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From Single-Player Games to Metaverse: A Futuristic Analysis of Challenging Legal Issues in the Video Game Industry in China

The video game industry in China is developing rapidly, and as the technologies behind games evolve many legal problems have arisen. This paper provides a detailed account of the legal problems related to legal determination of virtual objects, game modding, cloning, cracking, webcasting and machinima. It points out that the current trend in both court judgments and scholarship is to focus merely on addressing specific problems through the lens of application of the current laws lacks a holistic and futuristic perspective that needs to be considered in conjunction with the future trends in the development of the games industry. This paper suggests that we must watch game developments carefully and assess the potential impact of related legislative moves and legal decisions. The paper concludes that the disruptive power of new technologies will be better regulated by a network of regulatory tools rather than law alone.

I. Introduction

The video game industry in China is booming. According to the 2021 China Gaming Industry Report released by the Game Publishing Committee of the China Audio-Video and Digital Publishing Association, the number of players of video games in China reached 666 million in 2020, and the video games market in China recorded annual total sales revenue of RMB 296.5 billion (about USD 46.6 billion) in 2021.¹ China alone accounts for more than one-fifth of the number of gamers worldwide (3 billion people) and one-quarter of global consumer spending in 2021 (USD 175.8 billion), according to the 2021 Global Games Market Report published by Newzoo.² The video game market in China is a pillar industry, as its total sales revenue in 2021 accounted for one-eighth of the revenue of the entire Chinese entertainment and media industry that year (USD 358.6 billion), ranging from cinema, music and radio to traditional TV and home video, according to the estimates from PwC.³

With the prosperous video game industry in China come legal issues, especially copyright and property rights issues related to the utilization of game materials in various ways by the public. The typical legal issues that have triggered lawsuits in China recently include game

modding, cloning, game cracking, legal determination of virtual objects, game webcasting and machinima. However, in addition to reasons such as economic incentives and the trend for greater segmentation of the market, many of these issues only became prominent after the digital content creation tools became accessible to and affordable for gamers⁴ and the commercial model of the video game industry changed from an ownership model to a subscription and microtransaction model.⁵ In other words, it is the disruptive power of the democratization of technology and the growing interchangeability and interoperability between systems and platforms that have caused and connected the above-mentioned problems. However, the current trend in both court judgments and scholarship is to focus merely on addressing specific problems through the lens of application of the current laws.

This paper fills the gap by providing a futuristic account of the prominent legal issues of the video game industry in China. It concludes that the traditional solution, which is to locate the place of the legal issues of games in the respective laws, is not enough for the fast-changing games industry. A futuristic approach requires a holistic assessment of the legal issues related to video games in China, which needs to be considered in conjunction with the future trends in the development of the games industry. For that purpose, Section II of this paper examines disputes related to the legal determination of virtual objects of games. Section III investigates activities that aim to change the content of video games, such as modding, cloning and game cracking and legal problems related there to. Section IV discusses the legal problems of content

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¹ See 'China gaming market posts 6.4 pct growth in 2021' (*Xinhua Net*, 16 December 2021) <http://www.news.cn/english/2021-12/16/c_1310376881.htm> accessed 24 December 2021.

² Tom Wijman, 'The Games Market's Bright Future: Player Numbers Will Soar Past 3 Billion Towards 2024 as Yearly Revenues Exceed \$200 Billion' (*Newzoo*, 1 July 2021) <<https://newzoo.com/insights/articles/the-games-markets-bright-future-player-numbers-will-soar-past-3-billion-towards-2024-as-yearly-revenues-exceed-200-billion/>> accessed 24 December 2021.

³ 'Global Entertainment and Media Outlook 2021-2025: Mainland China summary' (*PwC*, 2021) <<https://www.pwccn.com/en/industries/telecommunications-media-and-technology/publications/entertainment-and-media-outlook-2021-2025.html>> accessed 24 December 2021.

⁴ Tianxiang He, *Copyright and Fan Productivity in China: A Cross-jurisdictional Perspective* (Springer 2017) 104.

⁵ Michael Futter, 'The Future of Gaming Is Subscription' (*Variety*, 22 February 2019) <<https://variety.com/2019/gaming/columns/the-future-of-gaming-is-subscription-1203146012/>> accessed 24 December 2021.

adding activities, such as online game webcasting and machinima. At the end of each section mentioned above, a futuristic perspective with regard to the specific problems of that section is provided. A holistic review that connects all the partial discussions and the related recommendations are provided in Section V. The last section concludes the article.

II. Property rights of game items and copyright of games?

1. Property rights of game items

The discussion about property rights of game items as virtual objects in video games came along with the Internet. Virtual objects were never a problem when the commercial model of the game industry was to sell game arcades and cartridge-based home consoles. But after games were introduced to the platform of home computers, it was discovered that the Internet could be used to create online games such as Multi-User Dungeons (MUDs) in which multiple gamers from around the world could be connected.⁶ With widespread affordable broadband internet connectivity and new technologies such as real-time 3D and high definition graphics, Java and Adobe Flash, many developers of games such as massively multiplayer online roleplaying games (MMORPGs) made some virtual objects of their games artificially scarce and exchangeable. As a result, gamers started to trade these virtual objects, even their user accounts. With the rapid development of internet-connected home consoles, such as Xbox and PlayStation, mobile gaming and payment, trading in virtual objects in games is now a gigantic market in China.⁷

However, it is also predictable that these private transactions will bring legal problems related to theft and fraud, and the legal determination of these virtual objects, especially when the game developers decide to terminate the operation of a game, is absolutely crucial. The first Chinese case that concerns the legal determination of virtual objects in games was ruled on in 2003.⁸ Even though China is a civil law jurisdiction, and the civil laws and regulations back then did not provide that virtual property could be protected, the court in the first instance ruled that games items can be protected as a kind of intangible property as they have monetary value.⁹ Many scholars supported this opinion,¹⁰ and later it was absorbed as a principle by Art. 127 of the General Rules on the Civil

Law of China in 2017 (repealed)¹¹ and subsequently Art. 127 of the Civil Code of China in 2020.¹² However, there is no consensus on how virtual assets should be protected, as Art. 127 of the Civil Code only stipulates a principle that virtual assets shall be protected and no specific rules are provided.

a) The debate

The mainstream opinion in China suggests that virtual assets should be deemed a real right.¹³ This approach was also taken by jurisdictions such as Taiwan and South Korea,¹⁴ but no consensus can be reached on who should be the owner.¹⁵ Scholars suggested that since gamers have invested their labour and effort in acquiring virtual items they should be considered to be the owners thereof.¹⁶ But, pursuant to Art. 114 of the Chinese Civil Code, once a virtual object is deemed property, the owner will then enjoy real rights over the virtual object, which include ‘ownership, right to usufruct, and security interests in the property’.¹⁷ It is admitted that virtual game items can be considered as property according to the civil law jurisprudence of China, as it is possible to control and manage them exclusively, they have independent economic value, and they need certain space to exist.¹⁸ These characters also echo the common law definition of property as laid down in the *Ainsworth* case, which provides a property must be ‘definable, identifiable by third parties, capable in its nature of assumption by third parties, and have some degree of permanence or stability’.¹⁹ Tan thus opined that ‘virtual (game) items are capable of being regarded as a form of intangible property’ as they ‘are linked to a user’s account and are therefore certain and identifiable, exclusive, can be controlled and assigned, and have some degree of permanence or stability through the code written for the items.’²⁰

However, the above theoretical support aside, assigning the real right of games items to gamers will then face a practical problem: the enjoyment of game items is dependent on the cooperation of the games company. Unlike traditional properties such as physical objects, virtual properties such as game items only exist in the server operated by the games company and are unable to be separated from the game.²¹ When the games company decides to shut down a game, when it is no longer profitable or for any other reasons, problems will arise if the gamers

⁶ Jessica Mulligan and Bridgette Patrovsky, *Developing Online Games: An Insiders Guide (Nrg-Programming)* (New Riders Pub 2003) 444.

⁷ It was reported that PUBG Mobile, a battle royale mobile game developed by Tencent, was the top grossing mobile game worldwide in November 2021, with close to USD 254 million in gamer spending. The game is free-to-play and the revenue all comes from in-app purchases. See Craig Chapple, ‘Top Grossing Mobile Games Worldwide for November 2021’ (*Sensor Tower*, 8 December 2021) <<https://sensortower.com/blog/top-mobile-games-by-worldwide-revenue-november-2021>> accessed 24 December 2021.

⁸ *Li Chenhong v Beijing Bei Ji Bing Technology Development Ltd.* [2004] Beijing Second People’s Intermediate Court, EZMZZ No 02877.

⁹ *ibid.*

¹⁰ See Lixin Yang and Zhonghe Wang, ‘On Real Right Attributes of Network Virtual Property and Related Basic Rules’ (2004) 12(6) *Journal of National Procurators College* 3 (杨立新、王中合, ‘论网络虚拟财产的物权属性及其基本规则’, 《国家检察官学院学报》, 2004年第6期, 第3页); Xuxia Lin and Dongmei Zhang, ‘On the Legal Nature of Virtual Property Rights in Online Games’ (2005) (6) *China Legal Science* 189 (林旭霞、张冬梅, ‘论网络游戏中虚拟财产权利的法律属性’, 《中国法学》, 2005年第6期, 第189页).

¹¹ art 127 of the General Rules on the Civil Law of China provides that ‘[i]f other laws particularly provide for the protection of data and online virtual assets, such provisions shall prevail.’

¹² art 127 of the Civil Code of China provides that ‘[w]here there are laws particularly providing for the protection of data and online virtual assets, such provisions shall be followed.’

¹³ Yang and Wang (n10); Lin and Zhang (n10).

¹⁴ Joshua A T Fairfield, ‘Virtual Property’ (2005) 85 *Boston University Law Review* 1086-1089; Yang and Wang (n10).

¹⁵ Fairfield (n14) 1088 (‘Sale of virtual property (in Korea) remains legal, while ownership remains either ambiguous or located in the virtual environment creator.’).

¹⁶ Lin and Zhang (n10).

¹⁷ art 114, Civil Code of China.

¹⁸ Yang and Wang (n10) 7.

¹⁹ *National Provincial Bank Ltd v Ainsworth* [1965] AC 1175 (Ainsworth), 1247-1248.

²⁰ Cheng Han Tan, ‘The Metaverse Beyond the Internet’ (unpublished draft).

²¹ Jian Wei and Shanguo Xue, ‘The stable self-enforcement and distribution of property right: the right to virtual property in MMORPG’ in Thomas Eger, Michael G Faure and Naigen Zhang (eds), *Economic Analysis of Law in China* (Edward Elgar 2007) 227.

enjoy real rights over the game items. Some scholars have therefore opined that the game company should be the owner of the virtual property and pointed to the contractual relationship between the gamer and the company. They claimed that it was the right to use (more specifically, a usufruct) the virtual property rather than the ownership of it that was transferred to the users.²² Behind the debate are the differences in remedies provided by the creditors' rights derived from the contract and a real right, as the former is considered a right *in personam* and the latter is considered a right *in rem*.

Nevertheless, neither approach is flawless: on the one hand, the rights *in rem* approach can provide remedies against torts committed by a third party, but it fails to provide a reasonable explanation for the limited nature and attribution of the rights. On the other hand, the rights *in personam* approach holds that gamers can only enjoy the right to claim against the game operator, they cannot raise claims such as cessation of infringement, removal of the nuisance and compensation for damages against third parties.²³ The solutions proposed either tried to reconstruct the traditional theory from one side or combine them to address the above-mentioned defects.²⁴

b) The futuristic perspective

The discussion above in China is meaningful with regard to traditional games such as MMORPGs, in which game items are pre-designed by the game developer and assigned to gamers after certain conditions are met (e.g. the gamer has reached a certain level or defeated specific monsters, etc). However, video games are evolving alongside technological advancements. New genres of games, such as sandbox games (e.g. *Minecraft*), can provide gamers with the chance to create their own game items – items not pre-designed by the game developer but created by gamers using the content (building blocks such as pixels) provided by the game. Compared with the game developer, the gamer who created the virtual items will be more suitable to be considered as the owner of the property rights, if any. In addition, depending on the creative freedom provided by the game to the gamers, the virtual items created by the latter may qualify as independent and original literary, artistic or musical works protected by copyright.²⁵ In that case, a virtual item created by a gamer embedded in a game is merely a copy of a copyrighted work. As a result, whether it could be considered a property will not hinder further exploitations of the copyrighted work, as the game will then be more like a file hosting platform that stores the 'original' copy of the work.

Moreover, for some types of games recognizing the property rights of the gamers over the virtual items they acquired will cause more problems than it will solve. For example, in addition to providing a trading system for virtual items, some MMORPG games 'purposely allow users to engage their avatars in behavior that would otherwise

be criminal or tortious in the real world.'²⁶ If we recognize the property rights of the gamers over the virtual items mentioned above, then these encouraged 'Wild West' behaviours could then attract civil and even criminal liabilities and eventually force the game's developers to shut down the game.²⁷ For virtual items provided by the game developer to gamers via direct sales, such as the 'skins' for the avatars, guns and vehicles provided by the battle royale game *Player Unknown's Battlegrounds* (PUBG), it is more likely that they can be treated as properties belonging to the gamer. However, as the game items are dependent on the game, game developers, according to their commercial interests, will make certain decisions that may limit the gamers' potential property right over game items.²⁸

In all, unlike physical objects, one can note that the nature of virtual game items is indefinite and unstable, as game items are inseparable from the game itself. On the one hand, every game developer is considered the 'god' of the game he develops, and he has the ability to change the nature and function of or even recall these virtual items according to his needs. Gamers, on the other hand, are the inalienable subjects that these 'gods' want to keep in their games.²⁹ As a result, '[d]evelopers cannot afford to alienate users (gamers) by mistreating them vis-à-vis their rights in virtual property.'³⁰ This mutual support relationship has decided that, at least for the time being, a contract-based regime is preferable, as the game developers are competing with each other in the market for retaining gamers and their leisure time for entertainment is scarce,³¹ they will tend to provide gamers with the protection 'meeting or exceeding those offered by traditional property law.'³² More importantly, unlike the physical world, different video games may assign different functions to their virtual items, which leads to those having an indefinite nature. A property right mode will serve well in some traditional games, but it will put additional and unnecessary constraints on the game developers' utilization and design of the virtual items to serve their business needs. A contractual relationship can thus provide the flexibility that is needed.

At the dawn of the metaverse,³³ one can foresee that games will be included as an important part as it

²⁶ Christopher J 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 259.

²⁷ *ibid*.

²⁸ Rishi Alwani, 'PUBG Item Trades Turned Off on Steam Due to 'Abuse of the System': PUBG Corp' (*Gadgets 360*, 3 May 2018) <<https://gadgets.ndtv.com/games/news/pubg-item-trades-turned-off-on-steam-due-to-abuse-of-the-system-pubg-corp-1846777>> accessed 24 December 2021.

²⁹ Advocators of the property approach often point to the unfair bargaining position between the weak gamers and the powerful game developers and suggest that the property approach could help to strike a balance. See, for example, Chris Stalmans, 'More than Just Games: Virtual Property Rights in Massively Multiplayer Online Games' (2012) 12 *Asper Review of International Business and Trade Law* 211-217.

³⁰ Cifrino (n 26) 262.

³¹ Tianxiang He, 'The Big 'Ban' Theory and Piracy: Which Way Forward for Effective Transnational Copyright Enforcement Policy in China?' (2019) 66 *Journal of the Copyright Society of the U.S.A.* 323.

³² Cifrino (n 26) 264.

³³ The metaverse is described as 'a network of always-on virtual environments in which many people can interact with one another and digital objects while operating virtual representations – or avatars – of themselves.' R Ratan and Y Lei, 'What is the metaverse? 2 media and information experts explain' (*The Conversation*, 12 August 2021) <<https://theconversation.com/what-is-the-metaverse-2-media-and-information-experts-explain-165731>> accessed 24 December 2021.

²² *ibid* 228; Yang and Wang (n 10) 10.

²³ Shan Sun, 'Claims in the Protection of Network Virtual Property Right' (2019) 3 *Henan Social Sciences* 73-74 (孙山, '网络虚拟财产权保护中的请求权配置', 《河南社会科学》, 2019年第3期, 第73-74页).

²⁴ *ibid*; Yang and Wang (n10); Lin and Zhang (n10).

²⁵ Erez Reuveni, 'On Virtual Worlds: Copyright and Contract Law at the Dawn of the Virtual Age' (2007) 82 *Indiana Law Journal* 285.

develops.³⁴ And the key is to build ‘an ecosystem of “interchange” solutions that interconnect, translate, and exchange information/users/assets across and between myriad different and competing platforms.’³⁵ With that interchangeability across platforms (including different games), the discussion about having virtual property rights to game items may then become meaningful: when gamers are capable of transferring game items from one platform to another without losing their meanings and functions, the need for property protections for gamers will naturally arise.³⁶ As Tan indicated, ‘[w]hat is capable of being regarded as property should be a normative question that is not restricted to a closed list of categories frozen in time without regard to changes in society including those brought about by technological change.’³⁷ The property and contract paths all lead to Rome. But during this transition period, contracts such as end-user licence agreements (EULAs) can provide better protection for gamers in China and be less burdensome to the game industry. A further discussion of the issue is provided in the holistic assessment of Section 5 below.

2. Copyright protection of video games?

Whether games can and should be protected under copyright was also hotly debated in China. The courts in different Chinese regions have delivered different opinions.

a) The judgments

For example, in the famous 2015 *Douyu* case ruled on by a district court in Shanghai,³⁸ which concerns the activity of webcasting of a game competition, it is suggested that:

‘As the game competition is not predesigned, and the game screen displays is an objective and intuitive expression of the ongoing game competition, which is generated by a number of gamers from both sides in accordance with the game rules and through their respective operations, and the game process is random and irreproducible, and the game result is uncertain, the game screen display is not a work under the Copyright Law of China.’³⁹

However, in the 2017 *NetEase* case with similar facts,⁴⁰ the Guangzhou Intellectual Property Court opined that:

‘This creation process (of the game) integrates various means such as character, script, artwork, music, costume design and props, which is similar to the method of filming a movie. Therefore, the continuous images presented by the video game running on

the terminal device can be considered as works created in a way similar to cinematography.’⁴¹

Cui criticized the former by arguing that the game screen display presented when the gamer played the game is a presentation of ‘the game materials coming from the game developer, and the result of the combination of these materials by the game program, therefore it is definitely a copyrighted work.’⁴²

Seemingly, the above two judgments are divided over the standards of copyright protection of video games.

b) What are the appropriate standards?

This author also supports copyright protection for video games, as it is a fact that a video game in general consists of a computer program and the resource database that the program utilizes to generate the game screen display, and they can be separately copyrightable if the criteria set by the copyright law can be met.⁴³ The case laws in the US⁴⁴ and the UK⁴⁵ also support a similar distinction. According to Art. 3 of the Copyright Law of China (the CLC), a copyrighted work must be original and can be presented in a certain form.⁴⁶ The game screen display, the resource database and the underlying computer program that form a highly creative video game can easily meet the originality standard. A recent decision by the Higher People’s Court of Guangdong Province ruled that another game developer copying several maps (i.e. the design of the battleground) of a first-person shooter (FPS) game developed by Tencent amounted to copyright infringement.⁴⁷ It is a clear sign that original materials contained in the game database can enjoy independent copyright protection in China.

In terms of copyright categorization of games, the 2017 *NetEase* case has suggested that games belong to ‘works created in a way similar to cinematography’, according to the 2010 CLC.⁴⁸ Similar conclusions were also reached in other pre-2020 cases.⁴⁹ The 2020 revision has revised Art. 3(6) CLC by replacing ‘cinematographic works and works created in a way similar to cinematography’ with ‘audio-visual works.’⁵⁰ According to Art. 17 of the 2020 CLC, audio-visual works include ‘film’, ‘TV drama

³⁴ Sang Kim, ‘South Korea’s Approach to the Metaverse’ (*The Diplomat*, 2 November 2021) <<https://thediplomat.com/2021/11/south-koreas-approach-to-the-metaverse/>> accessed 24 December 2021.

³⁵ Matthew Ball and Jacob Navok, ‘The Metaverse Primer: Interchange Tools + Standards and the Metaverse’ (29 June 2021) <<https://www.matthewball.vc/all/interchangemetaverse>> accessed 24 December 2021.

³⁶ R.ÉnAn Kennedy, ‘Virtual rights? Property in online game objects and characters’ (2008) 17(2) *Information & Communications Technology Law* 101.

³⁷ Tan (n 20).

³⁸ *Shanghai Yaoyu Co. Ltd. v Guangzhou Douyu Co. Ltd.* [2015] Shanghai Pudong New District People’s Court PMSZCZ No 191; [2015] Shanghai Intellectual Property Court HZMZZ No 641.

³⁹ *Shanghai Yaoyu Co. Ltd. v Guangzhou Douyu Co. Ltd.* [2015] Shanghai Pudong New District People’s Court PMSZCZ No 191.

⁴⁰ *NetEase v Guangzhou Huaduo* [2017] Guangzhou Intellectual Property Court YZFZMCZ No16.

⁴¹ *ibid*; this ruling was reaffirmed by subsequent cases. See, for example, *Yuncheng City Sunshine Media Co. Ltd. v Tencent et al.* [2019] Guangzhou Internet Court Y0192MC No 1092-1102, 1121-1125; [2020] Guangzhou Intellectual Property Court Y73MZ No 574-589.

⁴² Guobin Cui, ‘Treating Game Copyright Seriously’ (2016) 2 *Intellectual Property* 73-74 (崔国斌, ‘认真对待游戏著作权’, 《知识产权》, 2016年第2期, 第73-74页).

⁴³ *ibid* 4; Qian Wang, ‘On the Copyright Problem of Video Game Webcasting’ (2016) 2 *Electronic Intellectual Property* 14 (王迁, ‘电子游戏直播的著作权问题研究’, 《电子知识产权》, 2016年第2期, 第14页); Jeffrey R. Benson, ‘Copyright Protection for Computer Screen Displays’ (1988) 72 *Minnesota Law Review* 1137; Ryan Wallace, ‘Modding: Amateur Authorship and How the Video Game Industry is Actually Getting It Right’ (2014) 1 *BYU Law Review* 226.

⁴⁴ *Williams Elecs., Inc. v Artie Int’l, Inc.* 685 F.2d 870, 875 (3d Cir. 1982); *Atari, Inc. v Amusement World* 547 F. Supp. 222 (D. Md. 1981).

⁴⁵ *Electronic Techniques (Anglia) Ltd. v Critchley Components Ltd.* [1997] FSR 401.

⁴⁶ art 3 CLC (2020).

⁴⁷ *Tencent v 4399 Co. Ltd. et al.* [2017] Shenzhen Intermediate People’s Court Y03MC No 559; [2020] Higher People’s Court of Guangdong Province YMZ No 763.

⁴⁸ art 3(6) CLC (2010).

⁴⁹ *Woniu Technology Inc. v Tianxiang Hudong and Aiqiyi* [2018] Suzhou Intermediate People’s Court SZZMCZ No 00201; [2018] Higher People’s Court of Jiangsu Province SMZ No 1054.

⁵⁰ art 3(6) CLC (2020).

works', and 'other audio-visual works.'⁵¹ And it is believed that 'the continuous images presented by the video game' can be properly covered by the concept of 'audio-visual works'.⁵²

The above changes are positive, but the legal status of an entire game, including the game screen display, the resource database and the underlying computer program, is still unclear: video games are not like movies or other similar audio-visual works that have a clear producer-viewer relationship. In other words, the presentation of the content in a movie is fixed by the producers to a certain degree that viewers can only interrupt the process in very limited ways, whereas gamers, especially those playing sandbox games, enjoy much wider freedom in determining the presentation of contents. Some scholars suggested that games should be treated as a whole and be deemed a specific category under Art. 3 CLC.⁵³ Cui has opined that it is unnecessary as 'it will not provide substantial help in addressing the practical problems faced by the gaming industry.'⁵⁴ This author supports that view, as the necessity of creating a special ownership attribution rule for movie production, which in general involves cooperation among multiple parties and companies, does not exist in the game industry.⁵⁵ It is more of a production of a single company, and no individuals within the game development team can be considered equal to the role of a movie director or producer. And the differences between different types of games are much greater than those between movies.

As to the fixation issue, Art. 3 CLC requires that the work must be capable of being 'presented in a certain form.' It is obvious in the *Douyu* case that the courts believed that the 'game process is random and irreproducible.' But this argument is weak, since the game process can actually be presented and reproduced in a tangible form with the help of a computer or mobile phone.⁵⁶ In comparison, US courts are facing more trouble, as their fixation requirement requires that the work is 'fixed in any tangible medium of expression.'⁵⁷ That requires more sophisticated interpretations from the courts, but it seems that over the years the US courts have managed to find a path through this issue.⁵⁸

In summary, the common view in China with regard to the copyrightability of video games is that the game screen display, the resource database, and the underlying computer program can all enjoy independent copyright protection.

c) The futuristic perspective

As discussed above, the game screen display generated by the gamers' gameplay actions is actually a combination of different materials (most of them are copyrighted) pulled from the resource database and projected to the screen by the game program. Even though the sequence of sounds and images varies each time the game is played by different gamers, and some of them might use the freedom provided by the game to create something that is not predesigned by the game developer, it is still certain that for most video games today the specific combination of the copyright contents pulling from the game resource database, such as artistic works related to figures, items and game characters, literary works related to subtitles, and musical works related to soundtracks, generated according to the gamer's instruction, is definitely copyrighted, as it is predesigned by the underlying computer program and envisaged by the game developer. It is just that the various contributions from gamers have created some new problems.

In the old days, when games were constrained in game consoles and arcades, it was still suitable to use movies as an analogy to video games. In the future, especially in a metaverse setting, it is expected that the importance of the contributions from the gamers to the game will be magnified. It will then be unsuitable to use chronophotographic works such as movies as an analogy to sandbox video games that are dependent on their interactive and user innovation features. A further discussion of the issue is provided in the holistic assessment in Section 5 below.

III. Modding, cloning, cracking, and cheating programs

Another prominent issue that the games industry in China is facing is copyright infringement in the form of modding and cloning and other illegal activities, such as game cracking and cheating.

1. Modding

The term modding refers to the 'act of changing a game, usually through computer programming, with software tools that are not part of the game. This can mean fixing bugs, modifying content to improve it, or adding content.'⁵⁹ The typical examples range from the 'partial conversion' modding, such as the Gundam Century mod for *Starcraft*,⁶⁰ to 'total conversion' modding, such as the *Counter-Strike* mod for *Half Life*.⁶¹ It is an international phenomenon as gamers across countries utilize modding to enhance their game experience. As discussed in the previous section, a video game can have two copyrighted parts: the underlying computer program and the resource

⁵¹ art 17 CLC (2020).

⁵² Qian Wang, 'Revision of Copyright Law: Interpretation and Analysis of Key Clauses (2)' (2021) 2 Intellectual Property 20-21 (王迁, '《著作权法》修改: 关键条款的解读与分析(下)', 《知识产权》, 2021年第2期, 第20-21页).

⁵³ Xiaoqing Feng and Yadan Meng, 'On Copyright Protection of Mobile Games' (2014) 6 China Copyright 36 (冯晓青、孟雅丹, '手机游戏著作权保护研究', 《中国版权》, 2014年第6期, 第36页).

⁵⁴ Cui (n 42) 7.

⁵⁵ *ibid.*

⁵⁶ See also art 2 of the Regulations for the Implementation of Copyright Law of the People's Republic of China (2013): 'For the purposes of the Copyright Law, work(s) shall mean original intellectual achievements in the literary, artistic, and scientific domains that can be reproduced in a tangible form.'

⁵⁷ 17 U.S.C. § 102.

⁵⁸ See *Stern Electronics, Inc. v Kaufman* 669 F.2d at 855-56 (2d Cir. 1982); *Atari, Inc. v Amusement World* 547 F. Supp. 222 (D. Md. 1981).

⁵⁹ Nathaniel Poor, 'Computer game modders' motivations and sense of community: A mixed-methods approach' (2014) 16(8) *New Media & Society* 1250.

⁶⁰ Ling Tong, 'All About the Starcraft Mods' (*Streetdirectory*) <https://www.streetdirectory.com/travel_guide/104299/gaming/all_about_the_starcraft_mods.html> accessed 24 December 2021.

⁶¹ Alex Calvin, 'The making of Counter-Strike: How a Half-Life mod went from hobby project to the big leagues' (*PCGameInsider*, 28 May 2019) <<https://www.pcgamesinsider.biz/industry-icon/69066/the-making-of-counter-strike-how-a-half-life-mod-went-from-hobby-project-to-the-big-leagues/>> accessed 24 December 2021.

database that contains all the game contents. The underlying computer program (also referred to as the game engine) typically includes a graphics renderer, a physics engine, sound modules and artificial intelligence.⁶² As a valuable asset, the game engine is often reusable and licensed to third-party developers.

The fact that modders do not have the same access to the game engine as the game developers has ensured that their focus is on the presentation of the game content. Modders can edit the game content if an official tool is provided by the game developer, such as the Rockstar Editor provided by the developer of *GTA5* and the *Warcraft III* Editor released by Blizzard, or they can use third-party modding programs in the absence of official modification tools.⁶³ Modders using an official modification tools are often considered with an implied licence to use the copyrighted game contents. This is even more so if the EULAs provided by the game developers explicitly encourage modifications. But at the same time, many of these EULAs explicitly prohibit unauthorized modification as well. Accordingly, unauthorized modding will likely be considered as infringement of the copyright covering the game.

a) Is game modding copyright infringement?

Interestingly, no modding case has to date been brought before a Chinese court. In addition to the benefits of modding, such as providing new content that gamers enjoy, extending the commercial life of the original game, providing game developers with new ideas and commercial models, and nurturing new talents for the gaming industry,⁶⁴ one of the main reasons that the game developers do not sue modders may be that it is simply not economically reasonable. Firstly, unlike commercial pirates, modders are, in general, fans of the game. Suing the group of people that you try so hard to retain may not be a good idea.⁶⁵ Secondly, the transaction costs of nailing down an often anonymous modder are just too high and outweigh the benefits.⁶⁶ But, as some modding interfered with or disrupted their business based on the original game, some game developers have managed to stop the online distribution of the mods by sending cease-and-desist letters to mod tool developers or even hosting platforms.⁶⁷

Whether game mods actually infringe copyright needs to be subjected to case-by-case analysis. In terms of ‘partial conversion’ modding, in which the modders replace some of the game’s characters and objects with different skins while leaving the main design of the game intact, the mod is likely to be considered an

unauthorized derivative work and is prima facie infringing. According to Art. 13 CLC, ‘[t]he copyright of works produced by adapting, translating, annotating, and arranging existing works is enjoyed by those who made the adaptation, translation, annotation, or arrangement, but copyrights in the original work must not be infringed when exercising this copyright.’ Accordingly, if a mod is considered to be an adaptation of the original game, it will be considered a derivative work and subject to the control of the copyright owner, as it will infringe upon the right of adaptation if unauthorized.⁶⁸ However, the CLC does not provide the criteria for determining copyright infringement. The Chinese courts have long been employing the ‘prior access, similarity and substantial copying’ criteria, which are recognized by most countries around the world, to determine copyright infringement cases.⁶⁹ As most ‘partial conversion’ mods are built upon the original game materials and heavily rely on the original game, an infringement case can be easily established, as the modders have used a substantial part of the copyrighted game in their mods, especially the game engine, and it is their intention to present their derivative work as a mod of the original game, which satisfies the prior access assessment. In the US, the courts have delivered a similar conclusion held that a ‘partial conversion’ mod (modded MAP files of the game *Duke Nukem 3D*) is a derivative work as it copies the original game in a substantial way.⁷⁰ Even in the case of ‘reskinning’ mods where some of the artwork was replaced by third party materials, a large portion of the original artworks is still employed and presented in the game screen display, so the conclusion will not change.

The issue of ‘total conversion’ mods is much more complex. Some have argued that this should be treated as ‘a whole new game’, as the representation of the game is not ‘substantially similar to the original in ideas and expressions because there is no art in common, and a completely new world is the setting for the mod’,⁷¹ and ‘[m]odders arguably do not infringe on the underlying game engine at all because add-on mods require that the user already have a copy of the engine.’⁷² However, this line of argument is fairly cogent if the modder only releases the mod as a patch file that does not contain the game engine, and the mod does not utilize and present a substantial part of the original artworks in the game screen display. If any of those copyrighted materials are utilized in a substantial way, it is not easy for the modder to avoid infringement claims.

b) Can modding be justified by fair use?

Mods, as derivative works, may be exempted by the copyright exceptions or fair use clauses of the copyright law in a certain country. In China, a closed list copyright

⁶² Note, ‘Spare the Mod: In Support of Total-Conversion Modified Video Games’ (2012) 125(3) *Harvard Law Review* 790-91 (hereinafter *Spare the Mod*).

⁶³ Wallace (n 43) 229-30.

⁶⁴ *ibid*, 221-22; *Spare the Mod* (n 62) 792-3.

⁶⁵ Edward Lee, ‘Warming up to User-Generated Content’ [2008] *University of Illinois Law Review* 1536.

⁶⁶ He (n 4) 117.

⁶⁷ Christopher Livingston, ‘GTA modding tool OpenIV shuts down due to cease and desist from Take-Two (Updated)’ (*PCGamer*, 15 June 2017) <<https://www.pcgamer.com/gta-modding-tool-openiv-shuts-down-claiming-cess-and-desist-from-take-two/>> accessed 24 December 2021; Ian Walker, ‘Blizzard Sends Cease-And-Desists To Diablo II: Resurrected Modders’ (*Kotaku*, 27 May 2021) <<https://kotaku.com/blizzard-sends-cess-and-desists-to-diablo-ii-resurrec-1846977935>> accessed 24 December 2021.

⁶⁸ art 10(14) CLC (2020).

⁶⁹ Guobin Cui, *Copyright Law: Cases and Materials* (Peking University Press 2014) 655 (崔国斌, 著作权法: 原理与案例 (北京大学出版社 2014年), 第 655 页).

⁷⁰ *Micro Star v FormGen Inc.* 154 F.3d 1112 (9th Cir. 1998).

⁷¹ Zvi Rosen, ‘Mod, Man, and Law: A Reexamination of the Law of Computer Game Modifications’ (2005) 4 *Chicago-Kent Journal of Intellectual Property* 203.

⁷² *Spare the Mod* (n 62) 805.

exception model is adopted.⁷³ According to Art. 24 CLC, only uses that match the listed 13 circumstances could be exempted.⁷⁴ However, none of those could cover the act of modding. In practice, Chinese courts often went beyond the listed exceptions and used either the two-step test enshrined in the first paragraph of Art. 24, which provides an exempted act should ‘not impact the normal use of that work, and also must not unreasonably harm the rights holders’ lawful rights and interests’, or external factors, such as the US fair use test, to solve difficult cases.⁷⁵

The legitimacy of these court practices in China aside,⁷⁶ the above-mentioned open-ended tests may not render a positive result either. For example, with regard to the first factor of the US fair use test,⁷⁷ which concerns the purpose and character of the use, the court will have to examine whether the use is of a commercial nature and whether it can be considered transformative.⁷⁸ Mods are not transformative, as they are perfect substitutes for the original game in the market, and they are mostly of commercial nature. As the original game as a copyrighted work is apparently fictional rather than informational, the second

factor that concerns the nature of the copyrighted work will not be in favour of the modders if we take into consideration the case in which a mod only utilizes the game engine rather than the game’s contents. For the third factor that concerns ‘the amount and substantiality of the portion used in relation to the copyrighted work as a whole’, only ‘total conversion’ mods may have a chance to claim insubstantial borrowing if the mod released does not contain the original game engine and the game screen display generated by the mod does not utilize any of the original contents. The fourth factor that concerns ‘the effect of the use upon the potential market for or value of the copyrighted work’ may come out against a finding of fair use as well. Even though scholars have pointed to the positive market effects that derivative works such as mods can bring to the original work,⁷⁹ they are often not stable and hard to quantify,⁸⁰ and the impact of the mods on the game developers’ market for future derivative works is obvious negative, as that market is deemed exclusive to the game developer.⁸¹ Moreover, that negative impact is more evident if we consider that most mods are direct substitution of the original game, which supplants at least ‘part of the normal market for a copyrighted work’ and should ‘ordinarily be considered an infringement.’⁸²

Throughout the years, the Chinese courts have been faithfully following the US jurisprudence when interpreting the four-factor fair use test mentioned above.⁸³ And the above analysis could also support a negative impact on ‘the normal use of that work’ and an ‘unreasonable harm to the rights holders’ lawful rights and interests’ in the two-step test provided by Art. 24 of the CLC. That is to say, both ‘partial conversion’ and ‘total conversion’ mods will not be justified by copyright exceptions in China, even if the Chinese courts could rely on general clauses such as the four-factor test and the two-step test.

2. Cloning

Game cloning, or game reskinning, activities as discussed in this subsection refer to those commercially competing video game products that change the game engine and contents of an existing game while retaining the original expression and actual gameplay, rules, storyline and other elements.⁸⁴ Clones ‘intend to capitalize on the success of an existing game, and in turn, use it for their own profit.’⁸⁵ Unlike mods, clones are created by competitors in the market with a direct economic purpose. Accordingly, whether copyright infringement exists in the case of game cloning is worth discussing.

a) The judgments

As discussed above, a video game can be roughly divided into two parts: the game engine (a computer program) and the game contents (a resource database). If a game has

⁷³ Tianxiang He, ‘Transplanting Fair Use in China? History, Impediments and the Future’ (2020) 2 *The University of Illinois Journal of Law, Technology & Policy* 359-410.

⁷⁴ art 24 CLC (2020):

Using works in the following circumstances may be without the author’s permission or payment of remuneration to them, but the authors’ name or title, and the title of the work shall be indicated, and it must not impact the normal use of that work, and also must not unreasonably harm the rights holders lawful rights and interests:

(1) Using others’ published works for personal study, research, or appreciation;

(2) Appropriately quoting from other’s works in order to introduce or comment on the work or to explain a certain issue;

(3) Unavoidable representation or citation of a published work in news reporting by media such as newspapers, periodicals, radio stations, and television stations;

(4) the publication or broadcast by media such as newspapers, periodicals, radio stations, or TV stations of topical articles on political, economic, or religious issues that have already been published by other newspapers, periodicals, radio stations, radio stations, or TV stations, except where the copyright holders have made a declaration forbidding such publication or broadcast;

(5) the publication or broadcast by media such as newspapers, periodicals, radio stations, or TV stations of speeches delivered at public gatherings, except where the authors have made a declaration forbidding such publication or broadcast;

(6) translating, adapting, compiling, playing, or reproducing in a small amount works that have already been published, for classroom teaching at schools or scientific research, to be used by teaching or scientific research staffs, but [commercial] publication and distribution is prohibited;

(7) State organs using already published works for implementing their duties within a reasonable scope;

(8) Reproducing works in the collection of libraries, archives, memorial halls, museums, art galleries, cultural halls, require so forth, as require to display or preserve editions;

(9) Free performances of published works, where fees are collected from the audience, performers are not remunerated, and there is no aim to profit;

(10) Copying, painting, photography, and video recording of art works installed or displayed in public places;

(11) translating works by Chinese citizens, legal persons, or unincorporated organizations that have already been published and are created in the standard written Chinese language into works in the languages of ethnic minorities for publication and distribution in China;

(12) Providing published works in an accessible fashion that can be perceived by people with print disabilities;

(13) Other circumstances provided for by laws and administrative regulations.

The provisions of the preceding paragraph apply to restrictions on copyright-related rights.

⁷⁵ He (n 73) 367-386.

⁷⁶ *ibid* 387-390.

⁷⁷ 17 U.S.C. § 107.

⁷⁸ *Campbell v Acuff-Rose Music, Inc.* 510 U.S. 569, 579 (1994).

⁷⁹ Wallace (n 43) 219-220; Rosen (n 71) 214; He (n 4) 181-83.

⁸⁰ *ibid* 189.

⁸¹ *Micro Star v FormGen Inc.* 154 F.3d 1113 (9th Cir. 1998).

⁸² *Harper & Row v Nation Enterprises* 471 U.S. 539, 568 (1985).

⁸³ He (n 73) 367-86.

⁸⁴ Zihao Li, ‘The Copyright Protection of Video Games from Reskinning in China – A Comparative Study On UK, US And China Approaches’ (2019) 11 *Tsinghua China Law Review* 299.

⁸⁵ Brian Casillas, ‘Attack of the Clones: Copyright Protection for Video Game Developers’ (2012) 33 *Loyola of Los Angeles Entertainment Law Review* 138-39.

copied either a substantial part of the game engine or copyrighted game contents, such as maps, artwork related to game characters and items, and literary works related to the storyline, descriptions of contents and subtitles, an infringement case can thus be established.⁸⁶ And considering the commercial nature of game cloning, there is not much room for the infringing party to claim fair use in China.

In the famous 2007 *QQ Tang* case ruled on by the Beijing First Intermediate People's Court, a South Korean game developer Nexon Holdings, alleged copyright infringement and unfair competition by Tencent, believing that Tencent's Bomb and Bubbles (BnB) game *QQ Tang* had copied its BnB game *Crazy Arcade*.⁸⁷ As there was no evidence proving that Tencent had used the original game engine and the game contents, the plaintiff could only argue there were substantial similarities by comparing the game screen displays. The court carefully examined the 37 sample screenshots provided by the plaintiff and ruled that there was no copyright infringement as no substantial similarity could be found.⁸⁸ The court followed the classic 'prior access plus substantial similarity' approach and managed to rule out some of the uncopyrighted elements, such as ideas and those covered by the *scÉnes È faire* doctrine.⁸⁹ It is noteworthy that the plaintiff did not raise any claims about the similarity of their gameplay *ab initio*, as that would probably be considered an idea rather than an expression, due to the nature of BnB games.

The more recent *Taiji Panda* case, ruled on in 2019, has affirmed the above approach and provided a more detailed analysis.⁹⁰ The case concerns two action role playing games (ARPGs), *Taiji Panda* and *Hua Qian Gu*, and the design of such games is much more complicated than BnB games. The plaintiff believed that *Hua Qian Gu*, developed by the defendant, was a clone of its *Taiji Panda* game and there were substantial similarities in the game structure, gameplay rules, numerical content, placement rhythm (how and when specific contents are presented to gamers), and software documentation.⁹¹ The court in the first instance reiterated the importance of the idea/expression dichotomy and pointed out that even though in general gameplay rules are considered ideas, when the expression of those rules are described in detail, that expression of rules can be considered original thus enjoy copyright protection. The court in the first instance thus concluded that the game structure along with the placement rhythm are merely ideas and therefore not protected. The numerical content is part of the gameplay and has to be assessed together. In addition, the court held that software documentation is a shred of evidence to prove prior access, as when applying for computer software registration the defendant has used *Taiji Panda*'s 'functional structure module diagram and functional flow chart' directly. The court thus

held that the defendant had infringed upon the plaintiff's copyright over the game *Taiji Panda*.

In the second instance, the Higher People's Court of Jiangsu Province further elaborated on the nature of the 'game reskinning' activities.⁹² With regard to the idea and expression determination, the court opined that:

'The content of specific interface graphics and interface text can be identified as specific "form of expressions", and the layer of abstraction and generalization above them can render the specific setting of a specific rule of play. The content of this second layer can be identified as the "content of expression", which can also be recognized as the object protected by copyright law. Of course, the further abstraction and generalization above this level to the higher level of gameplay and rules should be considered as belonging to the category of ideas.'

Based on the above rationale, the court reaffirmed that the detailed presentation of game rules via the game interface design belongs to the second layer and is copyrightable, and *Hua Qian Gu* had copied and reproduced the specific expressions designed by the specific gameplay rules of *Taiji Panda* as a whole, which constituted copyright infringement.

b) Is game clone a copyright infringement?

It is apparent that the core of the game cloning issue is the distinction between idea and expression. The issue of video games is more complicated in jurisdictions, such as the US, that deem games to be uncopyrighted 'systems.'⁹³ In China, systems such as games are not listed as an uncopyrighted item in Art. 5 CLC. But, apparently, the Chinese courts have managed to use the idea/expression dichotomy to solve the problem.

In terms of simple games, US courts were still able to utilize the abstraction-filtration-comparison test (AFC) developed by the *Altai* case⁹⁴ to solve copyright disputes related to puzzle games such as *Tetris*.⁹⁵ The AFC test is considered a 'successive filtering method' for separating protectable expression from non-protectable material.⁹⁶ In the *Tetris* case, the gameplay, along with the 'game mechanics and rules', were first excluded by the court as they are considered ideas rather than expressions.⁹⁷ But the court went on to indicate that rules not being copyrightable 'does not mean, and cannot mean, that any and all expression related to a game rule or game function is unprotectable'⁹⁸ and '[t]he style, design, shape, and movement of the pieces are expression.'⁹⁹ The court thus supported the copyright infringement claim 'based on the fact that video game characters or pieces are nearly identical.'¹⁰⁰

⁸⁶ *Tencent v 4399 Co. Ltd. et al.* [2017] Shenzhen Intermediate People's Court Y03MC No 559; [2020] Higher People's Court of Guangdong Province YMZ No 763.

⁸⁷ *Nexon Holdings v Tencent et al.* [2006] Beijing First Intermediate People's Court YZMCZ No 8564.

⁸⁸ *ibid.*

⁸⁹ *ibid.*

⁹⁰ *Woniu Technology Inc. v Tianxiang Hudong and Aiqiyi* [2018] Suzhou Intermediate People's Court SZZMCZ No 00201; [2018] Higher People's Court of Jiangsu Province SMZ No 1054.

⁹¹ *Woniu Technology Inc. v Tianxiang Hudong and Aiqiyi* [2018] Suzhou Intermediate People's Court SZZMCZ No 00201.

⁹² *Woniu Technology Inc. v Tianxiang Hudong and Aiqiyi* [2018] Higher People's Court of Jiangsu Province SMZ No 1054.

⁹³ Bruce E Boyden, 'Games and Other Uncopyrightable Systems' (2011) 18 *George Mason Law Review* 439.

⁹⁴ *Computer Associates International, Inc. v Altai, Inc.* 982 F.2d 693 (2d Cir. 1992).

⁹⁵ *Tetris Holding, LLC v Xio Interactive, Inc.* 863 F.Supp.2d 394 (D.N.J. 2012).

⁹⁶ Jon O Newman, 'New Lyrics for An Old Melody: The Idea/expression Dichotomy in The Computer Age' (1999) 17 *Cardozo Arts & Entertainment Law Journal* 695.

⁹⁷ *Tetris Holding, LLC v Xio Interactive, Inc.* 863 F.Supp.2d 394, 404 (D.N.J. 2012).

⁹⁸ *ibid* 404-405.

⁹⁹ *ibid* 411.

¹⁰⁰ *ibid.*

In the 2012 *Spry Fox* case the court introduced the Ninth Circuit's extrinsic and intrinsic tests into the analysis.¹⁰¹ The extrinsic part is similar to the AFC test, while the intrinsic test aims to examine the 'ordinary person's subjective impressions of the similarities between the works.'¹⁰² The latter is a subjective comparison of the two works through the eyes of an ordinary observer, focusing on the 'total concept and feel' of the two works.¹⁰³ In this case the court conducted the intrinsic test by using the reports of video game bloggers that *Spry Fox* described in its complaint that suggested the two games were substantially similar.

However, complex games such as MMORPGs or ARPGs discussed above have brought challenges to the above-mentioned approaches. It is observed that the Chinese courts have, in general, followed the traditional AFC test when handling game-related cases. For example, in the *Taiji Panda* case it is apparent that the courts of both the first and second instance managed to filter the uncopyrighted elements before assessing the similarities between the two games. As the game type involved is much more complicated than simple games such as *Tetris*, the game rules are also complicated. In the *Taiji Panda* case the game has four sub-systems, such as a battle system and a character development system, and each sub-system also contains several subsidiary systems, and they all have different rules. The description of the aims and functions of each of these sub-systems is undoubtedly an idea rather than expression, but how these functions are presented in a literal and graphical way via game interface design is apparently expressive. This rationale echoes the 2014 *DaVinci* case in the US that concerns two similar card games, in which the court held that 'the characteristics and manner in which the characters interact, not merely the names and pictures used to depict them, are creative and expressive elements in a roleplaying game and are protectable.'¹⁰⁴ In other words, the specific design of a system, such as the interplay between characters, rather than the characters themselves, could also be considered as expressive and thus copyrightable. And, by the same logic, the interplay between sub-systems and the expression of their functions can also be protected by copyright. Of course, it is still very much true that the infringement criteria applied in this case are vague, but it is also foreseeable that, as game systems get more and more complex, it will become harder for clones to explain the similarities in the detailed presentation of game rules via the game interface design.

3. Game cracking and cheating programs

Game cracking and cheating have long been a problem for the game industry worldwide. But they are coming from different angles: cracking refers to the modification of the program to remove or disable certain features, such as copy protection features, while cheating refers to the various methods (usually in the form of cheating programs) to gain unfair in-game advantages over others.

a) Cracking

Most game cracking activities are firmly connected with copyright piracy. Video games, especially single-player games nowadays, are often sold with anti-piracy mechanisms. In the early days, video games were often sold in physical form, such as CDs with a license key, and they often come with anti-copying mechanisms. Game cracking activities aim to circumvent these mechanisms 'by creating and distributing specific software patches or even custom reverse-engineered serial number generators for commercial products, called cracks and keygens in the scene jargon.'¹⁰⁵

In China, the 2018 *3DM* case made it clear that the online distribution by the defendant, *3DM* (a platform famous for offering cracked versions of copyrighted games), of the cracked version of a game title *Samurai Warriors 4-II* had infringed the copyright of the game developer.¹⁰⁶ Game cracking may not only concern games but also game consoles. In the 2020 *Switch* case ruled on by a district court in Guangzhou, Tencent, as the licensed distributor of the handheld *Nintendo Switch* console in mainland China, managed to use trademark infringement as the cause of action to sue a local trader who sold cracked *Nintendo Switch* consoles.¹⁰⁷ Interestingly, neither cases touched upon the legal issue of cracking *per se*. However, Art. 48 CLC¹⁰⁸ and Art. 24(3) Regulations on the Protection of Computer Software¹⁰⁹ have provided what are known as 'anti-circumvention' measures, and it is obvious that the developer of game cracking patches

¹⁰⁵ Markus Kammerstetter, Christian Platzer and Gilbert Wondracek, 'Vanity, Cracks and Malware: Insights into the Anti-Copy Protection Ecosystem' (1999) Proceedings of the 2012 ACM conference on Computer and communications security 809.

¹⁰⁶ *Koei v 3DM* [2016] Beijing Intellectual Property Court J73MC No 373; [2018] Higher People's Court of Beijing JMZ No 174.

¹⁰⁷ *Tencent v Ren Wo Xing Game Shop* [2020] Yuexiu District People's Court of Guangzhou City Y0104MC No 46217.

¹⁰⁸ art 49 CLC:

Right holders may take technical measures to protect copyright and copyright-related rights.

Without the rightsholder's permission, no organization or individual may intentionally circumvent or damage technical measures; manufacture, import, or make available to the public relevant devices or components for the purpose of circumventing or damaging technical measures; or intentionally provide technical services for others to circumvent or damage technical measures. However, circumstances where laws or administrative regulations provide that circumvention is permissible are exempted.

'Technical measures' as used in this Law refer to effective technologies, devices, or components that serve to prevent or restrict the browsing or enjoyment of works, performances, or audio or video recordings, or the making available to the public via information networks of works, performances, or audio or video recordings, without the rightsholder's permission.

¹⁰⁹ art 24 Regulations on the Protection of Computer Software:

Except where otherwise provided in the Copyright Law of the People's Republic of China, these Regulations, or other laws or administrative regulations, anyone who, without the authorization of the software copyright owner, commits any of the following acts of infringement shall, in light of the circumstances, bear civil liability by means of ceasing infringements, eliminating ill effects, making an apology, or compensating for losses; where such act also prejudices the public interest, the copyright administration department may order to cease infringements, confiscate illegal income, confiscate or destroy the infringing copies, and may impose a fine concurrently; where the circumstances are serious, the copyright administration department may confiscate the material, tools and equipment mainly used to produce infringing copies; and where the act violates the Criminal Law, criminal liability shall be investigated for the crime of infringing upon copyright or selling infringing copies in accordance with the provisions of the Criminal Law:

...

(3) to knowingly circumvent or sabotage technological measures used by the copyright owner for protecting the software copyright;

¹⁰¹ *Spry Fox, LLC v Lolapps, Inc.* No 2:12-cv-00147 (W.D. Wash., 2012).

¹⁰² *Funky Films, Inc. v Time Warner Entertainment Co.* 462 F.3d 1072, 1077 (9th Cir. 2006).

¹⁰³ *Cavalier v Random House, Inc.* 297 F.3d 815, 822 (9th Cir. 2002).

¹⁰⁴ *DaVinci Editrice S.R.L. v ZiKo Games, LLC* No H-13-3415, 2014 WL 3900139, at *11 (S.D. Tex. 8 August 2014).

that circumvent anti-piracy mechanisms of games and consoles and the gamers who utilize these patches to circumvent these mechanisms will be caught by these clauses. Game cracking is not copyright infringement *per se*, as it does not copy or make use of the content, but rather provides gamers unauthorized access to a game which in general is controlled by anti-circumvention measures. A 2017 Canadian case followed a similar rationale by ruling the defendant's act of providing game console cracking as an act of Technological Protection Measures (TPM) circumvention under Sec. 41.1(1) Canadian Copyright Act.¹¹⁰

b) Cheating

Game cheating follows a different logic: gamers who utilize game cheating programs are aiming for advantages beyond normal gameplay rather than game access. In the 1992 US *Game Genie* case¹¹¹ the defendant had manufactured an add-on product for the Nintendo Entertainment System (NES) home game console called *Game Genie*, which is a device that allows the gamer to alter up to three features of a Nintendo game.¹¹² The plaintiff filed a copyright infringement claim. The court held that there the altered game content did not constitute the creation of a derivative work and therefore no copyright infringement had been committed.¹¹³ The *Game Genie* is actually a cheating program that allows gamers to gain advantages beyond normal gameplay, but the plaintiff had to rely on copyright claims, as no anti-circumvention law had been passed in 1992.

One of the arguments of the *Game Genie* case is '[h]aving paid Nintendo a fair return, the consumer may experiment with the product and create new variations of play, for personal enjoyment, without creating a derivative work.'¹¹⁴ This argument will no longer stand after the coming of the Internet era, as cheating may interfere with other gamers. In the 2010 US *World of Warcraft* case, which concerns a cheating program called *Glider* that can help gamers to advance their WoW characters unattended,¹¹⁵ the district court ruled that the users of *Glider* had infringed Blizzard's copyright by continuing to copy code into RAM as they violated the EULA, which prohibits the use of cheating programs, and held the developer of *Glider*, MDY, secondarily liable for the copyright infringement.¹¹⁶ The Ninth Circuit reversed the summary judgment by ruling that the users of *Glider* were not infringing as the district court's approach may 'allow software copyright owners far greater rights than Congress has generally conferred on copyright owners.'¹¹⁷ The Ninth Circuit thus held that MDY was liable under the DMCA only for violation of §1201(a)(2) (an

anti-circumvention provision) with respect to WoW's dynamic non-literal elements.¹¹⁸

In China, the 2020 *PUBG Mobile* case ruled on by a district court in Shanghai concerns a physical add-in device called *Feng Ci* developed by Flydigi, which serves as an external mobile controller that can 'output eight times/second high-frequency pulse' on the screen of certain types of touchscreen mobile phone.¹¹⁹ Interestingly, the court ruled that the defendant, Flydigi, had engaged in unfair competition acts against the plaintiff, rather than relying on the anti-circumvention clause of the CLC as mentioned above.¹²⁰ The unfair competition approach is also widely adopted by many Chinese courts in dealing with cheating programs.¹²¹ In addition, game developers in China have often resorted to the courts for criminal sanctions against developers of cheat program that have seriously interfered with the normal operation of the game, often in the name of providing tools for invasion or illegal control of computer systems, as criminalized by Art. 285(3) Criminal law of China,¹²² or illegal business operation as criminalized by Art. 225 Criminal law of China,¹²³ or even crimes against copyright, as criminalized by Art. 217 Criminal law of China.¹²⁴ The reasons why the 'anti-circumvention' measures provided by Art. 48 CLC and Art. 24(3) Regulations on the Protection of Computer Software are not used by these courts vary. One reason may be the deterrent effect as criminal sanctions are much stronger deterrents than civil law remedies. Another may be that not all of the cheating mechanisms are copyright-related and are targeting a function that is protected by technical mechanisms, such as the physical add-in device mentioned above.

4. The futuristic perspective

As demonstrated above, games are developing quickly and are becoming much more complicated day by day. The recent metaverse mania is another example which demonstrates that games are now trying to mimic our physical world. Accordingly, our legal rules should be constantly updated so as to come up with better solutions rather than sticking to the old copyright rules and the thin copyright protection we developed for simple games.¹²⁵ The previously discussed modding, cloning, cracking activities and cheating programs are all considered

¹¹⁰ *Nintendo of America Inc v King & Go Cyber Shopping (2005) Ltd*, 2017 FC 246.

¹¹¹ *Lewis Galoob Toys, Inc. v Nintendo of America Inc*. 964 F.2d 965 (9th Cir. 1992).

¹¹² *ibid.*

¹¹³ *ibid.*

¹¹⁴ *Lewis Galoob Toys, Inc. v Nintendo of America, Inc*. 780 F. Supp. 1283, 1291 (N.D. Cal. 1991).

¹¹⁵ *MDY Industries, LLC v Blizzard Entertainment, Inc and Vivendi Games, Inc.*, 629 F.3d 928 (9th Cir. 2010).

¹¹⁶ *MDY Industries, LLC v Blizzard Entertainment, Inc. et al* No 2:2006cv02555 - Document 82 (D. Ariz. 2008).

¹¹⁷ *MDY Industries, LLC v Blizzard Entertainment, Inc and Vivendi Games, Inc.* 629 F.3d 928, 941 (9th Cir. 2010).

¹¹⁸ *ibid* 958.

¹¹⁹ *Tencent v Flydigi et al.* [2020] Yangpu District People's Court of Shanghai City H0110MC No 5283.

¹²⁰ *ibid.*

¹²¹ *Tencent v Chen Yi* [2019] Shenzhen Nanshan District People's Court Y0305MC No 15313; *Tencent v Li Chenyang* [2019] Shenzhen Nanshan District People's Court Y0305MC No 15319.

¹²² According to the keyword search on '游戏外挂 (game cheating program)' on the Jufaanli (聚法案例) database, in the past five years there have been 132 cases in which a defendant was prosecuted under this crime. <<https://www.jufaanli.com/>>.

¹²³ According to the keyword search on '游戏外挂 (game cheating program)' on the Jufaanli (聚法案例) database, in the past five years there have been 11 cases in which a defendant was prosecuted under this crime. <<https://www.jufaanli.com/>>.

¹²⁴ According to the keyword search on '游戏外挂 (game cheating program)' on the Jufaanli (聚法案例) database, in the past five years there have been 18 cases in which a defendant was prosecuted under this crime. <<https://www.jufaanli.com/>>.

¹²⁵ 'More recent cases involving newer forms of card games and electronic games indicate that the protection for game content in these contexts may be more extensive than the earlier card-game cases suggest.' *DaVinci Editrice S.R.L. v ZiKo Games, LLC* No H-13-3415, 2014 WL 3900139, at *7 (S.D. Tex. 8 August 2014).

disruptions to the current legal system. But, obviously, the system is robust enough to deliver solutions. However, the courts' interpretations of the ambiguous parts of our law must consider various angles. In the case of game cloning, internet giants, such as Tencent, that lock down huge user bases via their dominant social network apps, such as WeChat and QQ, can easily triumph over any independent game developer by cloning its game with a different game engine and contents.¹²⁶ They might even further develop the idea demonstrated by the original game and add more functions and components. Therefore, in judging a case that pits a company such as Tencent against a small game developer, the courts should keep a tight grip on their interpretation strings in order to maintain a fair competition environment.

In the future, when a gaming system such as a metaverse environment grows big enough to accommodate different types of video games, the problems related to mods may become technically obsolete as the experience of the game would now be attached to the metaverse environment, and the cost to replicate that total experience would be impossible for modders. The clone and cheating issues can also be, by and large, addressed if the metaverse is ruled by its users that are in control of the policies created to determine how the world behaves – such as the *Decentraland* controlled by the Decentralized Autonomous Organization (DAO).¹²⁷ In other words, with the help of new comparison and malware detection technologies, users of a metaverse of that type can always reject the co-existence of clones and users who cheat through similar mechanisms such as DAO. As most of these metaverses are built upon blockchain technologies, such as non-fungible tokens (NFTs) and smart contracts,¹²⁸ game cracking will be by and large meaningless, as the principles behind a traditional video game and a metaverse game are completely different. A further discussion of this issue is provided in the holistic assessment in Section 5 below.

IV. Webcasting and machinima

The above-mentioned disruptive activities have no doubt created several grey sub-markets that the game developers are in general not willing to enter.¹²⁹ But the interactive nature of today's video games has accidentally created new markets that were not envisaged but are welcomed by the game developers, such as the webcasting and machinima businesses related to games.

¹²⁶ Masha Borak, 'Is China's culture of cloning popular games finally ending?' *South China Morning Post* (Hongkong, 6 January 2020) <<https://www.scmp.com/abacus/games/article/3044873/chinas-culture-cloning-popular-games-finally-ending>> accessed 24 December 2021.

¹²⁷ 'What is the Decentraland DAO' (*Decentraland*) <<https://dao.decentraland.org/en/#lean-more>> accessed 24 December 2021.

¹²⁸ Pascale Davies, 'NFTs, Web3, DeFi and the metaverse: Your guide to the tech buzzwords from 2021' (*Euronews*, 31 December 2021) <<https://www.euronews.com/next/2021/12/27/nfts-web3-defi-and-metaverse-your-guide-to-the-tech-buzzwords-from-2021>> accessed 31 December 2021.

¹²⁹ Modding could be an exception, since it could potentially provide new ideas for game developers. And it is also a fact that game developers are often keen to develop expansion sets themselves, such as the *StarCraft: Brood War*. But, certainly, game developers will not provide cracking and cheating tools that will significantly disrupt the normal operation of their business for online games (the exception being that game developers may provide cheating codes for single player games).

1. Game webcasting and live streaming

Live game webcasting and streaming are an important part of the webcasting business in China. According to a recent survey, the size of the market for live game webcasting reached RMB 34.3 billion in 2020.¹³⁰ As this author has examined in detail the fair use issue related to game webcasting in China elsewhere,¹³¹ this subsection only provides a succinct discussion of that matter in China.

In the 2015 *Douyu* case mentioned above it was ruled that the game screen display is not copyright protected, but 'an audio-visual video program of game competition consisting of various elements such as images and sounds' that includes 'the plaintiff's commentary on the content of the game, related images such as the filming studio, as well as subtitles and sound effects' can be copyright protected.¹³² However, as the defendant had not used a processed commentary video, the court ruled that there was no copyright infringement and then turned to Art. 9(1) of the 1993 Anti-Unfair Competition Law of China to find the defendant liable for false advertising.¹³³

In the 2017 *NetEase* case it was held that the related game screen display is copyright protected.¹³⁴ More importantly, the court in the first instance discussed whether webcasting can be covered and justified by the listed copyright exceptions of the CLC. It held that that 'even if the game screen was utilized as a tool to demonstrate the player's skill, it is just a difference of perspective between player and viewers, and it will not surely obliterate the value of the game screen display[;]' hence 'the value was not transformed,' and that '[webcasting] does not fit within any listed exceptions in Art. 22 of the CLC,'¹³⁵ and was therefore not fair use.

In addition to the above-mentioned cases, it should be noted that in neither China nor the US has any litigation to date been filed against individual webcasters or streamers for their game webcasting activities. That is either because it is not cost-effective to sue them or because the notice-takedown mechanisms employed by the platforms are enough to serve the purpose. In addition, many big webcasting platforms in China have signed bulk licence agreements with big copyright conglomerates so that their webcasters can legitimately make use of many copyrighted works. However, individual webcasters are potentially infringing if copyright works were used without authorization, and their contribution to the game screen display should also be considered.

2. Machinima

Machinima is another example that demonstrates the potential of games. The term 'machinima' is a portmanteau

¹³⁰ 'Study Report on The Live Game Webcasting Industry in China 2021' (*IResearch*, 13 August 2021) <<https://report.iresearch.cn/report/202108/3829.shtml>> accessed 31 December 2021.

¹³¹ He (n 73) 382-84; Jie Wang and Tianxiang He, 'To Share Is Fair: The Changing Face of China's Fair Use Doctrine in the Sharing Economy and Beyond' (2019) 35 *Computer Law & Security Review* 20-21.

¹³² *Shanghai Yaoyu Co. Ltd. v Guangzhou Douyu Co. Ltd.* [2015] Shanghai Pudong New District People's Court PMSZCZ No 191.

¹³³ The Anti-Unfair Competition Law of China was revised in 2019 and the corresponding article is art 8.

¹³⁴ *NetEase v Guangzhou Huaduo* [2017] Guangzhou Intellectual Property Court YZFZMCZ No16; [2018] Guangdong Higher People's Court YMZ No 137.

¹³⁵ The CLC was revised in 2021 and the corresponding article is art 24.

of ‘machine’ and ‘cinema’, referring to film production by using video game engines instead of live-action or traditional animation.¹³⁶ Interestingly, it is game developers that have opened the door for machinima creations: they provided gamers with recording functions in their games early in the mid-1990s.¹³⁷ After almost three decades of development, not only games such as *GTA5* have provided more powerful in-game video editors, such as the *Rockstar Editor*, but also there are numerous external tools available today that can capture screen movements and edit video footage in a professional way.

The potential copyright problems of machinima are similar to those of most game webcasts: the creator of machinima has utilized some of the game screen displays along with the copyrighted figures without permission. No direct cases involving machinima have been brought in either the US or China, and the main reason could be that the EULAs provided by many game developers have provided room, albeit with certain conditions, for non-commercial machinima projects to survive,¹³⁸ along with the fact that most of such disputes can be settled via the notice-takedown system.

3. The futuristic perspective

As discussed above, the Chinese courts have been utilizing the US four-factor fair use test in determining difficult copyright cases, which is supported by a judicial interpretation document issued by the Supreme People’s Court.¹³⁹ As demonstrated by the *NetEase* case, it is very clear that the court has utilized the ‘transformative use’ concept developed from the first factor in its reasoning, which came from US copyright jurisprudence.¹⁴⁰ However, it is believed that game webcasting activities would probably fail most of the factors even in the US.¹⁴¹ But Cui and Wang suggest that, under certain conditions, certain types of game webcasting could be considered transformative and thus are fair use in China.¹⁴² This author shares that opinion, considering the fast-changing nature of the gaming industry. For traditional games ranging from chess, card games, board games to MMORPG video games, gamers enrolled are still, by and large, presenting the predesigned

gameplays. Webcasters may contribute to the game screen display by demonstrating their unique skills and adding commentaries during their webcasting or live streaming activities, but if their webcasts contain not just segments but the whole movement of a game, they are *prima facie* infringing the copyright of the game screen display unless such uses can be justified by the fair use test.

With regard to the first factor, as most webcasting platforms in China have developed mature contractual relationships with their webcasters and revenue sharing mechanisms are now an integrated part of most webcasting platforms in China, it is very hard for the latter to claim non-commercial use. In addition, depending on the type of the game and the contribution made by the gamers, professional webcasters may be able to claim transformative use if they used the game materials to serve a different purpose or add new meaning to the original. With regard to the second factor, games are often highly creative, due to their fictional nature; the nature of the work would weigh against fair use. For the third factor, the amount used will vary greatly between webcasts, so it will be a case-by-case judgment. With regard to the fourth factor, which is often the most important one, arguments could come from both sides. It is a matter of fact that game webcasting could serve as free advertising for the original game,¹⁴³ which is beneficial to the current market of the game. But it is also true that for some types of games, such as adventure games with a storyline driven by exploration and/or puzzle-solving, webcasting of these games will likely cause a negative impact on their market. Moreover, unauthorized game webcasting is likely to make direct inroads on the potential markets for the related games, as that potential market for game webcasting existed.¹⁴⁴

Obviously, there is a certain degree of uncertainty with regard to the fair use claims of game webcasting. Nevertheless, in a sandbox game, such as *Minecraft*, or even a metaverse environment, in which players are free to design many things, including the gameplay, they will enjoy much greater freedom with regard to creativity.¹⁴⁵ It is more likely that a gamer could succeed in a fair use case if the developers of a game only provide gamers structures, tools and materials and let the gamers decide the rest.

Following the four-factor analysis above, it appears that machinima is more transformative compared with game streaming, as machinima ‘add[s] new material to the original work, such as plot and dialogue, and give the work a different purpose – turning it from a game into a movie’,¹⁴⁶ whereas the latter still, by and large, relies upon the predesigned game function and route. But it should be noted that the conclusion will be different when the gamers have added substantial expressive content to their webcasts, as different gamers will have different understandings about a game, possess different levels of

¹³⁶ Aleks Krotoski, ‘The making of machinima’ *The Guardian* (London, 18 August 2005) <<https://www.theguardian.com/technology/2005/aug/18/onlinesupplement2>> accessed 31 December 2021.

¹³⁷ Matthew Brett Freedman, ‘Machinima and Copyright Law’ (2005) 13 *Journal of Intellectual Property Law* 239.

¹³⁸ Sarah Reiger, ‘Complications in Machinima: Using Video Game Footage to Generate Cinematic Productions and Potential Conflicts with Copyright Law’ *Michigan Technology Law Review* <<http://mttlr.org/2015/10/complications-in-machinima-using-video-game-footage-to-generate-cinematic-productions-and-potential-conflicts-with-copyright-law/>> accessed 31 December 2021.

¹³⁹ ‘Several Opinions of the Supreme People’s Court on Some Issues in Fully Giving Rein to the Function of Intellectual Property Rights Adjudication in Promoting the Great Development and Flourishing of Socialist Culture and Stimulating the Indigenous and Coordinated Development of Economy’ (Supreme People’s Court, FF No (2011) 18, 16 December 2011).

¹⁴⁰ Transformative use ‘adds something new, with a further purpose or different character, altering the first with new expression, meaning, or message.’ See *Campbell v Acuff-Rose Music, Inc.* 510 U.S. 569, 579 (1994).

¹⁴¹ Michael Larkey, ‘Cooperative Play: Anticipating the Problem of Copyright Infringement in the New Business of Live Video Game Webcasts’ (2015) 13 *Rutgers Journal of Law and Public Policy* 90-96; Madeleine A Ball, ‘Nerf This: Copyrighting Highly Creative Video Game Streams as Sports Broadcasts’ (2019) 61 *William & Mary Law Review* 278-80.

¹⁴² Cui (n 42) 17; Wang (n 43) 14-17.

¹⁴³ Mark R Johnson and Jamie Woodcock, ‘The impacts of live streaming and Twitch.tv on the video game industry’ (2019) 41(5) *Media, Culture & Society* 684.

¹⁴⁴ *Rogers v Koons* 960 F.2d 301 (2d Cir. 1992).

¹⁴⁵ Kyle Coogan, ‘Let’s Play: A Walkthrough of Quarter-Century-Old Copyright Precedent as Applied to Modern Video Games’ (2018) 28 *Fordham Intellectual Property, Media & Entertainment Law Journal* 402.

¹⁴⁶ Freedman (n 137) 248.

gaming skill and make different contributions to the web-cast, the outcomes will often be drastically different. When the purpose is transformed from enjoying the game content to demonstrating certain players' high level of gameplay skill, the transformative nature of the use will then be evident.¹⁴⁷ The analysis of the other factors is similar, but with one exception: whether machinima could be considered a potential market of the game developer is unclear when compared with online game streaming. Cui has thus opined that 'the industry practices to be considered in determining the scope of the potential market may change over time.'¹⁴⁸ For machinima, when the commercial interests are big enough, and the game developers have engaged in the licensing and even production business of machinima, the doubts about it being a potential market naturally will vanish. Movie adaptations of literary works were not a potential market for authors of books when movie production was still at its preliminary stage, but no one will deny that movie adaptations of literary works now form an important market for authors. A further discussion of the issue is provided in the holistic assessment of Section V below.

V. A holistic account of the futuristic solutions

It is obvious that the above-mentioned issues are caused by technological advancements and are inherently linked. The concept of the video game as a type of computer program has evolved greatly from the original concept over the past 30 years: it has changed from single-player entertainment into a multi-player social networking platform or a medium which offers vast opportunities for gamers to communicate and develop new ideas, and an interface for various peripheral devices that help to enhance the experience for gamers to plug in, such as virtual reality (VR) glasses and motion capture suits. China is an active player in the metaverse business. It is expected that in the near future interoperability will be the key for any game to succeed in the Chinese market. The legal challenges discussed above may disappear or evolve and expand to a different level. The piecemeal solutions mentioned above are apparently insufficient and will eventually become obsolete. A holistic and futuristic approach is thus needed.

The piecemeal solutions currently adopted by many countries discussed above echo what Brownsword¹⁴⁹ referred to as the Law 1.0 mindset, in which the old laws designed in the pre-internet age 'are not fit for the purposes or policies that are being adopted for the further and better technological performance of society.'¹⁵⁰ For example, the propertization claims of gamers related to virtual game items are theoretically justifiable but in practice hard to enforce. Different game developers may have different ideas with regard to the nature and function of the items they provide to gamers. Depending on the game design, some items in a game are exchangeable or even seizable by other gamers, such as the in-game weapons and armours that can enhance the ability of a character in an MMORPG game, while some items in a different game are not separable from the character holding them, such as the skins of characters and guns that only serve as

decoration provided by battle royale games such as PUBG. Assigning a one-size-fits-all property right over these different items will only cause chaos in game management. Unlike physical objects, game items provided by a specific game can only exist in that game. They can only be traded between players in the same game, and when the game is shut down, due to whatever reason, or the gamer decides to stop playing that game, it will be impossible for them to take that 'property' with them. The Chinese courts tend to hold that such 'property' will vanish and the gamer will not have a claim over it when a game is shut down.¹⁵¹ Even in a future metaverse setting in which games are interoperable, it is hard to imagine virtual items such as a weapon in a game (often with statistics and specific functions) can go across two scenarios, as without the original context those virtual items will serve no function outside the game. However, it might be possible for decorative items, as the function of such an item can be preserved in another system.

Moreover, when a gamer owns valuable virtual items in a game cheats, it will be hard to explain why the game developer can ban the game account of the cheater, thereby rendering his/her items worthless. A contractual relationship, in which the gamers are paying for the right to play the game and use the virtual items provided by the game developer, will better serve the purpose. The game developer will be responsible for providing a fair and sustainable game environment. In fact, most game developers have used their EULAs to make clear that the property rights of the game, virtual items and even the game account all belong to them, and the gamer only enjoys the 'service' provided by the game developer.¹⁵² This practice has been accepted by many Chinese courts.¹⁵³

It seems that the related judgments of the Chinese courts are self-contradictory: at one point when a dispute related to a contract of sale of virtual items or gamer accounts of a game arise between gamers, court tends to recognize a property interest of the gamers in their items and accounts in order to protect them, even if the relevant EULAs indicated that all property rights related to the game items and accounts belong to the developer of the game and are non-transferable.¹⁵⁴ While in cases that concern a contract for the sale of an entire game account between gamers that requires the game developer's cooperation, some courts tend to rule in favour of EULAs provided by game developers that prohibit the transfer of gamer accounts, holding that a gamer only has the right to use his/her account and it is not transferable.¹⁵⁵ These inconsistent judgments reflect that a holistic view is needed to address legal problems related to games.

¹⁵¹ *Du Libo v Guangdong Xing Hui Tiantuo Co. Ltd* [2019] Guangzhou Internet Court Y0192MC No 35031; *Xu Jian v Guangzhou Tianzhan Co. Ltd. et al.* [2021] Guangzhou Intermediate People's Court Y01MZ No17075.

¹⁵² See, for example, 'Tencent Game License and Service Agreement' (*Tencent Games*) <<https://game.qq.com/contract.shtml>> accessed 31 December 2021.

¹⁵³ *Yang Yong v Li Yihan* [2020] Guangzhou Internet Court Y0192MC No 5700; *Sheng Ke v Li Fabao* [2020] Guangzhou Internet Court Y0192MC No 21273.

¹⁵⁴ *ibid*; *Gao Teng v Wu Hengming* [2020] Suzhou Xiangcheng District People's Court S0507MC No 6086; see also 'Fantasy Westward Journey EULA' (*NetEase*) <<http://xyq.163.com/client/userAgreement.html>> accessed 31 December 2021.

¹⁵⁵ *Zhao Gongle v Yu Zhen and Tencent* [2019] Shenzhen Nanshan District People's Court Y0305MC No 12900.

¹⁴⁷ Cui (n 42) 17; Wang (n 43) 14-17.

¹⁴⁸ Cui (n 42) 17.

¹⁴⁹ Roger Brownsword, *Law 3.0* (Routledge 2021) 5.

¹⁵⁰ *ibid* 3.

In a Law 2.0 scenario new rules and regulatory frameworks targeting the new technologies are articulated to fit for the government's purposes and policies of promoting the 'further and better technological performance of society'.¹⁵⁶ The regulatory framework of video games must then consider a set of critical questions: does the Chinese government want to promote the gaming industry? If it does, to what degree should we protect game developers? Specifically, to what degree should we recognize the rules set by their EULAs that concern the entitlement of the contributions of gamers? The answer to the first question is definitely positive, considering the scale and importance of the gaming industry to China.

As to the second question, this author advocates the contractual setting between game developers and gamers and recognizes the crucial role of EULAs in settling disputes as it accords with the development of the gaming industry in China. Making the accounts of gamers non-transferable echoes the national policy regarding real-name registration and anti-addiction for minors, as demonstrated by a policy instrument issued by the National Press and Publication Administration (NPPA)¹⁵⁷ and thereby protects the normal running of a game by deterring unwelcome activities.¹⁵⁸ In addition, making clear that the gamers are signing a service contract with the game in the EULA will help to eliminate the potential risks associated with game developers: if the game developer has explicitly indicated in the EULA that the service provided is not transferable, that will serve as a clear indication that the developer, as one party to the contract, refuses to assign the contract to a third party.¹⁵⁹ In that case any transactions between gamers will not be honoured by the game developer and may even lead to in-game punishment. The current ambiguity in the nature of the virtual items may give gamers the incorrect impression that they 'own' the virtual items, which has spawned the related underground market. The clarity provided by a EULA could thus straighten out the problem, and those who choose to transact will have to bear the risk of that not being recognized. Of course, the EULA will not interfere with the in-game transaction mechanism(s), if any. It is just that the game developer will then have no obligation to revert any in-game transactions or decisions related to the account and virtual items merely based on contractual claims among gamers. Moreover, trading platforms such as Taobao and Pinduoduo could then have a legitimate reason to ban those online shops that sell virtual items. Most importantly, gamers will start to consider their accounts and virtual items as being part of the service provided rather than their property, which will in turn lower their expectation of the value

of such items, and indirectly lower the price set by the game developer due to the asymmetry of expectation. It will thus gradually encourage game developers to explore new ways to add value to the virtual items so as to lift the prices thereof. In a future metaverse setting, the portability of virtual characters and items across different scenarios could then serve as a new growth, and a contractual setting could provide just the flexibility, with the game developers needing to adapt the game characters and items for different scenarios than the property setting.¹⁶⁰

However, different from the property rights of the virtual items scenario, regulatory agencies should intervene and suggest the gaming industry establishes a strict code of practice with regard to gamer contributions such as modding, webcasting and machinima. As these activities do not interfere with the normal running of a game and their legal nature is highly indeterminate, it is improper for game developers to claim ownership over derivative works or ask the gamers to grant them basically all the rights and a licence to exploit derivative works in their EULAs that could potentially be justified by fair use, which is a common practice today.¹⁶¹ Although this approach is beneficial in terms of eliminating uncertainty and protecting the interests of game developers, its defects are also obvious: it is not in accordance with copyright law, as the creator of the derivative works may enjoy copyright over his/her original contribution, and it tends to create tension between gamers and game developers, as well as a legal risk that the EULAs will be constantly challenged by gamers who use the game materials to create derivative works when they learn more about copyright.¹⁶² This author suggests that these unfriendly terms should be replaced with a neutral description of the possible infringing nature of unauthorized derivative works and the likelihood of claiming fair use. If such a code of practice can be

¹⁵⁶ Brownsword (n 149) 3.

¹⁵⁷ 'Notice by the General Administration of Press and Publication of Preventing Minors from Indulging in Online Games' (NPPA, GXCF [2021] No 14, 30 August 2020) <<http://www.nppa.gov.cn/nppa/contents/279/98792.shtml>> accessed 31 December 2021.

¹⁵⁸ For example, it may serve the purpose of deterring game cheating activities that rely upon the transferability of game accounts. If game accounts are untransferable, the cheater will have to register his/her account using his/her own credentials and can thus only register a limited number of accounts. The cost of cheating will be unbearable for the gamer if the game developer can ban a game account once cheating is discovered.

¹⁵⁹ arts 543, 544, Civil Code of China.

¹⁶⁰ As discussed above, game items will often lose parts of or all their statistics and specific functions when moved to another scenario in a future metaverse world, as they are highly context-based.

¹⁶¹ For example, Blizzard has claimed '[t]he 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") ... You hereby grant Blizzard a perpetual, irrevocable, worldwide, fully paid up, non-exclusive, sub-licensable, right and license to exploit the User Content and all elements thereof, in any and all media, formats and forms, known now or hereafter devised. Blizzard shall have the unlimited right to copy, reproduce, fix, modify, adapt, translate, reformat, prepare derivatives, add to and delete from, rearrange and transpose, manufacture, publish, distribute, sell, license, sublicense, transfer, rent, lease, transmit, publicly display, publicly perform, provide access to, broadcast, and practice the User Content as well as all modified and derivative works thereof and any and all elements contained therein, and use or incorporate a portion or portions of the User Content or the elements thereof in conjunction with or into any other material. In the event you upload or otherwise transmit to Blizzard any concepts, ideas, or feedback relating to the Platform, you shall not be entitled to any compensation for any such submission, unless expressly agreed between you and Blizzard, and Blizzard may freely use any such submission in any manner it deems appropriate. Any such submission by you shall not create any contractual relationship between you and Blizzard. Except to the extent that any such waiver is prohibited by law, you hereby waive the benefit of any provision of law known as "moral rights" or "droit moral" or any similar law in any country of the world.' See 'Blizzard End User License Agreement' (Blizzard, 1 June 2021) <<https://www.blizzard.com/en-us/legal/fba4d00f-c7e4-4883-b8b9-1b4500a402ea/blizzard-end-user-license-agreement>> accessed 31 December 2021.

¹⁶² Zhaoxia Deng and Yahong Li, 'Players' rights to game mods: Towards a more balanced copyright regime' (2021) 43 Computer Law & Security Review 18.

established by governmental or industrial intervention, it will encourage game developers to cooperate with gamers with elaborate cross-licensing designs and nurture a friendly developer–gamer community.

In a future Law 3.0 scenario, in which the regulators can choose to use new technologies as regulatory tools instead of only imposing legal rules,¹⁶³ we can expect that the underlying game structure will become the game-changer. The structure of a game, or what Lessig¹⁶⁴ refers to as the ‘architecture’ of it, will decide whether there is still a need to regulate the above-mentioned issues, as most of them are actually the side-effects of the development of technology and thus can be addressed via a structural change. For instance, in a future metaverse scenario, it is expected that many issues, such as hacking, cracking and cheating in a game, can be addressed by advancements in technology: the wide application of blockchain technology in metaverse games and the shift of management power of the community from the game developer to gamers will eliminate these problems that are firmly connected to the anonymity of gamers. Not only because public blockchains can provide better security for one’s digital assets, but also because the technology can help to create a digital identity for gamers.¹⁶⁵ When the game environment looks increasingly like the real world, the costs of hacking, cracking and cheating will become extremely high, as the related reputational and economic costs will become unbearable for gamers. Just as Ellickson indicated, people tend to ignore the law because ‘they often possess more expeditious means for

achieving order’¹⁶⁶ and ‘[t]o achieve order without law, people must have continuing relationships, reliable information about past behaviour, and effective countervailing power.’¹⁶⁷ In addition, when game developers are merely providing gamers with a tool for metaverse development, and the contribution from gamers with regard to new game design and creative combination of game materials are considered the core of a metaverse game, it can be expected that the external derivative works will be marginalized to a degree, and the gamers who create can be treated as co-developers or owners of their creations, provided that the gamers’ community is in control of the game management. In other words, we should not expect the law to solve all the problems if advances in technology, costs of misbehaviours and community norms can achieve good governance too.

VI. Conclusion

The development of metaverse is still at an early stage. It is still too early to say that the legal problems of video games discussed in this article will definitely be addressed by it, but one can say that it has the potential to do so. It is also true that new technology may bring new legal problems. Whether and how we should revise our laws to fill the gaps depends on the future development of the video game industry. For the moment we must watch game developments carefully and take a holistic and futuristic assessment of the potential impact of related legislative moves and legal decisions. In the future, the disruptive power of new technologies will be better regulated by a net of regulatory tools rather than by law alone.

¹⁶³ Brownsword (n 149) 28-29.

¹⁶⁴ Lawrence Lessig, *Code version 2.0* (Basic Books 2006) 123.

¹⁶⁵ Georgia Weston, ‘Top 5 Blockchain and Crypto Projects in The Metaverse’ (*101 Blockchains*, 29 December 2021) <<https://101blockchains.com/metaverse-blockchain-and-crypto-projects/>> accessed 31 December 2021.

¹⁶⁶ Robert C Ellickson, *Order without Law: How Neighbors Settle Disputes* (Harvard University Press 1994) 282.

¹⁶⁷ *ibid* 284.