EJLT European Journal of Law and Technology

The challenge of the emergence of virtual property to the traditional legal theory and the corresponding solutions

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Abstract

The layer theory divides virtual property into three layers, namely (1) infrastructure layer, (2) abstraction layer and (3) content layer, based on distinguishing between codes which constitute a platform of the virtual world and codes which consist of user generated content. The infrastructure layer contains the service providers' codes which constitute the platform of the virtual world. This level of virtual property could be considered as the fundamental basis of the operation of the virtual world. At the abstraction layer sits the unique computer code which comprises of the unique items designed by service providers which have not been e transmitted to users in the virtual world. The content layer consists of virtual items which are closely relevant to specific individuals due to their personal investment and arrangements. The twofold virtual property rights system adopts what I term 'restrained-exclusive property rights' or 'fundamental property rights' to describe the 'rights' users can claim to regulate the relationship and conflict between them and ISPs, meanwhile 'relative-exclusive property rights' or 'external property rights' are used to describe owners' property interests to prevent infringement from other users.

1. Introduction

Given the existing economic values and potential societal benefits that virtual property will bring,[1] there is an urgent need to provide legal protection for virtual property.[2] Due to the desire for ownership and the need for security in their

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[1] Truong 'Virtual Inheritance: Assigning More Virtual Property Rights' [2009] Syracuse Science & Technology Law Reporter 57.

[2] Samtani, Jie, Min and Xiu, 'Virtual property - a theoretical and empirical analysis' [2012] 34(3)

investment, virtual property users should be able to acquire legal protection for their virtual property.[3] However, the interpretation of virtual property is still a controversial topic. The term virtual property can be interpreted from various perspectives in order to satisfy different research purposes. With the purpose of protecting a computer game player's property right in the virtual world, virtual property can be used to describe virtual items, like virtual weapons in online games;[4] from the perspective of day-to-day activities, virtual property refers to email address, online account and other online footprints.[5] However, in accordance with the purpose of protecting virtual property systemically, this paper discusses the term 'virtual property' as a whole.

Taking the previous arguments about the protection for virtual property into consideration,[6] this paper argues that, unlike traditional real property and copyright, virtual property should be protected based on their special characteristics and unique formats rather than under a single property right model. Virtual property rights should be interpreted as a systematic property right. Due to the predisposition for a desire of ownership, and the desire for security and certainty in investment, virtual property users should acquire new specific legal protection for their virtual property. This paper argues that it is necessary to establish an independent virtual property theory which could clarify the legal status of virtual property, the types of virtual property right and the allocation of ownership of virtual property in the virtual world. The majority of the current virtual property theories tend to confuse different types of code and content

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European Intellectual Property Review 188.

[3] Pearce 'Emergent Authorship: The Next Interactive Revolution' [2002] Computers & Graphics Vol 26, 21.

[4] See Fairfield 'The End of the (Virtual) World' [2009] 112(1) West Virginia Law Review 53; Riley 'Litigating Second Life Land Disputes: A Consumer Protection Approach' [2009]19(3) Fordham Intellectual Property, Media & Entertainment Law Journal 890.

[5] Erlank 'Property in Virtual Worlds' [2012] doctoral dissertation at Stellenbosch University 22; Harbinja 'Virtual Worlds – A Legal post – mortem Account' [2014] Volume 11, Issue 3 SCRIPT-ed 277; Fairfield 'Virtual property' [2005] 85 Boston University Law Review 1053.

[6] 'Cyberspace is neither a bad analogy nor a metaphor. Cyberspace is a descriptive term. It describes the degree to which some kinds of code act like spaces or objects. Taking this approach frees us to apply the developed body of property law to assist in solving inefficient allocations of rights on the internet. It also provides us with a useful tool for separating the intellectual property interest from the property interest in code. And finally, it provides a useful tool for restraining abuses of contract online.' See in Fairfield 'Virtual property' [2005] 85 Boston University Law Review 1053.; 'At worst, enforcement of such rights in virtual property could lead to liability that renders the operation of virtual worlds unsustainable. Instead of imposing such property rights, contract law should continue to govern. EULAs allow developers to appropriately tailor user rights to user demand, with the highly competitive virtual-world market ensuring that users get what they want. A property law regime would be the end of the virtual world as we know it; contract law should make users feel just fine.' See in Cifrino, 'Virtual Property, Virtual Rights: Why Contract Law, Not Property Law, Must be the Governing Paradigm in the Law of Virtual Worlds' [2014] 55 Boston College Law Review 235 (http://lawdigitalcommons.bc.edu/bclr/vol55/iss1/7); 'As new issues in virtual property ownership continue to materialize, a new field of law emerges--society has advanced to the next stage.' See in Eng 'Content Creators, Virtual Goods: Who Owns Virtual Property?' [2016] vol. 34, no. 1 Cardozo Arts & Entertainment Law 250.

in virtual worlds, equating the underlying software (the building blocks of virtual worlds) and the user generated content (virtual assets). In this sense, this thesis proposes to construct a notion of virtual property through layer theory.

Due to the existence of End Users Licence Agreements, the relationships and conflicts reflected by virtual property are much more complicated than other types of property.[7] Therefore, this paper adopts layer theory and establishes a twofold virtual property right system. Layer theory could help us to interpret virtual property and distinguish users' virtual property from internet service providers' virtual property. The twofold virtual property rights system clarifies which type of property rights users could claim.

2. Theoretical Background of Virtual Property

2.1 Layer theory

The majority of virtual property theories tend to confuse different types of code and content in virtual worlds, equating the underlying software (the building blocks of virtual worlds) and the user generated content (virtual assets).[8] In this regard, this paper adopts layer theory[9] and proposes three levels whereby property can possibly

[7] The owner of virtual property should not only encounter the infringement from others, they also need deal with the infringement from service providers via contractual clauses in EULAs. Therefore, compared with traditional property law, the relationship reflected by virtual property is more complicated.

[8] Nelmark 'Virtual Property: The Challenges of Regulating Intangible, Exclusionary Property Interests such as Domain Names' [2004] Journal of Technology & Intellectual Property Vol 3, Issue 1.

[9] The layer theory proposed in this paper is modified from Abramovitch 'Within virtual worlds, there are three possible levels of "property":
1. First level: At its core, all virtual property is ultimately computer code, which is protected by copyright law.
2. Second level: Items in the virtual world – avatars, swords, clothes, buildings, etc. – are the virtual world's equivalent of the same property items in the physical world.
3. Third level: It is possible that the in-game virtual property itself is a form of intellectual property. For example, an in-game book is both a "physical" item of property, but also represents a "tangible" representation of the copyright in that book. Another example would be the creation of a clothing line in a virtual world: in such a case, there could be intellectual property rights in the form of designs or trade marks inherent in the clothes, while someone also could "own" the physical embodiment of the items of clothing in that line. However, as in the real world, intellectual property rights would not exist for every object.' See 'Abramovitch Virtual Property in Virtual Worlds'[2009] 2 at https://www.lexology.com/library/detail.aspx?g=5a3f3b03-a077-45d4-9981-36f713c92820.

be identified within virtual worlds.

At the first level sits the service provider's codes which facilitate the construction of the whole virtual environment. Items at this level can be considered as a platform not only for users but also for service providers to perform. At the second level, this paper identifies the unique computer code which comprises of the unique items which have not been transmitted to users. The services, programs and software provided by service providers are typical examples of this level of virtual property. Finally, Virtual property at the third level can be personalised by users via their personal investment and arrangement.

With regards to the virtual items that sit at the first and second level, they represent the virtual environment and specific virtual characters and programs. One of the common characteristics they have is that they are all created by service providers through code and algorithms which is defined as a specified sequence of steps for producing a solution to a problem.[10] A computer or software is a composition of individual algorithms (written in a programming language) that solve specific problems.[11] Hence this paper holds the opinion that virtual items at the first and second level should be categorised as ISPs' virtual property.

The ownership of these types of virtual property is supported by Section 9(3) of the Copyright, Designs and Patents Act (CDPA) 1988, which regulates the ownership of computer-generated work:

> In the case of a literary, dramatic, musical or artistic work which is computer-generated, the author shall be taken to be the person by whom the arrangements necessary for the creation of the work are undertaken.[12]

It is understood that the programmer is the author of computer-generated work.[13] Section 9(3) of the Copyright, Designs and Patents Act (CDPA) 1988 can be considered as the justification of the allocation of ownership of virtual property that sit at the first and second level. In other words, the discussion about the ownership of virtual property that sit at the first and second level is relatively clear, and the main argument is regarding the ownership of virtual property that sits at the third level.

In *Nova Productions Ltd v Mazooma Games Ltd, Kitchin*,[14] based on s.9(3) of CDPA

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[10] Neapolitan & Naimipour 'Foundations of algorithms' (Jones & Bartlett Learning, Burlington 2010) 3.
[11] ibid. 2.
[12] Copyright, Designs and Patents Act (1988) s.9(3).
[13] Dickenson, Morgan and Clark 'Creative machines: ownership of copyright in content created by artificial intelligence applications' [2017] 39 European Intellectual Property Review 458.
[14] Nova Productions Ltd v Mazooma Games Ltd [2006] EWHC 24 (Ch) [2006] E.M.L.R. 14.

1988, Judge Kitchin commented that: composite frames in the game are artistic works and they belong to the programmer who created them by writing program.

> In so far as each composite frame is a computer-generated work then the arrangements necessary for the creation of the work were undertaken by Mr Jones because he devised the appearance of the various elements of the game and the rules and logic by which each frame is generated and he wrote the relevant computer program. In these circumstances I am satisfied that Mr Jones is the person by whom the arrangements necessary for the creation of the works were undertaken and therefore is deemed to be the author by virtue of s.9(3).[15]

In terms of the virtual property at the third level, whilst this judgement can be considered as the authority to support the ownership of service providers (programmers) of virtual property at the first and second level, once virtual property combines users' skill, labour or private information, they should be labelled as users' virtual property. Therefore, this paper argues that virtual property at the third level is essentially users' virtual property.

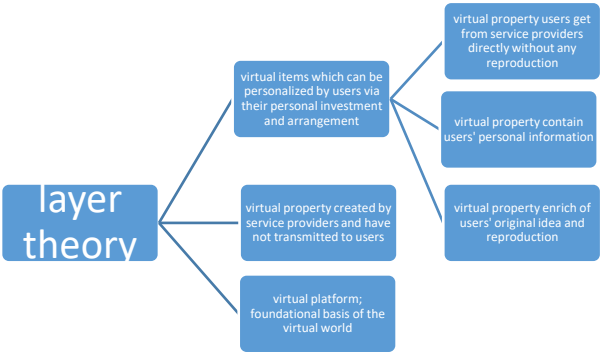
2.2 Classification of virtual property

Based on the previous discussion, there has not been a certain approach to protect virtual property at the third level. In order to provide an effective approach and eliminate the confusion among various types of virtual property, it is necessary to set out the classification of virtual property.

The classification of virtual property established by this paper depends on the unique characteristics and format of virtual property. For the first grouping of virtual property, users are expected to claim property rights on items considered as the user's private property. Inevitably, users should have the right to claim private property right over this type of virtual property. For instance, all the items that users get from service providers can be used directly without any further creation and exploration. The avatar in massively multiplayer online role-playing game (MMORPG) and online service provided by internet companies are typical examples of this group of virtual property.[16] The second group of virtual property will be the items that contain personal information.[17] Possibly they do not contain much of economic value, however, they are very important to users as they contain user's significant and

[15] Nova Productions Ltd v Mazooma Games Ltd [2006] EWHC 24 (Ch) [2006] E.M.L.R. 14 at [105].
[16] Kayser 'The New New-World: Virtual Property and the End User License Agreement' [2006] 27 Loyola of Los Angeles Entertainment Law Review 59.
[17] Christ, Peele 'Virtual worlds: personal jurisdiction and click-wrap licenses' [2008] Intellectual Property & Technology Law Journal 20.

confidential personal information. In other words, the items in this group can be described as personal data in digital formats. Online account and online footprint are typical examples of this group of virtual property. In terms of the protection of this group, if they are categorised as users' virtual property, then it is reasonable to apply the tort of misuse of private information to protect users' this type of virtual property.[18] The third group of virtual property contains the items recreated by users, and they are rich of the user's creation and original ideas.[19] Hence this paper suggests that this kind of virtual property can be considered as user's copyright, to be protected by IP. For instance, user generated content is the typical example of this group.



2.3 The virtual property right system

Virtual worlds involve complex interactions amongst various players[20] and relationships between ordinary users and service providers. Virtual property rights holders should not only be granted the right to exclude other users from infringing their virtual property rights but also be granted the right to deal with the conflicts between them and service providers. However, based on the statement of traditional property law,[21] property is loosely defined as 'rights among people concerning things'.[22] Therefore, property is often described as a bundle of rights,[23] or more

[18] Vidal-Hall v Google Inc [2014] EWHC 13 (QB).
[19] Chander 'The New, New Property' [2003] 81 Texas Law Review 716.
[20] Lastowka, *Virtual Justice: The New Laws of Online Worlds* (Yale University Press 2010) 9.
[21] Munzer *A Theory of Property* (Cambridge University Press 2012) 16 - 'The popular conception of property views property as things. For the most part, property is tangible things – land, house, automobiles, tools, factories. The other way of understanding property is the sophisticated conception. One might almost call it the legal conception, for it is very common among lawyers. It understands property as relations. More precisely, property consists in certain relations, usually legal relations, among persons or other entities with respect to things.'
[22] Sprankling and Coletta, *Property: A Contemporary Approach* (West Academic Publishing 2021).
[23] Waldron *The Right to Private Property* (Oxford: Clarendon Press 1988).

informally, a bundle of sticks rather than a thing.[24] The common rights in this bundle are known as: the right to exclude, the privilege to possess/use, and the power of transfer.[25] This paper tries to establish specific bundles of rights over virtual property.

2.4 Application of Hohfeldian[26] methodology[27] to virtual property

In accordance with the purpose of establishing a virtual property rights system, which distinguishes property rights over virtual property from traditional property rights and intellectual property rights, this paper accepts the Hohfeldian methodology[28] which had a profound impact on modern legal thought and in particular on property law.[29] Wesley Newcomb Hohfeld introduced his model of fundamental legal conceptions and jural relations[30] in the early twentieth century and his model will guide the search for rights and other entitlements as they exist, or may exist in the law. In order to deal with the uncertainty caused by the looseness in the usage of 'right' and ambiguity of terminology, Hohfeld exhibited all of the various relations in a scheme of 'opposites' and 'correlatives'.[31,32]

Jural Opposites[31]	right	privilege	power	immunity
	no-right	duty	disability	liability

Jural Correlatives[32]	right	privilege	power	Immunity
	duty	no-right	liability	disability

The Hohfeldian model offers a short and straight answer to the question whether an

[24] Grey, *The Disintegration of Property, in Property: Nomos XII*. 69, 74 (J. Roland Pennock & John W. Chapman, eds., 1980).
[25] Honoré, *Ownership* 113 (1961). Honoré seems to present the right of (positive) possession and the (negative) right to exclude as two 'aspects' of the same legal position.
[26] Hohfeld's analysis demonstrate the intrinsic meaning of 'right' and then help us to make a better understanding of property.
[27] Hohfeld endeavoured to clarify the legal vocabulary and render the basic jural terminology more rigorous. He stressed 'whether legal or non-legal, chameleon-hued words are a peril both to clear thought and to lucid expression'. He then insightfully arranged all legal positions in four pairs, which he denoted 'the lowest common denominators of the law'. See in Hohfeld, *Fundamental Legal Conceptions as Applied in Judicial Reasoning* (The Lawbook Exchange, ltd. Union, New Jersey 2000) 58.
[28] Ibid. 58.
[29] Eleftheriadis *The Analysis of Property Rights* Oxford Journal of Legal Studies Vol. 16, No. 1 1996
[30] Hohfeld (n 27) 58–60
[31] Ibid. 60.
[32] Ibid. 60.

individual has a right or not, and meanwhile it also provides a set of tools for evaluating legal positions in a given legal environment.[33] This paper applies Hohfeldian model to analyse the property rights over virtual property.

According to Hohfeld's framework, we can use his methodology to analyse property rights. The owner of a property has the right to prevent others from entering without permission, and others have a duty not to infringe on the owner's rights. If someone has justification for preventing others from using or possessing a particular object, it is reasonable to say they have a right to that object. In the case of virtual property, once a user owns a specific virtual item, that item has a unique identity recognised by other users, and the owner should be able to prevent others from using or possessing it. Therefore, users should be deemed to have virtual property rights.

Hohfeld also discussed the power of owners of personal property, who can extinguish their own legal interests through abandonment, transfer, or contract. The key criterion to determine whether someone has power over a property is whether they have volitional control to effect a change in legal relations. However, to transfer ownership, the owner must be entitled to the rights they are transferring in the first place. For virtual property, this paper argues that users are entitled to trade their virtual property using real currency. In this sense, the users have the power to transfer their virtual property interest, based on the precondition of the power-claim, consequently it is reasonable to deduce that users have already obtain the property rights over their virtual property.

As mentioned previously, for the protection of the owner of virtual property, the owners should not only be granted the right to exclude other users from infringing their virtual property rights, but they also should be granted the right to deal with any conflicts between them and the service providers. Therefore, before analysing virtual property rights, it is pertinent to examine the types of conflicts that can arise in the virtual world, namely conflicts between users and service providers, and conflict among users.

3. Practical Analysis of Virtual Property Right

3.1 Conflicts reflected by virtual property

3.1.1 Conflicts between users and service providers

Ideally, when users create a certain virtual property in virtual world, the right over that property should be granted to the user. Hypothetically, the user is the absolute owner

[33] Efroni *Access-right: The future of Digital Copyright Law* (OUP 2011).

to exclude others from infringing their virtual property rights. However, due to the existence of EULA between users and service providers, users' virtual property rights cannot be enforced ideally.

In *Bragg v. Linden Research, Inc.*,[34] plaintiff, March Bragg, Esq., claimed an ownership interest on his virtual property.[35] Bragg argued that Linden Research Inc. unlawfully confiscated his virtual property and denied his access to their virtual world. This case arose the attention to consider the conflicts between ordinary users and internet service providers.

> Ultimately at issue in this case are the novel questions of what rights and obligations grow out of the relationship between the owner and creator of a virtual world and its resident-customers.[36]

Although the parties eventually settled outside the court[37] and the court did not rule on any issue other than the arbitration clause of the TOS,[38] the key point in this case is regarding the legal relationship between service providers and users. This case still demonstrates the legal issue of the recognition of property rights in virtual world.

> Until now, any content created by users for persistent state worlds, such as Everquest® or Star Wars Galaxies™, has essentially become the property of the company developing and hosting the world ... We believe our new policy recognizes the fact that persistent world users are making significant contributions to building these worlds and should be able to both own the content they create and share in the value that is created. The preservation of users' property rights is a necessary step toward the emergence of genuinely real online worlds.[39]

This paper argues that, for the protection of the users' virtual property rights, contract should not be the only guidance. Virtual property rights should not be stipulated by

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[34] Bragg v. Linden Research, Inc., 487 F. Supp. 2d 593 (E.D. Pa. 2007).
[35] The dispute in this case was triggered in 2006 when the plaintiff purchased an entire region of virtual land for $300. The plaintiff allegedly accessed a land auction site for property and purchased a parcel that had yet been released for auction. By doing so, he acquired that virtual land below Second Life's cost. As a result, the company confiscated the land purchased and froze the plaintiff's account, alleging that the property was improperly acquired through an 'exploit'. Plaintiff filed this suit alleging conversion, fraud, unjust enrichment and breach of contract.
[36] Bragg v. Linden Research, Inc., 487 F. Supp. 2d 593 (E.D. Pa. 2007).
[37] Truong (n 1).
[38] Ludwig 'Protections for Virtual Property: A Modern Restitutionary Approach' [2011] 32 Loyola of Los Angeles Entertainment Law Review (2011) 1.
[39] Bragg v. Linden Research, Inc., 487 F. Supp. 2d 593 (E.D. Pa. 2007).

the contractual clauses in EULAs. Therefore, this paper proposes an independent virtual property rights system. Once virtual property system is established and accepted, users' virtual property will be able to be categorised as a type of legal property right. Consequently, users' virtual property rights could not be restrained from the regulation of EULA.

3.1.2 Conflicts among users

The virtual world has reached a tipping point from 'play' to 'reality'.[40] Virtual property reality is becoming so realistic that the boundary between virtual world and real life is ambiguous. Users tend to react in a very real manner in virtual world.[41]

> People regard their virtual, second lives with as much significance as they do their real lives. Equally, people value their virtual property as much as they do their real and tangible possessions. Virtual properties – such as email addresses, websites, avatars, video game characters, virtual accessories, and any other intangible digital commodities – are more prevalent and abundant today than ever before. Although virtual property is not physical or tangible, proprietors of virtual property consider themselves to be owners of such property.[42]

Due to the economic value of virtual property,[43] like traditional property in the real

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[40] Truong (n 1).

[41] For instance, in October 2008, Tokyo police arrested a woman whose sudden divorce in a virtual world made her so angry that she killed her online husband's digital persona. The woman accessed the man's account by using his identification and password, and deleted his virtual avatar. Although the woman was not plotting any real world retribution or murder, she was jailed on 'suspicion of illegally accessing a computer and manipulating electronic data'. If convicted, she could face real world penalties of a fine up to $5,000 or imprisonment up to five years. Available at https://www.telegraph.co.uk/news/worldnews/asia/japan/3248106/Japanese-woman-arrested-after-murdering-virtual-husband-in-online-computer-game.html

[42] Truong (n 1).

[43] The number of people actively participating in these environments has grown dramatically over recent years, with current reports indicating the number of registered virtual world users exceed 1 billion world-wide, while the total number of internet users in 2011 was reported to exceed 2 billion, implying that nearly 1 in 2 people use virtual worlds. Virtual world's expert Marcus Eikenberry estimates the real world market value attributed to virtual property sales to be between $10 and $50 US billion dollars. See in Watters *Number of Virtual World Users Breaks 1 Billion, Roughly Half Under Age 15* (2010) Available: http://www.readwriteweb.com/archives/number_of_virtual_world_users_breaks_the_1_billion.php
See also in Sacharya *ITU estimates two billion people online by end 2010* (2010) Available at http://www.itu.int/net/pressoffice/press_releases/2010/39.aspx; M. Eikenberry. (2011*). Real Money Trade is a Billion Dollar a year Industry.* Available:

world, virtual property owners encounter infringements from other users. In particular, the popularity of virtual property trade market has caused virtual property theft.

> The ability to convert virtual property into real-world currency has enabled the rise of a serious problem faces by many in virtual world environments, that of virtual property theft.[44]

> The issue of virtual property theft is a serious problem which has ramifications in both the real and virtual world.[45]

Virtual world users invest a considerable amount of time, effort and often money to create virtual property. Therefore, there is urgent need to protect virtual property owners from the infringement of others. For instance, a Dutch court convicted two teenagers of virtual theft.[46] Two fourteen-year-old boys forced a thirteen-year-old victim to hand over virtual goods, a mask and an amulet, and to transfer the items to their account. Even the lawyers argued that 'virtual goods do not really exist, and transferring them does not conflict with the rules of the game'.[47] Eventually, court confirmed that 'these virtual goods are goods (under Dutch law), so this is theft'.[48] However, the court did not categorise virtual good as a type of legal property.

Compared with economic conflicts among users, unfortunately, the legal issues caused by virtual property among users are far more serious. In June 2005 Qiu Chengwei, a 'Legend of Mir III' player, due to a dispute with another player Zhu Caoyuan, murdered Zhu.[49] Qiu had lent the victim a rare, enchanted in-game sword, which the victim then sold for approximately $870. Initially, Qiu contacted the authorities and sought justice, however the authorities refused to take any steps to redress the injury.[50]This paper argues that once virtual property rights have been confirmed, it will reduce uncertainty in dealing with conflicts among users.

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http://www.youtube.com/watch?v=rtZY3fVwlgw.

[44] Patterson, Hobbs and Abawajy 'Virtual Property Theft Detection Framework: An Algorithm to Detect Virtual Propety Theft in Virtual World Environments' (IEEE 11th International Conference on Trust, Security and Privacy in Computing and Communications, 2012).

[45] Patterson, Hobbs and Zhu 'A cyber-threat analytic model for autonomous detection of virtual property theft' [2017] 25 Information & Computer Security.

[46] Truong (n 1).

[47] Duranske 'Netherlands Court Finds Criminal Liability and Sentences Two Youths for Theft of Virtual Goods' (*Virtually Blind* 2008) http://virtuallyblind.com/2008/10/22/netherlands-theft-virtual-good/.

[48] Ibid.

[49] Reuters, 'Chinese Online Gamer Gets Life for Murder'(*MSNBC.coM* 2005) https://www.law.ox.ac.uk/sites/default/files/migrated/oscola_4th_edn_hart_2012.pdf

[50] Ludwig 'Protections for Virtual Property: A Modern Restitutionary Approach' [2011] 32 Loyola of Los Angeles Entertainment Law Review 1.

3.2 Introduction of Twofold virtual property rights system

Instead of describing that virtual property should be categorised as users' private property and owners have justification to claim virtual property rights over their virtual property, this paper sought to determine the answer to the following question: if virtual property can be owned as private property, what kind of property is it? What kinds of property rights on which owners claims? The virtual property rights system this paper established insists that virtual property rights are not simple exclusive private right. As discussed previously,[51] the operation of virtual property's function should be supported by the service providers. The enforcement of owners' virtual property rights is restrained by the contractual clauses in EULAs. Therefore, the virtual property rights established by this paper is a twofold rights system. This paper argues that the establishment of virtual property rights system should not be only based on the conflicts between users and service providers but also concerned with the conflicts between users and other users. Due to the existence of End Users License Agreements to virtual property owners, the legal position of service providers and other users is quite different in virtual environment. This is also the core point to distinguish virtual property rights from traditional property rights. This paper adopts 'restrained-exclusive property rights' or 'fundamental property rights'[52] to describe the 'rights' users are granted against service providers; meanwhile 'relative-exclusive property rights' or 'external property rights'[53] are used to describe owners' property interests against other users.

3.2.1 'Relative-exclusive property rights' or 'External property rights'

From the perspective of the relationship between owners and other users (excluding service providers), owners should be granted exclusive virtual property rights over their virtual property and exclude others from infringing these rights. Generally, there are no contracts between owners and others to allocate the ownership of virtual property, even unlike physical possession over traditional property in the real world which could demonstrate that this property is one's private property. In the internet environment, once a virtual item belongs to a specific individual, it then has a unique virtual identity (it is usually an account or a domain name) which distinguishes it from other virtual items. Other internet users could obviously recognise that it has been owned by an individual and they should not claim any property rights over them.

The right to exclude is the primary aspect, perhaps the most important among all private property aspects. Some commentators consider the right to exclude the very essence of private property.[54] Taking the necessity to rely on the virtual environment

[51] See the discussion about layer theory.
[52] Detailed discussion See in subsequent action in this paper.
[53] Ibid.
[54] Epstein 'Possession as the Root of Title' [1929] 13 Georgia Law Review 1221; Cohen, 'Property and Sovereignty' [1927] 13 Cornell Law Review 8(13 Cornell L.Q. 8, 15 1927).

into consideration, the degree of the exclusive aspect of virtual property rights is not as strong as the degree of the exclusive aspect of traditional private property rights. Hence this paper adopts 'relative-exclusive property rights' to describe the virtual property rights which are granted against other users. Moreover, based on the classification of virtual property, virtual property could be divided in three groups.[55] The degree of exclusiveness of different groups is different. This paper will analyse the specific virtual property rights of three groups respectively in following sections.

For the first group of virtual property which contains the virtual items users obtained from service providers directly, users are expected to claim integrated exclusive property rights over this type of virtual property except for the agreements between users and service providers. Even if these are unlike traditional physical property which can be possessed by users physically, owners still have the right of exclusive possession.

In terms of the second group of virtual property which contains users' private information, the tort of misuse of private information will be the direct approach. However, the current justification for the establishment of the tort of misuse of private information is insufficient. In this case, the proposed virtual property rights system which grant users property rights over their private information included in their virtual accounts, can provide justification for the establishment of the tort of misuse of private information. Other users are under the duty not to access this personal information. In contrast, users have the right to exclude, the privilege to possess and use, and the power to transfer their private information.

There is another point that should be noted. The General Data Protection Regulation (GDPR) 2018 has been used to restrain companies and other service providers from collecting, storing, analysing and sharing users' private information.[56] However, this paper argues that GDPR only aims to clarify the obligations and rights between companies and data subject. The protection for users to avoid invasion from other users is still inadequate. The twofold virtual property rights system, which distinguish the relationship between users and service providers from the relationship among users, can deal with this issue effectively by granting users legal virtual property rights.

With regard to the protection of the third group of virtual property, which contains virtual items created by users, they are rich with users' creation and original ideas. This paper argues that, on the matter whether this type of virtual property meets the criterion of copyright law, owners should be granted the right against infringement by

[55] 'The first group of virtual property are all the items users get from service providers can be used directly without any further creation and exploration; the second group of virtual property are the virtual items which contain users' personal information and the third group of virtual property contain the virtual items recreated by users.'

[56] General Data Protection Regulation Article 24 to Article 43.

others.

When users' 'relative-exclusive property rights' are infringed by others, in order to confirm the compensation, users always need the technical support from service providers to record evidence, confirm the valuation of virtual property and prove their identity. In other words, the enforcement of 'relative-exclusive property rights' should always rely on the service providers' technical support.

3.2.2 'Restrained-exclusive property rights' or 'Fundamental property rights'

Due to the existence of End Users License Agreements (EULAs) and Terms of Service (TOS) in the virtual environment, for virtual property owners, the legal position of service providers is quite different from other users. The enforcement of users' property rights is limited by the contractual clauses in EULAs and TOS. Hence, this paper adopts 'restrained-exclusive property rights' to describe users' property claims against service providers. On the other hand, once owners encountered infringement from other users, they need the technical support from service providers to prevent trespass and confirm the damage. Therefore, this type of property rights is also described as 'fundamental property rights'.

In terms of users' virtual property rights over the virtual items that users get from service providers directly, there is little in EULAs to allocate the ownership of this type of virtual property, as from the perspective of service providers, they are the creator of this type of virtual property and they hold the ownership over them.[57] However, this paper insists that, once this type of virtual property is possessed by users by signing the EULA, users are granted virtual property rights even if this right is restricted by contractual clauses in EULAs which intend to guarantee the fundamental operation of the virtual world. In other words, contractual clauses could only constrict the enforcement of users' virtual property rights when it is necessary to the operation of the virtual world.

In terms of the virtual property right over the virtual items which contain users' personal information and users' online footprints, this paper holds the opinion that personal information should not be allocated and collected by service providers only through the terms of EULA. Even if there could be some special terms in EULA to regulate the usage of users' personal information, it should firstly clarify users' virtual property rights claims over their personal information. Users' personal information stored in the virtual world is a special format of their private information.

With regard to the virtual property right over the virtual items which contain users'

[57] Blazer 'The Five Indicia of Virtual Property', [2006] 5 The University of New Hampshire Law Review 137.

original ideas, EULA usually use 'user generated content'[58] to describe this type of virtual property. Most service providers acknowledge users' intellectual property claims over the content which has been protected by current intellectual property law.[59] However, there is a wide range of user generated content that has not been subject to current intellectual property law.[60] Therefore, this paper argues that virtual items that exist in virtual world are special formats of expression of users' original ideas. Even if some of them have not been protected by intellectual property law, service providers should not use terms in EULA to restrict users' virtual property right claims over this category of virtual property.

4. How does the twofold virtual property rights system work in the virtual world?

This section is dedicated to examining the twofold virtual property rights system.[61]At the outset, it is necessary to clarify that the analysis in this section is based on the classification of virtual property discussed earlier.

4.1 Recognising users' property claims over their virtual property

With respect to the protection for the first group of virtual property which users get from service providers directly and without further reproduction, when conflicts

[58] 'User Created or Uploaded Content. The Platform may provide you an opportunity to upload and display content on the Platform, such as on the Blizzard forums, and/or as part of a Game, including the compilation, arrangement or display of such content (collectively, the 'User Content')'. See in Blizzard End User License Agreement available at https://www.blizzard.com/en-us/legal/fba4d00f-c7e4-4883-b8b9-1b4500a402ea/blizzard-end-user-license-agreement.

[59] 'You retain your rights to any Content you submit, post or display on or through the Services. What's yours is yours — you own your Content (and your incorporated audio, photos and videos are considered part of the Content)'. See in Twitter Terms of Service available at https://twitter.com/en/tos#intlTerms.

[60] Like the reproduction from users on the virtual property provided by service providers and the comments post by users in social media.

[61] This paper argues that the establishment of virtual property rights system should not be only based on the conflicts between users and service providers but also concerned the conflicts between users and other users. Due to the existence of End Users License Agreements, to virtual property owners, the legal position of service providers and other users is quite different in virtual environment. This is also the core point to distinguish virtual property rights from traditional property rights. This paper adopts 'restrained-exclusive property rights' or 'fundamental property rights' to describe the 'rights' users are granted to against service providers, meanwhile 'relative-exclusive property rights' or 'external property rights' are used to describe owners 'property interests against other users. See in 'Twofold Virtual Property Rights System'.

regarding ownership arise between users and service providers, the twofold virtual property rights system could clarify and distinguish users' virtual property rights and obligations regulated in contractual clauses in EULAs.[62]

As discussed previously, In *Bragg v Linden research, Inc.*,[63] virtual items which exist in online games are the typical examples of the first group of virtual property. In this case, according to the layer theory and twofold virtual property rights, it is necessary to recognise that Bragg's account and virtual land named 'Taessot' is Bragg's virtual property, a type of legal property, and virtual property rights over them cannot be infringed by contractual clauses in EULAs. Contractual clauses in EULAs cannot grant service providers any right to alter users' virtual property in the virtual world. Any contractual clauses contrary to the intrinsic meaning of virtual property rights should be unenforceable.[64] In this case, Linden does not have the right to freeze Bragg's account as EULAs is only a contract between users and service providers to regulate their behaviours in the virtual world rather than allocate virtual property rights in the virtual world. When the conflict arises from the infringement from other users, based on the twofold virtual property systems, users could exclude other users from infringing their virtual property rights.

The first case related to virtual property in China occurred in the online game 'Red Moon',[65] the plaintiff Li Hongchen, one of the players of 'Red Moon', claimed that his virtual equipment was stolen by other users and his game account was confiscated by the defendant. The defendant, the Arctic Ice Technology Development Co., Ltd,

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[62] 'By submitting, posting or displaying Content on or through the Services, you grant us a worldwide, non-exclusive, royalty-free license (with the right to sublicense) to use, copy, reproduce, process, adapt, modify, publish, transmit, display and distribute such Content in any and all media or distribution methods (now known or later developed). This license authorizes us to make your Content available to the rest of the world and to let others do the same. You agree that this license includes the right for Twitter to provide, promote, and improve the Services and to make Content submitted to or through the Services available to other companies, organizations or individuals for the syndication, broadcast, distribution, promotion or publication of such Content on other media and services, subject to our terms and conditions for such Content use. Such additional uses by Twitter, or other companies, organizations or individuals, may be made with no compensation paid to you with respect to the Content that you submit, post, transmit or otherwise make available through the Services.' See in Twitter Terms of Service available at https://twitter.com/en/tos.

[63] This case occurred in the US. In the US case, Bragg v. Linden Research, Inc., 487 F. Supp. 2d 593 (E.D. Pa. 2007). In the US there are many cases related to virtual property rights in the virtual world, however, the decision of Bragg v. Linden Research, Inc. is relevant clear and main focus on the enforcement of clauses in EULA.

[64] See also in Directive (EU) 2019/790 of The European Parliament and of The Council of 17 April 2019 Article 7 'Any contractual provision contrary to the exceptions provided for in Articles 3, 5 and 6 shall be unenforceable.' DIRECTIVE (EU) 2019/790 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 17 April 2019 Article 7 'Any contractual provision contrary to the exceptions provided for in Articles 3, 5 and 6 shall be unenforceable.'

[65] See in 北京市第二中级人民法院(2004)二中民终字第02877 号判决书。(Judgment No. 02877 of the Second Intermediate People's Court of Beijing (2004))

disputed that: on the one hand, they do not have the obligation to protect users' online equipment and if they helped the plaintiff to investigate other users' game account will infringe others' privacy. Unfortunately, the court recognised this case as a contractual dispute rather than the infringement of property rights. This paper argues that after establishing twofold virtual property right system, users could sue other users who stole their virtual property directly, and service providers under the obligation to assist the court to solve this problem. Therefore, twofold virtual property right system could help the court to deal with this type of cases more effectively as it can help the court to recognise users' property interests over their virtual property, and then recognise the infringement by defendant.

4.2 Provide justification for establishing a tort of misuse of private information

In terms of the protection for the second group of virtual property which contains users' private information, the twofold virtual property right system proposes an effective approach to protect users' private information in digital formats. Users' online footprints are the typical example of this group of virtual property.

In *Google Inc. v Judith Vidal-Hall*,[66] the defendant, Google, collected private information about the claimants' (the claimants are three individuals who used Apple computers between the summer of 2011 and about 17 February 2012. Each of them accessed the internet using their Apple Safari browser)[67] internet usage via their Apple Safari browser (the Browser-Generated Information, or 'BGI') without the claimants' knowledge and consent, by using a small string of text saved on the user's device ('cookies'). The BGI was then aggregated and used by the defendant as part of its commercial offering to advertisers via its 'doubleclick' advertising service. This meant advertisers could select advertisements targeted or tailored to the claimants' interests, as deduced from the collected BGI, which could be and were displayed on the screens of the claimants' computer devices.

One of the principal arguments is whether the information mentioned in *Google Inc. v Judith Vidal-Hall*[68] is personal data under the DPA. In other words, by which perspective should personal data be interpreted? In a broad or narrow way? The Court of Appeal said the correct approach may be to consider whether the data 'individuates' the individual, such that the individual is able to be differentiated from others. It is not necessary for the data to reveal information such as the actual name of the individual. As the BGI told Google such information as the claimants' IP addresses, their rough geographic location and the websites they were visiting, the Court of Appeal stated that it is likely that the individuals were sufficiently individuated and that the BGI on its own constitutes 'personal data'. However, the

[66] Google Inc. v Judith Vidal-Hall, Robert Hann, Marc Bradshaw v The Information Commissioner [2015] EWCA Civ 311 2015 WL 1310650.
[67] Ibid.
[68] Ibid.

definition of personal data from DPA can be interpreted from different perspectives. Section 1(1) of the DPA provides: 'personal data' means data which relate to a living individual who can be identified – (a) from those data, or (b) from those data and other information which is in the possession of, or is likely to come into the possession of, the data controller …' Depending on different fact in different cases, judges may draw different conclusion following this definition. This uncertainty may cause confusion on the nature of personal data.

Another uncertainty caused by *Google Inc. v Judith Vidal-Hall*[69] is that once information mentioned in case was identified as personal data, how to compensate claimants when there is no pecuniary loss. In other words, one of the difficulties for judges is to confirm the accurate loss of claimants in specific cases.

Applying the twofold virtual property rights system could provide justification for the protection of users' private information in digital formats (like online footprints), as users' online private information has been categorised as users' virtual property – a new type of legal property right. The twofold virtual property right system could also provide justification for the establishment of the tort of misuse of private information.[70] The protection for individuals' private information has undergone a series of development. After distinguishing privacy and confidence,[71] misuse of private information is suggested to be categorised as a kind of tort.[72]

This paper argues that the advanced information and internet technology have made the individual's personal information more easily collectable and can be analysed more flexibly than before.[73] The information which was misused in recent cases does not involve the invasion of an individual's privacy, they are just private or even personal.[74] The protection of private information should be strongly in accordance

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[69] Ibid.

[70] Mo 'Misuse of private information as a tort: The implications of Google v Judith Vidal-Hall' [2017] Computer, Law & Security review 87.

[71] Privacy and confidence are different concepts. To press every case calling for a remedy for unwarranted exposure of information about the private lives of individuals into a cause of action having as its foundation trust and confidence will be to confuse those concepts.' See in *Hosking v Runting & Others* [2004] NZCA 34 48; 'The continuing use of the phrase of confidence and the description of the information as confidential is not altogether comfortable. Information about an individual's private life would not, in ordinary usage, be called confidential. The more natural description today is that such information is private. The essence of the tort is better encapsulated now as misuse of private information.' See in *Campbell v MGN Limited* [2002] EWCA Civ 1373 2004 WL 852411 14.

[72] Mo (n 70) 87.

[73] 'Today's increasingly sophisticated information technologies cover a wide range of technical progress: Microprocessors and workstations … Special-purpose electronic hardware … Media … Convergence … Software' See in National Research Council*, 'Cryptography's Role in Securing the Information Society'*, (National Academy Press, Washington D.C. 1996).

[74] McKinnon 'Nothing Personal, It's just Business: How Google's Course of Business Operates at the Expense of Consumer privacy' [2018] 33 John Marshall Journal of Information Technology &

with the development of information technology.[75] The traditional approach, no matter if protection of privacy or breach of confidence, cannot deal with recent cases related to misuse of individuals' private information.[76] Therefore, it is urgent to provide justification for establishing a tort of misuse of private information. In this sense, the twofold virtual property right system could provide justification as users' online private information could be categorised as a type of legal property.

In *Google Inc. v Judith Vidal-Hall*,[77] after applying twofold virtual property rights system, it is obvious to draw the conclusion that users' BGI are their virtual property and could not be used by the defendant as part of its commercial offering to advertisers via its 'doubleclick' advertising service. Contractual clauses in EULAs could not grant google right to collect, store and analyse users' BGI.[78] The twofold virtual property rights system can help court to recognise users' virtual property rights and categorised virtual property right as a type of legal property right.

In the debates over who owns the online account of deceased soldiers in the Iraq war,[79] if applying the twofold virtual property rights system, it is reasonable to draw the conclusion that soldiers' families could get access to soldiers' email accounts, and a company has no right to refuse the families' claim.[80]

4.3 Recognising originality over users generated content

With respect to the protection for virtual property enrich users' original ideas, service providers usually use contractual clauses to acknowledge that users maintain intellectual property over user generated content which has been protected by current intellectual property law.[81] However, the twofold virtual property rights

Privacy Law 187.

[75] Castells, *The Rise of the Network Society* (London: Wiley-Blackwell 2010) at 21.

[76] Mo (n 70) 87.

[77] Google Inc. v Judith Vidal-Hall, Robert Hann, Marc Bradshaw v The Information Commissioner [2015] EWCA Civ 311 2015 WL 1310650.

[78] See in Directive (EU) 2019/790 of The European Parliament and of The Council of 17 April 2019 Article 7.

[79] Chung, *After Death, Fight for Digital Memories*, (Wash. Post, Feb. 3, 2005).

[80] The families of soldiers argue that: 'The information belongs to his son's estate, just like his old high school papers, his sweaters and his soccer ball, and should be transferred to the next of kin'. The email and Web hosting company, Mailbank.com Inc argued that 'While it empathizes with the family's situation, its first priority is to protect the privacy of its customers. It is the company's policy to support absolute privacy of our clients.'
Finally, the company refused to divulge any information about the accounts.

[81] 'Permission to use content that you create and share: Some content that you share or upload, such as photos or videos, may be protected by intellectual property laws.
You own the intellectual property rights (things such as copyright or trademarks) in any such content that you create and share on Facebook and the other Facebook Company Products you use. Nothing in these Terms takes away the rights you have to your own content. You are free to share your content with anyone else, wherever you want.' See in Facebook Terms of Service available at https://www.facebook.com/terms.php.

system could also provide justification for the protection of virtual items which have not reached the criterion of copyright which has been claimed by service providers[82] via contractual clauses in EULAs.[83] Based on the twofold virtual property rights system,

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[82] 'Blizzard's Ownership'
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Characters: The names, likenesses, inventories, and catch phrases of Game characters;
Items: Virtual goods, such as digital cards, currency, potions, weapons, armor, wearable items, skins, sprays, pets, mounts, etc.;
All data and communications generated by, or occurring through, the Platform;
All sounds, musical compositions, recordings, and sound effects originating in the Platform;
All recordings, Game replays, or reenactments of in-game matches, battles, duels, etc.;
Computer code, including but not limited to "Applets" and source code;
Titles, methods of operation, software, related documentation, and all other original works of authorship contained in the Platform;
All Accounts, including the name of the Account and any Battle Tags associated with an Account. All use of an Account shall inure to Blizzard's benefit. Blizzard does not recognize the transfer of Accounts. You may not purchase, sell, gift or trade any Account, or offer to purchase, sell, gift, or trade any Account, and any such attempt shall be null and void and may result in the forfeiture of the Account;
All Moral Rights that relate to the Platform, including Custom Games derived from a Blizzard Game, such as the right of attribution, and the right to the integrity of certain original works of authorship; and
The right to create derivative works, and as part of this Agreement, you agree that you will not create any work based on the Platform, except as expressly set forth in this Agreement or otherwise by Blizzard in certain contest rules, Blizzard's Fan Policies, or addenda to this Agreement.' See in Blizzard End User License Agreement available at https://www.blizzard.com/zh-tw/legal/fba4d00f-c7e4-4883-b8b9-1b4500a402ea/blizzard-end-user-license-agreement see also in Justin M. Ackerman An Online Gamer's Manifesto: Recognizing Virtual Property Rights by Replacing End User Licensing Agreements in Virtual Worlds (Phoenix Law Review 2012).

[83] See SEGA End Users Licence Agreement at http://www.sega.co.uk/EULA
See Quar: Battle for Gate 18, Mars Odysey, Bounce Demo, Bounce – End User License Agreement (EULA) at https://www.steelwoolstudios.com/legal/eula/ '5. Intellectual Property Rights.
5.1 You acknowledge that all ownership rights, intellectual property, trade secret and all other proprietary rights in the Game and the Online Features (including, without limitation, any computer code, themes, objects characters, character names, stories, locations, concepts, artwork, storylines, likenesses, moral rights, structural or landscape designs, self-generated levels created using the Game editor, musical compositions, dialogue, or any other content protected by UK or international intellectual property protection laws) are owned or licensed by SWS, that rights in the Game are licensed rather than sold to you (subject to the license granted in clause

the EULA should not be used as a contract to transfer the right from users to service providers.[84]

Both in *ProCD, Inc. v. Zeidenberg*,[85] and in *SAS Institute Inc v World Programming Ltd*,[86]

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2), and that you have no rights in or to the Game or the Online Features other than the right to Use them strictly in accordance with the terms of this EULA.
5.2 You acknowledge that you shall acquire no proprietary rights in past or stored gameplay, Game progress, character or other achievements within the Game.
5.3 You acknowledge that you have no right to access the Game in source code form.'

[84] 'By submitting, posting or displaying Content on or through the Services, you grant us a worldwide, non-exclusive, royalty-free license (with the right to sublicense) to use, copy, reproduce, process, adapt, modify, publish, transmit, display and distribute such Content in any and all media or distribution methods (now known or later developed). This license authorizes us to make your Content available to the rest of the world and to let others do the same. You agree that this license includes the right for Twitter to provide, promote, and improve the Services and to make Content submitted to or through the Services available to other companies, organizations or individuals for the syndication, broadcast, distribution, promotion or publication of such Content on other media and services, subject to our terms and conditions for such Content use. Such additional uses by Twitter, or other companies, organizations or individuals, may be made with no compensation paid to you with respect to the Content that you submit, post, transmit or otherwise make available through the Services.' See in Twitter Terms of Service available at https://twitter.com/en/tos

[85] This case occurred in the US. ProCD, Inc. v Zeidenberg, (WD Wis. 1996) at 656 & 658 'In the US, the focus of the law has been on the manner in which contractual clauses may extend the scope of copyright style protection. Unlike the UK, the focus is not on specific areas such as the making of back up copies. A line of US decisions focus dealing with non copyright works focus on the fundamental relationship between the reach of a contract and the copyright balancing exercise, which is patently not the case in the UK or EU. The line of case law in question concerns two hearings involving a company called Pro CD.' 'In ProCD, a manufacturer of computer software (ProCD), information from over 3,000 directories into a telephone containing approximately 95 million telephone listings (at expense) and developed a search engine to be used in conjunction database.In order to effectively market the software, the database at different prices—higher prices for commercial lower prices for private users. A problem arose, however, Zeidenberg bought a private user package, but ignored the license, listings, and made the database commercially available over through his own proprietary search engine. ProCD sued claiming copyright infringement and breach of the shrinkwrap agreement.' See in Brian Covotta and Pamela Sergeeff ProCD, Inc. v. Zeidenberg (Berkeley Technology Law Journal, Vol. 13, No. 1, Annual Review of Law andTechnology (1998), pp. 35–54).

[86] 'SAS had developed analytical software ('the SAS System') comprising an integrated set of programs which enabled users to carry out a wide range of data processing and analysis tasks, and in particular statistical analysis. The core component of the SAS System was Base SAS, which enabled users to write and run application programs to manipulate data. The functionality of Base SAS could be extended by the use of additional components (referred to together with Base SAS as 'the SAS Components'). The defendant ('WPL') perceived that there would be a market demand for alternative software which would be able to execute application programs written in the SAS programming language and had created a product called World Programming System ('WPS') to do this. In developing WPS, WPL had sought to emulate much of the functionality of the SAS Components as closely as possible in the sense that, subject to only a few minor exceptions, the same inputs would produce the same outputs. This was to ensure that WPL's customers' application programs executed in the same manner when run on WPS as on the SAS

the key point is how to deal with the conflicts and the fundamental relationships between the reach of a contract and the copyright balancing exercise on the work which has not been protected by copyright law.[87]

In *ProCD, Inc. v. Zeidenberg*, on appeal, Judge Easterbrook argued:

> A copyright is a right against the world. Contracts, by contrast, generally affect only their parties; strangers may do as they please, so contracts do not create 'exclusive rights.' Someone who found a copy of SelectPhone (trademark) on the street would not be affected by the shrink wrap license--though the federal copyright laws of their own force would limit the finder's ability to copy or transmit the application program.[88]

in *SAS Institute Inc v World Programming Ltd*, the principal argument is also on the relationship between service providers and users.

> A key element of the findings in the English Proceedings had been that the terms of the software licence agreements between SAS and WPL allegedly prohibiting the use WPL had made of SAS's software were null and void by operation of

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Components. There was no suggestion that in doing so WPL had had access to or copied any of the text or structural design of the source code of the SAS. However, it had obtained access to a version of the SAS System ('the Learning Edition') under licence agreements entered into with SAS and had used and interrogated this software. It had also had access to the manuals relating to the SAS System ('the SAS Manuals').' See in SAS Institute Inc v World Programming Ltd [2018] EWHC 3452 (Comm) [2019] F.S.R. 30. The statement in this case related to the conflicts between contractual clauses and current legislation is related to the early case SAS Institute Inc. v World Programming Ltd [2013] R.P.C. 17.

[87] 'Pro CD used contractual clauses to prohibit their customers from reselling ProCD's own compilation of telephone numbers. Traditionally, such compilations would have had protection under US copyright law because of the "sweat of the brow" by the company in compiling the telephone numbers. However, following Feist, the "sweat of the brow" test was overruled and such compilations lost copyright protection. ProCD therefore used a contractual clause to provide copyright style protection. The clause was contained in a shrink wrap licence, to which users had to agree in order to access the compilation data. The case was heard before both the Western District of Wisconsin, and on appeal, the Seventh Circuit. Both courts took a broad approach in establishing a policy towards contractual clauses which extend copyright style protection over potentially copyright works. In the Western District of Wisconsin it was decided that contractual clauses could not be used to provide copyright style protection where copyright itself would not provide protection. On appeal, the Seventh Circuit reached the opposite conclusion, due to copyright being a property right, and contract being a personal right. However, to reiterate the above point, both courts drew up a policy towards contractual clauses that extend copyright style protection and that seek to preclude copyright law.' James GH Griffin *The interface between copyright and contract: Suggestions for the future* (European Journal of Law and Technology, Vol 2, Issue 1, 2011).

[88] ProCD, Inc. v Zeidenberg, at 656 & 658.

> Council Directive 91/250 ('the Software Directive') which permitted WPL's conduct as pro-competitive and that WPL accordingly had an overriding defence.[89]

By applying twofold virtual property rights system and layer theory, this paper argues that users' virtual property right is a type of legal property and cannot be regulated and altered by contractual clauses. The contractual clause should be null and void when they are contrary to the provisions of the current policy.[90]

5. Proposal for legislative reform of virtual property system

5.1 A Sample Proposal

Taking the uncertainty caused by the absence of legal protection for virtual property, this paper proposes a reform suggestion for the protection of virtual property.

It is imperative that virtual property right should be categorised as a type of legal property right. Users' virtual property right should be protected and regulated by legislation rather than by contractual clauses. In accordance with the harmonisation between the current legal framework and virtual property rights, this paper suggests that virtual property should be protected as a statutory instrument amending the CDPA. In the following pages, this paper proposes a sample text for protection of virtual property under the current copyright law framework.

Proposal 1

Object of protection

1. This proposal concerns the legal protection of virtual property in any form.

2. For the purpose of this proposal, virtual property is divided into three levels, the property at infrastructure layer (1) belonging to ISPs and provide underlying environment for further development. The items at the abstraction layer (2) are created by ISPs and protected by copyright, and they also belong to ISPs. The property at the content layer (3) are user's virtual property because users invest time, money and labour on them. Only virtual property sits at the content layer (3) should be protected by this proposal.

3. Virtual property sits at the content layer (3) can be categorised into three

[89] SAS Institute Inc v World Programming Ltd [2018] EWHC 3452 (Comm) [2019] F.S.R. 30.
[90] See in Directive (EU) 2019/790 of The European Parliament and of The Council of 17 April 2019 Article 7. DIRECTIVE (EU) 2019/790 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 17 April 2019 Article 7.

groups. The first category of virtual property are virtual items users obtained from ISPs directly and without reproduction. The second category of virtual property are the virtual items containing users' private information in any form in the virtual world. The third category of virtual property are the virtual items contain users' creative reproduction.

4. For the purpose of this proposal, virtual property shall mean independent virtual items containing users' personal investment and arrangement in any digital form in the virtual world.

5. In accordance with the provisions of this proposal, the third category of virtual property should be protected by copyright, as literary works within the meaning of the Berne Convention for the protection of Literary and Artistic Woks.

6. Protection in accordance with this proposal shall apply to the expression in any form of a virtual property. Ideas and principles which underline any element of a virtual property are not protected by copyright under this proposal.

Proposal 2

Authorship of Virtual Property

The author of a virtual property shall be the person or group of natural persons who create the virtual property or put personal arrangements in the virtual property.

In respect of a virtual property created by a group of persons jointly, the exclusive rights shall be owned jointly.

Where a virtual property is created by an employee in the execution of his duties or following the instructions given by his employer, the employer exclusively shall be entitled to exercise all economic rights in virtual property, unless otherwise provided by contract.

Proposal 3

Twofold virtual property rights

A virtual property right, instead of being categorised as a single type of property right, should be regulated as a twofold virtual property right.

'restrained-exclusive property rights' should be granted to the owner against infringement from ISPs; 'relative-exclusive property rights' should be granted to owner against infringement from others.

5.2 How would the proposed reform suggestion operate?

As a consequence of the development of the internet and information technology, this paper suggests regulating virtual property under the current regulatory framework. Virtual property is, however, different from copyright and therefore, this paper suggests that it will be appropriate to draft an independent statute entitled 'Virtual Property Statute' which will complement the current CDPA 1988.

As regards the draft of 'Virtual Property Statute', this paper suggests establishing a particular virtual property protection office such as Copyright Hub. Members in this office should have knowledge both of the current legislation and of computer science. The main aim of this office is to draft the 'Virtual Property Statute'. It will also be responsible for collecting and analysing the practical issues and conflicts related to virtual property, and to then do amendment of the 'Virtual Property Statute'. It is also responsible deal with the conflicts related to virtual property before the courts.

In terms of the enforcement of the 'Virtual Property Statute', taking into the relationship between virtual property and technology, in the UK, the Copyright Tribunal could provide suggestion when they hear cases. However, I propose that there should also be a professional based virtual property group which could provide professional suggestions for owner.

6. Conclusion

The economic value of virtual property has been widely accepted by the market; however, the integrated virtual property rights system has not been established. With the feeling of desire for the ownership of their virtual property, virtual property users acquire the legal position for their virtual property. As direct guidance in virtual world, end users licence agreements mostly focus on the regulation about the obligation and right between users and service providers. Compared with traditional physical property, the conflicts which virtual property owners should deal with are more complicated.

For the conflicts among different users, this paper adopts 'relative-exclusive property rights' or 'external property rights' to describe the virtual property rights which are used to against the infringement from other users. Even owners need the technical support from service providers to record evidence once their virtual property rights were infringed by others, for other users, owners could claim exclusive virtual property rights over their virtual property and exclude other users from infringing these rights. For the conflicts between users and service providers, this paper adopts 'restrained-exclusive property rights' or 'fundamental property rights' to describe users' property claims against service providers. This type of virtual property rights

indicate that service providers not only have the obligation to protect the operation of users' virtual property, but they also have the obligation to assist users to avoid the infringement from other users.

The layer theory provides a better understanding of virtual property by distinguishing users' virtual property from the virtual platform and virtual items that belong to the service provider. The twofold virtual property rights system clarifies the obligations and rights between users and service providers and provide legal justification for the protection of users' virtual property. It also helps judges to deal with the overlap between contract law and property law when judges need to make decisions on cases related to the protection of virtual property.

This paper suggests that virtual property should be explicitly stipulated in the current copyright framework as s.1 CDPA states that copyright is a property right, and this paper proposes an independent statute entitled with 'Virtual Property Statute' attached to the current CDPA 1988.