Odinet, *supra* note 34, at 154 (footnote omitted) ("This category was added last in the list of Article 9 collateral classes as a catch-all provision. Anything that does not fall under one of the other categories can, in most cases, be classified as a general intangible.").

231. U.C.C. § 9-102(a)(42).

232. *See* Odinet, *supra* note 34, at 154.

233. U.C.C. § 9-102(a)(42) .

234. See JAMES CHARLES SMITH, EDWARD J. LARSON, JOHN COPELAND NAGLE & JOHN A. KIDWELL, PROPERTY: CASES AND MATERIALS 233 (3d ed. 2013).

235. WARREN & WALT, *supra* note 195, at 363.

236. *See id.*

237. *Id.*

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law of secured transactions suggests.[238] Rather, the existence of a number of other laws—mostly federal—complicates the collateralization process.[239] Indeed, a number of secured transactions scholars have noted that these federal statutes were drafted without a thought given to how they might need to work in tandem with state law.[240] It is partly for this reason, in fact, that the ability to collateralize (or more specifically, to perfect a security interest in) bitproperty is so uncertain. The following sections briefly describe the process of collateralizing intellectual property under U.C.C. 9, pointing out the difficulties that arise in these transactions and the uneasy relationship between federal and state law in this arena. In doing so, this discussion points out the fractured and inconsistent ways in which U.C.C. 9 deals with general intangibles, and by extension more complex forms of intangible property like virtual assets.

### *1. Tensions in Copyright Law*

Copyrights, trademarks, and patents most prominently occupy the field of intellectual property.[241] However, despite the incredible value attached to these assets in today's economy, the law governing their collateralization remains incredibly confusing and somewhat uncertain—both for practitioners and courts.[242] A host of scholars have called for a reformation of the process of using intellectual property as security, generally to no avail.[243] An understanding of how courts deal with these issues is instructive in grasping the place of virtual property in the secured credit world.

Copyrights consist broadly of original works of authorship "fixed in any tangible medium of expression."[244] Importantly, copyrighted material need not be registered in order for it to be accorded the protections of copyright law.[245] Indeed, a great many copyrights are unregistered—

238. *See id.*

239. *See id.*

240. *See id.* at 363–64. *See generally* 15 U.S.C. §§ 1051–1127 (2012) (federal trademark law); 17 U.S.C. §§ 101–1332 (2012) (federal copyright law); 35 U.S.C. §§ 1–329 (2012) (federal patent law).

241. *See* Jonathan C. Lipson, *Financing Information Technologies: Fairness and Function*, 2001 WIS. L. REV. 1067, 1074.

242. *See id.* at 1093–1104.

243. *See* WARREN & WALT, *supra* note 195, at 364 (citing Shawn K. Baldwin, Comment, *"To Promote the Progress of Science and Useful Arts": A Role for Federal Regulation of Intellectual Property as Collateral*, 143 U. PA. L. REV. 1701 (1995); Patrick R. Barry, Note, *Software Copyrights as Loan Collateral: Evaluating the Reform Proposals*, 46 HASTINGS L.J. 581 (1995)).

244. 17 U.S.C. § 102(a).

245. *See* WARREN & WALT, *supra* note 195, at 364.

ranging from student research papers to amateur artwork.[246] However, in order to seek recourse against an infringer under certain laws a copyright must be registered with the United States Copyright Office housed within the Library of Congress.[247] But unfortunately the provisions of federal law and U.C.C. 9 state law have not always acted in harmony with one another. For instance, in the bankruptcy appeals case of *In re Peregrine Entertainment*, a California district court was confronted with whether the filing and perfection provisions found in U.C.C. 9 acted as an alternative to the federal Copyright Act's filing provisions, alongside the federal act, or were preempted by the federal law.[248] The court held that because "[t]he availability of parallel state recordation systems that could put parties on constructive notice as to encumbrances on copyrights would surely interfere with the effectiveness of the federal recordation scheme. . ." the U.C.C. 9 filing system for intellectual property is "preempted by the Copyright Act."[249]

This ruling, of course, can only apply to copyrights that are federally registered. For unregistered copyrights the Copyright Act does *not* provide a recordation scheme, thus the court in *In re World Auxiliary Power Company* held that U.C.C. 9 governs the filing process for these types of works.[250] A number of practical and unresolved issues arise in the gap between the two. For instance, what happens if a creditor perfects a security interest in an *unregistered* copyright under U.C.C. 9, and then, once the copyright is later *registered*, another creditor perfects a security interest in the registered copyright under the Copyright Act?[251] Which security interest prevails? Does the former's interest become unperfected upon federal registration? If the first creditor perfects under the federal scheme after registration takes place does its priority rank back to the state-level perfection? What is the status of the second creditor who perfected under the Copyright Act immediately after registration? The law provides no answers to these important questions and this has resulted in

246. *Id.*

247. 17 U.S.C. § 205(c) (providing priority to registered transfers of a copyright); *see also Copyright Registration and Enforcement*, STANFORD UNIVERSITY LIBRARIES (last visited Dec. 3, 2016), http://fairuse.stanford.edu/overview/faqs/registration-and-enforcement/ ("You must register your copyright with the U.S. Copyright Office before you are legally permitted to bring a lawsuit to enforce it.").

248. Nat'l Peregrine, Inc. v. Capitol Fed. Sav. & Loan Ass'n (*In re* Peregrine Entm't, Ltd.), 116 B.R. 194, 201 (C.D. Cal. 1990).

249. *See In re Peregrine Entm't* 116 B.R. at 201–02.

250. Aerocon Eng'g, Inc. v. Silicon Valley Bank (*In re* World Auxillary Power Co.), 303 F.3d 1120, 1132 (9th Cir. 2002);.

251. *See* WARREN & WALT, *supra* note 195, at 387.

many individuals being forced to register in multiple places and conduct searches under both systems (a process that can be both time-consuming and expensive).[252]

*2. Tensions in Trademark Law*

Trademark secured transactions also raise a number of issues. A trademark is "a distinctive mark, symbol, or emblem used by a producer or manufacturer to identify and distinguish that person's products from those of others."[253] One acquires a trademark under common law rules by simple application and use, but there are good reasons to also register one's trademark with the U.S. Patent and Trademark Office housed within the Department of Commerce, as well as with the applicable agency in one's home state.[254] Using trademarks as a form of collateral, however, is a wholly different matter. Although the federal trademark statute, the Lanham Act,[255] speaks to the *assignability* of registered trademarks as being a matter of federal law, it does not speak to the issue of security interests directly, as does the Copyright Act.[256] Under these facts then, one might think that transactions involving security rights in trademarks do not raise federal questions.

However, despite the similarities between copyrights and trademarks, the treatment of each in the context of the granting of a security interest is markedly (and most commentators would say insanely) different.[257] For instance, the court in *In re Together Development Corp.* addressed whether a *registered* trademark could be collateralized under U.C.C. 9's state law provisions, or whether a federal recordation scheme governed.[258] The court was persuaded that, because the history of the Lanham Act seemed to be geared toward dealing with sales of businesses (and their

252. *See id.* at 387.

253. *See id.* at 388 (citing Educ. Dev. Corp. v. Econ. Co., 562 F.2d 26, 28 (10th Cir. 1977)).

254. *Id.* at 388. For instance, registering a trademark with the federal government allows the holder of the mark to file a trademark infringement lawsuit in federal court for, among other things, damages and other monetary remedies. *See generally* GLYNN LUNNEY, CASES AND MATERIALS ON TRADEMARK LAW (2010).

255. 15 U.S.C. §§ 1051–1127 (2012).

256. WARREN & WALT, *supra* note 195, at 388; *see also* 15 U.S.C. § 1060.

257. *See* WARREN & WALT, *supra* note 195, at 392 (citing Alice Haemmerli, *Insecurity Interests: Where Intellectual Property and Commercial Law Collide*, 96 COLUM. L. REV. 1645 (1996); GILMORE, *supra* note 211, at 401.

258. *In re* Together Development Corp., 227 B.R. 439, 440 (Bankr. D. Mass. 1998).

accompanying trademarks)[259] and because Congress specifically addressed assignments *and security interests* in cousin-statutes, such as the Copyright Act,[260] but only *assignments* in the Lanham Act, recordation of a trademark security interest in the U.S. Trademark and Patent Office was not necessary.[261] Rather, one could simply perfect a security interest in a trademark under state U.C.C. 9 schemes.[262] In other words, registration or non-registration need not play a role. A host of other courts have taken this view as well, most lamenting the undesirable and inconsistent state of the law between copyrights and trademarks along the way.[263] Indeed, in many contexts the ability to assign one's rights is a prerequisite to granting a security interest at all.[264] Furthermore, many types of security instruments are denominated as "collateral assignments," particularly when dealing with intangible rights such as revenue or income streams.[265] Why the vernacular of commercial and property law failed to persuade the courts in their interpretation of the Latham Act and collateralizing trademarks remains a mystery.

### 3. *Tensions in Patent Law*

While trademarks can only be collateralized by filing under U.C.C. 9, registered copyrights can only be collateralized by filing under federal

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259. *Id.* at 441 ("First, its reference to the 'successor to the business' suggests Congress had in mind an outright assignment in the context of the sale of an entire business of which the trademark is a part.").

260. *Id.* ("Congress has expressly included consensual liens in the copyright recording system, thereby demonstrating its awareness of the possibility of such liens and its inclination to make manifest an intention to require their recording when that intention is present.").

261. *See id.* at 441–42.

262. *Id.* at 442.

263. *See* Joseph v. 1200 Valencia, Inc. (*In re* 199z, Inc.), 137 B.R. 778, 781–82 (Bankr. C.D. Cal. 1992); *In re* Chattanooga Choo–Choo Co., 98 B.R. 792, 796 (Bankr. E.D. Tenn. 1989); *In re* C.C. & Co., 86 B.R. 485, 486–87 (Bankr. E.D. Va. 1988); Roman Cleanser Co. v. Nat'l Acceptance Co. of Am. (*In re* Roman Cleaner Co.), 43 B.R. 940, 944 (Bankr. E.D. Mich. 1984), *aff'd* 802 F.2d 207 (6th Cir. 1986); Creditors' Comm. of TR-3 Indus., Inc. v. Capital Bank (*In re* TR-3 Indus.), 41 B.R. 128, 131 (Bankr. C.D. Cal. 1984).

264. Because the granting of a security interests is to transfer an interest in the property itself to the creditor, the able to "assign" rights in the property is essential. *See* ALEXANDER M. BURRILL, A TREATISE ON THE LAW AND PRACTICE OF VOLUNTARY ASSIGNMENTS FOR THE BENEFIT OF CREDITORS § 1 (New York, Baker, Voorhis & Co. Law Publishers rev. 6th ed. 1894) ("An *assignment* is a transfer or setting over of property, or of some right or interest therein, from one person to another. . ."); *see also Assignment*, BLACK'S LAW DICTIONARY (10th ed. 2014) (defining assignment as "[t]he transfer of rights or property").

265. *See* 3 RAYMOND T. NIMMER & DAVID OLIVERI, COMMERCIAL ASSET-BASED FINANCING § 22:39 (2016); 2 MICHAEL T. MADISON, JEFFRY R. DWYER & STEVEN W. BENDER, LAW OF REAL ESTATE FINANCING § 18:15 (2016); *see also Collateral Assignment*, BLACK'S LAW DICTIONARY (10th ed. 2014) ("An assignment of property as collateral security for a loan.").

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law, and unregistered copyrights can only be collateralized by filing under U.C.C. 9, the situation for collateralizing patents presents yet another complexity. A patent is "[t]he *right to exclude* others from making, using, marketing, selling, offering for sale, or importing an invention for a specified period (20 years from the date of filing), granted by the federal government to the inventor if the device or process is novel, useful, and nonobvious."[266]

The court in *In re Cybernetic Services, Inc.* was confronted with the question of whether a secured creditor must file his financing statement under state U.C.C. 9 in order to perfect a security interest in his debtor's patent or else perfect at the federal level.[267] Importantly, the U.S. Patent Act provides that "[a]n assignment, grant or conveyance shall be void as against any subsequent purchaser or mortgagee for a valuable consideration, without notice, unless it is recorded in the Patent and Trademark Office within three months from its date or prior to the date of such subsequent purchase or mortgage."[268] Again, the word *assignment* is used, as well as other words indicating that any kind of transfer of a property interest in a patent implicates the Patent Act (the word assignment would, under any property regime, include the granting of an encumbrance).[269] Surprisingly, however, the court held that the language in the federal statute describing "grants" and "conveyances" was meant to only include transfers of ownership, but not the granting of encumbrances, and also shockingly held that the use of the term "mortgagee" used later in the same sentence was meant only to deal with those who acquired ownership, curiously based on the title-theory of mortgages combined with a perplexing discussion of the absence of the terms "pledge" or "lien" in the Patent Act.[270] Thus, perfection of a security interest in a patent must take place under state U.C.C. 9 procedures, even though the statute itself seems to clearly embrace any and all types of transfers of property interests in patents from one party to another.[271]

266. *Patent*, BLACK'S LAW DICTIONARY (10th ed. 2014) (emphasis added); *see also* 35 U.S.C. §§ 101–103.

267. Moldo v. Mastco, Inc. (*In re* Cybernetic Servs., Inc.), 252 F.3d 1039, 1045 (9th Cir. 2001).

268. 35 U.S.C. § 261 (2012).

269. *Encumbrance*, BLACK'S LAW DICTIONARY (10th ed. 2014); U.C.C. § 9-102(a)(32) (AM. LAW INST. & NAT'L CONF. OF COMM'RS ON UNIF. STATE LAWS 2014) ("'Encumbrance' means a right, other than an ownership interest, in real property. The term includes mortgages and other liens on real property.").

270. *See In re Cybernetic Servs.*, 252 F.3d at 1053–55.

271. *See id.* at 1048–1057.

This case and others like it have caused uncertainty in the realm of security in patents.[272] For instance, the question of what happens when patent ownership and the granting of a security interest are intertwined remains open.[273] As Professors Walt and Warren describe in their seminal text, the temporal ordering of a debtor's transfer of ownership of a patent to a third party, a creditor's perfection of a security interest in the patent under U.C.C. 9, and the recording of the assignment documentation in the Patent Office raise a host of issues as to effectiveness and priority of claims—none of which are addressed by the court, U.C.C. 9, or federal law.[274]

The cases and discussion above regarding intellectual property collateral more than exemplify the poor state of the law in this area. As the noted commercial law scholar Professor Ronald Mann so appropriately expressed, the perfection system for certain intangible assets "is so ill-suited to modern commercial lending transactions that even well-counseled lenders on substantial transactions often find that it is not cost effective to comply with the system sufficiently to obtain a perfected security interest in their collateral."[275] Indeed, under such a fractured and confusing system, it is no surprise that the use of bitproperty in secured transactions is not legally certain

## III. FAILURES AND FUTURE SOLUTIONS FOR BITPROPERTY COLLATERAL

As noted above, in the context of intellectual property, U.C.C. 9 provides a weak and often confusing framework for the collateralization of virtual assets. Indeed, many aspects of more conventional intellectual property such as patents, copyrights, and trademarks are the subject of conflicting case law and scholarly views. Moreover, the ways in which state U.C.C. 9 law interacts with applicable federal law relative to each type of intellectual property asset is far from coherent or consistent.[276] Sometimes U.C.C. 9 is displaced by federal law and at other times federal law takes a backseat to state law recordation entirely. And frequently the

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272. *See* Pasteurized Eggs Corp. v. Bon Dente Joint Venture *(In re* Pasteurized Eggs Corp.), 296 B.R. 283 (Bankr. D.N.H. 2003); Ariel Glasner, *Making Something Out of "Nothing": The Trend Towards Securitizing Intellectual Property Assets and the Legal Obstacles that Remain*, 3 J. LEGAL TECH. RISK MGMT. 27, 27–29, 49–50 (2008).

273. WARREN & WALT, *supra* note 195, at 401–02.

274. *See id.*

275. Ronald J. Mann, *Secured Credit and Software Financing*, 85 CORNELL L. REV. 134, 153 (1999).

276. *See supra* Section II.B.

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rationale for the disparate treatment is hinged upon nuances that appear contrary to what the applicable statutory language would suggest and inconsistent with the goals of coherence, simplicity, and reducing transactions costs that are at the heart of commercial law generally.

### *A. Critique of U.C.C. 9's One-Size-Fits-All Approach to General Intangibles*

With that intellectual property background in mind, the following sections set forth U.C.C. 9's major structural weaknesses when it comes to specifically collateralizing virtual property in the context of general intangibles, including how these weaknesses have led to judicial confusion in the conceptualization of general intangibles more broadly. Because the drafters of U.C.C. 9 sought to create a unitary system for the collateralization of personal property—indeed, the beauty of the Article 9 system was that it replaced the otherwise patchwork quilt of state laws on security in personal property—the law envisions that all general intangibles share common attributes, or at the very least do not merit different treatment.[277] However, this is far from the truth. A number of assets, and particularly virtual property assets, are derived from the combination of a series of legal institutions and doctrines that do not lend themselves well to unitary treatment as merely a "general intangible."[278] This is particularly true since virtual property can be comprised of both IP and non-IP related rights. And, as explained below, the many diverse parts that comprise bitproperty's identity make U.C.C. 9's general intangible framework less than optimal.[279]

#### *1. Jurisprudential Confusion in Valuation*

This first problem is one that lies at the heart of the virtual property conundrum. Courts have difficulty understanding and conceptualizing intangible assets generally as a form of property and thus place them

277. *See* WARREN & WALT, *supra* note 195, at 18–21; *see also* Odinet, *supra* note 34, at 173–74 (discussing the problem of collateralizing other types of general intangibles, specifically tax credits, under Article 9's unified scheme).

278. *See* Krisko, *supra* note 28, at 1182 ("Case law descriptions of domain name rights will thus determine both the ability of these rights to serve as collateral and their collateral categorization under Revised Article 9.").

279. *See* Cohen & Laue, *supra* note 28, at 428 ("Domain names have been characterized as a combination of 'trademark, address and telephone number.' While this might be a handy analogy, it says little about the nature of the property rights embodied in a domain name." (quoting Chase, *supra* note 29)).

within the constellation of rights afforded to persons under property law—prominently of which includes the right to encumber.[280] Although, as discussed above, a number of courts have recognized that many intangible assets, including virtual assets, have real value and should be accorded the mantle of rights that come along with being classified as property, a number of other courts have not been as eager to make such a finding.

For instance, in terms of general intangible rights more broadly, courts have been extremely mixed on whether to recognize that items such as tax credits should be regarded as a form of property and thus made available for collateralization under U.C.C. 9. In *Chicago v. Michigan Beach Housing Cooperative*, the Illinois Court of Appeals was one of the first courts to address tax credits in secured transactions, and was faced with whether $780,000 in federal low-income housing tax credits could be collateralized as a general intangible under U.C.C. 9.[281] The court held that "income tax credits cannot be intangible personal property subject to a security interest under Article 9."[282] While the court noted that "no court has yet determined whether income tax credits constitute general intangibles for purposes of Article 9" the tax benefits derived from tax dedications and tax credits "have no value in themselves."[283] In support of its rationale, the court stated that "the economic benefit to the investor—the true 'tax benefit'—arises because the investor may offset tax deductions against income received from other sources or use tax credits to reduce the taxes otherwise payable on account of such income."[284] The court made the distinction between what it deemed to be property with real value—such as tax refunds, which constitute a right to receive a payment from the government—with property whose value is only derived from the ability to otherwise reduce monetary obligations due in the form of tax liability—like non-refundable tax credits.[285] The court declared, "[T]ax credits do not constitute a right to a payment of money, have no independent value, and are not freely transferable upon receipt."[286]

The court's ruling in the *Michigan Beach Cooperative* case is emblematic of a trend of judicial difficulty in conceptualizing intangible property rights. Contrary to what the court held, tax credits are quite

280. A.M. Honoré, *Ownership*, in OXFORD ESSAYS IN JURISPRUDENCE 107, 112–24 (Guest ed., 1961) (discussing the central pillars of ownership of property).

281. 609 N.E.2d 877 (Ill. App. Ct. 1993).

282. *Id.* at 885.

283. *Id.* (quoting Randall v. Loftsgaarden, 478 U.S. 647, 657 (1986)).

284. *Id.* (quoting *Randall*, 478 U.S. at 657).

285. *Id.* at 886.

286. *Id.*

valuable and can not only constitute a payment in money, but may also be transferred, all depending upon the type of credit.[287] In fact, some state tax credit laws require that the state repurchase the credits upon demand by the owner.[288] Moreover, once a taxpayer's liability is extinguished, any excess credits will often be refunded in the form of cash.[289] And lastly, there is a robust and active market for the buying and selling of transferable tax credits for everything from solar installations to the reconstruction of historic buildings.[290]

The court in *Michigan Beach Cooperative* also made note that credits have no "independent value."[291] However, this summation is just not true—or at the very least not so simple. Indeed, a host of economic theory literature exists explaining the nature of markets and property in the value inquiry.[292] For instance, the intrinsic or labor theory of value states that things are deemed to have inherent value based on the particulars of what comprises the object and what labor and materials went into bringing the thing into being.[293] As Adam Smith noted, "[t]he real price of every thing, what every thing really costs to the man who wants to acquire it, is the toil and trouble of acquiring it."[294] Might we consider that tax credits satisfy this definition? On the one hand, they certainly fail in the sense that physical labor is not involved because the thing is intangible. But on the other hand, a more expansive view would be that a great deal of human capital and expense went into, for instance, the housing development that ultimately produced the tax credits. Might this be within the contemplation of the theory and therefore sufficient to produce the court's need for "independent value"?

287. *See* Odinet, *supra* note 34, at 145–47.

288. *See, e.g.*, LA. STAT. ANN. § 47:6007(C)(4)(f)(i) (2016) ("Beginning on and after January 1, 2007, the investor who earned the motion picture investor tax credits may transfer the credits to the [office of entertainment industry development in the Department of Economic Development] for seventy-two percent of the face value of the credits. Beginning January 1, 2009, and every second year thereafter, the percent of the face value of the tax credits allowed for transferring credits to the office shall increase two percent until the percentage reaches eighty percent.").

289. Odinet, *supra* note 34, at 152.

290. *See id.* at 153.

291. *Mich. Beach Housing*, 609 N.E.2d at 886.

292. *See generally* RICHARD POSNER, ECONOMIC ANALYSIS OF LAW, ch. 1 (2007) (. . . [E]conomics is a powerful tool for analyzing a wide-range of legal questions . . ."); *see also* MAXWELL L. STEARNS & TODD J. ZYWICKI, PUBLIC CHOICE CONCEPTS AND APPLICATIONS IN LAW (2009) (describing the application of various economic theories to legal topics).

293. *See* G.A. Cohen, *The Labor Theory of Value and the Concept of Exploitation*, 8 PHIL. & PUB. AFF. 338 (1979).

294. ADAM SMITH, AN INQUIRY INTO THE NATURE AND CAUSES OF THE WEALTH OF NATIONS, bk. I, ch. V (1776), http://michaelatate.com/AdamSmith/b1c5.htm [https://perma.cc/M7MD-RMVT].

But on the other hand, intrinsic value may not be necessary at all. Rather, another option would be to view this intangible right through the lens of the subjective theory of value. This states that nothing, in fact, has independent value, but rather value is derived from the fact that humans desire it and there is a limited supply for it.[295] Something has value if the transferee wants the thing and is willing to give value for it in an amount that exceeds the value of the thing in the eyes of the transferor.[296]

If people are willing to pay for the acquisition of a service or a product, then the law should deem it to have value. If parties are willing to expend funds in acquiring tax credits—whether transferable, payable, or otherwise—then how can one say they do not have value? Similarly, virtual property only has value because people are willing to pay for it. Shoes made for avatars on Second Life and the ability to share information and news on a corporate Twitter account only have value because parties desire to purchase the shoes and follow or advertise through that account handle. The same can be said of the assets that the *Michigan Beach Cooperative* court would likely consider as having independent value—such as real estate, equipment, inventory, and other forms of traditional, tangible property.

Like with tax credits, courts have also struggled with whether to give virtual assets the status of property. In *Network Solutions v. Umbro International,* the court was confronted with whether a domain name was truly property in the legal sense.[297] That court rejected the outright classification of a domain name as a true form of personal property by stating that "a domain name registrant acquires the contractual right to use a unique domain name for a specified period of time [and] that contractual right is inextricably bound to the domain name services that [the provider] provides."[298] Rather than having any independent value, the rights to the domain name "do not exist separate and apart from [the provider's] services that make the domain names operational Internet addresses."[299] The court therefore concluded "a domain name registration is the product of a contract for services between the registrar and registrant," rather than a true form of personal property, and was therefore not subject to

295. *See* CARL MENGER, PRINCIPLES OF ECONOMICS 115 (James Dingwall & Bert F. Hoselitz eds., trans., The Free Press 1950) ("The value of goods, accordingly, is a phenomenon that springs from the same source as the economic character of goods—that is, from the relationship . . . between requirements for and available quantities of goods.").

296. *See id.* at 114–15.

297. 529 S.E.2d 80, 85 (Va. 2000).

298. *Id.* at 86.

299. *Id.*

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garnishment.[300] But courts have also gone the other way and found that virtual assets such as domain names are indeed property. For instance, the Ninth Circuit has held that a domain name is "an intangible property right" and holding such a right is similar to "staking a claim to a plot of land" and then recording such title into a registry system to put others on notice.[301]

Because of the way in which courts understand—or have difficulty understanding—intangible property, combined with the unitary fashion in which U.C.C. 9 contemplates collateralizing general intangibles, there have been inconsistent and differing views with regard to what types of rights actually form property rights and which do not. Some of this may lie with a fundamental deficiency in the way courts are thinking about economic value and what constitutes economic value, particularly the ways in which markets for property are formed and value is created. Instead of providing guidance, U.C.C. 9 is mostly silent on the issue of what types of rights fall into the general intangible category of

300. *Id.* (quoting Dorer v. Arel, 60 F. Supp. 2d 558, 561 (E.D. Va. 1999)). The court nevertheless recognized the similarities between a telephone number and a domain name, and that various courts have recognized a telephone number as being a true form of intangible personal property, and thus subject to garnishment. *See id.* at 87 ("The court in *Georgia Power Co. v. Security Inv. Properties, Inc.*, 559 F.2d 1321[, 1234] (5th Cir. 1977), found such a distinction. In discussing the principle that a bankruptcy court cannot exercise summary jurisdiction over property unless the debtor or trustee has actual or constructive possession of the property in question, the court observed that 'for a business, . . . telephone numbers constitute a unique property interest, the value of which increases as the number becomes widely known through publication in guidebooks, posting on billboards, and imprinting on publicity items.' . . . . The court then distinguished the property interest in such numbers 'from a subscriber's rights to the telephone utility's service.'").

301. Kremen v. Cohen, 337 F.3d 1024, 1030 (9th Cir. 2003). It is noteworthy to see the divergent views between the district and the appellate court in this Case. For instance, the district court stated:

> NSI contends that a domain name is a form of intangible property which can not serve as a basis for a conversion claim. The Court concurs. There is simply no evidence establishing that a domain name, including sex.com, is 'merged in or identified with' a document or other tangible object. *Thus, under the traditional precepts governing the tort of conversion, a domain name is not protected intangible property*. The Court recognizes that the present action invites abandoning the traditional strictures of conversion to encompass forms of intangible property never contemplated in its formation.

*Kremen v. Cohen*, 99 F. Supp. 2d 1168, 1173 (N.D. California 2000) (emphasis added) (footnote omitted). And then on appeal, the Ninth Circuit stated:

> The district court thought there were 'methods better suited to regulate the vagaries of domain names' and left it 'to the legislature to fashion an appropriate statutory scheme.' . . . . The legislature, of course, is always free (within constitutional bounds) to refashion the system that courts come up with. But that doesn't mean we should throw up our hands and let private relations degenerate into a free-for-all in the meantime. We apply the common law until the legislature tells us otherwise. And the common law does not stand idle while people give away *the property of others*.

*Kremen*, 337 F.3d at 1036 (emphasis added) (citation omitted).

http://openscholarship.wustl.edu/law_lawreview/vol94/iss3/7

collateral.[302] And it is perhaps due, in part, to this silence that a lacuna has developed in the law with regard to how new and non-traditional forms of property—such as virtual property—can be collateralized.

### 2. *Competing, Mixed, and Overlapping Legal Regimes*

The second major issue involves the fact that most forms of virtual property are comprised of a mixture of different legal regimes.[303] For instance, a domain name may consist of trademarks, copyrights, and non-intellectual property related rights.[304] Because of this mixed architecture—where the thing is comprised of a variety of legal concepts—there is no one certain method for perfecting a security interest in the virtual asset as a whole. As a result, there is often great difficulty in ascertaining exactly what and where a lender should file its applicable documentation in order to perfect the lien. Indeed, without the ability to bind third parties as to the existence and validity of the security interest in the virtual property itself, the security has little real value.[305] Under the U.C.C. 9 system, the process is rather clear.[306] The U.C.C. records are kept at the state level—usually by the secretary of state or, in the case of Louisiana and Georgia, with the various clerks of court in conjunction with the secretary of state—and interested parties can search these records to ascertain whether the property at issue is subject to the security rights of a creditor.[307]

However, when it comes to the intersection of virtual property and U.C.C. 9, a number of different registry regimes arise. For instance, a virtual asset, such as a domain name, might entail a number of different

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302. Dan L. Nicewander, *General Intangibles under Revised Article 9*, 54 CONSUMER FIN. L.Q. REP. 169 (2000) (discussing how the shaping of the contours of this Article 9 category have been by-and-large left to courts).

303. *Id.*

304. *See id.*; *see also* Fairfield, *supra* note 25, at 81–83.

305. *See* LOPUCKI & WARREN, *supra* note 196, at 277–79.

306. *See* Lynn M. LoPucki, *The Spearing Tool Filing System Disaster*, 68 OHIO ST. L.J. 281, 283 (2007) ("The function of the Article 9 filing system is to provide notice of prior security interests to those who consider taking subsequent ones (hereafter "searchers"). The holder of the prior interest gives notice by filing a "financing statement" in the Article 9 filing system.").

307. *See id.* at 281–86; U.C.C. § 9-501(a)(2) (AM. LAW INST. & NAT'L CONF. OF COMM'RS ON UNIF. STATE LAWS 2014); James A. Stuckey, *Louisiana's Non-Uniform Variations in U.C.C. Chapter 9*, 62 LA. L. REV. 793, 825 (2002) ("The Louisiana Secretary of State is not a 'filing office.' It accepts no filings of Uniform Commercial Code records, nor does that office perform searches. Instead, search requests are processed by the Clerks of Court and in Orleans Parish by the Recorder of Mortgages. This system has worked exceedingly well in Louisiana since its adoption in 1990. Louisiana has avoided the serious time delays encountered by states which have adopted pure central filing, with a solitary office handling all Uniform Commercial Code filings and searches in a state.").

intellectual property concepts.[308] The name of a website might be subject to trademark law when it is used in connection with a website that offers services to the public.[309] In such a case the creditor would use the U.C.C. 9 filing system since courts have held that the Lanham Act does not require or permit the perfection of security interests within the federal trademark scheme; rather, it leaves such topics to state law.[310] Similarly, what if the domain name and the accompanying website content together formed the collateral? The website content—logos, markings, and other materials—likely implicates a number of copyright considerations, which then turn on whether the copyright is registered for perfection purposes.[311] And lastly, there may be aspects of the domain name and the website that are neither covered under trademark law or copyright law—such as with customer lists and other logged customer information.[312] These other intangibles would fall into the more general U.C.C. 9 category and be subject to state-level perfection rules.[313]

The cost and time of dealing with multiple filing locations greatly undermines the commercial law goals of efficient and clear notice.[314] Moreover, what if one aspect of the virtual property bundle of sticks—for example, the copyright portion—is allowed to lapse? Does that make the entire security interest ineffective against third parties? Or does it only render a portion of the security in the virtual asset invalid? To that point, is it even possible to divide the security interest into different divisible parts when the asset itself is unitary? If the federal trademark protection related to the website fails for some compliance reason, does that mean the creditor is unperfected on the whole? This issue is particularly difficult when one considers how unlikely it might be that a creditor would know

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308. Cohen & Laue, *supra* note 28, at 428 (characterizing domain names as "a combination of 'trademark, address and telephone number'" (quoting Chase, *supra* note 29)).

309. *See id.* at 428–30.

310. *See supra* Part II.B.2.

311. Cohen & Laue, *supra* note 28, at 437–39.

312. *See* Fairfield, *supra* note 25, at 87–88 ("Virtual world creators gather enormous amounts of information about their customers both overtly and tacitly. Some of this is traditional personally identifiable information: credit card numbers, names, real-space and email addresses, birth dates (for purposes of screening children out of mature content), and telephone numbers for customer service purposes. Virtual world providers also gather and maintain logs of interactions and conversations within their worlds. Some maintain these logs for a very short time; others seem to have kept logs for years. For example, Linden Labs logs every commercial transaction within its virtual world, and in the *Bragg* case, it was able to produce records of conversations between players in virtual worlds that occurred years prior to litigation.").

313. *See id.* at 85–87.

314. *See* LOPUCKI & WARREN, *supra* note 196, at 285–86.

that copyright law is even involved in the collateralization of certain virtual assets.

If the purpose of commercial law is to provide a simple and coherent framework to effectuate the business and consumer choices of debtors and creditors, then this system of dual and sometimes conflicting filing certainly frustrates these goals. The cost and expense related to the initial filing and the monitoring and maintenance related to such filing can be tremendous, both in terms of dollars as well as human capital. Indeed, the system is a far cry from the U.C.C. 9's idyllic call to merely describe "all the debtor's general intangibles" and then be done with it.[315] Virtual property's mixed nature ill fits with the existing structure for collateralizing these types of assets.

*3. Anti-Assignment Clauses and Empty Enforcement*

Third, the concept that rights in virtual property are comprised chiefly of license entitlements creates another difficulty in making their collateralization both possible and valuable. While U.C.C. § 9-408 attempts to blunt the effects of anti-assignment clauses in license agreements, the actual rights that a creditor can take in such forms of property are quite weak and, in the end, undercut the very value that the secured party seeks to capture.

Terms and conditions agreements for Facebook,[316] Twitter,[317] LinkedIn,[318] YouTube,[319] and Second Life[320] all describe the relationship

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315. *See generally* Wilbur F. Foster, Jr., *Bank Account as Collateral: Deposit Account, Instrument, or General Intangible?*, 113 BANKING L.J. 718, 724 (1996) ("The court noted that under the Rhode Island UCC, a security interest in general intangibles is perfected by filing a financing statement in the office of the secretary of state.").

316. *Terms of Service*, FACEBOOK §§ 4.9, 18.6, https://www.facebook.com/legal/terms [https://perma.cc/4HRU-5PDN] (last visited July 14, 2015) ("You will not transfer your account (including any Page or application you administer) to anyone without first getting our written permission. . . . You will not transfer any of your rights or obligations under this Statement to anyone else without our consent.").

317. *See Terms of Service*, TWITTER § 5, https://twitter.com/tos?lang=en [https://perma.cc/RHT9-HWTM] (last visited July 14, 2015) ("Twitter gives you a personal, worldwide, royalty-free, non-assignable and non-exclusive license to use the software provided to you as part of the Services. This license has the sole purpose of enabling you to use and enjoy the benefit of the Services as provided by Twitter, in the manner permitted by these Terms.").

318. *User Agreement*, LINKEDIN §§ 3.4, 7, https://www.linkedin.com/legal/user-agreement [https://perma.cc/BZ7M-PJPQ] (last visited July 14, 2015) ("LinkedIn reserves the right to limit your use of the Services, including the number of your connections and your ability to contact other Members. LinkedIn reserves the right to restrict, suspend, or terminate your account if LinkedIn believes that you may be in breach of this Agreement or law or are misusing the Services (e.g. violating any Do and Don'ts). LinkedIn reserves all of its intellectual property rights in the Services. For example, LinkedIn, SlideShare, LinkedIn (stylized), the SlideShare and "in" logos and other

between the company and the user as being that of licensor and licensee and further provide clear prohibitions on assignments. Similarly, most domain name agreements also provide similar provisions[321] and ICANN has made no attempt to accommodate a system that recognizes the collateralization of domain names.[322] This information suggests that a business cannot offer its Twitter, Facebook, or Second Life account as collateral without the consent of the actual company providing the platform or service. And with so many users across the globe, it would be unlikely or even impossible to expect that a system could ever be established to allow for such consent. U.C.C. § 9-408, however, attempts to take care of these anti-assignment clauses by rendering them null. Any provision that attempts to prohibit the granting of a security interest in a general intangible is considered ineffective.[323]

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LinkedIn trademarks, service marks, graphics, and logos used in connection with LinkedIn are trademarks or registered trademarks of LinkedIn. Other trademarks and logos used in connection with the Services may be the trademarks of their respective owners. . . . You may not assign or transfer this Agreement (or your membership or use of Services) to anyone without our consent. However, you agree that LinkedIn may assign this Agreement to its affiliates or a party that buys it without your consent. There are no third party beneficiaries to this Agreement.").

319. *Terms of Service*, YOUTUBE §§ 4, 13, https://www.youtube.com/static?gl=US&template=terms [https://perma.cc/LM6Y-MYQD] (last visited July 14, 2015) ("YouTube hereby grants you permission to access and use the Service as set forth in these Terms of Service . . . These Terms of Service, and any rights and licenses granted hereunder, may not be transferred or assigned by you, but may be assigned by YouTube without restriction.").

320. *Terms of Service*, LINDEN LAB §§ 2.2, 4.1, http://www.lindenlab.com/tos [https://perma.cc/GB7V-QUER] (last visited July 14, 2015) ("Linden Lab hereby grants you a non-exclusive, non-transferable, non-sublicenseable, limited, personal, revocable license to access and use the Service on a personal computer, mobile phone or other wireless or internet-enabled device (each an 'Internet Device') as set forth in these Terms of Service and expressly conditioned upon you and each of your Accounts remaining active, in good standing, and in compliance with these Terms of Service. . . . You may not sell, transfer or assign your Account or its contractual rights, licenses and obligations, to any third party (including, for the avoidance of doubt, permitting another individual to access your Account) without the prior written consent of Linden Lab.").

321. *See, e.g.*, *Domain.com's User Agreement*, DOMAIN.COM §§ 22(a), 28(h), http://www.domain.com/legal/legal_useragreement.bml [https:perma.cc/3332-NQ2Q] (last visited July 14, 2015) ("Domain.com hereby grants to User a limited, non-exclusive, non-transferable, royalty-free license, exercisable solely during the term of this Agreement, to use Domain.com technology, products and services solely for the purpose of accessing and using the Services . . . User may not assign or transfer this Agreement or any of its rights or obligations hereunder, without the prior written consent of Domain.com. Any attempted assignment in violation of the foregoing provision shall be null and void and of no force or effect whatsoever. Domain.com may assign its rights and obligations under this Agreement, and may engage subcontractors or agents in performing its duties and exercising its rights hereunder, without the consent of User.").

322. *See* Cohen & Laue, *supra* note 28, at 428.

323. *See* UCC § 9-408(a) (AM. LAW INST. & NAT'L CONF. OF COMM'RS ON UNIF. STATE LAWS 2014) ("[A] term in . . . an agreement between an account debtor and a debtor which relates to a . . . general intangible, including a contract, permit, license, or franchise, and which term prohibits, restricts, or requires the consent of the . . . account debtor to, the assignment or transfer of, or creation, attachment, or perfection of a security interest in, the . . . general intangible, is ineffective to the extent

However, § 9-408 makes a rather hollow promise. Although the anti-assignment clause may be ineffective, U.C.C. 9 provides no way for the secured creditor to actually make use of the asset once a default has occurred.[324] The creditor will naturally want to take control of the virtual asset upon the debtor's default and, as soon as possible, move to dispose of it and produce funds to satisfy the debt. However, that is impossible under the current scheme.[325] Indeed, U.C.C. § 9-408 makes clear that the licensor need not pay the slightest attention to the creditor or its supposed rights.[326] What value does the creditor have in the asset if it cannot compel the licensor (i.e., Linden Labs, Facebook, YouTube, etc.) to recognize the creditor's security interest in the property? The creditor must instead wait and hope for a sale of the debtor-business in bankruptcy before it can avail itself of the value of the license.[327]

Further, the creditor, aside from being unable to make a disposition of the collateral, cannot itself make use of the virtual property.[328] If, for example, a company debtor that provided its inventory and general intangibles as collateral then defaulted, the creditor might be able to seize the inventory, but it would not be able to take control of the company's website or social media accounts under the theory that they are merely license rights.[329] Indeed, it might very well be possible for the debtor himself to continue using the virtual asset even after the creditor has seized the debtor's computers and other electronic equipment.[330]

Lastly, while U.C.C. 9 admits that in order to actually enforce a security interest in licensed property the consent of the licensor is necessary, this is almost never going to happen with virtual assets. The likelihood of a creditor getting Facebook's permission to have its security

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that the term: (1) would impair the creation, attachment, or perfection of a security interest; or (2) provides that the assignment or transfer or the creation, attachment, or perfection of the security interest may give rise to a default, breach, right of recoupment, claim, defense, termination, right of termination, or remedy under the . . . general intangible.").

324. *See id.*

325. *Id.* § 9-408(d).

326. *Id.* ex. 1 ("However, under subsection (d), the secured party (absent the licensor's agreement) is not entitled to enforce the license or to use, assign, or otherwise enjoy the benefits of the licensed software, and the licensor need not recognize (or pay any attention to) the secured party.").

327. Steven D. Walt, *Uncertainty About Free Assignment: Payment and General Intangibles Under Article 9*, 2 J. PAYMENT SYS. L. 4, 10 (2006) (discussing the shortcomings of the anti-assignment rule and its connection to the sale of the debtor in bankruptcy).

328. U.C.C. § 9-408(d)(4).

329. *See id.*

330. *Id.* § 9-408 ex. 1 ("Even if the secured party takes possession of the computers on the debtor's default, the debtor would remain free to remove the software from the computer, load it on another computer, and continue to use it, if the license so permits.").

interest recognized is slim to none. And even if a large company like YouTube, Linden Labs, or even ICANN were open to giving such consent, the time and resources that would be required in order to work through the complex bureaucracy and various levels of approval in the chain of command would make doing so economically unviable for many creditors.[331] Indeed, the promise of U.C.C. § 9-408's anti-assignment clause is mostly disappointing in practice.[332] And of course, if state law in a particular jurisdiction does not consider the virtual asset at issue to be, in fact, collateralizable property, then U.C.C. § 9-408 does not apply at all.[333]

### *B. Recommendations: Guiding Principles for Reform*

In considering the various issues that surround the use of bitproperty as collateral, current law is deficient. Even more one-dimensional types of intellectual property are not easily dealt with by U.C.C. 9, to say nothing of the complexities involved in virtual property that use a number of different IP and non-IP concepts to form the basis of assets like Twitter accounts, website domain names, and virtual world accounts.[334]

Nevertheless, changing the overly broad and ill-defined parameters of collateralizing virtual property under the heading of U.C.C. 9's "general intangibles" basket would of course be a complex undertaking. There are many different considerations that need to be taken into account, and creating a system that would contemplate securitizing virtual property involves the interests of a host of stakeholders. With that in mind, what follows is a series of principles and core recommendations that should guide any such legislative endeavor at future reforms in this area.

#### *1. A New U.C.C. 9 Collateral Category*

First and foremost, the time has come to specifically carve out a new collateral category under the U.C.C. 9 system for virtual property. At

331. *Cf.* A CASE FOR LENDER CONSENT, PACENOW, http://www.pacenation.us/wp-content/uploads/2015/06/A-Case-for-Lender-Consent.pdf (last visited Oct. 14, 2016) (discussing the difficulties in obtaining lender consent for PACE clean energy districts).

332. *See generally* 1 JAMES P. NEHF & JULIAN B. MCDONNELL, SECURED TRANSACTIONS UNDER THE UNIFORM COMMERCIAL CODE §§ 2C.04[3], 2C.05[4] (2013) (describing the anti-assignment clause and its practical limitations).

333. *See* LOPUCKI & WARREN, *supra* note 196, at 211; *see also* New Jersey v. United Trust Bank (*In re* Chris-Don, Inc.), 367 F. Supp. 2d 696, 701–02 (D.N.J. 2005) (holding that a liquor license did not constitute property, and therefore was not subject to the anti-assignment provisions of U.C.C. § 9-408).

334. *See supra* Part I.B.

various times in the past lawmakers and policy leaders have taken heretofore unspecified types of property and, due to market demand and changing economic forces, carved out new categories.[335] Indeed, this is exactly what happened with health-care receivables.[336] Prior to the 1999 revision these types of intangible rights were covered under the broad rubric of "general intangibles."[337] However, over time it became clear that a more circumscribed framework was necessary for payment rights in connection with healthcare services, particularly where those providers are paid through Medicare or Medicaid.[338] The reason was because federal regulations provide anti-assignment rules that no one is allowed to receive Medicare or Medicaid payments other than the individual institution providing the care or service—language that would exclude the healthcare provider's creditors from taking the funds.[339] Due to this problem it was necessary for the U.C.C. drafters to come up with a way to work around these limitations, which they did in the 1999 revisions to Article 9.[340]

But healthcare receivables were not alone in the 1999 revision. The drafters also added commercial tort claims, deposit accounts, electronic chattel paper, letters of credit, and other forms of collateral that had come to require more specialized rules to reflect the realities of commercial practice.[341] To that end, U.C.C. policymakers should also realize that the

335. *See* Cynthia Grant, *Description of the Collateral Under Revised Article 9*, 4 DEPAUL BUS. & COMM. L.J. 235 (2006); *Changes to UCC Article 9 Effective July 1, 2013*, CREDIT TODAY (July 2012), http://www.credittoday.net/public/Changes-to-UCC-Article-9-Effective-July-1-2013.cfm [https:// perma.cc/79HD-G8EF]; Kenneth P. Weinberg, *Property and Transactions Subject to Collateral Categories Under Article 9*, MONITOR DAILY (Mar./Apr. 2011), http://www.monitordaily.com/article-posts/property-transaction-collateral-categories-under-article-9/ [https://perma.cc/C9MN-EKJQ].

336. *See* Donald J. Rapson, *"Receivables" Financing Under Revised Article 9*, 73 AM. BANKR. L.J. 133, 135 (1999).

337. *See id.*

338. *See* Amy Strang, *Health Care Financing: Security Interests in Deposit Accounts Containing Medicare/Medicaid Receivables*, BANKING & FIN. L. REP. (Mar. 20, 2012), http://www.bankingandfinancelawreport.com/2012/03/articles/bank-lending/health-care-financing-security-interests-in-deposit-accounts-containing-medicaremedicaid-receivables/.

339. *See* 42 U.S.C. § 1396a(32) (2012).

340. *See generally* Charles E. Harrell & Mark D. Folk, *Financing American Health Security: The Securitization of Healthcare Receivables*, 50 BUS. LAW 47 (1994) (discussing the collateralization of healthcare receivables under the U.C.C. and federal law).

341. *See, e.g.*, Caroline N. Brown, *U.C.C. Revised Article 9: The Transition Rules*, 79 N.C. L. REV. 993 (2001); John F. Dolan, *Security Interests in Letter-of-Credit Rights*, 74 CHI.-KENT L. REV. 1035 (1999); Kenneth C. Kettering, *Repledge and Pre-Default Sale of Securities Collateral Under Revised Article 9*, 74 CHI.-KENT L. REV. 1109 (1999); Bruce A. Markell, *From Property to Contract and Back: An Examination of Deposit Accounts and Revised Article 9*, 74 CHI.-KENT L. REV. 963 (1999); Randal C. Picker, *Perfection Hierarchies and Nontemporal Priority Rules*, 74 CHI.-KENT L. REV. 1157 (1999); Donald J. Rapson, *Default and Enforcement of Security Interests Under Revised Article 9*, 74 CHI.-KENT L. REV. 893 (1999); Steven L. Schwarcz, *The Impact on Securitization of Revised UCC Article 9*, 74 CHI.-KENT L. REV. 947 (1999); Harry C. Sigman, *Twenty Questions About*

time has come to carve out from general intangibles a new category of collateral to deal specifically with virtual property.

In creating this new collateral category, however, it is important that policymakers incorporate into its definition and substance the concept that virtual property is indeed intangible. Policymakers should not try to shoehorn virtual property into some hybridized half-intangible, half-tangible format. As Professor Moringiello has noted, the U.C.C. drafters have an "illogical attachment to the tangible."[342] This logic was most recently on display through the lens of the incorporation of the concept of electronic chattel paper into U.C.C. 9.[343] Chattel paper is a set of records that represents (1) a monetary obligation to pay; and (2) a security right in or the lease of a specific good.[344] Under the long-standing U.C.C. 9 rules a security interest was perfected by simply filing a financing statement.[345] However, in the 1990s revision the U.C.C. drafters created a different rule to deal with what was hoped to be a budding market for the use of chattel paper on an electronic basis.[346] Importantly, unlike in the case of digital assets today, at the time of this enactment the use of electronic chattel paper was virtually nonexistent.[347] As Moringiello so adeptly observers, "[t]he drafters of both Article 9 and the Uniform Electronic Transactions Act recognized that electronic assets such as electronic chattel paper would probably come into existence, so they wrote provisions governing the transfer of these not-yet-existent assets."[348]

In order to deal with perfection (or more particularly, creditor control), the drafters decided that control of electronic chattel paper required that the creditor have control of a "single authoritative copy" of the appropriate documents.[349] Of course, this was merely fictitious, because the electronic chattel paper (as the name suggested) was entirely digital.[350] There was no

*Filing Under Revised Article 9: The Rules of the Game Under New Part 5*, 74 CHI.-KENT L. REV. 861 (1999); Steven O. Weise, *The Financing of Intellectual Property Under Revised UCC Article 9*, 74 CHI.-KENT L. REV. 1077 (1999); Jane Kaufman Winn, *Electronic Chattel Paper Under Revised Article 9: Updating the Concept of Embodied Rights for Electronic Commerce*, 74 CHI.-KENT L. REV. 1055 (1999).

342. Juliet M. Moringiello, *False Categories in Commercial Law: The (Ir)relevance of (In)tangibility*, 35 FLA. ST. U. L. REV. 119, 154 (2007).

343. *See id.*; *see also* U.C.C. §§ 9-312(a), 9-330(b), (d) (AM. LAW INST. & NAT'L CONF. OF COMM'RS ON UNIF. STATE LAWS 2014).

344. U.C.C. § 9-102(a)(11).

345. *See* Moringiello, *supra* note 342, at 154.

346. *Id.* at 154–55.

347. *See id.*

348. *Id.* at 154.

349. *Id.* at 155–56.

350. *See id.* at 156.

actual "single" copy, and, indeed, a computer could produce many perfectly identical "single" copies.[351] Needless to say, the market for electronic chattel paper never took off, and this was due, at least in part, to the poor way in which the U.C.C. drafters approached the issue of dealing with possessory-related security rights in electronic assets.[352] Thus, in formulating this new category for virtual property, U.C.C. policymakers must not make the same mistake. They ought to embrace virtual property's intangible nature and not try to reduce it to fictional tangibility. Instead, this new category and the contours that define it must be approached from a position that is divorced from the traditional U.C.C. possessory/tangibility-based model. Instead, provisions should be enacted that elaborate on and contemplate the true intangible nature of bitproperty.

*2. A Unitary Federal Perfection Scheme*

The second principle that should be included in these efforts is a unitary perfection system at the federal level. The need for this can basically be broken down into one single principle: the attempt by courts to create clean lines between intellectual and non-intellectual property rights in intangible assets has been unsuccessful, confusing, and undercuts the general development of commercial law.[353] Nowhere can we see this play out more significantly than with virtual property.[354]

As described above, virtual property—everything from URLs/websites, virtual world accounts, and social media profiles—are comprised of many and varied legal concepts.[355] Currently U.C.C. 9 contemplates collateralization of all general intangibles under a unified scheme.[356] But a number of federal statutes and regulatory regimes interface with various types of general intangibles—specifically intellectual property assets—to cause great variation in the way security interests in these rights are perfected.[357] The mixture of legal concepts that comprise the foundation of virtual property assets makes the collateralization process all the more complex.[358] A single perfection system for virtual property, whatever the

351. *See id.* at 155–56.

352. *See id.*at 156.

353. *See supra* Part II.B and accompanying discussion of U.C.C. 9 and patents, copyrights, trademarks, and intellectual property.

354. *See supra* Parts II and III.A.

355. *See supra* Part I.

356. *See* 1 ELDON H. REILEY, SECURITY INTERESTS IN PERSONAL PROPERTY § 5:28 (2015).

357. *See supra* Part II.B.

358. *See supra* Part II.B.

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legal makeup of the asset, would be greatly beneficial in simplifying the otherwise fractured way courts approach virtual property. Moreover, this would solve the issues surrounding multiple lapsing perfections that current law leaves unresolved. Searching and the notice function of commercial law would also be made easier by a single federal system. Third parties would need only search in one single place for any potential secured interests, rather than under current law where one might have to search many different jurisdictions in order to fully ascertain whether the non-intellectual property related aspects of the virtual property were perfected.[359] Naturally, efforts to create a unified perfection scheme would require the cooperation of Congress and the U.C.C. drafters/state legislatures—the lack of which has been the origin of existing secured credit problems.[360]

*3. Addressing Third Party Control and Alienability*

Third, this new framework must incorporate the notion that virtual property is contingent on third party control and recognition for its existence.[361] As discussed above, servers and computers talking to computers is often what makes virtual property exist.[362] Because it has no physical body, it can only exist by the understanding and, more precisely, with the authorization of a third party. Without the third party giving functionality to the property and the user's ability to manipulate it, the property essentially does not exist. For instance, a domain name can be used in connection with a website in order to produce value for a company. However, it is only through registration with ICANN and the coordination of sub-party registrars that the company actually has use and may exercise dominion over the domain name.[363] Tax credits also provide a helpful analogy.[364] Without recognition by the IRS or the state revenue agency, they are essentially worthless.

Any new formulation of U.C.C. 9, as well as accompanying federal legislation, must incorporate the concept of third party control. This necessarily means that the law will have to intervene, and even reorder, some of the rights and duties that typically underpin private license

359. *See supra* Part III.A.2.

360. *See supra* Part II.B (discussing the confusion between state and federal law as it relates to intellectual property secured lending).

361. *See supra* Part I.B.

362. *See supra* Part I.A.2.

363. *See supra* Part I.B.1.

364. *See* Odinet, *supra* note 34, at 147.

agreements. Specifically, this new virtual property legislation must be geared toward freer alienability. The immense restrictions placed on the ability of users to transfer or otherwise assign their rights in virtual property must necessarily be curtailed in order to accommodate the securitization of such assets. The prevalence of "click here and give up your rights" is unavoidably antithetical to the ability to use virtual property to generate borrowed capital.[365]

This notion of restricting clauses that purport to make certain rights inalienable is not without precedent. Indeed, the Uniform Fiduciary Access to Digital Assets Act (Act) model legislation is entirely about addressing this issue within the sphere of estate planning.[366] The Act attempts to address the many situations in which someone dies and leaves behind a host of digital assets ranging from "photographs, electronic investment account statements, e-mails, social media accounts, bank account statements, and so on" but where the person did not make arrangements for those they leave behind to have access to these important items.[367] The Act changes this by giving individuals the power to designate how their digital assets will be managed or disposed of in the same way they can make plans for what happens to their tangible assets upon death (through a will).[368] Moreover, if an individual fails to make such arrangements, a court-appointed fiduciary can be given the authority to deal with the decedent's digital assets.[369] Importantly, the Act "overrides any provision in a click-through terms-of-service agreement that conflicts with the account holder's express instructions."[370] In other words, although a user agreement—for example, Facebook's user agreement—might state that the rights under the individual's account cannot be transferred, the Act negates such a provision by allowing the fiduciary to not only have access to the account but also to deal with the account according to the decedent's wishes or otherwise pass the account on to the decedent's heirs.

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365. *See generally* Thomas P. Wolf, Note, *Toward a "New School" Licensing Regime for Digital Sampling: Disclosure, Coding, and Click-Through*, 2011 STAN. TECH. L. REV. N1 (discussing contemporary issues with control over licensing rights by the licensee).

366. *See* Elizabeth D. Barwick, Note, *All Blogs Go to Heaven: Preserving Valuable Digital Assets Without the Uniform Fiduciary Access to Digital Assets Act's Removal of Third Party Privacy Protections*, 50 GA. L. REV. 593, 607–08 (discussing transferability problems with online accounts).

367. *Id.* at 9–10*; see also* Jamie P. Hopkins, *Afterlife in the Cloud: Managing a Digital Estate*, 5 HASTINGS SCI. & TECH. L.J. 209, 212 (2013).

368. *See* Blachly, *supra* note 24, at 10.

369. *See id.*

370. *Id.*

Note that the Act does in fact reorder the agreed upon rights and duties of the parties—specifically those between Facebook and other social media platforms and their users—in order to achieve countervailing societal goals: specifically, by not allowing valuable information to be lost upon one's death. To that point, there is an equally compelling reason as to why the law should allow for freer alienability when it comes to securitization and using virtual property as a source of secured credit.

On the one hand, U.C.C. § 9-408 already deals with this situation by negating anti-assignment clauses; but it does not go far enough.[371] In essence, it allows for alienability, but without actually binding the third party controller. As noted above, without a provision that compels the third-party controller of the property (i.e., Facebook in our hypothetical above) to comply with the instructions of the secured party, then the nullification is without teeth. One might argue that there is hostage value in the secured party having an interest in the virtual property through its ability to stop the debtor business from continuing to use the property;[372] however, in many cases the debtor can still make use of the asset.[373] The creditor has no real right to cut off the debtor's use of the property in many cases.[374] Any new scheme that contemplates the collateralization of virtual property should address compliance by the third party controller at the behest of or in coordination with the secured creditor. Because of the third-party nature of virtual property, forced cooperation at some level must be a building block of new U.C.C. rules to address virtual property securitization.

## CONCLUSION

Virtual economies cause a rethinking of the way society conceives of traditional market economies that have for so long been dominated by tangible goods.[375] While it is true that the intangible rights represented by

371. *See supra* Part III.A.3.

372. *See* Timothy G. Hayes, Note, *Secured Creditors Holding Lien Creditors Hostage: Have a Little Faith in Revised Article 9*, 81 IND. L.J. 733, 733–34 (2006); Claire A. Hill, *Is Secured Debt Efficient?*, 80 TEX. L. REV. 1117, 1122 (2002); Edward J. Janger, *The Logic and Limits of Liens*, 2015 U. ILL. L. REV. 589, 600–01.

373. *See* UCC § 9-408, ex. 1 (AM. LAW INST. & NAT'L CONF. OF COMM'RS ON UNIF. STATE LAWS 2014) ("Even if the secured party takes possession of the computers on the debtor's default, the debtor would remain free to remove the software from the computer, load it on another computer, and continue to use it, if the license so permits").

374. *See supra* Section III.A.3; *see also* Chang, *supra* note 25, at 91–93 (providing a possible framework for turn-over control of virtual assets).

375. Lakhani, *supra* note 17, at 6–7.

assets like stocks, bonds, accounts receivable, and chattel paper undoubtedly form a significant form of market collateral, virtual property is a very different animal. Twitter accounts can come and go with the click of a button, and thus the value that they represent can be far more temporal. Moreover, since the platform itself often reserves the right to cancel the license without the consent of the user, the status of virtual property as a persistent asset is tenuous. And it is because of these unique features that rules meant to deal with tangible property markets are in many ways ill-suited for the growth of commerce involving bitproperty.

There is a connection between the forces that drive the traditional property-based economy and those that operate in the realm of virtual assets. The two do not represent a binary system, but rather are interlocking. And the law of U.C.C. 9 should seek to facilitate the efficient and seamless convergence of these two forces in the context of virtual asset financing. Legal and public policy concerns relative to virtual property are on the rise. Scholars, policy advocates, and commentators are voicing their concerns when it comes to issues of taxation, bankruptcy, and privacy, to name a few.[376] The nature of these assets is constantly changing and the legal concepts and institutions that intertwine to form the basis of them are not easily understood.[377] Indeed, in many ways one must have at least a basic knowledge of information technology and related systems before one can discuss virtual assets in the context of the law.[378] Moreover, the many interests at play when it comes to virtual assets make them difficult to easily translate into familiar legal structures.[379]

However, one thing that becomes increasingly evident is that virtual property has tremendous value and utility. This is true not only in its more traditional manifestations—such as social media accounts—but also in the more exotic realm of virtual worlds and other related cyber-platforms.[380] These assets, however, remain relatively untapped as a source of capital in the context of secured credit. Domain names and their related website adjuncts are already viewed as a desirable form of collateral, and, indeed, many lenders and financial institutions are demanding them as part of a

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376. *See* Fairfield, *supra* note 25, at 81–87 (discussing virtual assets in the context of bankruptcy law); Leandra Lederman, *"Stranger than Fiction": Taxing Virtual Worlds*, 82 N.Y.U. L. REV. 1620, 1623–24 (2007) (discussing tax implications); John William Nelson, *A Virtual Property Solution: How Privacy Law Can Protect the Citizens of Virtual Worlds*, 36 OKLA. CITY U. L. REV. 395 (2011) (analyzing virtual theft and privacy laws).

377. *See supra* Part I and accompanying explanation of virtual property.

378. *See supra* Part I.

379. *See supra* Section I.A.2.

380. *See supra* Part I.

collateral loan package.[381] With other virtual assets coming to the economic forefront, it would seem that it is only a matter of time before these too will be called to the table.[382]

This Article argues that, unfortunately, the current law governing secured transactions—specifically U.C.C. 9—lacks the sophistication necessary to deal with these new forms of property.[383] The intangible nature of the asset, a lack of understanding and recognition of its component parts and underlying value, and an overly broad legal framework makes effective collateralization of such property quite difficult.[384] Any revision of the law of Article 9's general intangibles framework must involve a better understanding of bitproperty. The principles set forth herein are by no means exclusive, but they do provide a narrower lens through which stakeholders and lawmakers can focus their efforts. Appreciating the uniqueness, the technology, the value, and the markets relative to bitproperty and incorporating these concepts into the drafting process is crucial to making any legislative project in this area effective. Commercial parties, policymakers, and legal scholars must have a clear understanding of the problem and an openness to new ways of thinking about property, technology, and new markets as the law attempts to address virtual property and secured credit in the future.

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381. *See supra* Section I.B.1.
382. *See* Fairfield, *supra* note 25, at 81–87.
383. *See supra* Part III.A.
384. *See supra* Part III and accompanying discussion.