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THE LEGAL STATUS OF ABANDONED GAMES IN U.S. LAW

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Resumen: En esta tesis se analiza el status legal de los videojuegos abandonados frente al sistema de protección de propiedad intelectual que rige en los Estados Unidos. Para poder llevar a cabo este objetivo se estudiaron; el Título 17 del U.S. Code y la Digital Millennium Act, así como doctrina sobre propiedad intelectual, abandono de propiedad intelectual y estudios sobre las perspectivas que tienen tanto las compañías de videojuegos como los preservadores de videojuegos abandonados al respecto. Los objetivos que se cubrieron para resolver esta cuestión fueron los siguientes; 1. Determinar los elementos protegidos por la legislación de propiedad intelectual en Estados Unidos y la duración de dicha protección, 2. Establecer cuál es la diferencia entre los entusiastas del abandonware y los “warez traders” y su conexión con la piratería. 3. Establecer las razones detrás del fenómeno de abandono de videojuegos y en qué consiste el proceso de abandono de los mismos, así como la postura de las compañías de videojuegos, los “abandonware enthusiasts” y el Congreso de Estados Unidos frente a este fenómeno. 4. Estudiar la legislación y los precedentes sobre el tema en Estados Unidos para determinar el tratamiento legal que le da este a los videojuegos abandonados.

Abstract: The main objective of this thesis is to determine the legal status of abandoned videogames in the United States’ copyright system. In order to do this, 17 U.S.C. as well as the Digital Millennium Copyright Act were thoroughly studied and reviewed. In addition to this, several professional articles and books on the following subjects have been studied to gain a better understanding of the topic: Intellectual property, abandonment of intellectual property and the perspectives of both videogame companies and abandonware enthusiasts about the subject of abandoned videogames. In order to reach the main objective, a set of smaller objectives were established: (i). Determining which elements of a videogame can be protected by copyright law and what is the durability of said protection; (ii). Discover the difference between “abandonware enthusiasts” and “warez traders” and their connection to piracy; (iii). Uncover the reasons and the process behind the abandonment of videogames, as well as the views of videogame companies, the U.S. Congress and abandonware enthusiasts on the subject and (iv). To study both the precedent history and legislation to determine the legal status of abandoned games.

INTRODUCTION.

This paper is a work born from curiosity and a passion for a subject which may seem small, but which may well determine the fate of a multi-billion-dollar industry; the relationship between videogame emulation and copyright law, and more specifically, how abandoned videogames are treated under U.S. Copyright law. This paper will analyze what happens under U.S. law when members of the gaming community copy and distribute videogames that are no longer in the market, also known as the sharing of “abandonware games” or “abandoned videogames”.

The videogame market has grown exponentially ever since 1994. According to an economic study by Pelham Smithers Associates, a London market intelligence firm which specializes on researching technology issues, the global videogame market was worth around USD 50bn in 1994 and has only been increasing ever since, tripling its size reaching USD 150bn.¹ Of the ten countries with the highest game revenues, the U.S. is the second largest, generating over USD 40.54bn in 2021, with more than 191.12 million gamers in the U.S.² Given the 2021 U.S. population of 331 million³, the number of gamers represents over 57% of the total population. This makes the U.S. second only to China in terms of the size of both videogame revenue and player community

Recently, videogame companies have been seen fighting against the sharing of abandonware games. One of the most recent cases involves Nintendo which sued Matthew Storman, the owner of the website “RomUniverse” where digital copies of abandoned games were shared for free. This case ended in a settlement and loss of all the preserved games within the website.⁴ This recent case shows that more research must be done in

¹ Nakamura Yuji. “*Peak Video Game? Top Analyst Sees Industry Slumping in 2019.*”. Mumbai, Maharashtra. January 24, 2019. Available: [bloombergquint.com/business/peak-video-game-top-analyst-sees-industry-slumping-in-2019](https://www.bloombergquint.com/business/peak-video-game-top-analyst-sees-industry-slumping-in-2019) (Consultation date: April 25, 2022).

² Newzoo. **Top 10 Countries/Markets by Game Revenues**. San Francisco, United States of America, 2021. Available: [newzoo.com <https://newzoo.com/insights/rankings/top-10-countries-by-game-revenues/>](https://newzoo.com/insights/rankings/top-10-countries-by-game-revenues/) (Consultation date: March 19, 2022).

³ United States Census. **U.S. and World Population Clock**. Washington, DC. United States of America Census Bureau. 2021. Available: [www.census.gov <https://www.census.gov/popclock/>](https://www.census.gov/popclock/) (Consultation date: April 25, 2022).

⁴ Oloman, Jordan. “*Nintendo Wins Multi-Million Dollar Lawsuit Against Rom Hosting Website.*” San Francisco, United States of America: June 1, 2021. Available: **IGN**, Nintendo Switch. [<https://www.ign.com/articles/nintendo-wins-lawsuit-rom-website-romuniverse>](https://www.ign.com/articles/nintendo-wins-lawsuit-rom-website-romuniverse) (Consultation date: February 1, 2022).

order to prevent the loss of more abandoned games. This is important because the loss of abandoned games represents the loss of knowledge, inspiration and culture. According to Frank Cifaldi, losing a game means losing its source material and the history of videogame companies, losing game code that could be studied and used to inspire new future programmers to create new games, or even learn from the mistakes the original creators made when they built their own games.⁵ The documentary “Emulation, the Law, and You: Where the Hobby Ends and Crime Begins” states that not only should popular videogames be saved but all videogames since they contain solutions to problems that modern day programmers struggle to solve or even gameplay gimmicks that were new and creative even if the game was awful or unplayable, meaning there is both a loss of creativity and inspiration when popular and nonpopular games fade away into obscurity.⁶

Even though China is the largest market for videogames, this paper focuses on abandoned videogames from the perspective of the U.S. copyright law. This is because although Chinese intellectual property laws provide strong protection against piracy, they are not enforced. Even after China had strengthened their copyright laws in the mid. 1990s, the U.S. reported a loss of USD 2bn per year due to piracy in China.⁷ Although China’s market size is enormous and the low production costs allow investors to earn profits in spite of losses due to ineffective intellectual property protection,⁸ outright piracy is the bigger issue in China instead of the treatment of abandonware games.

- Key Concepts

At this point it is important to explain the concepts that are involved in the abandonware games scene.

○ Abandonware

⁵ GDC. **It’s Still Emulation: Saving Video Game History Before It’s Too Late**. San Francisco, California, United States of America. 2019. Available: Youtube <<https://www.youtube.com/watch?v=dp-DRU24J18>> (Consultation date: April 26, 2022).

⁶ Nerrel. **Emulation, the Law, and You: Where the Hobby Ends and Crime Begins**. n.p. 2020. Available: Youtube <<https://www.youtube.com/watch?v=yj9Gk84jRiE>> (Consultation date: April 26, 2022).

⁷ Yu, Peter K., “Intellectual Property, Economic Development, and the China Puzzle”. In: Daniel J. Gervais. Intellectual Property, Trade and Development: Strategies to Optimize Economic Development in a TRIPs Plus Era. Michigan, United States of America, 2007, (pp.173-220), p.187. Available: <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=978301> (Consultation date: April 25, 2022).

⁸ Ídem. (pp. 180-181).

Dennis W. K. Khong defines “abandonware” as “*any PC or console game that is at least four years old and not being sold or supported by the company that produced it or by any other company*”⁹.

- Abandonment

The aforementioned author has said that “abandonware” involves and is a form of “Abandonment” which can, in turn, be defined as “*the situation where the copyright owner is known and available, but the copyrighted work is not currently being supplied*”¹⁰ Based on these definitions we can define “abandonware games” as videogames which were at one point sold, distributed and supported, but that are no longer available for purchase because of the videogame company’s lack of support and further distribution of said games.

According to Khong, typically there are two causes of abandonment; “*an unexpired copyright term.*” and “*the non-availability of the copyrighted work*”¹¹ Though Khong himself states that the optimal length of a copyright term varies according to each individual work, he has also mentioned that in an ideal world where optimal terms are given to each work, the copyright term should expire once the marginal social cost of protection equals the marginal benefit of protection which should be close to the moment when the copyright owner stops supplying the work to the public.¹² Having said this, it must be clarified that when Khong refers to “unexpired copyright terms” he is referring to copyright terms that seem break the rule stated previously by lasting longer than they should. Normally once these terms expire, the previously protected work becomes a part of the public domain.¹³ However videogame companies will typically produce and distribute a game, then stop the production of said games while its copyright term has yet to expire so

⁹ Khong, Dennis W.K. *Orphan Works, Abandonware and the Missing Market for Copyrighted Goods*. March ,2007. p.3 Available: **International Journal of Law and Information Technology**. Oxford University Press. Vol. 15, 2006. <<https://academic.oup.com/ijlit/article-abstract/15/1/54/652152>> (Consultation date: February 1, 2022).

¹⁰ Idem (pp.3-4).

¹¹ Khong, Dennis W.K. Ob. cit. (pp.6).

¹² Khong, Dennis W.K. *Orphan Works, Abandonware and the Missing Market for Copyrighted Goods*. March ,2007. p.7 Available: **International Journal of Law and Information Technology**. Oxford University Press. Vol. 15, 2006. <<https://academic.oup.com/ijlit/article-abstract/15/1/54/652152>> (Consultation date: February 1, 2022).

¹³ Loc.cit.

that the company can move on to produce newer games. This process causes “abandonment” for the already-released games, as videogame companies still hold the rights to the distribution and production of these games, but it is unlikely that they will rerelease them. This process leaves behind a latent demand for these games that has been largely ignored by the videogame companies, as well as obsolete games.

- Emulation

Since there is pent-up demand that drives unsatisfied customers (gamers), these gamers are driven to search for alternative sources to access these older games, namely through the use of emulation. Because of this, the market for emulation has become robust over time, not only because of the growth of the internet and the emergence of peer-to-peer file sharing technology, but also because of the persistent inattention to latent market demand.¹⁴ The combination of these two reasons has led these “unsatisfied customers” to seek access to these games through emulation. An emulator can be defined as “...a piece of hardware/software that allows a user to execute game software on a platform for which the software was not originally intended”¹⁵ Essentially an emulator is a computer program run typically in a computer that can run videogames as if they were being played in the original videogame console.

Two things are required for emulation to work; a copy of the console’s operating system and the ROM (also known as a Read Only Memory).¹⁶ The console’s operating system is typically obtained via reverse engineering, meaning that a programmer (most likely a gamer) analyzes the console’s system and code then reverse engineers the operating system, creating a computer program that works exactly like the original hardware. On the other hand, ROMs are files that contain the source code of a videogame, meaning that they contain the instructions that the original computer hardware must follow in order to play the game on the screen. These files are typically obtained via extraction through a program known as a “ROM dump” which extracts the source code from the physical copy and turns

¹⁴ Conley, James, Andros Ed, et al. “*Use of a Game Over: Emulation and the Video Game Industry, A White Paper.*” 2004. p.2 Available: **Northwestern Journal of Technology and Intellectual Property**. Northwestern Law. Vol 2, 2004. <<https://scholarlycommons.law.northwestern.edu/njtip/vol2/iss2/3/>> (Consultation date: February 1, 2022).

¹⁵ Loc. cit.

¹⁶ Conley, James, Andros Ed, et al. Ob. cit. (pp.2).

it into a computer file.¹⁷ Typically, copies of abandoned games are published on the internet and there are several websites that offer both the emulators and ROM files for free so that any person can have access to them.

Though it may seem as though the only purpose of the reproduction, copying and sharing of these abandoned games would be to use them for entertainment and to satiate gamers' nostalgic thirst to play the games that were part of their childhoods, there are organizations like the Videogame History Foundation who make it their purpose to preserve games that have been part of videogame history. One of the ways these organizations aim to preserve these games is by using emulation.

- Videogame Preservation

This is where videogame preservation comes into play as it is tied to the second reason why this paper studies the U.S. Copyright law's take on the subject. Copyright law have always been at odds with not only videogame preservation, but software preservation in general inside the United States. The preservation of software requires the access to faithful copies of the software so that researchers can interact with the programs contained in those copies. In the U.S. however, this becomes problematic because said copies are protected by 17 U.S.C. 106, which protects the right of distribution. If one were to make copies of such software without authorization, one could potentially infringe the exclusive right of reproduction granted by the copyright law to the owners of the rights to the software. This implies that even if the act of copying abandoned software does not generate direct harm to the copyright owner, software preservation professionals run the risk of having their activities shut down through litigation.¹⁸

Given that the preservation of software forces preservation scholars to technically violate the law, there have been some cases in which U.S. copyright law protects these activities, although such protection is mostly "thin" and "superficial". According to the

¹⁷ Conley, James, Andros Ed, et al. Ob. cit. (pp.5).

¹⁸ Aufderheide, Patricia and others. **The Copyright Permissions Culture in Software Preservation and Its Implications for the Cultural Record**. Australia: Feb 9, 2018. p.10. Available: Analysis & Policy Observatory <<https://apo.org.au/sites/default/files/resource-files/2018-02/apo-nid132166.pdf>> (Consultation date: January 31, 2022).

Association of Research Libraries, 17 U.S.C. 108(c) protects the copying and preserving of software (and by extension, videogames) only when libraries and archives do it. Furthermore, it states that only three copies of the software in an “obsolete” format are allowed to be made by said institutions. In addition to this, 17 U.S.C. 117(a) allows only for a copy of a computer program if such a copy is needed to utilize said program with a specific machine. Even though this section allows for a copy to be authorized, the Association of Research Libraries criticizes this section because they state that this protection is not wide enough to cover specialized software preservation practices. The authors of the same paper have stated that 17 U.S.C. 110’s established exception when it comes to the reproduction of intellectual property for educational uses is also of little use, as it is limited only to performances and displays for the purpose of teaching and not preservation. These are limitations that the Association of Research Libraries deems unacceptable because they provide exceptions that are far too narrow to be of any substantial benefit to software preservation activities.¹⁹ However the U.S. law has one beneficial quality that is unique to its legal system and that is the fair use doctrine.

The fair use doctrine is when: “... *one party may use a portion of a copyrighted work for a limited purpose without asking permission from the copyright holder, in order words without paying for a license*”²⁰, however the most important and most peculiar thing about this doctrine is that it is a concept that is only present in the United States. This doctrine, according to David Greenspan, only exists in the U.S. and not in Europe. The reason Greenspan gives is that in Europe the use of a copyrighted work without a license is not allowed unless it is for educational or news reporting purposes. Fair use is not only a doctrine, but also a defense against a claim of copyright infringement. Ergo, only in the United States of America can a preservation professional or an abandonware game consumer seek protection from the law against a videogame company’s copyright infringement claim.

¹⁹ Loc. cit.

²⁰ Greenspan, David. **Mastering the Game: Business and Legal Issues for Video Game Developers**. Switzerland: 2014. p.75. Available: wipo.int. <<https://www.wipo.int/publications/es/details.jsp?id=3233&plang=ES>> (Consultation date: March 19, 2022).

- Methodology

The methodology that will be followed in this paper will use both a legal and sociological approach. For the legal approach, this paper will analyze Title 17 U.S.C and the Digital Millennium Copyright Act, because these are the two main copyright laws that cover the subject of copyright and copyright infringement. In order to understand the legal aspect of the problem of abandoned videogames, there are three things that can only be understood and viewed by analyzing the law: First, the rights that are given by the copyright laws of the U.S. to the author of the videogame. Second, the way that these rights are applied to abandonware videogames. Third, the limits and applicability of the fair use doctrine defense in abandoned game cases.

As for the social aspect of the analysis performed in this paper, the different perspectives of the main protagonists involved in this situation will be studied to understand how and why the copyright laws are being used by the videogame companies to shut down abandonware websites. For this the judicial precedents that where videogame companies have shut down abandonware websites will be studied, as well as studies and publications about the stances that abandonware gamers, Congress and videogame companies take towards the subject. These precedents are both “Nintendo of America Incorporated v. Mathias et al” and “Sony Computer Entertainment v. Connectix Corp.” The reason why a sociological approach was deemed fit to include in this paper is because the origins of this problem and the evolution of it have both arisen not within the law, but out of the mutual struggle between the videogame developing companies and abandonware enthusiasts.

Chapter I

THE CURRENT SITUATION REGARDING ABANDONED VIDEOGAMES

The main objective of this chapter is to analyze which parts of a videogame can be covered and protected by copyright. In this chapter subject of how Title 17 U.S.C. determines the durability of the copyright owner's rights will also be analyzed. There will also be an explanation about how and why abandonware is created in the videogame industry. Lastly in this chapter there will also be an explanation regarding the difference between "warez traders" and "abandonware enthusiasts" due to the fact that often times these two types of people copy and share abandoned videogames and abandoned software. Though the actions performed by these two types of people may be seen as equal, both are often prosecuted by the law because of this false appreciation of both of these groups' actions.

A. WHAT IS A VIDEOGAME IN U.S. COPYRIGHT LAW?

At first the question "what is a videogame?" might sound easy to answer. If someone were to search for the definition of what a videogame is, they might find that the Encyclopedia Britannica has an article on the subject. A "videogame" is defined as; "*any interactive game operated by computer circuitry*"²¹ furthermore these games are often played in "platforms" such as personal computers, arcade consoles, videogame consoles, handheld game machines and a number of other similar platforms.

Videogames are essentially interactive computer programs made for entertainment that are played typically on a machine, on a computer or a videogame console. Given this previous definition provided by the Encyclopedia Britannica, it can be concluded that a

²¹ Lowood, Henry E. "*electronic game*". In: **Encyclopedia Britannica**. Chicago, United States of America, The Britannica Group, 1998/2021. Available: [brittanica.com <https://www.britannica.com/topic/electronic-game>](https://www.britannica.com/topic/electronic-game) (Consultation date: March 22, 2022).

videogame is essentially a type of computer program. However this creates a problem because Title 17 of the U.S.C. does not mention these types of products protected by copyright law. Through an analysis of Title 17 of the U.S.C., it becomes evident that there is no explicit mention of a special category open for computer programs.

Inside 17 U.S.C 102, it can be seen that the copyright law establishes which types of works are protected by it;

“(a) Copyright protection subsists, in accordance with this title, in original works of authorship fixed in any tangible medium of expression, now known or later developed, from which they can be perceived, reproduced, or otherwise communicated, either directly or with the aid of a machine or device. Works of authorship include the following categories:

- (1) literary works;*
- (2) musical works, including any accompanying words;*
- (3) dramatic works, including any accompanying music;*
- (4) pantomimes and choreographic works;*
- (5) pictorial, graphic, and sculptural works;*
- (6) motion pictures and other audiovisual works;*
- (7) sound recordings; and*
- (8) architectural works.”²²*

It is evident that 17 U.S.C 102 establishes the general rule that in order to determine if a work of authorship is protected by copyright law, the work must be fixed in a tangible medium of expression. However it also establishes a number of specific categories of works that are also protected by copyright which noticeably does not include computer programs.

Despite not being included inside this particular section, Title 17 of U.S.C. does mention computer programs in 17 U.S.C.101 “Definitions” and in 17 U.S.C.109 “Limitations on exclusive rights: Effect of transfer of particular copy or phonorecord” within subsection 17 U.S.C.109(b)(1)(A) and 17 U.S.C.117 “Limitations on exclusive rights: Computer programs”. In 17 U.S.C.101 the term “computer program” mentioned, stating that computer programs are essentially a set of instructions written in the form of statements that are used directly or indirectly in a computer in order to obtain a certain

²² U.S. Copyright Office. **Copyright Law of the United States and Related Laws Contained in Title 17 of the United States Code.** Washington, United States of America. Library of Congress. 2021, p. 8. Available: <<https://www.copyright.gov/title17/>> (Consultation date: January 31, 2022).

result.²³ Following this, 17 U.S.C.109 establishes a set of general rules about the use of computer programs to respect the rights of the copyright owners. Lastly, 17 U.S.C.117 establishes rules about exclusive rights held on computer programs.

With the inclusion of computer games inside these sections, it can be inferred that Congress did intend to protect computer programs through copyright. However it remains unclear whether the mere inclusion of such works within those three sections is actually enough for computer programs to be protected by copyright law. Though it is indeed true that Congress did not explicitly state that computer programs were part of 17 U.S.C.102 in the Copyright Act of 1976 (included inside Title 17 of the U.S. Code), it was stated by the House of Representatives within a House Report²⁴ from that same year that in terms of copyright, computer programs can be considered “literary works” because such a category cannot be reduced to only written works, but rather encompasses computer programs as well since they are the expression of an original idea by the programmer.²⁵

Congress essentially justified the lack of specification because they thought that computer programs fit the general rule contained in section 102. This seems to be the case since inside the Congress’s House Report, it was mentioned that the provision regarding the subject matter and Scope of Copyright could be extended so that computer programs could be included in it and thus there was no need to make new legislation about it. However, after receiving a report on the copyright protection of computer programs from the Commission on New Technological Uses, Congress made amendments to the Copyright Act of 1976, which translated into the addition of the new rules contained inside sections 17 U.S.C.101, 17 U.S.C.109 and 17 U.S.C.117, which means that computer programs are protected by copyright law because they were meant to fit into the general rule of 17 U.S.C.102.²⁶

Since videogames are a form of computer programs, they are protected works under the scope of copyright law as “written works” as stated by Congress in 1976. Congress’s

²³ Idem (pp. 2).

²⁴ A House Report is a document that is made by the House of Representatives, it records the discussion around legislative issues, investigations and internal committee matters.

²⁵ Epstein, Michael A. **Modern Intellectual Property**. New York, United States of America. Law & Business, Inc, 1984, p. 198.

²⁶ Loc. cit.

reasoning is also justified by the fact that computer programs are “written works” because they have “Source Code” and “Object Code”. The “Source code” is a set of instructions that was written by a programmer for the computer to execute, while the “Object code” is the same set of instructions translated to a language that the computer can understand.²⁷ In a decision made by the United States Court of Appeals for the Second Circuit in a case titled “Stern Electronics, Inc. v. Kaufman” the court declared that the code of a computer program is protected by copyright as a literary work as well as the “sights” and “sounds” of the game which were considered to be audiovisual works²⁸.

It is clear that videogames can be classified as literary works and audiovisual works. However, as times have changed, so too have the shape and content of videogames which has made their classification all the more complicated when it comes to copyright. Since in the 1980s computer science was underdeveloped, the types of games that judges had to analyze were much simpler, containing elements like a black background, simple geometric shapes and basic functionalities like shooting or ricocheting. Often times there was not enough variety amongst games and because of their simple appearance, judges would conclude that there were forms of expression that were tied to the idea of a particular game.²⁹ Thus, judges found it easier to classify videogames as “literary works” and “audiovisual works”. However, this sort of evaluation has become more complex due to the sheer amount of elements that are included in modern videogames.

As videogames evolved over time, more elements have been included inside modern games, which have made it difficult to determine which elements are copyright protected. It is important to note that when consumers buy a modern videogame they are essentially buying a limited license to access the Intellectual Property (IP) that the videogame developing company has released to the public for them to buy. The IP includes,

²⁷ Epstein, Michael A. Ob. cit. (pp. 202-203).

²⁸ Chisum, Donald S, Jacobs A. Michael. **Understanding Intellectual Property Law**. New York, United States of America, Matthew Bender & Co., Inc, 1992, p. 4C[2][b].

²⁹ Ramos, Andy, López, Laura and others. **The Legal Status of Video Games: Comparative Analysis in National Approaches**. Switzerland: 2013. p.7-8. Available: wipo.int. < <https://www.wipo.int/publications/en/details.jsp?id=4130>> (Consultation date: February 3, 2022).

amongst other elements, the game code, manual text, box art, title, game art, music, story, game world, middleware and graphics that are included with the videogame itself.³⁰

On top of these elements, modern videogames include not only the source code, but also audio elements and video elements that are subject to copyright. Examples of audio elements include; Voice Acting, Imported Sound Effects and Internal Sound Effects. Meanwhile video elements are often; Photographic Images, Digitally Captured Moving Images, Animation and Text.³¹ All of the elements that encompass the IP are subject to copyright under different categories mentioned in section 17 U.S.C. 102(a). For instance, the audio elements could be classified as musical works while the video elements can fall under the category of audiovisual works,

Given the copious amounts of elements contained in the IP of a videogame, the process of determining how these elements must be protected has become complex. The truth is that there is no global consensus on which copyright protected category is best suited to be applied to videogames in general. There are three different points of view shared by three different groups of countries about this; 1. There are countries that believe that videogames are simply computer programs due to their nature and the fact that they depend on the use of software to be implemented. 2. There are other countries where it is believed that given the tremendous complexity of video games, these must be subjected to legal protection that attend to the nature of each specific work. 3. There are countries where it is believed that videogames are audiovisual works because they mostly have visual elements.³²

The United States in particular applies the second of the three approaches because the copyright law has no clear classification for videogames, making the type of legal protection vary depending on the elements found in each particular videogame.³³ In addition to this, the fact that the aforementioned 17 U.S.C. 102 provides a list of the specific types of works that can be protected by copyright makes it so that the copyright

³⁰ Greenspan, David. **Mastering the Game: Business and Legal Issues for Video Game Developers**. Switzerland: 2014, pp.58. Available: wipo.int. < <https://tind.wipo.int/record/45851> > (Consultation date: March 19, 2022).

³¹ Idem. (pp.8).

³² Ramos, Andy, López, Laura and others. Ob.cit. (pp.10).

³³ Idem. (pp.11).

law can provide any type of copyright protection that fits with the elements contained inside the videogame. Because the copyright law also contemplates specific types of protection which fit with the elements of each game, if a videogame has more visual elements it can be protected as an audiovisual work or should it have more musical elements it can be protected as a musical work.

This is the right approach that a copyright system should have when it comes to videogames, because should this protection be limited only to the videogame's code or their audiovisual aspects, it would mean that the rest of the elements encompassing the IP would be left unprotected and at the mercy of piracy. It may be argued that because 17 U.S.C. 102 protects all videogames with its general rule, that there is no need for a specific case-by-case protection system. However, this argument fails to consider that 17 U.S.C. 102 does not specifically protect videogames. It protects works in general, but videogames cannot be seen as a unit nor as a single work because often times different authors work on different elements that are part of the game and thus those elements can fall under different kinds of protection. The issue is not whether videogames are protected by copyright, but rather how they are protected, because depending on which category of 17 U.S.C. 102 is applied to videogames, it will receive a type of protection that is specifically tailored to encompass its elements.

a. THE VAGUENESS OF THE
COPYRIGHT RIGHTS DURATION
REGARDING VIDEOGAMES.

Following the previous section, the subject of the duration of the rights given by copyright law to the authors of videogames will be analyzed. Despite Videogames being complex when it comes to determining what sort of copyright protection is fitting for them, a new problem arises from determining how long the rights to videogames last.

The durability of the rights to the protection of intellectual property is established within section 17 U.S.C. 302 titled "Duration of copyright: Works created on or after

January 1, 1978”. As a side note, it must be clarified that the reason why this section only applies to works made on or after 1978 is because, according to Melville B. Nimmer, it was during this year that the Copyright Act of 1976 was released, replacing the harsher and more formal Act of March 4, 1909.³⁴ This is the reason why the copyright terms have been divided into two sections, both 17 U.S.C. 302 and 17 U.S.C. 302 to protect both the works that were created before and after 1978.

Three different copyright terms are established in 17 U.S.C.302(a)(b)(c). The first states that as a general rule, all copyright work created on or after January 1, 1978 will be protected by copyright law during the life of the author and for a total of 70 years after their death. The second copyright term states that in the case of “joint works” prepared by two or more authors who did not work for hire, it will be protected until the death of the last surviving author and 70 years after their death. The third and final copyright term states that when it comes to anonymous works, pseudonymous works and works made for hire, the copyright will last 95 years after the first year of publication or 120 years from the year of its creation, whichever expires first.³⁵

It must be noted that the terms established in 17 U.S.C.302 are entirely based on the relationship between the author and their work. This can be inferred from 17 U.S.C.302 (a) through (c) which establish that even though there is a general rule for all works of authorship, there are cases where the relationship between the author and their work are important to establish which term is applied to a specific type of work. In this regard, the terms “joint work” and “work for hire” are defined by 17 U.S.C.101 as follows; a “joint work” is a “*work prepared by two or more authors with the intention that their contributions be merged into inseparable or interdependent parts of a unitary whole*” while a “work for hire” is “*a work prepared by an employee within the scope of his or her employment*”³⁶ The difference between one and the other is essentially the relationship

³⁴ Nimmer, Melville B., Marcus, Paul and others. **Cases and Material son Copyright and Other Aspects of Entertainment Litigation Including Unfair Competition, Defamation, Privacy.** 4a ed. Minnesota, United States of America. West Publishing Company, 1971/1991, p.1.

³⁵ U.S. Copyright Office. **Copyright Law of the United States and Related Laws Contained in Title 17 of the United States Code.** Washington, United States of America. Library of Congress. 2021, p. 173. Available: <<https://www.copyright.gov/title17/>> (Consultation date: January 31, 2022).

³⁶ Idem. (pp. 4, 7).

between the author and their work because in a “joint work” there are several authors involved and therefore the copyright term established for them in 17 U.S.C.302(a) lasts until the last of the authors dies and 70 years afterwards. The same happens with “work for hire” because 17 U.S.C.302(b) recognizes that the copyright term cannot be tied to a person because usually the employer is a corporation, hence why there is no mention of the author’s death.

The issue that arises from applying these copyright terms to videogames is that it is difficult to determine who holds the rights to the videogame because the amount of people that participate in the creation of a videogame is very large and thus all of them could hold rights to their individual works even though they are a part of a single videogame.

In general it has been discovered that producers and the publishers of a videogame tend to hold the rights to the intellectual property contained in it. However even this cannot be considered a general rule, because the ownership of the rights described ultimately depends on the contractual arrangements between publishers and the authors that participate in the development process of the game.³⁷ Normally a company orders their employees to develop a game in order to avoid this issue since this way the employers will ultimately own all the rights to the game. However this is not always the case as videogame companies can hire outside contributors to work on a game and there have been records of new contractual arrangements that allow the original contributors to maintain certain rights to their individual works.³⁸ Without a written agreement between the parties, the original authors will still hold the rights to their respective contributions to the videogame, thus videogame companies require authors to sign a written document where they transfer their rights to the company so that only the company can own the rights to the entire IP.³⁹

Because not all relationships between videogame companies and authors of the individual components of a videogame are always the same, it stands to reason that depending on the contractual arrangements between them, a different copyright term will

³⁷ Ramos, Andy, López, Laura and others. **The Legal Status of Video Games: Comparative Analysis in National Approaches.** Switzerland: 2013. p.91. Available: wipo.int. < <https://www.wipo.int/publications/en/details.jsp?id=4130>> (Consultation date: February 3, 2022).

³⁸ Loc.cit.

³⁹ Ramos, Andy, López, Laura and others. Ob.cit. (pp.91).

be applied to the game. There are two categories in which a videogame can fall when it comes to the subject of copyright terms. The first one is that a videogame can be considered a “work for hire” if the game was made by employees that are already part of the videogame developing company. The second one would be to consider a videogame to be a “joint work” because a videogame company could have hired outsiders that contributed during the development of the videogame and thus there would be two or more authors working on a single work.

In the first case, if a videogame is considered a “work for hire” then the copyright term that must be applied to it must be the one established within 17 U.S.C. 302(c) and thus the copyright term must be either 95 years or 120 years since its first year of publication. However if a videogame is considered a “joint work” then the copyright term applied to it would instead be 70 years since the death of the last surviving author according to 17 U.S.C. 302(b).

The issue becomes evident when we consider the following: if a videogame is considered a “joint work” then the videogame company and the original contributors would be all considered authors and co-owners of the videogame’s copyright.⁴⁰ Because 17 U.S.C. 302(b) establishes a copyright term of 70 years after the death of the last author, the copyright term would last both the remaining lifespan of the people who worked to create the videogame and the lifespan of the company plus 70 years. Considering the fact that a company can very well live as much as 100 years or as little as 10 years depending on when it was created,⁴¹ and that according to the World Health Organization the average lifespan of an average person anywhere in the world is 73 years,⁴² then it would be reasonable to conclude that the sum of both lifespans plus 70 years could very well result in a copyright term which exceeds the maximum copyright term of 120 years 17 U.S.C. 302(b) establishes for “works for hire”.

⁴⁰ U.S. Copyright Office. **Copyright Law of the United States and Related Laws Contained in Title 17 of the United States Code.** Washington, United States of America. Library of Congress. 2021, p. 4, 7. Available: <<https://www.copyright.gov/title17/>> (Consultation date: April 26, 2022).

⁴¹ Gittleson, Kim. “*Can a company live forever?*” New York, United States of America: January 19, 2012. Available: **bbc.com**, Business <<https://www.bbc.com/news/business-16611040>> (Consultation date: April 26, 2022).

⁴² The Global Health Observatory. **GHE: Life expectancy and healthy life expectancy.** Switzerland, World Health Organization, 2019. Available: World Health Organization <<https://www.who.int/data/gho/data/themes/mortality-and-global-health-estimates/ghe-life-expectancy-and-healthy-life-expectancy>> (Consultation date: April 26, 2022).

Taking into account all of the above, it is logical to conclude that in order to determine the copyright term applicable to a given videogame, the nature of the contractual arrangements held between a videogame company and its contributors or employees must be analyzed. Because of this, the copyright term must be decided on a case-by-case basis. Currently the copyright term can be either obscenely long or 120 years long. This is the reason why the durability of the copyright rights given by the law is considered ambiguous at best and as it will be shown inside the next sections of this paper, this ambiguity is what partially leads to the abandonment of videogames.

B. ABANDONWARE, WAREZ TRADING AND THE GAMING INDUSTRY.

The next topic that will be discussed in this paper is how videogames can become subject to abandonment. Dennis W.K. Khong describes that the issue of abandonment stems from the willingness of the copyright owner to license their work and keep it available to the public. This is caused by the fact that the copyright law gives the owner the work the right to make copies of their own work, but no obligation to keep copies available for the public. This means the copyright owner has complete control over the distribution of his work, leading to copyrighted works being withheld from the public by their owners, which in turn these works become unavailable to the public as they are pulled from the market. As a result of this, copyrighted works can become either “orphan works” or “abandonware”.⁴³

As a result of the lack of availability and the existence of a demand for these products, a problem of missing market is created. This problem originates when the demand for a certain product exists and is unattended. There are two ways in which this can happen, the first happens when the original copyright owner disappears and is impossible to locate, while the second happens when the copyright owner stops producing and selling

⁴³ Khong, Dennis W.K. *Orphan Works, Abandonware and the Missing Market for Copyrighted Goods*. March ,2007. p.3. Available: **International Journal of Law and Information Technology**. Oxford University Press. Vol. 15, 2006. <<https://academic.oup.com/ijlit/article-abstract/15/1/54/652152>> (Consultation date: April 26, 2022).

software that they originally produced because they deem it no longer profitable to sell and are unwilling to license it. Both cases leave an unattended demand behind as a product of abandonment. Works that are abandoned through the disappearance of its author are called “orphan works” and works that are abandoned when they stop being produced are called “abandonware”.⁴⁴ For the purposes of this paper, the category of “orphan works” will be set aside in order to delve headfirst into the topic of “abandonware” specifically because this is the type of abandonment that videogames are more often subjected to.

Having said this, it must be noted that there are three types of abandonment which are: Commercial abandonment, strategic abandonment and temporary abandonment. Commercial abandonment happens when a company stops the supply of a certain copyrighted work because it is no longer commercially sustainable or profitable to keep producing it. Typically this type of abandonment occurs when popular software becomes unpopular and thus the cost of supplying the software becomes so high that it is no longer profitable for the original owner to produce.⁴⁵ Regarding strategic abandonment, this happens when a copyright owner of software stops supplying a version of the software to focus on selling a newer version. Lastly, temporary abandonment happens when a company halts the supply of a certain product in order to wait for it to gain back its value, following the premise that if a product is supplied continuously, its commercial value will decrease over time.⁴⁶

When talking about the topic of abandonment in the videogame industry, typically videogame companies follow a pattern of abandonment that can be classified in more than one of the previously mentioned categories of abandonment. This pattern can be explained using Nintendo’s practices as an example of how a videogame company performs the abandonment of their own games. Nintendo is considered the number one biggest and most recognizable videogame selling company since 1983 when they first released their first videogame console, the Famicom, in Japan. Since then they have released as few as eleven consoles across the span of 39 years. For every videogame console that this company

⁴⁴ Idem. (p.2-3).

⁴⁵ Khong, Dennis W.K. Ob.cit. (pp.4).

⁴⁶ Loc. cit.

releases, a number of games (referred to by the company as “Software Titles”) are released for that particular console. According to Nintendo’s report on the number of software titles released for each of these consoles, the console known as Nintendo Entertainment System (“NES” for short) which was released in 1983 had 2,077 different games released for it in different countries, mainly Japan and the United States.⁴⁷

Having said this, Nintendo has always been notorious for introducing a console into the market, producing both the console and its games for a set amount of time, only to then move on to another console, stopping the production of previous consoles and games, abandoning them in the process. The NES was released in 1983 and then ceased production in the 1990s to make way for the SNES (Super Nintendo Entertainment System)⁴⁸ the problem with this is that the SNES was incapable of running games meant to be played in the NES and it was not until the introduction of the Wii in the year 2006⁴⁹ that NES games were made available to be played again. The Wii made these games available through its “Virtual Console” which contained around 71 NES games⁵⁰ which represents around 3% of the entire NES game library. This means that the remaining 97% remained unavailable and abandoned as they were excluded from the “Virtual Console”. Another example of this is the Nintendo64 released in 1996, a console which had 741 games made for it⁵¹ and was discontinued in the year 2002 when its successor, the Gamecube, was released.⁵² The games released for the Nintendo64 were only made available in 2006 again with the introduction of the Wii’s “Virtual console” however, only 21 out of the 741 games were

⁴⁷ Nintendo. **Historical Data, Number of Software Titles Released**. Japan, Nintendo, 2022, p.1. Available online: Nintendo <https://www.nintendo.co.jp/ir/en/finance/historical_data/index.html> (Consultation date: July 20, 2022).

⁴⁸ Editors of Encyclopedia Britannica. “*Nintendo console*”. In: **Enciclopedia Britannica**. Chicago, Britannica Group, 2008/2011. Available: britannica.com <<https://www.britannica.com/technology/Nintendo-console>> (Consultation date: July 20, 2022).

⁴⁹ Nintendo. Ob. cit. (p.2).

⁵⁰ Hookshot Media and ReedPop. **Wii Virtual Console Games from 1994**. United Kingdom, ReedPop, 2022. Available: nintendolife.com<<https://www.nintendolife.com/vc/games/browse?sort=popular&year=1994%2C1993%2C1992%2C1991%2C1990%2C1989%2C1988%2C1987%2C1986%2C1985%2C1984%2C1983%2C1982%2C1981>> (July 20, 2022).

⁵¹ Nintendo. Ob.cit. (p.1).

⁵² Videogames New York. **Nintendo 64**. New York, United States of America, Videogames New York, 2022. Available: videogamesnewyork.com <<https://videogamesnewyork.com/n64/>> (September 4, 2022).

made available for purchase⁵³, which represents 2% of the Nintendo64's game library, leaving the remaining games abandoned.

Another piece of information that must be mentioned is that save for a few handheld consoles and both the Wii U as well as the Wii, most of the consoles that Nintendo produced have had a lack of backwards compatibility⁵⁴, which means that as consoles continue to be released, the older models including their game libraries have ended up being abandoned because they were both discontinued. It could be argued that the unattended demand left behind could be satisfied through purchasing original hardware, however as youtuber Nerrel mentioned in his video titled "Let's Imagine a World Without Emulation" recurring to the purchasing and preservation of the original hardware in order to play the original abandoned games and maintain them available is impossible when it comes to videogame consoles because due to their age they are bound to break down and become harder to maintain as time goes on with *"....connections that future displays won't support, cartridges with batteries that run out and render the games unplayable, at some point the hardware will be gone and these games will only be playable through emulation"*⁵⁵

Having said this, Nintendo is not the only company that follows this pattern, for instance Sony released around five home consoles (game consoles that are meant to be played at home) to this day, three of which have had their game libraries abandoned. These consoles were: The Playstation, released in 1994⁵⁶ had 7,918 games made for it⁵⁷, the Playstation 2 released in the year 2000⁵⁸ had 10,035 exclusive games⁵⁹ and lastly the

⁵³ Hookshot Media and ReedPop. **All Wii Virtual Console Games from 2002**. United Kingdom, ReedPop, 2022. Available: <https://www.nintendolife.com/vc/games/browse?sort=popular&year=2002%2C2001%2C2000%2C1999%2C1998%2C1997%2C1996> (July 20, 2022).

⁵⁴ Pattni, Chirag. "How important should backward compatibility be for Nintendo?" California, United States of America: 2021. Available: [nintendo.destructoid.com. <https://www.nintendo.destructoid.com/how-important-should-backward-compatibility-be-for-nintendo/>](https://www.nintendo.destructoid.com/how-important-should-backward-compatibility-be-for-nintendo/) (July 20, 2022).

⁵⁵ Nerrel. **Let's Imagine a World Without Emulation**. n.p, 2018. Available: Youtube <https://www.youtube.com/watch?v=f35i5AVzpsg> (July 20, 2022).

⁵⁶ GameDataLibrary. **Playstation**. California, United States of America. GameDataLibrary, 2022. Available: [sites.google.com <https://sites.google.com/site/gamedatalibrary/hardware-by-platform/playstation?authuser=0>](https://sites.google.com/site/gamedatalibrary/hardware-by-platform/playstation?authuser=0) (July 20, 2022).

⁵⁷ WayBackMachine. **Sony Computer Entertainment Inc, Corporate Information**. California, United States of America. WayBackMachine, 2022. Available: [web.archive.org <https://web.archive.org/web/20080921062349/http://www.scei.co.jp/corporate/data/bizdatatitle_e.html>](https://web.archive.org/web/20080921062349/http://www.scei.co.jp/corporate/data/bizdatatitle_e.html) (July 20, 2022).

⁵⁸ GameDataLibrary. **Playstation 2**. California, United States of America. GameDataLibrary, 2022. Available: [sites.google.com <https://sites.google.com/site/gamedatalibrary/hardware-by-platform/playstation-2?authuser=0>](https://sites.google.com/site/gamedatalibrary/hardware-by-platform/playstation-2?authuser=0) (July 20, 2022).

Playstation 3 released in 2006⁶⁰ had 580 games in its library.⁶¹ Adding all of these libraries together gives a total of 18,533 games made for these consoles. Even though these consoles were discontinued in the years 2006⁶², 2013⁶³ and 2016⁶⁴ respectively, they had the perk of having backwards compatibility which mitigated the abandonment of their game libraries. However when Sony created the Playstation 4, this feature was removed.⁶⁵ Sony attempted to keep the games from those three libraries alive through the Playstation Store which offered some of the games for the previous Playstation consoles up for purchase to play in the handheld consoles of Playstation Vita and Playstation Portable. However this was futile as youtuber Spawn Wave points out in his video titled “The Playstation Store Has a Serious Problem...” the games that players were able to obtain from these libraries tend to disappear from the shop, meaning the purchased copies could disappear at any moment, making such games unavailable once more.⁶⁶

Currently Sony launched another shop called the Playstation Plus Premium which has the goal preserving every Playstation game from the first console until the last by making these games available to be played on the Playstation 4 and Playstation 5. From the combined game library of the Playstation one through three, only 404 games⁶⁷ out of 18,533 are available on the service, which means that only 2% of the entire library is available and the rest has been abandoned. Just like Nintendo, Sony has abandoned its libraries in favor of releasing newer consoles, launching shops that were meant to guarantee the availability of their previous consoles’ game libraries, but failing miserably.

⁵⁹ WayBackMachine. **Sony Computer Entertainment Inc, Corporate Information**. Ob. Cit.

⁶⁰ GameDataLibrary. **Playstation 3**. California, United States of America. GameDataLibrary, 2022. Available: [sites.google.com <https://sites.google.com/site/gamedatalibrary/hardware-by-platform/playstation-3?authuser=0>](https://sites.google.com/site/gamedatalibrary/hardware-by-platform/playstation-3?authuser=0) (July 21, 2022).

⁶¹ WayBackMachine. **Sony Computer Entertainment Inc, Corporate Information**. Ob.cit.

⁶² Sinclair, Brendan. “*Sony stops making original PS*”. In: **Gamespot**, California, United States of America, March 23, 2006. Available: [gamespot.com <https://www.gamespot.com/articles/sony-stops-making-original-ps/1100-6146549/>](https://www.gamespot.com/articles/sony-stops-making-original-ps/1100-6146549/) (July 21, 2022).

⁶³ Stuart, Keith. “*PlayStation 2 manufacture ends after 12 years*” London, United Kingdom: January 4, 2013. Available: [theguardian.com <https://www.theguardian.com/technology/2013/jan/04/playstation-2-manufacture-ends-years?INTCMP=SRCH>](https://www.theguardian.com/technology/2013/jan/04/playstation-2-manufacture-ends-years?INTCMP=SRCH) (July 21, 2022).

⁶⁴ Ackerman, Dan. “*At long last, end of the line for the Sony Playstation 3*” California, United States of America: May 30, 2017. Available: [cnet.com <https://www.cnet.com/tech/gaming/at-long-last-end-of-the-line-for-the-sony-playstation-3/>](https://www.cnet.com/tech/gaming/at-long-last-end-of-the-line-for-the-sony-playstation-3/) (July 21, 2022).

⁶⁵ Gelbart, Bryn. “*Playstation’s Long, Complicated History with Backward Compatibility*” California, United States of America: May 12, 2020. Available: [ign.com <https://www.ign.com/articles/sony-playstation-history-with-backward-compatibility>](https://www.ign.com/articles/sony-playstation-history-with-backward-compatibility) (July 21, 2022)

⁶⁶ Spawn Wave. **The PlayStation Store Has A Serious Problem**. n.p, 2022, Available: Youtube <https://www.youtube.com/watch?v=28QMfOLjuKo> (July 21, 2022).

⁶⁷ Reynolds, Matthew. “*PlayStation Plus Premium games list for September, all PS1 to PS5 games currently available*.” Brighton, United Kingdom: September 2, 2022. Available: [eurogamer.net <https://www.eurogamer.net/playstation-plus-games-list-premium-extra-this-month-6300>](https://www.eurogamer.net/playstation-plus-games-list-premium-extra-this-month-6300) (July 21, 2022).

This pattern that videogame companies follow could be classified as a case of commercial abandonment, because taking a look at the sales of all of Nintendo's consoles over the years it is evident that at some point, when sales dwindle, the console will be discontinued as the demand for the console falls, the game sells diminish and the cost of supplying said console becomes unsustainable. For example, in the case of the N64, the console peaked in the year 1999 when it sold 9.42 million units, however sales dwindled in 2001 as only 2.85 million units were sold⁶⁸ before the production halted and the Gamecube, was released next as a replacement. Then after four years of being in the market the Gamecube's sales dwindled in 2007⁶⁹ and it stopped being sold in favor of selling its successor the Wii. With this data in mind it can be inferred that whenever sales start to dwindle, Nintendo finds it too expensive to continue selling their current console and thus prefers to have them discontinued along with their game libraries, thus causing abandonment.

Another category of abandonment that can be applied to this pattern is temporal abandonment. This is true because what Nintendo and other companies like Sony have done with some of their discontinued games is to "rerelease" or "remaster" them. A rerelease or a remaster is done when a game developing company takes a game that they released in the past and then release them into the market once more to be played in a modern console.⁷⁰ An example of this is "The Legend of Zelda: The Wind Waker" which was originally released for the Gamecube, was rereleased to be played on the Wii U console.⁷¹ In these cases when videogame developing companies do this, they allow the games to be abandoned for a period of time before they release them again into the market in order to gain profits following the idea that the more time passes with the game out of

⁶⁸ Statista Research Department. **Nintendo's unit sales of video game consoles 1997-2021**. Hamburg, Germany. Statista Research Department, 2022. Available: <https://www.statista.com/statistics/227012/lifetime-unit-sales-of-nintendos-home-consoles/> (July 20, 2022)

⁶⁹ GameDataLibrary. **GameCube**. California, United States of America. GameDataLibrary, 2022. Available: sites.google.com/site/gamedatalibrary/hardware-by-platform/nintendo-gamecube (July 20, 2022).

⁷⁰ Bashir, Dale. "Game Remasters, Remakes, and Rereleases?" California, United States of America: May 6, 2020. Available: [ign.com<https://sea.ign.com/final-fantasy-vii-remake/160108/news/what-are-the-differences-between-video-game-remasters-remakes-and-rereleases>](https://sea.ign.com/final-fantasy-vii-remake/160108/news/what-are-the-differences-between-video-game-remasters-remakes-and-rereleases) (July 20, 2022).

⁷¹ Nintendo. **The Legend of Zelda: The Wind Waker HD**. Tokyo, Japan, Nintendo, 2013. Available: [nintendo.es.<https://www.nintendo.es/Juegos/Wii-U/The-Legend-of-Zelda-The-Wind-Waker-HD-765386.html>](https://www.nintendo.es/Juegos/Wii-U/The-Legend-of-Zelda-The-Wind-Waker-HD-765386.html) (July 21, 2022).

the market, the more value the game will gain and thus it will be profitable to be sold and made available again in the future.

This distinction between the types of abandonment that can be applied to this pattern of abandonment in the videogame industry is important because this distinction alone is decisive when building a defense using the fair use doctrine. Essentially it is relevant to determine the existence of one of the factors contemplated inside the fair use test. This test as explained by Marquette University Law School professor Eric Goldman, works as follows:

“Fair use is a multi-factor test designed to balance the relatively absolute nature of a copyright monopoly with the social benefits accruing from limited uses of those copyrighted works. The factors are:

- *The purpose and character of the use, including whether such use is of a commercial*
- *The nature of the copyrighted work*
- *The amount and substantiality of the portion used in relation to the copyrighted work as a whole and;*
- *The effect of the use upon the potential market for or value of the copyrighted work.”*⁷²

The type of abandonment that is being performed affects the last of the factors cited above because if a game is subject to commercial abandonment, then the possible effect on the potential market is rendered to zero because the item was already sold at the time it was produced and so the impact of making them available on the market would be rendered null because the games are not available and not for sale. However should the game developing company argue that they were performing a temporal abandonment then they could calculate the effect of the game being made available without their consent in the potential market. The company could argue that they planned to make the product unavailable and that they had already calculated the profits they were going to earn from the reinsertion of the game through a “remake” or “remaster” into the market which would be proof that the act performed by the gamer directly impacted the potential market because it took away the possible profits that were going to be earned by making the game available again.

⁷² Goldman, Eric. “Ware Trading and Criminal Copyright Infringement” January, 2004. p.9. Available: SSRN. 2004 <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=487163> (July 21, 2022).

In addition to this, there are proximate causes of abandonment and orphanhood which are complementary to the ones explained above. These causes are both an unexpired copyright term and the non-availability of the copyrighted work both being causes that go hand-in-hand. An unexpired copyright term is a problem because copyright is not a type of protection that was meant to last forever, in theory the copyright term must end when the marginal social cost of protection is the same as the marginal benefit of protection, resulting in having the work reach the public domain. This means that whenever a copyrighted work is born, society is asked to pay a social cost for keeping it protected to allow the author of a work to profit off of selling it. This ties into the fact that the philosophy behind copyright law is to “*maximize the sum of consumers and producer surplus*” which means that copyright exists to benefit the producer in maximizing the sum of the consumers that will buy their product without the threat of having it being copied, making the producer’s benefits be less as a result.⁷³

Maintaining copyright protection during an excessively long length of time without supplying copies of said work to the market leads to a loss for society since they will not have access to the copyrighted work because of the lack of availability and the fact that the copyright term goes past the point where both the marginal social cost of protection and the benefit of protection meet.⁷⁴ This applied to the videogame industry means that when a videogame company releases a game, in theory, their copyright protection must end when the company no longer benefits from selling said game and at that point the game can safely be released into the public domain for everyone to use and learn from. Theoretically the solution would be to make the copyright term in the law equal to the ideal copyright term following the aforementioned formula. However, the problem is that there are no methods to determine how long this ideal copyright term should last, in fact Khong himself mentions that “*Since each of these factors varies according to the type of work and the specificity of each piece of work, it is not possible to speak of a universal optimal copyright*

⁷³ Khong, Dennis W.K. *Orphan Works, Abandonware and the Missing Market for Copyrighted Goods*. March ,2007. p.7. Available: **International Journal of Law and Information Technology**. Oxford University Press. Vol. 15, 2006. <<https://academic.oup.com/ijlit/article-abstract/15/1/54/652152>> (Consultation date: July 21, 2022).

⁷⁴ Loc. cit.

term” meaning that copyright terms have to be determined on a case by case basis in order to ensure that a social loss is not incurred.

In this regard, videogame companies are giant abandonware producing machines. All videogame companies follow the rules of copyright, they sell their consoles and games until the demand and profits fall and then they discontinue the production, however after they discontinue the product they keep their games and consoles protected past the point when they should be protected which creates unavailability. This in turn causes the existence of an unattended demand, creating a problem of missing market which creates the need for society to seek ways attends the demand which leads them to do emulation.

As a result of these practices, the members of this unattended demand went on to gather and make abandoned games available again in society through emulation, allegedly performing “copyright infringement”. According to Professor Eric Goldman, there are several communities which are part of subcultures of people that do this. He explains in this article titled “The Challenges of Regulating Warez Trading” that all of these subcultures tend to be regarded as one, collectively being accused of meddling in “Warez Trading”. Warez Trading is defined as the trading of copies of copyright protected goods that have had their protection mechanisms removed.⁷⁵ Often times this term tends to be used to refer to the distribution and collecting of warez. However these actions are not performed by people from all these different types of subcultures and thus, such cultures must be distinguished from one another.⁷⁶

There are three types of warez traders: the distributors, the collectors and the downloaders. Warez distributors are individuals who operate in large numbers and dedicate themselves to find warez, remove their defenses and test them to ensure they work still after the removal of their defense mechanisms. After that they package and distribute those warez around the internet. The warez collectors on the other hand are the people who collect and trade warez, performing the same actions as the distributors. However the difference is that collectors operate as individuals to either show off their “trophies” or to

⁷⁵ Such goods are called “warez”.

⁷⁶ Goldman, Eric. “*The Challenges of regulating Warez Trading*” January, 2005. Available: Social Science Computer Review. Vol. 23, No. 24, 2005. p.1-2. <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=652702> (Consultation date: July 22, 2022).

gain admission into a warez distribution group. Finally there are the warez downloaders who download warez in order to use them, often seeking to download software that has been stripped from its defenses and is being offered for free when originally it was sold for a fee on the market.⁷⁷

Aside from the aforementioned warez trader groups, there is another separate group called “abandonware enthusiasts” these people are typically part of an unattended demand and partake in collecting as well as distributing software that is no longer published commercially. They distinguish themselves from warez traders, characterizing themselves as archivists or historians who seek to preserve media that would otherwise be lost.⁷⁸ The difference lies in that while abandonware enthusiasts seek to save abandoned media at the cost of performing copyright infringement, warez traders actively seek to perform copyright infringement in order to compete amongst each other to see which group obtains copyrighted works faster than other warez trader groups. In addition to this, warez traders hold the belief that software should be free and that they are doing good work by being the equivalent of a collective cybernetic Robin Hood who frees software from the industry’s oppressive tactics, making it so everyone can have access to software without paying a single fee.⁷⁹ All the while abandonware enthusiasts are motivated by the prospect of software preservation and most importantly, videogame preservation.

⁷⁷ Idem. (pp. 3).

⁷⁸ Goldman, Eric. “*The Challenges of regulating Warez Trading*”. Ob.cit. (pp. 2).

⁷⁹ Loc.cit.

Chapter II

THE PROBLEM OF VIDEOGAME ABANDONMENT AND COPYRIGHT LAW

In this chapter the main focus will be to explain how abandonware gaming works and why it is seen as copyright infringement by both Congress and videogame developing companies alike. In addition to this, this chapter will explore the positions and attitudes that each of the contenders have about this subject. In order to do this, this paper will explain the reasons why abandonware enthusiasts risk being pursued by the law for the sake of videogame preservation by promoting the extraction and distribution of abandoned games so they can be preserved using emulation and peer-to-peer file sharing. This chapter will explain the argument that abandonware enthusiasts and aspiring game developers use to argue that videogame preservation is key to keeping the videogame industry alive and well. Following this, the reasoning behind why videogame developing companies often decide to pursue abandonware enthusiasts legally in order to stop them from infringing their games' copyright will be explored. Lastly, there will be a brief explanation of what the U.S. Congress's view is regarding abandonware games as a subject of copyright protection.

A. EMULATION AND VIDEOGAME PRESERVATION: THE CAUSES OF POLARIZATION IN THE VIDEOGAME INDUSTRY.

In order to understand why emulation causes polarization between the main actors of the videogame industry (the consumers, the government and the videogame developing companies) this paper will provide a thorough explanation of how emulation works. In simple terms, emulation can be seen as the act of running a videogame in a piece of hardware which was not intended to run said game (a personal computer or "PC"). In order to do this, the game is often extracted from its original format, namely from its cartridge or

disk and then is placed on a computer so that it can be played using the aid of an emulator designed for that specific purpose, hence the term “emulation”. Emulation requires two basic components, the first one is a ROM and the other an Emulator, the last of which contains a piece of code called the BIOS.⁸⁰ A ROM is simply source code of the game contained within a video game cartridge or CD-ROM disk, which is extracted from its original “container” and it is then stored in a computer so that it can then be emulated. A ROM cannot be run like a normal executable program (an “.exe” program) because it was made to work with certain console, meaning a specific BIOS code. This is the reason why emulators contain a copy of that BIOS code.⁸¹

Often times the programmers who create emulators obtain a console’s BIOS through one of two methods. The first method involves observing how the BIOS code behaves and based on that behavior, the programmers will piece together what the code must be like for it to yield the observed result, this is called “reverse engineering”.⁸² The other more intrusive method that involves using a basic input/output (BIOS) system dump, which extracts the code from the console and “dumps” it into the computer. It is important to mention these methods as often times the legality of an emulator is directly dependent on which method is employed to get the BIOS code.⁸³

The reason why the previously mentioned distinction is made is because of the judicial precedent contained in “Sony Computer Entertainment v. Connectix Corp.” where the United States Court of Appeals for the Ninth Circuit decided that emulators made via reverse engineering were perfectly legal and that the copying of a console’s BIOS for the purpose of observation fell under the fair use doctrine. However in this case the court tolerated the fact that “Connectix Corp.” copied the original BIOS because in the end none

⁸⁰ Conley, James, Andros Ed, et al. “*Use of a Game Over: Emulation and the Video Game Industry, A White Paper.*” 2004. Available: **Northwestern Journal of Technology and Intellectual Property**. Northwestern Law. Vol 2, 2004. p. 5. <<https://scholarlycommons.law.northwestern.edu/njtip/vol2/iss2/3/>> (Consultation date: July 26, 2022).

⁸¹ Loc.cit.

⁸² Smarter Legal Research. **Sony Computer Entertainment v. Connectix Corp.** California, United States of America, Casetext, 2000. Available: casetext.com <<https://casetext.com/case/sony-computer-entertainment-v-connectix-corp-2>> (Consultation date: July 26, 2022).

⁸³ Conley, James, Andros Ed, et al. “*Use of a Game Over: Emulation and the Video Game Industry, A White Paper.*” 2004. p. 14. Available: **Northwestern Journal of Technology and Intellectual Property**. Northwestern Law. Vol 2, 2004. <<https://scholarlycommons.law.northwestern.edu/njtip/vol2/iss2/3/>> (Consultation date: July 26, 2022).

of the original copyright protected code was present in Connectix's emulator.⁸⁴ Thus, this precedent states that emulators that contain parts of the original BIOS code are illegal, but if the emulator was made by reverse engineering then the use of that console's BIOS falls under Fair Use because the original was never a part of the final product which is the emulator.

Having said this, it must be noted that not all game consoles and not all videogames are emulated, in fact there are three key factors that determine whether a programmer will attempt to make an emulator in order to emulate a console. These factors are: "*console popularity, availability of information regarding system hardware and software, and the technical difficulty of the emulation itself*".⁸⁵ This means that the consoles that are most likely to be emulated are those which became most popular or had a variety of popular games released for it, however information plays a key role here because the more information there is about how a console works, the more likely it is for programmers to be able to develop an emulator for such a console. Despite this, a lack of information does not prevent programmers to develop an emulator. The effect that a lack of information on a console has on emulator developers is that they will simply take longer to develop an emulator for the console or they will figure out how part of it functions and then wait for the rest to be uncovered over time by others. Another factor to consider is the technological development of PCs over time, in order for a computer to be able to emulate a game from a certain console, it must be able to perform the same or better than the console. This is why when a new console is released to the market, often times it cannot be emulated right away since there is a need to wait for technology to catch up.

From a technological standpoint, emulation occurs because videogame consoles are "static" in nature, meaning they are not upgraded and can only do what they were programmed to do and can only perform as well as their technological components allow. Thus, videogame consoles are a prime target for emulation because emulators are run on

⁸⁴ U.S. Copyright Office. **Sony Computer Entm't, Inc. v. Connectix Corp.**, 203 F.3d 596 (9th Cir. 2000). United States of America, U.S. Copyright Office, 2000. Available: copyright.gov <<https://www.copyright.gov/fair-use/summaries/sony-connectix-9thcir2000.pdf>> (Consultation date: July 26, 2022).

⁸⁵ Conley, James, Andros Ed, et al. "*Use of a Game Over: Emulation and the Video Game Industry, A White Paper.*" 2004. Available: **Northwestern Journal of Technology and Intellectual Property**. Northwestern Law. Vol 2, 2004. <<https://scholarlycommons.law.northwestern.edu/njtip/vol2/iss2/3/>> (Consultation date: July 26, 2022).

computers which are dynamic by nature and are experiencing constant upgrades, meaning that even though a computer may at first not be powerful enough to run a videogame from a certain console when it is first launched, programmers need only to wait and find a computer that surpasses the console's power in order to develop an emulator for such a console. The greater the power of the computer that emulates the console, the more accurate the experience that this emulator brings and thus the greater the consumer demand for that emulator will be. This is because consumers seek the most authentic experience from an emulator; they want the emulator to bring them an experience close to the one they could obtain from the original console.⁸⁶

Timing is important in this matter because the average lifecycle of an average gaming console is around 5 years. Videogame consoles are designed for planned obsolescence to take hold just in time for a next generation console to be introduced into the market, forcing customers to migrate from an old console to a new one. This is supported by facts and data that were brought up in previous paragraphs about Nintendo's consoles. It is no coincidence that the Nintendo64, having being released in 1996, was then discontinued in 2002, roughly 6 years later⁸⁷. Another example of this is that The Gamecube was launched in the year 2001 and then was discontinued in the year 2008⁸⁸, making its life cycle 7 years long. Both life cycles being near to the average life cycle of a videogame console. On the other hand it has been proven through studies made by James Conley and his collaborators that every eighteen months computers manage to become more powerful.⁸⁹ Given the differences between both rates, this means that PC's always have a chance to reach the processing power required to emulate a console while its life cycle is still running.

⁸⁶ Conley, James, Andros Ed, et al. "*Use of a Game Over: Emulation and the Video Game Industry, A White Paper.*" 2004. Available: **Northwestern Journal of Technology and Intellectual Property**. Northwestern Law. Vol 2, 2004. <<https://scholarlycommons.law.northwestern.edu/njtip/vol2/iss2/3/>> (Consultation date: July 26, 2022).

⁸⁷ GameDataLibrary. **Nintendo 64**. California, United States of America. GameDataLibrary, 2022. Available: sites.google.com/site/gamedatalibrary/hardware-by-platform/nintendo-64?authuser=0 (Consultation date: July 26, 2022).

⁸⁸ GameDataLibrary. **GameCube**. California, United States of America. GameDataLibrary, 2022. Available: sites.google.com/site/gamedatalibrary/hardware-by-platform/nintendo-gamecube?authuser=0 (Consultation date: July 26, 2022).

⁸⁹ Conley, James, Andros Ed, et al. "*Use of a Game Over: Emulation and the Video Game Industry, A White Paper.*" 2004. Available: **Northwestern Journal of Technology and Intellectual Property**. Northwestern Law. Vol 2, 2004. p.7. <<https://scholarlycommons.law.northwestern.edu/njtip/vol2/iss2/3/>> (Consultation date: July 26, 2022).

Because of all of the above, emulators seem to have become a threat to videogame companies as these programs disrupt the value chain of the videogame industry. This value chain works as follows: Videogame developing companies will sell their consoles first, incurring on a loss of profits to then reap a sizable piece of their profits from selling the games themselves which covers the initial loss. Not only that but the software developer, the publisher, the console manufacturer and the retailer all participate in this value chain by getting the games and the console right to the customer's hands, charging a fee along the way which accumulates and makes up the retail prize for both products as demonstrated in the following chart:⁹⁰

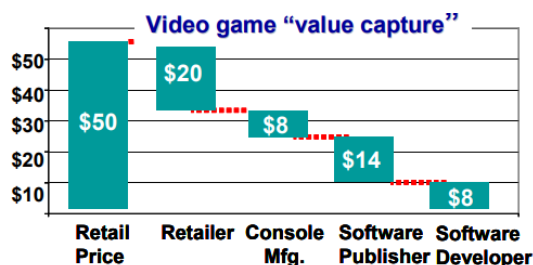


Figure 4: Video Game "Value Capture" Across the Value Chain

This way, videogame developing companies have complete control of the availability of all of their games in the market. However, emulators allegedly disrupt this value chain by taking away the videogame company's ability to gain profits from both the sales of hardware (consoles) and software (games) because they enable consumers to download games for free and thus that represents a loss in videogame software revenue.⁹¹

At this point, it must be pointed out that at the time the paper titled "Use of a Game Over: Emulation and the Video Game Industry, A White Paper." was written, which was during the year 2004, James Conley and his collaborators made the statement that all videogame emulation affected the value chain run by videogame developing companies, a statement which is too broad given the state of modern videogame emulation. This is because modern emulation does not only focus on modern consoles, in fact it also focuses

⁹⁰ Idem. (pp.8).

⁹¹ Conley, James, Andros Ed, et al. Ob.cit. (pp.8).

largely on older consoles. It is true that in the emulation scene there are plenty of emulators for modern consoles that are still on the market and that those emulators have the potential to disrupt the value chain. An example of this is the number of emulators that have been made to emulate the latest Nintendo console, the Nintendo Switch. Currently there are three main popular emulators: Yuzu, Ryujinx and Cemu, whom were all created using reverse engineering and are currently “open source”, meaning that people can modify the code and improve upon it. However all of these emulators use ROMS that people have extracted from their pre-purchased copies and the creators of the emulator encourage for people to do this in order to preserve their games.⁹² Sadly even though the creators wish to dissuade peer to peer file sharing, there are people who share their ROMS through the internet, harming the value chain. This is because people who have not bought their own copy of the games shared can download both games and emulators without the need to buy neither the console nor the game. This type of emulation can disrupt the value chain, however there is no clear evidence that it actually does.

Furthermore it cannot be ignored that this statement was made and supported by James Conley and his collaborators using the case of the Nintendo64 and how the emulator known as “UltraHLE” cannibalized its game revenues. In the year 1999 this emulator was introduced to the public, being the first emulator in history to be made of a then current generation console. Allegedly, the console lost revenue during its sixth and seventh year of its life cycle after the UltraHLE was published.⁹³ However this example is not accurate because if this effect that James Conley and his collaborators described was indeed true then the revenues lost would not have been felt during the sixth and seventh year of the console’s life cycle but instead during the last three. This is because during the lifespan of the Nintendo 64, from 1996 to 2002⁹⁴, three emulators appeared in different years of the console’s lifespan, namely: Project Unreality (1998)⁹⁵, UltraHLE (1999)⁹⁶ and Nemu64

⁹² Fernandez, Kim. “*The Best Nintendo Switch Emulators for Windows*” Unites States of America: February 9, 2022. Available: [makeuseof.com, Windows <https://www.makeuseof.com/windows-best-nintendo-switch-emulators/>](https://www.makeuseof.com/windows-best-nintendo-switch-emulators/) (Consultation date: July 26, 2022).

⁹³ Conley, James, Andros Ed, et al. Ob. cit. (pp.9).

⁹⁴ Loc.cit.

⁹⁵ Zophar’s Domain. Project Unreality. n.p. Zophar’s Domain. 2022. Available: [zophar.net <https://www.zophar.net/n64/project-unreality.html>](https://www.zophar.net/n64/project-unreality.html) (Consultation date: July 26, 2022).

(2000)⁹⁷. If these emulators had cannibalized the console's revenue, then the Nintendo64's sales would have declined during the years 1998, 1999 and 2000 which according to James Conley and his collaborator's paper, it did not. In fact the sales remained well within the expected margin that Nintendo had predicted for those years as sales tend to slow down during those last years of the console's lifespan and no evidence was provided proving that the three emulators altogether affected the sales of the Nintendo64. Thus, there is no proof that the emulation of consoles has such a clear cut effect in sales, because even in 2004 when the Nintendo64 had two years of being discontinued, James Conley and his collaborators could not prove that emulation of modern consoles does indeed affect the sales of games. However what they did prove is that videogame developing companies do perceive emulation as a threat because Nintendo actually threatened UltraHLE legally and eliminated it⁹⁸.

Another subject that James Conley and his collaborators did not realize at the time is that there is another side to emulation and that is, the emulation of abandoned games. As it has been explained before in this paper, abandoned games are games that have already been pulled out of the market and thus, by the time the game is pulled out of the market all of the profits generated through the value chain for those games have already been received. Because of this, the emulation of abandoned games cannot rationally be deemed as a financial threat when it is looked at from the perspective of the value chain. Because of all of this, the statement that James Conley and his collaborators made originally in the year 2004 is not accurate and cannot be applied to modern times.

This is essentially the reason as to why there is a controversy between videogame developing companies and the emulation community (made up of abandonware enthusiasts). On one side of the argument, videogame developing companies see emulation as: the promotion of copyright infringement, an enormous financial threat and a threat to the integrity of gaming experience (meaning the overall experience that the company sells)

⁹⁶ WayBackMachine. **ULTRAHLEMEDIA**. California, United States of America. WayBackMachine, 2022. Available: [web.archive.org<https://web.archive.org/web/20070313161158/http://www.emuunlim.com/UltraHLE/>](https://web.archive.org/web/20070313161158/http://www.emuunlim.com/UltraHLE/) (Consultation date: July 26, 2022).

⁹⁷ Zophar's Domain. Project Unreality. Ob.cit.

⁹⁸ Conley, James, Andros Ed, et al. *"Use of a Game Over: Emulation and the Video Game Industry, A White Paper."* 2004. p.9 Available: **Northwestern Journal of Technology and Intellectual Property**. Northwestern Law. Vol 2, 2004. <https://scholarlycommons.law.northwestern.edu/njtip/vol2/iss2/3/> (Consultation date: July 26, 2022).

and brand equity (value of the brand). Meanwhile the emulation community sees emulation as: A medium through which nostalgia and backward compatibility is promoted, a means to provide an enhanced gaming environment and a medium that does not infringe intellectual property due to reverse engineering and fair use doctrines.⁹⁹

As it is evident by what was stated above, videogame developing companies typically see emulation as a threat to their livelihood because of the perception that it disrupts the value chain and is a way of infringing their rights as owners of copyrighted works that are being replicated through emulation. However the people who perform the extraction and emulation of games in general see emulation as a means to save and benefit the videogame industry, being brought on as an effect of videogame preservation. While part of the emulation community dedicates themselves to creating new emulators for modern consoles, others focus on doing videogame preservation by keeping copies of abandoned games available so they can be studied and be readily available for newer generations of gamers to play.

It must be noted that this situation between the videogame developing companies and the abandonware enthusiasts can be compared to the one that used to happen in the music industry. In the case of the music industry the issue was that people were moving their purchased music from one medium to another. The owners of the copyrighted music would essentially deem this copyright infringement as they themselves had control over the availability of the songs and they would determine through which medium it would be released, using a business model and value chain similar to the one used by the videogame industry. In this case the copyright owners decided to take legal action against those who would move their copyrighted works from one medium to another. However the music industry pursued the legal protection of their rights without addressing the unattended demand which drove people to download music that could be played in a different medium through websites like “Napster, Gnutella and KaZaA”. Through this legal pursuit, the music industry only managed to criminalize and alienate its own customers.¹⁰⁰ This is a phenomenon that is also happening currently in the videogame industry as lawsuits have

⁹⁹ Loc.cit.

¹⁰⁰ Conley, James, Andros Ed, et al. Ob.cit. (pp.3).

been filed by videogame developing companies to pursue and take down websites that provide access to the ROM files of old abandoned games. Nintendo has actually been one of the most active when it comes to performing these actions as youtuber Nerrel points out about this in his video “Let’s Imagine a World Without Emulation”: *“Their attitude seems to be that if you’re using their IP, you’re the bad guy, they don’t owe you anything.”*¹⁰¹

a. THE VIDEOGAME COMPANIES’ PERSPECTIVE

As was stated in the previous section, videogame companies generally see emulation in a less than favorable light because they think that if emulation is allowed then their customers will get a hold of all their games for free and thus will simply stop buying games because they have the option to emulate them instead. However there are reasons that fuel certain companies in particular to take legal action not only against modern game emulation sites, but also against abandonware providing websites. The main reason they provide for this is that videogame companies deem that not only would they lose sales from their newer games and consoles from allowing emulation to stand unopposed, but they also deem it harmful for people to emulate their old abandoned games.

The reasoning behind this was exposed in the article of the New York Times titled “New Front in the Copyright Wars: Out-of-Print Computer Games” released in the year 2000 and written by Greg Costikyan. According to said article, publishers (videogame developing companies) are not interested in making old games available because the market wants games that are new and push the limits of the processing and graphics capabilities of modern computers.¹⁰² This directly correlates with what was stated in previous paragraphs regarding computer power and its relationship with the videogame industry. While

¹⁰¹ Nerrel. **Let’s Imagine a World Without Emulation.** n.p., 2018. Available: Youtube <<https://www.youtube.com/watch?v=f35i5AVzpsg>> (Consultation date: July 26, 2022).

¹⁰² Costikyan, Greg. “New Front in the Copyright Wars: Out-of-Print Computer Games” New York, United States of America: May 18, 2000. Available: **archive.nytimes.com** <<https://archive.nytimes.com/www.nytimes.com/library/tech/00/05/circuits/articles/18aban.html>> (Consultation date: July 29, 2022).

videogame developing companies try to remain ahead of the game when it comes to offering the latest games that push the limits of computer processing power, computers upgrade themselves faster and are always surpassing consoles. However the perception of videogame developing companies seems to be that they need to try and stay ahead of the curve even though their consoles cannot remain ahead of it.

Furthermore in this article Greg Costikyan mentions that publishers are often unwilling to see their games as abandoned, thinking of copyrights and trademarks of games as corporate assets. It is also pointed out in this article that Nintendo in particular has issued a statement on the subject: *“If these vintage titles are available far and wide, it undermines the value of the intellectual property and adversely affects the right owners. Emulator and ROM piracy is competing head-on with Nintendo’s current systems and software”* and as the article points out, this mentality was widespread at the time, as other companies wanted abandonware sites to be shut down.¹⁰³ However, there is evidence to support that this mentality continues to flourish even today. In Nintendo of America’s website, their intellectual property policy states the following:

*“Nintendo respects the intellectual property of others, and we ask users of Nintendo products and services to do the same. In accordance with the Digital Millennium Copyright Act (DMCA) in the US, the Electronic Commerce Directive (2000/31/EC) in the EU, and other applicable law, we have adopted a policy of removing, in appropriate circumstances and at our sole discretion, any content that appears to infringe the intellectual property rights of others...”*¹⁰⁴

It is worth noting that Nintendo of America is a wholly owned subsidiary that Nintendo has in the United States as stated in the court documents of the case “Nintendo of America, Inc. v. Jacob Mathias and Mathias designs”¹⁰⁵. Nintendo of America, despite being a wholly owned subsidiary, mainly operates with U.S. laws as it can be seen by them citing the “Digital Millennium Copyright Act” (DMCA), meaning it is unlikely that they would sue using international law even though they could. Regardless of this, their attitude seems to be clear, Nintendo of America is willing to sue those whom they deem are

¹⁰³ Loc.cit.

¹⁰⁴ Nintendo. **Intellectual Property Policy**. Washington, United States of America, Nintendo, 2022. Available: [en-americas-support.nintendo.com <https://en-americas-support.nintendo.com/app/answers/detail/a_id/50035>](https://en-americas-support.nintendo.com/app/answers/detail/a_id/50035) (Consultation date: July 29, 2022).

¹⁰⁵ Court Listener. **Nintendo of America Incorporated v. Mathias**. Arizona, United States of America, Free Law Project, 2018. Available: [courtlistener.com <https://www.courtlistener.com/docket/7479717/nintendo-of-america-incorporated-v-mathias/>](https://www.courtlistener.com/docket/7479717/nintendo-of-america-incorporated-v-mathias/) (Consultation date: July 29, 2022).

infringing their copyright. Another piece of evidence that supports this is that the company has a system put in place where people can report “Potential infringements of Nintendo Products” and in the description of the article, the following is stated: *“In this article, you’ll learn how to report potential infringements to Nintendo products, including ROM sites, counterfeit manufacturing, illegal use of trademarks, copyright infringement, and other piracy issues”*¹⁰⁶ From reading this statement it can be concluded that Nintendo of America’s stance on emulation is clear, they deem ROM providing websites a threat to their copyright and are willing to sue in order to remove them.

One last thing to note about Nintendo is that ever since the article of the New York Times was released, they seem to have put an effort into trying to make their abandoned games available in order to discourage emulation. However these efforts have been rendered to the creation of digital shops and the release of smaller versions of their more classic consoles, both of which are useless in terms of preservation because they do not provide enough availability and in the case of the shops, they are active for a limited time only. As youtuber Nerrel points out in his video “Let’s Imagine a World Without Emulation”:

*“It’s worth noting that these store fronts (referring to the virtual shops) are temporary, the Wii Shop is at the verge of a total shutdown, leaving Nintendo’s largest retro library permanently inaccessible, the Wii U E-Shop will certainly suffer the same fate, making the Virtual Console a meaningless footnote in the long term of game preservation. From here Nintendo dabbled in classic consoles, as little novelty items they are pretty neat, as a method of preserving a retro library? No way. The systems include a few dozen titles with no option to buy more, making it a Noah’s ark like situation where the vast majority of the titles are left to drown”*¹⁰⁷

However Nintendo has also tried to tackle the abandonment of games caused by deterioration of hardware as well, by having a system put in place to encourage the recycling of Nintendo products, which in theory should be able to solve this side of the problem. Through this system Nintendo offers to repair or replace damaged or broken down Nintendo videogame consoles for a fee as well as providing repair support for Nintendo

¹⁰⁶ Nintendo. **How to Report Potential Infringements of Nintendo Products**. Washington, United States of America, Nintendo, 2022. Available: [en-americas-support.nintendo.com <https://en-americas-support.nintendo.com/app/answers/detail/a_id/50131/kw/emulation>](https://en-americas-support.nintendo.com/app/answers/detail/a_id/50131/kw/emulation) (Consultation date: July 29, 2022).

¹⁰⁷ Nerrel. **Let’s Imagine a World Without Emulation**. n.p., 2018. Available: [Youtube <https://www.youtube.com/watch?v=f35i5AVzpsg>](https://www.youtube.com/watch?v=f35i5AVzpsg) (Consultation date: July 29, 2022).

systems for years after retail sales have ended and the remanufacturing or refurbishing of product returns in order to replace consoles for retailers and customers. Despite the fact that on paper this should be able to cut down emulation by attacking one of the roots of the problem, sadly this is not the case as the “Nintendo Product Recycling” program only applies to modern consoles like: The Nintendo Switch, Nintendo Switch Lite, Nintendo 3DS, New Nintendo 3DS XL, New Nintendo 2DS XL, amongst other modern consoles.¹⁰⁸ As a result of this, abandoned consoles like the NES, SNES, Nintendo64, Gamecube and Wii amongst other consoles will not receive the benefits of the product recycling system. This all essentially means that Nintendo knows about the problem, rejects any solution that comes from the community and would rather solve it themselves, however so far they have done poorly in this regard.

In short, videogame companies see emulation as an illegal activity that takes away their customer’s willingness to buy new games. For them, abandonware emulation is harmful because it harms their business by undermining the value of the intellectual property tied to their games and creates competition against their current consoles and games, in such a way that they believe customers will eventually prefer to play an old abandoned game rather than a newer more recent one. They would rather provide the solutions to the abandonware problem themselves, even if their solutions are not the most optimal and they also think that even though the community’s solutions to the problem are illegal even if they end up solving the problem altogether.

b. THE ABANDONWARE
ENTHUSIAST’S VIEW.

The abandonware enthusiasts encompass the other side of the controversy and thus they have their own view on several topics regarding emulation. For starters, even though abandonware enthusiasts can be seen as an entire cluster of people, they are not all the

¹⁰⁸ Nintendo. **Nintendo Product Recycling**. Washington, United States of America, Nintendo, 2022. Available: [en-americas-support.nintendo.com <https://en-americas-support.nintendo.com/app/answers/detail/a_id/10276/>](https://en-americas-support.nintendo.com/app/answers/detail/a_id/10276/) (Consultation date: July 29, 2022).

same. There are abandonware enthusiasts who are simply gamers who wish to play games that they used to play in their youth¹⁰⁹, however there is another type of abandonware enthusiasts that have surfaced over the years, namely the game developing abandonware enthusiasts. These types of abandonware enthusiasts are gamers that not only have played abandoned games during their youth, but have also taken inspiration and have learnt from them in order to develop their own games. This is tied to what is called the “indie gaming” scene and has been a direct effect of “videogame preservation”.

Game developer Frank Cifaldi managed to identify and classify what kind of people are interested in playing abandoned games. He talked about this categorization in his talk called “It’s Still Emulation: Saving Video Game History Before It’s Too Late”. Following this categorization, abandonware enthusiasts are divided into three categories: The Casual-Type, The Collector-Type and the Hardcore Retronaut. The Casual-Type is a casual player who sees the game on the store, recognizes it was part of their childhood and buys a copy of the game that has gone out of print. The Collector-Type is the type of gamer that keeps their own copies of retro games and supports the idea of keeping old abandoned games available in the market. The Hardcore Retronaut however, is the kind of consumer that not only has ample knowledge of old abandoned games, has already emulated them and recognizes that what the videogame developing companies offer in terms of making abandoned games available is not of the best quality and not worth paying for.¹¹⁰ These three categories are not isolated from each other because a person who belongs to one of them can then become more involved in the subject and jump to the next category, meaning a Casual-Type gamer can become a Collector-Type and then a Hardcore Retronaut. Because all of these categories are progressive, Cifaldi states that videogame developing companies should target the Hardcore Retronaut because doing that they would cover all other categories and would deliver a better product because these kinds of gamers are more

¹⁰⁹ Costikyan, Greg. “*New Front in the Copyright Wars: Out-of-Print Computer Games*” New York, United States of America: May 18, 2000. Available: [archive.nytimes.com <https://archive.nytimes.com/www.nytimes.com/library/tech/00/05/circuits/articles/18aban.html>](https://archive.nytimes.com/www.nytimes.com/library/tech/00/05/circuits/articles/18aban.html) (Consultation date: July 29, 2022).

¹¹⁰ GDC. **It’s Still Emulation: Saving Video Game History Before It’s Too Late**. San Francisco, California, United States of America. 2019. Available: Youtube <<https://www.youtube.com/watch?v=dp-DRU24J18>> (consultation date: July 29, 2022).

demanding when it comes to said product as they want to have the best experience be delivered to them.¹¹¹

Now when it comes to their views on emulation, regular abandonware enthusiasts (Casual-Type and Collector-Type alike) emulate abandoned games not because they wish to pirate games for free or because they wish to do harm to the videogame developing companies, but because they see emulation the way a person who wishes to preserve a movie would. They wish to use emulation “*for the same reason that fans restore classic film negatives, they do it because they care about these games and they want them to exist forever in the best possible form*”¹¹² As it was pointed out by Greg Costikyan in his article for the New York Times: “*Gamers don’t go out and download games for the original Nintendo Entertainment System instead of buying new games for the Nintendo 64. Someone who wants to play an older game is looking for an experience that is different from what is available from a modern game.*” This statement encompasses the reason as to why the average abandonware enthusiast uses emulation, they use it as a means to play older games, but that does not mean they will stop buying new games for they only seek to relive that experience that they or their parents had with the game in the past.

Meanwhile the developer abandonware enthusiasts (Hardcore Retronauts) regard emulation as a tool in order to keep abandoned games alive in the best possible shape and enhance the original experience using modern technology. Hardcore Retronauts do not need videogame developing companies to interact with them nor provide them of the means to restore abandoned games. These people can download every game ever: they can hack into original videogame consoles and load entire game libraries inside of them, they can make games look better, making extremely accurate emulations of games, they can practically create new videogame consoles that can play older games and make them look better than the originals, they can do translations of games that were not previously translated for American audiences and essentially they have the power and the knowledge to upgrade older games to enhance the experience for players in general. They even have the power to

¹¹¹ Loc. cit.

¹¹² Nerrel. **Let’s Imagine a World Without Emulation.** n.p., 2018. Available: Youtube <<https://www.youtube.com/watch?v=f35i5AVzpsg>> (Consultation date: July 30, 2022).

reverse engineer the code for entire older games in order to figure out how those games work and how they can be fixed.¹¹³

The reason why they do this, despite the legal risks that come with it, comes down to “videogame preservation”. The subject of videogame preservation goes hand-in-hand with the topic of videogames being not only digital products sold to the masses, but also works of art that have cultural significance. In the year 2000, Dr. Henry Jenkins, the director of the comparative media studies program at the Massachusetts Institute of Technology, called videogames one of the “*lively arts of the 21st century*” and he said that similarly to the once-despised arts like jazz and film which were once accepted as legitimate, so too would videogames be considered as a legitimate art form.¹¹⁴

That phenomenon that Dr. Jenkins described back then is now a reality. Since then, the Supreme Court of the United States of America in the year 2012 ruled in “Brown, Governor of California, et al. v. Entertainment Merchants Association et. al.” that videogames qualify for First Amendment protection because just like books, plays, and movies that preceded them, videogames communicate ideas and social messages through literary devices and player interaction with the virtual world.¹¹⁵ This way videogames have been regarded as art in the eyes not only of the Supreme Court of the United States, but even the Smithsonian Museum also admitted that videogames were art as they even held an exposition called “The Art of Video Games” the same year the Supreme Court’s ruling came out.¹¹⁶

It is important to note that videogames, in addition to being an art form, are also of value to society as they communicate important messages and stay within society, being referenced just as much as movies have been. An example of this is the game known as “Spec Ops: The Line” which was a game that was controversial because it showed gamers

¹¹³ GDC. **It’s Still Emulation: Saving Video Game History Before It’s Too Late.** Ob.cit.

¹¹⁴ Costikyan, Greg. “*New Front in the Copyright Wars: Out-of-Print Computer Games*” New York, United States of America: May 18, 2000. Available: [archive.nytimes.com <https://archive.nytimes.com/www.nytimes.com/library/tech/00/05/circuits/articles/18aban.html>](https://archive.nytimes.com/www.nytimes.com/library/tech/00/05/circuits/articles/18aban.html) (Consultation date: July 30, 2022).

¹¹⁵ Supreme Court of the United States. **Brown Governor of California, et al. v. Entertainment Merchants Association, et al.** Washington, United States of America, Supreme Court of the United States, 2010. p.1. Available: [supremecourt.gov <https://www.supremecourt.gov/opinions/10pdf/08-1448.pdf>](https://www.supremecourt.gov/opinions/10pdf/08-1448.pdf) (Consultation date: July 30, 2022).

¹¹⁶ Tucker, Abigail. “*The Art of Video Games*” March, 2012. Available: **Smithsonian Magazine.** [<https://www.smithsonianmag.com/arts-culture/the-art-of-video-games-101131359/>](https://www.smithsonianmag.com/arts-culture/the-art-of-video-games-101131359/) (Consultation date: July 30, 2022).

the very real implications of being in a war. The game uses its narrative to convey to the player that the story of “good versus bad” depicted in modern war themed videogames is an illusion and that war has very real, having both morally and ethically charged consequences.¹¹⁷ Another game that can be mentioned in this regard is “Undertale” which was a game created by a team of independent developers led by Toby Fox which taught the player two simple lessons: 1. All of their choices matter and 2. The player is responsible for how they act. It throws the player into a world full of colorful and lively monsters, giving the player the choice to either treat them badly and kill them or treat them well and become friends with them. Undertale was special in the sense that it did not allow for do-overs or mistakes to be made, should a character be killed by the player’s hand, the game would remember it just like in real life.¹¹⁸ Undertale was deemed so very valuable in fact that in the year 2016 during an influencer and YouTuber gathering at the Vatican with Pope Francis, a Youtuber gave the Pope a copy of the game.¹¹⁹

Videogames have been deemed so valuable for society that doctors have studied them as a potential to cure for disease. In an article published in the National Library of Medicine of the U.S. in 2017, a study was featured in it that was performed on the elderly to see if playing videogames could potentially increase the amount of grey matter that they had to decrease its progressive decline. The games that were used in order to do this were both Super Mario 64 for the Nintendo 64 and Super Mario Galaxy for the Wii. After six months of subjecting a group of old adults to these games, the results showed that: “*The 3D-platform video game training produced positive grey matter increases in brain regions known to decline with age and are related to aging-related cognitive decline*”,¹²⁰ This meant that games have the potential to prevent an old adult’s brain from deteriorating.

¹¹⁷ Jørgensen, Kristine. “*The Positive Discomfort of Spec Ops: The Line*”. December, 2016. Available: **The international journal of computer game research**. V. 16, 2016
<<http://gamestudies.org/1602/articles/jorgensenkristine#:~:text=Spec%20Ops%3A%20The%20Line%20is,112--114>>. (Consultation date: July 30, 2022).

¹¹⁸ Plagge, Kallie. “*Undertale Review*” California, United States of America: October 8, 2018. Available: **ign.com** <<https://www.ign.com/articles/2018/09/18/undertale-review>> (Consultation date: July 30, 2022).

¹¹⁹ Porter Matt. “*Youruber Gives the Gift of Undertale to the Pope*” California, United States of America: June 13, 2017. Available: **ign.com** <<https://www.ign.com/articles/2016/07/06/youtuber-gives-the-gift-of-undertale-to-the-pope>> (Consultation date: July 30, 2022).

¹²⁰ West, Greg L., Zendel, Benjamin Rich, Konishi, Kyoko, et al. “*Playing Super Mario 64 increases hippocampal grey matter in older adults*” December, 2017. Available: **PLoS One**. <<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5718432/>> (Consultation date: July 30, 2022).

In short, the damage made to society from this loss translates into the loss of experiences and messages that these games gave, as they will only live in a memory and they will not be able to be used for other purposes like they were once used in the medical field as mentioned before. Youtuber Nerrel made an example comparing the effects of this kind of loss in the movie industry saying that the Library of Congress preserves films like “The Terminator” because they were culturally, historically or aesthetically significant. Even if a person has not seen the film, they would recognize the iconic line “*I’ll be back*” because it is engrained in culture through references and parodies. However if these films were not preserved, just shown in theaters once and never again, then this cultural value would have been lost forever. Just like this, if videogames weren’t available then the experience would be just a memory.¹²¹ This is an aspect of videogame preservation, to preserve and keep videogames so that the experiences within them may never die.

On the other hand the videogame industry itself can also suffer from the loss of access to abandoned games as the industry benefits from emulation and keeping games available. This is because newer game developers have taken inspiration in older abandoned videogames to create their own. An example of this can be found in the game Undertale. Toby Fox started as a fan of underrated role playing game series “Earthbound” which was made by Nintendo. He became part of the “Earthbound” fandom and created various games that were essentially modified versions of the original game and this made him have videogame developing as his hobby. After that, he played other abandoned games that were not released in the U.S. like “Shin Megami Tensei” which allowed the player to talk to monsters which inspired him to place this concept in the project that would become “Undertale”.¹²² Combining both his experience and taking inspiration from playing other abandoned games, he created a unique game that would one day not only reach the hands of Pope Francis, but would also yield profits of up to 26.7 million dollars and inspire other games to apply the same morality system showed in this game as Claire Ning Fang from

¹²¹ Nerrel. **Emulation, the Law, and You: Where the Hobby Ends and Crime Begins**. n.p. 2020. Available: Youtube <<https://www.youtube.com/watch?v=yj9Gk84jRiE>> (Consultation date: July 30, 2022).

¹²² Video Game Story Time. **Undertale: The Story of Toby Fox**. n.p. 2017. Available: Youtube <<https://www.youtube.com/watch?v=c9rNGeRxAHw>> (Consultation date: July 30, 2022).

the Yale News pointed out in her article “Undertale- Five Years Later”.¹²³ Needless to say, Toby Fox’s achievement was possible precisely because of emulation.

It is worth noting that even obscure and bad games bring inspiration to game developers as they can have brilliant mechanics that might be implemented by modern videogame studios and can also provide solutions to modern game developing problems,¹²⁴ hence why game developers find such value in them. In addition to this, another benefit to emulation is that it brings awareness to people about certain games, which can turn entire franchises profitable and remembered:

*“By keeping older games alive, abandonware sites sometimes serve the ultimate interests of publishers: a new version of Frogger (first released in 1981) was one of the Top 10 best-selling computer games in 1999. Publishers became interested in re-releasing titles like Frogger precisely because they noticed that people were still playing it.”*¹²⁵

This single phenomenon is proof enough for abandonware enthusiasts that all games must be preserved. Through emulation, hidden gems that were once abandoned can become commercially profitable again. There are many examples of this like the case of “Trials of Mana” where the Japanese version of this game was translated and shared online which allowed for an audience to be built around the game in the west which then resulted in the release of the “Collection of Manna”. Another example was the release of the game Star Fox 2 for the SNES Classic Edition, a game which was abandoned and was only rereleased because gamers had gotten a hold of a leaked prototype for the game and had demonstrated interest in it.¹²⁶

In short, abandonware enthusiasts see emulation as a means to: Have access to games from their childhood and preserve them so that future generations can play them. Through videogame preservation abandonware enthusiasts also aim to ensure that new generations of game developers can have access to abandoned games and take inspiration

¹²³ Fang, Claire Ning. “Undertale-Five Years Later” In: **Yale News**, New Haven, Connecticut, United States of America, October 1, 2020. <<https://yaledailynews.com/blog/2020/10/01/undertale-five-years-later/>> (Consultation date: July 30, 2022).

¹²⁴ Nerrel. **Emulation, the Law, and You: Where the Hobby Ends and Crime Begins**. n.p. 2020. Available: Youtube <<https://www.youtube.com/watch?v=yj9Gk84jRiE>> (Consultation date: July 30, 2022).

¹²⁵ Costikyan, Greg. “New Front in the Copyright Wars: Out-of-Print Computer Games” New York, United States of America: May 18, 2000. Available: **archive.nytimes.com** <<https://archive.nytimes.com/www.nytimes.com/library/tech/00/05/circuits/articles/18aban.html>> (Consultation date: July 30, 2022).

¹²⁶ Loc.cit.

on them to make their own game titles using the ideas within them, breathing new life into the videogame industry. In addition to this, abandonware enthusiasts argue that videogame preservation ensures that videogame series from the past stay relevant in the future, creating new audiences for them and making it easier for videogame companies to make and sell new games from those franchises, which in turn pulls those franchises away from abandonment.

c. THE U.S. CONGRESS AND
ENTERTAINMENT SOFTWARE
ASSOCIATION'S VIEW.

Much like the previous two parties described in previous sections, the government has an influence in the abandonware scene. Its role being to establish the “rules of the game” by making the laws that both parties use to argue that what they are doing is legal. Therefore it is important to know which side of the argument the government supports as that will define whether the law will hinder or aid abandonware enthusiasts.

According to Eric Goldman in his paper titled “The Challenges of Regulating Warez Trading” Warez trading has been a very real concern for Congress ever since the introduction of internet piracy and the emergence of warez traders who perform it. However Congress’s handling of this problem is highly questionable because it seems as though Congress prefers to target warez traders because of their guerrilla tactics of sneaking around the internet, as they are essentially anonymous in it. This in addition to the warez trader’s rebellious attitude has made it so Congress takes these actions as a challenge to their power and authority. However the sad truth is that no amount of criminal penalties will suffice to eliminate warez trading simply because warez traders find the thrill of committing illegal acts to be part of their motivation for “liberating” software from its corporate owners into the public masses. In making criminal penalties higher, the Congress is only making warez trading more attractive. As copyright owner lobbyists push legislators to do something about it, legislators find themselves feeling increasingly frustrated because their laws have no effect on the issue, which leads them to pressure prosecutors into

delivering high-profile copyright convictions to appease both lobbyists and legislators.¹²⁷ The result of this dynamic is that Congress creates laws aimed at the warez traders that also affect abandonware enthusiasts because in the eyes of the law both of them are performing the same actions which is the reproduction of copyrighted works, an example of such laws is the No Electronic Theft Act.

The No Electronic Theft Act (NET) was made in 1997 by Congress to change 17 U.S.C. 506, making certain modifications to this section in order to easily take down warez traders. One of the main changes was the modification of 17 U.S.C 506(a) in order to include the bartering that went on between warez traders in its scope. Originally such barter could not be considered as copyright infringement given that the original text of the section established that prosecutors needed to prove that the traders infringed copyright for the purpose of gaining a profit¹²⁸, because the barter of warez traders was done using warez as currency and not regular money, prosecutors could not prove there was a profit gained and thus the law was amended to replace “profit” with “commercial advantage or private financial gain” which broadened the scope of actions that could be prosecuted.¹²⁹ After the NET act was implemented, 17 U.S.C. 506 was modified to read as follows:

“(a)CRIMINAL INFRINGEMENT.- Any person who infringes a copyright willfully either- (1) For purposes of commercial advantage or private financial gain, or (2) by the reproduction or distribution, including by electronic means, during any 180-day period, of 1 or more copies or phonorecords of 1 or more copyrighted works, which have a total retail value of more than \$1,000,

Shall be punished as provided under section 2319 of title 18, United States Code. For purposes of this subsection, evidence of reproduction or distribution of a copyrighted work, by itself, shall not be sufficient to establish willful infringement.”¹³⁰

With this amendment, now abandonware enthusiasts can be pursued for the following reasons: 1. If the infringement was made for the purposes of commercial

¹²⁷ Goldman, Eric. “*The Challenges of regulating Warez Trading*” January, 2005. Available: Social Science Computer Review. Vol. 23, No. 24, 2005. p.4. <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=652702> (Consultation date: August 1, 2022).

¹²⁸ Trotter Hardy. “*Criminal Copyright Infringement*” December, 2002. Available online: **William & Mary Bill**. Vol 11, Issue 1, Article 10, 2002 p.316 <<https://scholarship.law.wm.edu/cgi/viewcontent.cgi?article=1320&context=wmborj>> (Consultation date: October 28, 2022).

¹²⁹ Goldman, Eric. “*Warez Trading and Criminal Copyright Infringement*” January, 2004. p.3. Available: **SSRN** <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=487163> (Consultation date: August 1, 2022).

¹³⁰ **No Electronic Theft (NET) Act**. In Force since Dec. 16, 1997. Available: govinfo.gov <<https://www.govinfo.gov/content/pkg/PLAW-105publ147/pdf/PLAW-105publ147.pdf>> (Consultation date: August 1, 2022).

advantage or private financial gain or 2. The reproduction and distribution of copies of copyrighted works with a total retail value of more than \$1,000. In theory, an abandonware enthusiast does not infringe copyright for the purpose of commercial advantage nor for private financial gain since they simply make copies of out of print games, sharing them online for free. However it is the second type of infringement that can trap all of the abandonware enthusiasts because the total value of the copied abandoned games at retail will simply always be larger than \$1,000 dollars because all of the individual retail values of the games stack up.

Another reason why the NET act affects abandonware enthusiasts is the replacement of the words “for the purposes of profit” to “commercial advantage or private financial gain” has made it more difficult for abandonware enthusiasts argue a fair use defense in trial. Since one of the fair use defense’s elements relies on proving that the purpose and character of the use was not commercial in nature, ever since this change was implemented federal courts have modified the way they interpret this first element. As a result, the new interpretation is that even though a warez trader does not intend to have financial or commercial gain, they still technically infringe for having “financial gain”. This is because warez traders perform barter amongst each other and that constitutes a commercial use which leads to financial gain. Peer-to-peer file sharing was also found to be a commercial purpose because the repeated downloading of the product would discourage people from purchasing legitimate copies.¹³¹ This change in the way federal courts interpret the fair use doctrine not only affects warez traders, but also abandonware enthusiasts because they use peer-to-peer file sharing to ensure abandoned games remain accessible and available through websites that enable for file sharing to happen.

These actions seem to indicate that Congress is against abandonware enthusiasts and emulation as much as they are against warez traders and internet piracy. However these actions did not stop with the release of the NET act. The Digital Millennium Act (DMCA) of 1998, which was released a year later after the NET act was published, was another act that amended provisions contained inside 17 U.S.C. Through this act, Congress granted the

¹³¹ Goldman, Eric. “*Warez Trading and Criminal Copyright Infringement*” January, 2004. p.10. Available: SSRN. 2004 <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=487163> (Consultation date: August 1, 2022).

Library of Congress the power to make rules on how to apply 17 U.S.C. 1201.¹³² This is important because 17 U.S.C. 1201(a) prohibits the “*Circumvention of copyright protection systems*” establishing in its text that “*no person shall circumvent a technological measure that effectively controls access to a work protected under this title.*”¹³³ The DMCA changed the text so that it established the following:

*“(C) during each 3-year period, the Librarian of Congress...shall make the determination in a rulemaking proceeding for purposes...of whether persons who are users of a copyrighted work are, or are likely to be in the succeeding 3 year period, adversely affected by the prohibition under subparagraph (A) in their ability to make noninfringing uses under this title of a particular class of copyrighted works.”*¹³⁴

According to 17 U.S.C. 1201(c), the Library of Congress can perform rulemaking duties in order to establish exceptions to the application of this section to users that perform noninfringing uses. This means that if a user wishes to circumvent a software program’s security, but in doing so is not infringing 17 U.S.C. then the Library of Congress can identify that use and protect it from prosecution for 3 years. This could potentially be applied to abandonware games since they can be protected under the fair use doctrine because they are not being copied for the purpose of selling them or gaining a profit and do not affect a potential market, thus they do not infringe 17 U.S.C.

This is precisely what was argued in 2015 when the Electronic Frontier Foundation (EFF) made a request for the Library of Congress to allow gamers to break into the copyright protection systems of certain abandoned games in order to save them from being rendered unplayable. Specifically, what the Electronic Frontier Foundation wanted was to have it be possible to break into the defenses of abandoned games in order to disable a specific line of code that would check the authentication of a copy of the game from a server owned by videogame developing companies. This was essential to preserve these kinds of games because these abandoned games relied on the servers to exist to be played

¹³² **The Digital Millennium Copyright Act of 1998.** In Force since October 28, 1998/Dec. 1998. Available: [copyright.gov <https://www.copyright.gov/legislation/dmca.pdf>](https://www.copyright.gov/legislation/dmca.pdf) (Consultation date: August 1, 2022).

¹³³ U.S. Copyright Office. **Copyright Law of the United States and Related Laws Contained in Title 17 of the United States Code.** Washington, United States of America. Library of Congress. 2021, p. 290. Available: [<https://www.copyright.gov/title17/>](https://www.copyright.gov/title17/) (Consultation date: August 1, 2022).

¹³⁴ Loc.cit.

because of this code and thus were rendered unplayable if those servers were shut down as they were after they were abandoned.¹³⁵ The petition sought an exemption to enable those who lawfully acquired a copy of these videogames to access and play those games once the server had been shut down, however aside from granting an exemption to these people they also sought to extend this exemption to include the breaking of said copyright protection systems to make abandoned games available for research and study.¹³⁶

Once the Library of Congress received this inquiry, the Entertainment Software Association (ESA) decided to object to this request. For context, the Entertainment Software Association is an organization dedicated to represent the will of all of the major platform providers and major video game publishers in the United States. It is also dedicated to serving the business and public affairs needs of companies that publish computer games and videogames for videogame consoles, handheld devices, personal computers and the internet.¹³⁷

Inside the comment that the ESA issued against the EFF's proposal they argued that users cannot remove the code that checks for authentication without circumventing the code that protects the access controls for the videogame console itself. From here the implications are very broad as the ESA argues that since videogame consoles nowadays offer access to more media than just videogames, giving access to the videogame console could potentially result in other types of piracy, furthermore they contend that the exemption is so broad that it could be applied to any device that is used to play games. Another argument was that the hacking of consoles for this purpose is not protected by the fair use doctrine because the intended use was not transformative given the fact that gamers

¹³⁵ Mcsherry, Corynne, Walsh, Kit and Stoltz, Mitch. "Victory for Users: Librarian of Congress Renews and Expands Protections for Fair Uses." In: **EFF**, California, United States of America, October 27, 2015. Available: [eff.org <https://www.eff.org/deeplinks/2015/10/victory-users-librarian-congress-renews-and-expands-protections-fair-uses>](https://www.eff.org/deeplinks/2015/10/victory-users-librarian-congress-renews-and-expands-protections-fair-uses) (Consultation date: August 2, 2022).

¹³⁶ Copyright Office, Library of Congress. **Exemption to Prohibition on Circumvention of Copyright Protection Systems for Access Control Technologies** Washington, DC, United States of America, Federal Register, 2015. p.13. Available: <https://www.federalregister.gov/documents/2015/10/28/2015-27212/exemption-to-prohibition-on-circumvention-of-copyright-protection-systems-for-access-control> (Consultation date: August 2, 2022).

¹³⁷ Entertainment Software Association, Motion Picture Association of AMERICA, Inc and Recording Industry Association of America. **Long Comment Regarding a Proposed Exemption Under 17 U.S.C. 1201 (Proposed Class #23)**, Washington, D.C., United States of America, 2014. p.1. https://copyright.gov/1201/2015/comments-032715/class%2023/Joint_Creators_and_Copyright_Owners_Class23_1201_2014.pdf (Consultation date: August 2, 2022).

would only be making a copy of the same game without the authentication code and with the ability to connect to new servers and that this use could lead to the recreation of the exact same entertainment experience that videogame publishers license for a fee. In addition to the previous argument the ESA also argued that copies made of the games could undermine potential markets for works because only the copyright owner has the exclusive right to meet the leftover demand that comes as a result of the server being disabled. Finally they argued that the EFF's ultimate purpose with its inquiry is to legitimize game, console and server hacking for the purpose of enabling casual use of copyrighted games across platforms and devices.¹³⁸

The response of the Library of Congress in its final rule about the inquiry decided that it would grant the exemption but only in the following cases: 1. To allow access to copy and modify the computer program (game) to restore access to the game for personal gameplay on a personal computer or videogame console and 2. Allow libraries, archives and museums to do the same for the purpose of preservation of these games under the condition that the games not be made available or distributed outside of the premises of said library, archives or museum. The reasoning behind this was that it was determined that, if the exemption was not granted, then the abandoned games would be rendered unplayable and furthermore the restoration of the access was found to be noninfringing fair use. However it was determined that online multiplayer play could not be exempted because the EFF could not prove that in breaking the game and emigrating its users to other servers for multiplayer play would not result in trafficking of technology as prohibited by 17 U.S.C. 1201(a)(2) because the method of circumvention would be spread in such a way that people who did not buy the game legitimately could obtain it and play it on their consoles without buying the original game.¹³⁹

This may have spelled a victory for abandonware enthusiasts, but the Library of Congress revealed its true colors during the second review of this exemption in 2021, where it was asked of the Library of Congress to expand on this exemption and the petition

¹³⁸ Idem. (pp.5).

¹³⁹ Copyright Office, Library of Congress. **Exemption to Prohibition on Circumvention of Copyright Protection Systems for Access Control Technologies**. Ob.cit (pp. 14).

was rejected. The request was to renew the exemption requested by EFF, and to remove the restriction that prevented museums, archives and libraries to distribute abandoned games outside of the premises of these preservation sites. The ones who issued this petition (Proponents) argued that enabling this distribution would be fair use because the Copyright Act favored remote access to preservation materials and that the uses proposed (videogame preservation) would not affect the potential market for the copyrighted works because only works that are no longer reasonably available commercially would be subject to the exemption. For obvious reasons the ESA opposed this exemption arguing that because the exemption allowed people who were not authenticated educators or researchers to spread these games, then these abandoned games would become accessible to the general public and would create an adverse effect to the existing market for older videogames. The final ruling of the Library of Congress was to dismiss the exemption because they believed the risk to the market for old videogames was very real, but they did grant this exemption to computer software in general.¹⁴⁰

Needless to say, with all the evidence exposed in this section it can be concluded that Congress's view on emulation is not favorable. On one hand Congress damages abandonware enthusiasts by enacting rules and laws that make it difficult for videogame preservation to continue to exist by making it easier for abandonware enthusiasts to be pursued and on the other hand the Library of Congress has yet to grant an exemption to preserve abandoned games and make them available to the public out of fear that a potential market may be harmed which means Congress is not providing options to keep videogame preservation alive.

¹⁴⁰ Copyright Office, Library of Congress. **Exemption to Prohibition on Circumvention of Copyright Protection Systems for Access Control Technologies**. Ob. cit. (pp.9-10).

Chapter III

THE STANCE OF THE U.S. LAW ON THE SUBJECT OF ABANDONED VIDEOGAMES.

The purpose of this chapter is to analyze the U.S. Copyright law to determine the following; 1. If emulators are legal to make, 2. Whether copying and distributing copies of abandoned games is legal or not and 3. If it is legal to break past the safety measures of an abandoned game in order to preserve its content. In the second section of this chapter, a legal analysis will be performed on two cases regarding companies suing abandonware enthusiasts over ROMs and emulators, the first one will be “Sony Computer Entertainment, Inc. v. Connectix Corp.” and the second one will be “Nintendo of America v. Matthias et. al.”. The purpose of such an analysis is to determine why the cases had a favorable or disfavorable ruling and what could have been done to prevent such a ruling or what advantage this ruling gives to the abandonware enthusiasts.

a. AN OBJECTIVE EVALUATION OF THE STATUS OF ABANDONWARE GAMES IN U.S. LAW.

The process of emulating an abandoned videogame has separate stages, each of which have their own legal implications. For the purposes of this section the following stages will be evaluated under U.S. copyright law: First the making of emulators, both reversed engineer and the ones made by extracting the BIOS code directly from the console, second will be the copying and distribution of abandoned games and third will be the extraction of abandoned games from their cartridges once the original videogame console is not able to function anymore.

Through a thorough analysis of 17 U.S.C. 1201, it was determined that making an emulator through the extraction of the BIOS code directly from the original hardware is illegal according to the current text of 17 U.S.C. 1201, which establishes a general rule about the circumvention of copyright protection systems:

*“(a) Violations Regarding Circumvention of Technological Measures.—(1)(A) No person shall circumvent a technological measure that effectively controls access to a work protected under this title. The prohibition contained in the preceding sentence shall take effect at the end of the 2-year period beginning on the date of the enactment of this chapter.”*¹⁴¹

This means that as a general rule of law, nobody can simply circumvent a technological copyrighted work’s defenses to obtain access to said work. However 17 U.S.C. 1201(B) provides another rule related to the first. 17 U.S.C. 1201(B) states that 17 U.S.C. 1201(a)(1)(A) will not be applied to users of a copyrighted work if the application of 17 U.S.C. 1201(a)(1)(A) will adversely affect these users of a class of copyrighted works in their ability to perform noninfringing uses of those works. The term “noninfringing” in this case meaning uses that do not infringe the rules of copyright contained in 17 U.S.C.¹⁴² However this subsection alone seems vague as it does not specify how to determine which users and copyrighted works fall under this subsection. Fortunately 17 U.S.C. 1201(B) solves this ambiguity by referring to 17 U.S.C. 1201(C) which states that the Library of Congress¹⁴³, is the authority that must decide which users and copyrighted works will be exempt from following 17 U.S.C. 1201(A), being these exemptions subject to review every three years.¹⁴⁴

As of the 28th of October of 2021, the Library of Congress has authorized only two exemptions for abandoned videogames. The first allows users to circumvent the defenses of a videogame console to deactivate codes that prevent games that rely on the existence of servers to be played after the official servers disappear. The second exemption was

¹⁴¹ U.S. Copyright Office. **Copyright Law of the United States and Related Laws Contained in Title 17 of the United States Code.** Washington, United States of America. Library of Congress. 2021, p. 290. Available: <<https://www.copyright.gov/title17/>> (Consultation date: August 4, 2022).

¹⁴² Loc.cit.

¹⁴³ “...upon recommendation from the Register of Copyrights who in turn must consult with the Assistant Secretary for Communications and Information of the Department of Commerce...”

¹⁴⁴ U.S. Copyright Office. **Copyright Law of the United States and Related Laws Contained in Title 17 of the United States Code.** Ob. cit. (pp. 290).

provided for libraries, archives, or museums, to be able to circumvent videogame console's defenses in order to preserve videogames so long as the games are not distributed outside the premises and are played only inside the premises.¹⁴⁵ This means that without an exemption, nobody can circumvent a videogame console's defense system in order to have access to the BIOS code and make a direct copy of it to make an emulator.

This is different for emulators that are made through reverse engineering because reverse engineering is protected by 17 U.S.C. 1201(f) which allows for reverse engineering to be performed on a copyrighted work, it states that the general prohibition contained in 17 U.S.C. 1201(a)(1)(A) will not be applied to any person who possesses the right to use a copy of a computer program so long as they circumvent the program's defenses for the sole purpose of identifying and analyzing the elements of the program that are necessary to make the program exchange information between an independently created computer program and other programs, so long as the program being reached through circumvention was not initially readily available to the user.¹⁴⁶ This means that a user that has a legitimate copy of the original program is allowed to break into the defenses of the program in order to analyze the elements that make that program exchange information with other programs inside of a computer and make a separate original program that can perform the same actions as the original, this is so long as the user had previous access to the program itself without its defenses.

The way this translates into emulation is that a user can break into a previously owned videogame console to analyze the BIOS, and study how it exchanges information between programs in order to be able to display the games on the screen and make them playable. Once this is done then the user can begin to do reverse engineering and get to make a copy of the BIOS without ever touching or modifying the original code. This is how an emulator can be made legally because the original copyright protected BIOS code is not

¹⁴⁵ Copyright Office, Library of Congress. **Exemption to Prohibition on Circumvention of Copyright Protection Systems for Access Control Technologies** Washington, DC, United States of America, Federal Register, 2015. p.14. Available: <<https://www.federalregister.gov/documents/2021/10/28/2021-23311/exemption-to-prohibition-on-circumvention-of-copyright-protection-systems-for-access-control>> (Consultation date: August 4, 2022).

¹⁴⁶ U.S. Copyright Office. **Copyright Law of the United States and Related Laws Contained in Title 17 of the United States Code.** Washington, United States of America. Library of Congress. 2021, p. 293. Available: <<https://www.copyright.gov/title17/>> (Consultation date: August 4, 2022).

modified nor copied in any way and as such there is no infringement of the copyright owner's rights to reproduce the original copyrighted work.

Furthermore, 17 U.S.C. 1201(f)(2) and 17 U.S.C. 1201(f)(3) establish that the user can use technological means to circumvent a technological measure or in order to get to the program behind the protection "walls". It is also stated in these subsections that the information acquired through these acts can be made available to others only so that another user can develop their own independent computer program through reverse engineering.¹⁴⁷ This applied to emulation means that, users can employ technological measures to get into a videogame console (such as hacking) to observe the BIOS and can also share their knowledge to other users who are looking to create emulators of the same console.

Despite the fact that emulation is essentially an action that is allowed by the copyright law it must be pointed out that section 17 U.S.C. 1201(a)(2) prevents people from manufacturing, providing and offering to the public the devices needed to circumvent a technological measure:

"(2) No person shall manufacture, import, offer to the public, provide, or otherwise traffic in any technology, product, service, device, component, or part thereof, that—

(A) is primarily designed or produced for the purpose of circumventing a technological measure that effectively controls access to a work protected under this title;

(B) has only limited commercially significant purpose or use other than to circumvent a technological measure that effectively controls access to a work protected under this title; or

*(C) is marketed by that person or another acting in concert with that person's knowledge for use in circumventing a technological measure that effectively controls access to a work protected under this title"*¹⁴⁸

This means that no one can create and provide others with technology, products, services, devices or components that perform one of the actions mentioned above. In regards to emulation, this means that even though people can create emulators through reverse engineering, they cannot sell or distribute the tools needed to break into a

¹⁴⁷ Loc. cit.

¹⁴⁸ U.S. Copyright Office. **Copyright Law of the United States and Related Laws Contained in Title 17 of the United States Code.** Ob. cit. (pp. 291).

videogame console. However, section 17 U.S.C. 1201(f)(2) establishes an exception to the general rule mentioned above, stating the following:

“(2) Notwithstanding the provisions of subsections (a)(2) and (b), a person may develop and employ technological means to circumvent a technological measure, or to circumvent protection afforded by a technological measure, in order to enable the identification and analysis under paragraph (1), or for the purpose of enabling interoperability of an independently created computer program with other programs, if such means are necessary to achieve such interoperability, to the extent that doing so does not constitute infringement under this title.”¹⁴⁹

According to 17 U.S.C. 1201(f)(2), people are allowed to develop and use “technological means” to get into a videogame console and perform the reverse engineering process. What this all means is that emulator creators cannot sell, provide to the public nor manufacture the tools used to break into the videogame consoles as it is prohibited by the law, but they are allowed to manufacture their own programs that allow them to break into the videogame console of their choice.

Now that the legal status of emulators has been explained, it is time to move on and analyze the legal status of ROMs under copyright law. As it was stated in previous chapters, ROMs must be extracted from their original formats in order to be turned into a computer program that can then be emulated using an emulator. According to 17 U.S.C. 109, a person who owns a legitimate lawfully obtained copy of a copyrighted work can sell or dispose of that copy:

“(a) Notwithstanding the provisions of section 106(3), the owner of a particular copy or phonorecord lawfully made under this title, or any person authorized by such owner, is entitled, without the authority of the copyright owner, to sell or otherwise dispose of the possession of that copy or phonorecord.”

This rule is known commonly as the “first sale doctrine” and according to the Department of Justice, this doctrine allows for an individual that purchased a copy of a copyrighted work to sell, display or dispose of only that particular copy of the work without being forced to obtain permission for it. However it must be noted that the right to distribute granted by this doctrine ends when the owner sells their particular copy,

¹⁴⁹ U.S. Copyright Office. **Copyright Law of the United States and Related Laws Contained in Title 17 of the United States Code.** Washington, United States of America. Library of Congress. 2021, p. 293. Available: <<https://www.copyright.gov/title17/>> (Consultation date: August 5, 2022).

furthermore the Department of Justice has mentioned that in court this doctrine is not an effective defense in a case where a defendant has made unauthorized reproductions of a copyrighted work.¹⁵⁰ The importance of this is that the first sale doctrine allows people to do as they please with their copies, potentially enabling them to perform the extraction of the games, but it prevents them from distributing copies of the same game.

The reason why it is prohibited to make copies of games in this case is because it would infringe one of the exclusive rights that copyright owners hold over their work. According to section 17 U.S.C. 106, only the owners of copyright have the exclusive right “to reproduce the copyrighted work in copies or phonorecords” as well as “to distribute copies or phonorecords of the copyrighted work to the public by sale or other transfer of ownership, or by rental, lease, or lending”¹⁵¹ Because of this, the extraction of a game from its cartridge and the distribution of copies of it is illegal because they were not authorized by the owner of the copyrighted work. However an exemption to the rule is established in 17 U.S.C. 107 which contains the “Fair Use doctrine”. Section 107 states as follows:

“Notwithstanding the provisions of sections 106 and 106A, the fair use of a copyrighted work, including such use by reproduction in copies or phonorecords or by any other means specified by that section, for purposes such as criticism, comment, news reporting, teaching (including multiple copies for classroom use), scholarship, or research, is not an infringement of copyright. In determining whether the use made of a work in any particular case is a fair use the factors to be considered shall include—

(1) the purpose and character of the use, including whether such use is of a commercial nature or is for nonprofit educational purposes;

(2) the nature of the copyrighted work;

(3) the amount and substantiality of the portion used in relation to the copyrighted work as a whole; and

(4) the effect of the use upon the potential market for or value of the copyrighted work.”¹⁵²

¹⁵⁰ The United States Department of Justice Archives. **Criminal Resource Manual 1801-1899, 1854. COPYRIGHT INFRINGEMENT – FIRST SALE DOCTRINE.** Washington, D.C., United States of America. Department of Justice, January 17, 2020. Available: justice.gov <<https://www.justice.gov/archives/jm/criminal-resource-manual-1854-copyright-infringement-first-sale-doctrine#:~:text=The%20first%20sale%20doctrine%2C%20codified,interests%20of%20the%20copyright%20owner.>> (Consultation date: August 4, 2022).

¹⁵¹ U.S. Copyright Office. **Copyright Law of the United States and Related Laws Contained in Title 17 of the United States Code.** Ob. cit. (pp.17).

¹⁵² U.S. Copyright Office. **Copyright Law of the United States and Related Laws Contained in Title 17 of the United States Code.** Washington, United States of America. Library of Congress. 2021, p. 19-20. Available: <<https://www.copyright.gov/title17/>> (Consultation date: August 4, 2022).

As stated in 17 U.S.C. 107 copies of copyrighted works are allowed only for purposes such as “*criticism, comment, news reporting, teaching, scholarship, or research*”. However this section also states that regardless of if a copyrighted work is used exclusively for the purposes listed, certain factors must be considered to determine if the use of a copyrighted work results in an infringement of copyright or not. As has been mentioned in previous chapters, the fair use defense’s relies solely on the court’s understanding and evaluation of these factors applied to the facts of the case, often times opting for giving the fourth factor much more importance than the rest. In the case of emulation this means that an abandonware enthusiast can potentially bring this defense in court. However its results are uncertain because the verdict relies on a case-by-case study. This means that the legal status of peer-to-peer file sharing itself is questionable and a matter that is best settled in court rather than by the law.

Despite all of the above it remains questionable whether it is legal for an abandonware enthusiast to make a copy of their legitimately owned copy of a game for personal use only. The solution can be found in 17 U.S.C. 117 which establishes limitations on exclusive rights of copyright owners with regards to computer programs. Because videogames can be considered computer programs contained in cartridges or CDs, an argument can be made that the copyright rules made for computer programs can also be applied to videogames and thus 17 U.S.C. 117 could be applied. This section establishes that a user is allowed to make a copy of a computer program for the purpose of utilizing it with a specific machine only. Users may also make a copy for archival purposes only and should such possession of the copy suddenly cease to be “rightful”, then all archival copies must be destroyed.¹⁵³ In theory, this means that everyone who legally owns a copy of a game has the right to make an archival copy of it and also make a copy for the purpose of using it with a machine whose only function is to play that game. This implies that a person can make an emulator, then turn it into a physical machine (hardware) and make archival copies of their legally owned copied of the games, meaning emulation done for personal purposes is perfectly legal under U.S. copyright law.

¹⁵³ Idem. (pp. 115).

In conclusion, emulators made using reverse engineering are legal because they do not entail the copying of the copyrighted work which is the BIOS code. On the other hand ROM extraction is legal only if it is performed with previously purchased copies of the games because users are allowed to make archival copies of the games for personal use. However the legal status of peer-to-peer file sharing or the release of free copies of abandoned games into the internet is a matter best solved in court. Even though the reproduction of copyrighted works is illegal under 17 U.S.C. 106, the fair use doctrine in 17 U.S.C. 107 can be used as a legal defense in court to argue it falls under fair use.

b. ANALYSIS OF COURT CASES
REGARDING ABANDONWARE
GAMES AND EMULATION.

Even though abandonware enthusiasts think that whenever emulation is involved, courts should rule towards granting Fair Use protection to emulator makers and game sharing websites, however they fail to recognize this is not how it works. The truth is that every case involving emulation is so complex so courts must perform a case-by-case analysis to determine whether or not to grant such a protection depending on the facts of the case. It is these types of analysis which will be analyzed in this section.

The first case that will be analyzed is “Sony Computer Entertainment, Inc. v. Connectix Corp.” which was argued and solved by the Court of Appeals for the Ninth Circuit. The facts of this case are as follows; Sony Computer Entertainment, Inc., a well-known videogame developing company who owns the rights to the Playstation console, sued “Connectix Corporation” for selling a software program called “Virtual Game Station” that worked as an emulator for Playstation games. Plaintiff’s main argument was that Connectix Corp had violated their copyright during the creation of the “Virtual Game

Station” because defendant had copied the original BIOS code of the Sony Playstation console several times in order to perform “reverse engineering”.¹⁵⁴

In the primary injunction filed by Plaintiff, the District Court decided to grant the injunction because they deemed that Plaintiff would likely succeed in their infringement claim because Connectix performed “intermediate copying” which was allegedly not protected by fair use. Defendant appealed this decision and thus the Court of Appeals for the Ninth Circuit was tasked to decide if Defendant’s use of the Sony Playstation console’s BIOS fell under fair use.¹⁵⁵

The Defendant’s defense was that even though they did copy Sony’s BIOS when developing their product, this action was protected by fair use under 17 U.S.C. 107. The Court of Appeals of the Ninth Circuit’s analysis centered on the application of the fair use doctrine; however this was performed within the scope of “Sega Enterprises Ltd. v. Accolade, Inc.”. The conclusion of such an analysis was that while the BIOS code is comprised of text that can be copyrighted, it also contains elements that cannot be protected which are the ideas and functions that the code can perform. Because the code itself cannot be read by humans and thus in order to reach and access the ideas that are not subject to copyright, defendant was forced to employ a different method of access which would be the investigation and translation of the original text. In order to perform this method the court concluded that it was inevitable for defendant to copy the protected portion of the code.¹⁵⁶ Thus the conclusion of the Court of Appeals is that defendant performed an action that is protected by the fair use doctrine because its purpose was gaining access to the elements of the code that are not protected by copyright.

This decision was reached because the Court of Appeals of the Ninth Circuit evaluated the facts of the case using the fair use test, however they also added that the

¹⁵⁴ Court Listener. **Sony Computer Entertainment, Inc., a Japanese corporation; Sony Computer Entertainment America, Inc., a Delaware corporation, Plaintiffs-Appellees v. Connectix Corporation, a California corporation, Defendant-Appellant.** California, United States of America, Free Law Project, 2000. Paragraphs 2-4 Available: <https://www.courtlistener.com/opinion/767633/sony-computer-entertainment-inc-a-japanese-corporation-sony-computer/?q=Sony%20Computer%20Entertainment%20v.%20Connectix%20Corp.>> (Consultation date: August 15, 2022).

¹⁵⁵ Loc.cit.

¹⁵⁶ Court Listener. **Sony Computer Entertainment, Inc., a Japanese corporation; Sony Computer Entertainment America, Inc., a Delaware corporation, Plaintiffs-Appellees v. Connectix Corporation, a California corporation, Defendant-Appellant.** Ob. cit. (paragraph 20).

precedent established in “Sega Enterprises Ltd. v. Accolade, Inc.” had to be applied to this case because of its similarity with it. Essentially in “Sega Enterprises Ltd. v. Accolade, Inc.” the Court of Appeals of the Ninth Circuit decided that disassembly of a videogame console in order to reach the BIOS code is considered fair use: “[W]here disassembly is the only way to gain access to the ideas and functional elements embodied in a copyrighted computer program and where there is a legitimate reason for seeking such access, disassembly is a fair use of the copyrighted work, as a matter of law.”¹⁵⁷ Meaning that taking apart a videogame console in order to gain access to the ideas and functional elements of is allowed under fair use only if there was a legitimate reason for seeking such an access as a matter of law.

When evaluating for the step of the test which pertains to the “*Nature of the copyrighted work*” the Court of Appeals of the Ninth Circuit determined that the BIOS code by nature had aspects that could not be protected by copyright and thus they deemed appropriate to apply a lower degree of protection than a traditional literary work which was entirely protected by the copyright law. Since this sort of code was not one to display its functional elements on a screen, then could only access those elements through reverse engineering, which required copying the Sony BIOS onto a computer. The Court of Appeals then used the criteria applied in “Sega Enterprises Ltd. v. Accolade, Inc.” to determine whether reverse engineering was needed to get to the functional elements of the BIOS. About this the court concluded that even though copying the entire material constitutes and infringement of copyright, copying the BIOS code in order to observe it and reverse engineer it is a necessary step that must be done to properly perform reverse engineering itself. In this regard defendant did observe the code, but when this was not enough to properly view the functions of the BIOS code then they disassembled the code in order to study it better, the court argued this was out of need and thus is allowed under the scope of “Sega Enterprises Ltd. v. Accolade, Inc.”

¹⁵⁷ Court Listener. **Sony Computer Entertainment, Inc., a Japanese corporation; Sony Computer Entertainment America, Inc., a Delaware corporation, Plaintiffs-Appellees v. Connectix Corporation, a California corporation, Defendant-Appellant.** California, United States of America, Free Law Project, 2000. Paragraph 25. Available: [courtlistener.com<https://www.courtlistener.com/opinion/767633/sony-computer-entertainment-inc-a-japanese-corporation-sony-computer/?q=Sony%20Computer%20Entertainment%20v.%20Connectix%20Corp.>](https://www.courtlistener.com/opinion/767633/sony-computer-entertainment-inc-a-japanese-corporation-sony-computer/?q=Sony%20Computer%20Entertainment%20v.%20Connectix%20Corp.) (Consultation date: August 22, 2022).

When evaluating the step pertaining to the “*Amount and substantiality of the portion used in relation to the copyrighted work as a whole*” the Court of Appeals of the Ninth Circuit determined that in this case defendant did use a significant amount of the original work when they copied the BIOS code multiple times, however to the court this held little weight since the final product did not contain any of the original BIOS code.

As for the step which dealt with the “*Purpose and character of the use, including whether such use is of a commercial nature or is for nonprofit educational purposes*” the Court of Appeals concluded that the district court was initially wrong in saying that, defendant had a commercial purpose to his actions which gives rise to a “*presumption of unfairness that can be rebutted by the characteristics of a particular commercial use*”¹⁵⁸ This is because the Court of Appeals noted that ever since “*Sega Enterprises Ltd. v. Accolade, Inc.*” such a presumption has been eliminated because it impeded the identification of fair use, however they did admit that defendant clearly had a commercial purpose. In this regard the Court of Appeals used the legal standard contained in “*Campbell v. Acuff Rose Music, Inc*” to determine if the use: “*merely supersedes the objects of the original creation, or instead adds something new, with a further purpose or different character, altering the first with new expression, meaning, or message; it asks, in other words, whether and to what extent the new work is ‘transformative’.*”¹⁵⁹ Thus for the purposes of this case it is irrelevant whether Connectix had a commercial motive because instead what must be evaluated is whether the use was transformative or not.

The Court of Appeals concludes that the defendant’s product was not only transformative but also a valid competitor to Sony because Connectix in creating the Virtual Game Station, simply opened up the opportunity for people to play games made for the Playstation console in places where the console and a TV set were not readily available but a computer was. In addition to this, the Video Game Station was deemed to be a whole new product that did not contain pieces of Sony’s BIOS code and thus there was no reason not to regard the BIOS inside the defendant’s product as anything but transformative. In

¹⁵⁸ Idem. (Paragraph 37).

¹⁵⁹ Court Listener. **Sony Computer Entertainment, Inc., a Japanese corporation; Sony Computer Entertainment America, Inc., a Delaware corporation, Plaintiffs-Appellees v. Connectix Corporation, a California corporation, Defendant-Appellant.** Ob.cit. (Paragraph 36).

regards to this, the district court that granted preliminary injunction decided that there was no transformative use because the Virtual Game Station merely replaced the Playstation however the Court of Appeals considered the new BIOS code as a new form of expression separate from the original BIOS code, regardless of if it performed a similar function.¹⁶⁰

Finally in regards to the effect of the use has upon the potential market, the Court of Appeals considered they were obligated to study if the individual's actions affected the potential market and whether "*unrestricted and widespread conduct of the sort engaged in by the defendant...would result in a substantially adverse impact on the potential market*"¹⁶¹ meaning that the Court of Appeals extended the meaning of the original text of 17 U.S.C. 107(4) so that they made sure to make a responsible decision, because the court knew this ruling would create a precedent and thus could be used to allow more emulators to be created this way.

The conclusion made by the Court of Appeals was that because Defendant's work was transformative, it was less likely to impact the potential market. This is because when a work merely supplants the original copyrighted work, it is more likely to have an adverse effect on the potential market, but a transformative work is less likely to do so. Because Connectix's product was transformative, then the court considered it to be "*a legitimate competitor in the market for platforms on which Sony and Sony licensed games can be played.*"¹⁶² and though Sony may suffer economic loss "*the copyright law, however, does not confer such a monopoly*"¹⁶³. About this the court established that the statutory purpose of the copyright law is to promote creative expression, thus if the copyright law allowed for creators to monopolize the market by making it impossible for others to compete in it, such

¹⁶⁰ Court Listener. **Sony Computer Entertainment, Inc., a Japanese corporation; Sony Computer Entertainment America, Inc., a Delaware corporation, Plaintiffs-Appellees v. Connectix Corporation, a California corporation, Defendant-Appellant.** California, United States of America, Free Law Project, 2000. Paragraph 38. Available: [courtlistener.com<https://www.courtlistener.com/opinion/767633/sony-computer-entertainment-inc-a-japanese-corporation-sony-computer/?q=Sony%20Computer%20Entertainment%20v.%20Connectix%20Corp.>](https://www.courtlistener.com/opinion/767633/sony-computer-entertainment-inc-a-japanese-corporation-sony-computer/?q=Sony%20Computer%20Entertainment%20v.%20Connectix%20Corp.) (Consultation date: August 30, 2022).

¹⁶¹ Idem. (Paragraph 43).

¹⁶² Court Listener. **Sony Computer Entertainment, Inc., a Japanese corporation; Sony Computer Entertainment America, Inc., a Delaware corporation, Plaintiffs-Appellees v. Connectix Corporation, a California corporation, Defendant-Appellant.** Ob.cit. (Paragraph 45).

¹⁶³ Court Listener. **Sony Computer Entertainment, Inc., a Japanese corporation; Sony Computer Entertainment America, Inc., a Delaware corporation, Plaintiffs-Appellees v. Connectix Corporation, a California corporation, Defendant-Appellant.** California, United States of America, Free Law Project, 2000. Paragraph 45. Available: [courtlistener.com<https://www.courtlistener.com/opinion/767633/sony-computer-entertainment-inc-a-japanese-corporation-sony-computer/?q=Sony%20Computer%20Entertainment%20v.%20Connectix%20Corp.>](https://www.courtlistener.com/opinion/767633/sony-computer-entertainment-inc-a-japanese-corporation-sony-computer/?q=Sony%20Computer%20Entertainment%20v.%20Connectix%20Corp.) (Consultation date: August 30, 2022).

a thing would go against the very purpose of the copyright law.¹⁶⁴ The Court of Appeals concluded that Defendant's use of the BIOS Code was protected by the copyright law and thus dissolved the injunction, remanding the case, creating a precedent in the process.

Aside from the main conclusion that the Court of Appeals reached, there are other aspects that could be used for other cases related to this one. The first one is that the Court of Appeals opened the scope of the Fair Use doctrine test, which could potentially be used in cases that have nothing to do with emulators. This is because videogame are contained within a medium that can be disassembled. The fact that disassembly can be allowed only to gain access to the ideas when there is a legitimate reason for seeking that access implies that should person wish to disassemble a cartridge to access to a ROM or "dump" the ROM, it would not be able to be considered fair use. This is because abandonware enthusiasts perform disassembly on ROMs to play it and not to access the ideas within it. However, an argument can be made that, disassembly performed by programmers who wish to study the ideas contained within a game is supported by the Fair Use doctrine because it would meet the requirements mentioned above. In this case disassembling would essentially be to "dump" the game into a computer and translating the code into a readable format. This could provide a way for abandoned games to be preserved under the banner of education for programmers which is one of the reasons videogames are being preserved in the first place. Such an argument would be made stronger by pairing it with the text of 17 U.S.C 107(a) which establishes that making copies for research and teaching is not copyright infringement. Such an argument would allow universities to study an abandoned videogame's code without fear of being prosecuted.

Another more complex use of this precedent's arguments could potentially make PC ports also be considered fair use. For context, A "PC port" is essentially taking a videogame and making it playable on a computer without the aid of an emulator.¹⁶⁵ The difference between a good port and a bad port is essentially that the ported game would have certain upgrades like; Improving the game's performance, graphics and adapting the

¹⁶⁴ Loc.cit.

¹⁶⁵ Shabalaba15. **ELI5: What is meant by a port of a game?** n.p. 2016. Available: reddit.com <https://www.reddit.com/r/explainlikeimfive/comments/5ka2w7/eli5_what_is_meant_by_a_port_of_a_game/> (Consultation date: August 31, 2022).

controls so that the game can be played with a keyboard or a custom controller.¹⁶⁶ Following the logic of “Sony Computer Entertainment v. Connectix Corp”, ports could be defended in court because in order to make a port of an abandoned game, the source code must be reverse engineered so it can be adapted to run in a computer on its own. Typically, in order for videogame companies to perform a port of those abandoned games, they merely need to use the original source code and modify it to allow it to run in modern consoles. However, in the case of abandoned games, companies are not willing to do this and thus abandonware enthusiasts have taken upon themselves to do it. One such example of this is project “papermario” which is: “*an ongoing project to reverse-engineer the source code for Paper Mario on the Nintendo 64*” in order to preserve the game and learn from the code amongst other reasons.¹⁶⁷ Should a suit be filed against projects like “papermario” there is an argument to be made about PC porting being Fair Use. The Court of Appeals of the Ninth Circuit established a standard for computer programs that have been reverse engineered to be considered Fair Use under certain conditions: 1. The act of reverse engineering must be necessary to observe the non-copyrightable elements of the source code. 2. The work derived from reverse-engineering must be transformative and 3. The Court must determine whether leaving this use of reverse-engineering unrestricted would create a substantially adverse impact on the potential market.

Source code and BIOS code are essentially equal in the sense that they can both not be seen. The source code is the “*original form of a computer program as it is written by a programmer. It is then converted into code that the computer can understand*”¹⁶⁸ this means that source code is meant to be only visible and readable for a computer but not for humans. This is why PC ports can pass the first step of the Fair Use test using “Sony Computer Entertainment v. Connectix Corp”, because after these games go through a process of disassembly¹⁶⁹ by taking the game’s source code and converting it back into

¹⁶⁶ Dunge 7. **What exactly is a modern PC port and why does it seems so hard to make one?** n.p. 2015. Available: reddit.com <https://www.reddit.com/r/truegaming/comments/3azczs/what_exactly_is_a_modern_pc_port_and_why_does_it/> (Consultation date: August 31, 2022).

¹⁶⁷ Papermario team. **Papermario information page.** n.p. 2020. Available: papermar.io <<https://papermar.io>> (Consultation date: August 31, 2022).

¹⁶⁸ Collins Cobuild. **Collins COBUILD Advanced Learner’s Dictionary.** 2020. Available: collinsdictionary.com <<https://www.collinsdictionary.com/es/diccionario/ingles/source-code>> (Consultation date: August 31, 2022).

¹⁶⁹ Normally “decompilation” by abandonware enthusiasts.

readable code for humans to study.¹⁷⁰ This is done for the same purpose that Connectix had when observing the BIOS code of the Playstation, however in this case the ideas being reached being both the engineering behind the game's mechanics and how the game is played. This means that using the logic of the Court of Appeals of the Ninth Circuit, the source code of a game would have a lower degree of protection by copyright law and at the same time it can be proven that there is no other method of reaching these ideas. This way the port makers can prove that the purpose of a PC port in this regard is only to preserve videogames by making them playable on a computer without the aid of an emulator for virtually no commercial gain so the first step of the Fair Use doctrine would be cleared.

In regards to the second step, given that in order to make a port the entire game must be copied this would inevitably weigh against the PC porters, however since the study to determine if a use falls under Fair Use must be made with all the steps in mind, it is too early to truly say the use employed by PC porters of a videogame does not fall under fair use. Now when it comes to the third step, the Court of Appeals of the Ninth Circuit established that the work derived from reverse-engineering must be transformative. In this case it can be argued that a PC port is indeed transformative because the programmer creates a new source code through reverse-engineering and at the same time they upgrade the performance of the game by modifying the new code. With this in mind it can certainly be argued that a PC port creates a better and different product than the original, going even so far as to argue that it is a new form of expression that is different from the original, even though the code performs the same function. As stated by the Court of Appeals of the Ninth Circuit, even if the new product does not contain any part of the original code and entirely new code was made, there is no reason why it could not be regarded as transformative.¹⁷¹

Regarding the fourth step, the Court of Appeals of the Ninth Circuit explained that they must determine whether allowing the unrestricted and widespread conduct performed by the defendant would result in an adverse impact in the potential market. In this case

¹⁷⁰ Schneider, Jacob W.S. "*Decompiling Zelda: An Introduction to Understanding Machine Code and Decompiling*". March, 2022. Available: **Holland & Knight IP/DECODE BLOG**. <<https://www.hklaw.com/en/insights/publications/2022/03/decompiling-zelda-an-introduction-to-understanding-machine-code>> (Consultation date: August 31, 2022).

¹⁷¹ Smarter Legal Research. **Sony Computer Entertainment v. Connectix Corp.** California, United States of America, Casetext, 2000. Section 607. Available: casetext.com <<https://casetext.com/case/sony-computer-entertainment-v-connectix-corp-2>> (Consultation date: August 31, 2022).

seeing as PC porting is a transformative use, it would then cause less of an impact upon the market. It must also be noted that the purpose of PC porting is to rescue the artistic value of abandoned games which are not available in the market and whose artistic value is therefore lost to the public. This is proven by looking at all the current PC port projects currently ongoing: “papermario” which as stated is a project to port the Nintendo 64 title “Paper Mario 64” so it can run on a PC, the same can be said about “sm64pcBuilder2”¹⁷² which is a program that essentially makes it possible to run the Nintendo 64 title “Super Mario 64” on a PC¹⁷³ and lastly an unofficial PC port for the SNES title “Legend of Zelda: A Link to the Past” was released the 29th of August of 2022, all of them being made by using reverse-engineering.¹⁷⁴ Since all of these games are abandoned and are no longer sold in the market, porting them generates no adverse effect in the market.

In conclusion, PC porting can be considered fair use. However, a problem arises with this argument and that is videogames are more than just code, they have assets. According to the Eugene Public Library in Oregon, the Game Assets include: “graphics (characters, environments, logos), background music, special effects and sound effects”¹⁷⁵ which are various types of works joined together in a single product, being all individually copyrightable. As it was stated in David Greenspan’s publication “Mastering the Game: Business and Legal Issues for Video Game Developers”, all of these assets are protected via copyright.¹⁷⁶ Since all assets are subject to copyright protection, then copying those assets could be considered an infringement of copyright because 17 U.S.C. 106 grants videogame developers the exclusive right to make and issue copies of their copyrighted work, thus the copying of the assets by PC porters could be seen as copyright infringement.

¹⁷² Net64. **Welcome to Super Mario PC Port Central**. n.p. 2020. Available: sm46pc.info <<https://sm64pc.info>> (Consultation date: August 31, 2022).

¹⁷³ GameXplain. **Super Mario 64 Has Been Reverse Engineered; Natively Ported to PC With 4K Widescreen Support**. n.p. 2020. Available: Youtube <<https://www.youtube.com/watch?v=Ehwym9kNYo8>> (Consultation date: August 31, 2022).

¹⁷⁴ Van de Velde, Aernout. “*Unofficial Native The Legend of Zelda A Link to the Past PC Port Released*.”. In: **Wccfttech**, Vancouver, British Columbia, Canada, August 29, 2022, Gaming. <<https://wccfttech.com/unofficial-native-the-legend-of-zelda-a-link-to-the-past-pc/>> (Consultation date: August 31, 2022).

¹⁷⁵ Eugene Public Library. **Game Design and Development**. Oregon, United States of America, Eugene Public Library, 2020. Available: eugene.libguides.com <<https://eugene.libguides.com/gamedesign/assets>> (Consultation date: August 31, 2022).

¹⁷⁶ Greenspan, David. **Mastering the Game: Business and Legal Issues for Video Game Developers**. Switzerland: 2014. pp.59. Available: wipo.int. <<https://www.wipo.int/publications/es/details.jsp?id=3233&plang=ES>> (Consultation date: August 31, 2022).

However, there is something else to consider about this, what PC ports do nowadays is to provide the tools to recreate the game without using the assets of the game, through recreating the assets by building them from the ground up. Thus, even if a district court or a court of appeals were to find that only the new source code created is legal, such a ruling or precedent would still be useful for the PC porting community because it can be used to recreate the game and preserve the ideas within the code without using a videogame company's assets. Furthermore it could be used to justify the existence of remakes which are made with new reverse engineered source code and new assets created by the community. So far "Sony Computer Entertainment v. Connectix Corp" has proven to give abandonware enthusiasts the possibility of expanding its use in order to pull abandoned videogames under its protective veil, even though such protection is still limited to using such games for the purpose of education and remaking them to give them a modern look.

However, even though "Sony Computer Entertainment v. Connectix Corp" has made emulators legal, the case of "Nintendo of America vs. Matthias. Et. Al." deals with the ROM side of the problem which is to determine whether ROM sharing websites are protected under fair use. The facts of the case are as follows; Nintendo of America sued Jacob Matthias and his wife along with their company "Mathias Designs" for three different reasons: 1. Copyright infringement, 2. Trademark infringement and 3. Unfair competition. This was brought on by Nintendo of America because Jacob and his wife ran two websites, "LoveROMs" and "LoveRETRO" which hosted a service which offered access to copies made of several videogames, some being owned by Nintendo. In addition to this, the site offered access to emulators, videogame music and it offered a service in which people could play the games on the web browser via an emulator inserted on the website.

Even though plaintiff's claims consisted in three separate counts, for the purposes of this paper, only the claim of copyright infringement will be analyzed. Plaintiff argued that the defendant performed an infringement of copyright because through the website, *"Defendants regularly reproduce, distribute, publicly perform and display unauthorized copies of Nintendo videogames, commercial packaging, and other copyrighted works...all*

without Nintendo's permission"¹⁷⁷ Including music, games, characters, BIOS code belonging to Nintendo's videogame consoles. It was also argued that Defendants violated plaintiff's exclusive rights under 17 U.S.C. 106 and thus plaintiff asked to be granted the payment for damages under 17 U.S.C. 504(b) and if plaintiff so chooses, they mentioned to be entitled to the maximum statutory damages available under 17 U.S.C. 504(c). However despite these arguments plaintiff admits that they gave no adequate remedy at law and so they argue that they should be granted preliminary and permanent injunction under section 17 U.S.C. 502. Because this particular case was later settled in court, no precedent was produced from this case and both of the Defendants' websites were taken down as part of the settlement.¹⁷⁸ Despite the fact that this case ended in a settlement, this paper will attempt to analyze plaintiff's arguments and offer a solid Fair Use defense against them.

While it is true that both websites did provide access to unauthorized copies of videogames and other copyrighted works like music or the BIOS codes, this does not rule out fair use as a possible defense. In regards to the music and BIOS codes, even though it is impossible to defend the Defendants' use of copyrighted music, it can be argued that the BIOS codes were provided under fair use, this is because BIOS codes are only ever useful to develop emulators and to determine if providing them falls under fair use the codes must be inspected and compared to the original codes in order to determine if the ones provided were copies of the originals or new reverse-engineered codes.

In regards to the use of the videogames copies owned by Nintendo, an argument can be made that defendant's use falls under fair use. Though the fair use test has four main steps, it was stated in "Sony Computer Entertainment v. Connectix Corp" that courts can perform such a test under the scope of other precedents and thus it is proposed that in this particular case the test be made under the scope of "MCA, Inc. v. Wilson" which was cited in "Sega Enterprises Ltd. v. Accolade, Inc.". This is because even though "MCA, Inc. v. Wilson" was ruled by the Court of Appeals of the Second Circuit, it was found persuasive enough by the Court of Appeals of the Ninth Circuit to be applied in the case of "Sega

¹⁷⁷ Court Listener. **Nintendo of America Incorporated v. Mathias**. Arizona, United States of America, Free Law Project, 2018. Available: [courtlistener.com](https://www.courtlistener.com/docket/7479717/nintendo-of-america-incorporated-v-mathias/) <<https://www.courtlistener.com/docket/7479717/nintendo-of-america-incorporated-v-mathias/>> (Consultation date: September 2, 2022).

¹⁷⁸ Loc. cit.

Enterprises Ltd. v. Accolade, Inc.” even though the two cases have nothing in common together. However, unlike “Sony Computer Entertainment, Inc. v. Connectix Corp.” where another precedent was cited as a guide on how to evaluate each step of the test, in this case the purpose of citing “MCA, Inc. v. Wilson” would be to use its broader interpretation of each step and what must be taken into account from the facts to consider each step cleared.

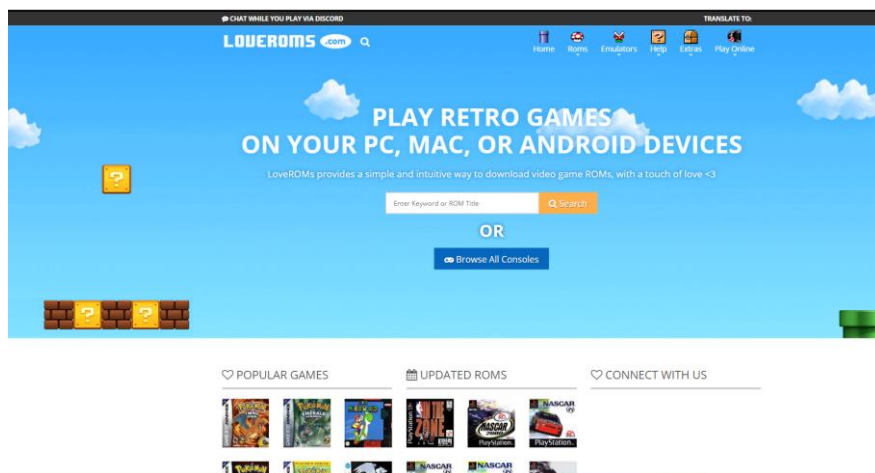
In “MCA, Inc. v. Wilson” it was established that because judges do not have a statutory definition of what is reasonable or fair, the court must apply suggested criteria which determines what the courts have to look for when determining whether the facts fit within the steps of the test. This precedent establishes the following about the Fair Use doctrine test steps: 1. When evaluating the nature of the copyrighted work, the court may consider whether the work made from this infringing use was imaginative or creative as well as if the defendant made a substantial investment of time and work in anticipation of a financial return. 2. The court must look at the purpose and character of the alleged infringing use and may consider whether the infringing use was made for public benefit or private commercial gain. 3. The court will generally not consider it reasonable if a copyrighted work was copied without the copyright owner’s consent and 4. When looking at the effect of the use upon the potential market, when the Defendant claims fair use, the court must strike a balance between the benefit the public will receive if the use is permitted and the personal gain that the copyright owner will have if the use is denied. The less of an adverse effect that an infringing use has on the copyright owner’s expectation of gain, the less public benefit need to be shown to justify the use.¹⁷⁹

In the case of Jacob Matthias’s website, an argument can be made that it clears the majority of the steps of the fair use doctrine because of the following reasons: 1. The purpose of providing the copies of the videogames was for preservation purposes, which means that it was not done for a commercial purpose as the ROMs were not sold by the Defendants, but merely made available online for free so that they would be preserved. 2. The use was done not for commercial gain but for public benefit as most of the games that were made available in the Defendant’s websites were not for sale in Nintendo’s shops. 3.

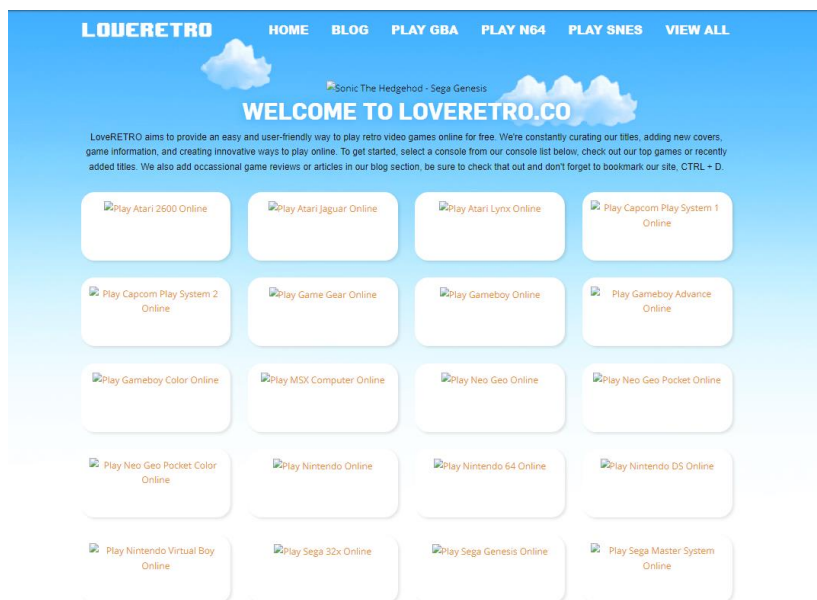
¹⁷⁹ Court Listener. **Nintendo of America Incorporated v. Mathias**. Ob. cit.

The copies were made of the entirety of the ROMs' code so this step weighs against the Defendants. 4. The effect of the use in the potential market is null in regards to the copies of the games that were provided that are not on the market as of the date that the complaint was made, unless Nintendo can prove that all of the games will be made available in the market in the future for certain, there is no expectation of gain. Such an expectation was exhausted after the original copies were sold out in the market and thus sharing them now would benefit the public more because the artistic elements and ideas contained within them would be preserved and shared with the public which would benefit new programmers and game designers who take inspiration in such games. Furthermore, the use would benefit Nintendo because it would help keep old abandoned videogame franchises of their alive, benefiting the value of their copyrighted work. Lastly Nintendo has admitted that they cannot calculate the alleged damages that they claim the Defendant's actions have inflicted upon the company, thus they are unable to prove that revenue will or has been lost as a direct or indirect cause being the Defendants' actions which means there is no proof that Nintendo's potential market was affected by the Defendants' actions.

As proof of these arguments, screenshots could have been provided. In this case, since both websites have been taken down, for the purposes of this paper, screenshots of the original websites were collected via "WayBackMachine" a website dedicated to archiving websites that have once existed on the internet but are no longer available. First there is a screenshot of the main page of the LoveROMS website as well as the LoveRETRO website respectively:



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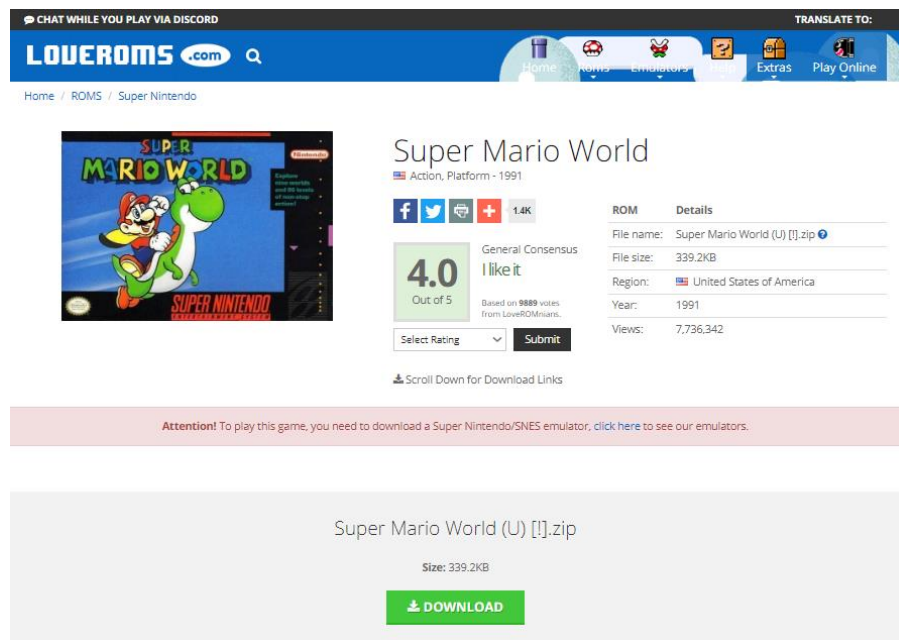


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It is noticeable that in the text of the LoveRETRO website, there is a paragraph that states that the website provides an “easy and user-friendly” way to play retro videogames online for free and the LoveROMS website has an option to donate money to the creators, however it is not obligatory for a user to donate in order to download as it is demonstrated by the next screenshot which is the page that the website takes the user to when they wish to download a particular game:

¹⁸⁰ WayBackMachine. **Loveroms.com**. California, United States of America. WayBackMachine, 2022. Available: <http://web.archive.org/web/20180217233355/http://www.loveroms.com/> (Consultation date: Sept 3, 2022).

¹⁸¹ WayBackMachine. **Loveretro.co** California, United States of America. WayBackMachine, 2022. Available: <http://web.archive.org/web/20180717102202/https://www.loveretro.co/> (Consultation date: Sept 3, 2022).



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The screenshot shows that there is only a download button in this particular screen and no request for payment or donation. This proves that the page was made with the intent of preserving videogames and not for any commercial purposes. To prove the second argument, a comparison must be drawn between the games that were available in 2018's Nintendo shops, which mean the Wii Shop Channel, the Wii U eShop and the 3DS eShop. According to Nintendo's historical financial data, the Nintendo 64's videogame library is comprised of 741 unique videogame titles.¹⁸³ Inside the Wii Shop Channel, according to Nintendo's own numbers, only 26 were made available in this shop.¹⁸⁴ Not to mention that in the 3DS eShop none of those games were made available¹⁸⁵ and in the Wii shop there were only 21 Nintendo 64 games made available.¹⁸⁶ Meanwhile in LoveROMs the entirety of the Nintendo 64 library, plus some games that were not made by Nintendo were all made

¹⁸² WayBackMachine. **LoveROMs.com**. Ob.cit.

¹⁸³ Nintendo. **Historical Data, Number of Software Titles Released**. Japan, Nintendo, 2022, p.1. Available online: Nintendo <https://www.nintendo.co.jp/ir/en/finance/historical_data/index.html> (Consultation date: Sept 3, 2022).

¹⁸⁴ Nintendo. **Downloadable content, Nintendo 64 games in Wii U**. Tokyo, Japan, Nintendo, 2022. Available: nintendo.es <<https://www.nintendo.es/Buscar/Buscar-299117.html?f=147394-10-24-52>> (Consultation date: Sept 3, 2022).

¹⁸⁵ Nintendo. **Downloadable content, Nintendo 64 games in Nintendo 3DS**. Tokyo, Japan, Nintendo, 2022. Available: nintendo.es <<https://www.nintendo.es/Buscar/Buscar-299117.html?f=147394-7-27-52>> (Consultation date: Sept 3, 2022).

¹⁸⁶ Hookshot Media and ReedPop. **Wii Virtual Console Games from 2002**. United Kingdom, ReedPop, 2022. Available: nintendolife.com <<https://www.nintendolife.com/vc/games/browse?sort=popular&year=2002%2C2001%2C2000%2C1999%2C1998%2C1997%2C1996>> (Consultation date: Sept 3, 2022).

available for the public to download, all of the 741 Nintendo games released for that console were available and accounted for. Even though the games that were made available in the Wii U and the Wii Shop are available to the market through these shops, they merely represent 2% of the entire library, meaning the rest is not being sold in the market. Thus, what the Defendant's website did was make those abandoned games available so that the entirety of them can be properly preserved.

For the third step of the fair use test, there are no arguments as clearly the copies available in the website were made of the entirety of the games. As for the fourth and final argument, the main argument the defendant can make is that even though the website provides access to some games that were still being sold, most of the games in the website were not. Proof of it was given in the previous step when discussing the amount of Nintendo 64 games available as of this moment in the market. A substantial minority was made available at the time the complaint was made and this pattern repeats itself with other Nintendo consoles like the Super Nintendo Entertainment System (SNES). According to Nintendo's financial numbers, there were around 719 unique titles for this console that were released in the United States alone¹⁸⁷, out of these only 81¹⁸⁸ and 27 games in the Wii U shop and the Wii shop channel were made available respectively¹⁸⁹. Even if these numbers were to be combined without distinguishing which of them are shared by both shops, they would represent 108 games out of 719, which represent only 15% of the SNES library, the rest being abandoned. In this regard because Nintendo was not selling the abandoned portion of the games, they did not lose revenue when those games were made available.

This argument works unless Nintendo can prove that there is a potential market for their abandoned games and to do that they would have to provide proof that they will

¹⁸⁷ Nintendo. **Historical Data, Number of Software Titles Released.** Japan, Nintendo, 2022, p.1. Available online: Nintendo <https://www.nintendo.co.jp/ir/en/finance/historical_data/index.html> (Consultation date: Sept 3, 2022).

¹⁸⁷ Nintendo. **Downloadable content, Nintendo 64 games in Wii U.** Tokyo, Japan, Nintendo, 2022. Available: nintendo.es <<https://www.nintendo.es/Buscar/Buscar-299117.html?f=147394-10-24-52>> (Consultation date: Sept 3, 2022).

¹⁸⁸ Nintendo. **Downloadable content, Super Nintendo games in Wii U.** Tokyo, Japan, Nintendo, 2022. Available: nintendo.es <<https://www.nintendo.es/Buscar/Buscar-299117.html?f=147394-10-23-53>> (Consultation date: Sept 3, 2022).

¹⁸⁹ Hookshot Media and ReedPop. **Wii Virtual Console Games from 2000.** United Kingdom, ReedPop, 2022. Available: nintendolife.com <<https://www.nintendolife.com/vc/games/browse?sort=popular&year=2000%2C1999%2C1998%2C1997%2C1996%2C1995%2C1994%2C1993%2C1992%2C1991%2C1990>> (Consultation date: Sept 3, 2022).

rerelease, remake or put them up in their digital shops. If they fail to do this then they would fail to prove there is an effect on the potential market. Because Nintendo themselves admitted in their complaint that the alleged damages cannot be measured in money or be quantifiable, they've shown to have no proof of the alleged effects the Defendants' actions had on the potential market, thus there is no proof that Defendant's use of the game's copies creates an adverse effect on the potential market.

Lastly, as was stated by the Supreme Court of the United States in “*Brown, Governor of California, et al. v. Entertainment Merchants Association et. al.*”, videogames are considered to be works of art because they communicate ideas and social messages.¹⁹⁰ This means that they have cultural value and that such cultural value becomes lost when such games become unavailable to be played by newer generations and thus in making abandoned games available for the public again, Defendants were performing a use that provided a public benefit to society in the United States.

If these arguments are used to defend other websites that provide ROM files of abandoned games, it could potentially become a precedent. Essentially the effect would be that since ROM sharing websites would be allowed then if a videogame company does not wish to have their abandoned games being uploaded to such websites then they would be forced to make them available themselves and to keep them that way which would essentially be a win-win situation for videogame preservation and the videogame industry. The videogame developing companies essentially charge money for their abandoned games and keep the library up and safe in their online shops. Thus, the issue of the missing market for abandoned videogames would be solved in this regard.

¹⁹⁰ Supreme Court of the United States. ***Brown Governor of California, et al. v. Entertainment Merchants Association, et al.*** Washington, United States of America, Supreme Court of the United States, 2010. p.1. Available: [supremecourt.gov <https://www.supremecourt.gov/opinions/10pdf/08-1448.pdf>](https://www.supremecourt.gov/opinions/10pdf/08-1448.pdf) (Consultation date: July 30, 2022).

CONCLUSIONS.

Throughout the course of this paper there have been several topics which were touched upon and thoroughly discussed in order to reach this paper's objectives. The first chapter was dedicated to describing what the current situation was regarding to abandonware games. In it a short study was done about complex it is to protect videogames through copyright due to them having assets that are protected through different kinds of copyright protection under 17 U.S.C. and how the general rule of 17 U.S.C could not be used to protect the entirety of a game because of it. This lead to the conclusion that in order to protect videogames appropriately, a case-by-case study is needed to determine which category of copyright protection is appropriate for each individual game. Furthermore it was determined that the U.S. is part of a list of countries that share the view that the aforementioned methodology must be employed to protect videogames through copyright.

This chapter's subsection was used to show how the copyright term for videogames as it is established by 17 U.S.C. 302 leads to an unending copyright term because such a term is tied to the life of the author and videogame companies are regarded as the authors of the games, thus because companies never die, those rights never expire. The second section of the first chapter was dedicated to describing the videogame abandonment phenomenon and the reasons why it exists. It was determined that videogame abandonment exists for two reasons; the first was that videogame companies perform commercial abandonment by creating and selling both videogames and consoles for a limited amount of time, keeping the games available until the next console is created. After that, companies stop selling those games, effectively resulting in abandonment. The second reason is that in the United States of America the copyright term does not expire on videogames and as such they never reach the public domain, having society suffers a loss as a result. It was also mentioned in this section that there is a group of people in society that collects these games with the intent of making them available to cover that loss that society suffers and they are

called “abandonware enthusiasts” which are not to be confused with “warez traders” who seek to infringe copyright in order to steal software and sell it to people on the internet.

The second chapter was dedicated to describing the problems videogame abandonment generates and the attitudes that abandonware enthusiasts, videogame developing companies and Congress take towards the videogame abandonment problem. The first section contained a thorough explanation about how emulation, being the only way in which abandonware enthusiasts can make abandoned games become available without having to depend on videogame companies to do so. In said section it was explained that emulation is the act of taking a videogame and making it so that it can be played on a computer through replicating the console’s code (BIOS code), making it into an emulator and then extracting a game from their original format to obtain a ROM (Read only Memory) that can be executed by the emulator. The next section explained that videogame developing companies frown upon emulation because they argue that it makes them lose profits because it makes their customers become unwilling to buy new games and undermines the value of their intellectual property. After that section, the next section described the view of the abandonware enthusiasts who see emulation as a means of improving and preserving abandoned games for future generations to experience, ultimately arguing that emulation does more good than bad to videogame developing companies because: 1. It keeps videogame franchises relevant, 2. Through preservation, old videogames can be studied by newer generations in order to use those ideas and apply them to new game developing problems and 3. Abandoned games serve as a source of inspiration for new videogame developers to create new games.

In the last part of this chapter, Congress’s view was explored and described thoroughly. It was determined that Congress’s will is to eliminate warez traders, but in doing so they also harm abandonware enthusiasts by making laws that make it easy to pursue warez traders but also abandonware enthusiasts. These laws make it so abandonware enthusiasts can be pursued for both reproducing old videogames and doing peer-to-peer sharing of such games, all of this under the pretense that abandonware enthusiasts pursue financial gain through this actions. Because such laws have made it so federal courts deem

peer-to-peer file sharing a commercial use and assume all uses related to reproduction of games are made pursuing a financial gain, this inhibited abandonware enthusiasts' ability to defend themselves in court. This chapter also touched upon how the U.S. Library has had the opportunity to end the videogame abandonment problem through granting an exception to the prohibition of circumventing copyright protection systems so that abandonware enthusiasts can extract games from their original physical formats. Sadly however, such an exemption has yet to be made because said authority is afraid that it might harm a potential market.

In the third chapter of this paper, the U.S. copyright law and the courts' stance on the abandonware problem was studied. In the first section a study was made of the U.S. copyright law and it was determined that there were provisions that allowed emulators to be made through reverse engineering and copies of old videogames to be preserved. In the case emulators, the law allows for BIOS code to be reverse engineered and for the consoles to be broken into in order to study the program for such purposes. On the other hand the law allows for people to extract and make a copy of a videogame for preservation purposes only, so long as it is not shared with others and such a copy is made from the user's legally owned original copy. Copies are also allowed to be made for teaching purposes which allows for abandonware enthusiasts to officially study the contents of abandoned games. In the last section of this chapter, two court cases were analyzed: the first was "Sony Computer Entertainment, Inc v. Connectix Corp" and the second was "Nintendo of America v. Mathias et al." From the first precedent it was determined that the reverse engineering of BIOS code is considered to be fair use by the courts and that by extending such a precedent, both PC ports of games as well as the disassembly of the games in order to reach the source code for educational purposes would also be considered fair use. As for the case of "Nintendo of America v. Mathias et al.", it was shown through a thorough examination of Nintendo's claims that Mathias could have won through the application of a proper fair use defense, arguing that Mathias had made his ROM sharing website for preservation purposes and not for commercial gain.

Through the research that was performed in order to write this paper, several new findings regarding the main topic of this paper were found. First it was discovered that the reason why videogame abandonment happens has to do with both the way the copyright law is written as well as the actions that the videogame companies perform, because one enables the other. Because the copyright term for videogames in the U.S. never ends since it requires the author's death to happen and the author is a videogame company who cannot perish, videogames are never allowed to be a part of the public domain. Thus it enables for videogame companies to hold a monopoly over when and how they make their games available, which results in videogame abandonment.

Another one of the findings that was unearthed during the aforementioned research was that there are more provisions enabling emulation than there are against it. Through a thorough study of 17 U.S.C., it was discovered that the copyright law allows users to create emulators through reverse-engineering and to break through the consoles' defenses in order to study the BIOS code which means that emulation is allowed not only because there is a precedent in court, but also because the copyright law itself allows for it to happen despite the fact that it forbids the circumvention of copyright protection systems. This does not represent a contradiction however because as was stated in "Sony Computer Entertainment, Inc v. Connectix Corp", the ideas contained in the code are not protected by the copyright law and thus circumvention of copyright protection systems must be allowed to reach such ideas. On the other hand, as mentioned before 17 U.S.C. allows for users to extract videogames from their original format for educational purposes and so long as a copy is made from a pre-purchased official copy of the game. Thus it was discovered the fair use doctrine is not the only way in which videogame preservation is allowed by the law.

One other finding that was unearthed with this research was that the U.S. Library of Congress still holds the key to opening up the options for abandonware enthusiasts to be allowed to preserve old videogames, because they hold the power to make exemptions to section 17 U.S.C. 1201 to allow abandonware enthusiasts to effectively circumvent copyright protection. If such an exemption were to be granted, it would certainly benefit abandonware enthusiasts who seek to dump games that have copyright protection systems

on them. It was also discovered that even though such a request for an exemption had already been done, the Library of Congress refuses to grant an exemption because it would allegedly affect a potential market.

Through this paper it was discovered that videogame companies' claims about how emulation harms their business are misguided. While a videogame company's profits could be lost to emulation, it has not yet been proven that it actually does or to what extent. In the case of the Nintendo 64, the emulators that were able to emulate that console were released in three separate years of the console's lifespan and yet the sales allegedly only declined in the last two years of its lifecycle as was predicted by Nintendo. However, there is no evidence that cannibalization took place because the third year of the console's lifespan was unaffected even though an emulator was released during that year. So if this so called "cannibalization of the market" exists, like the videogame developers argue that it does, then there should be proof of it as there have been countless emulators that have been made of consoles that have been in the market. Furthermore, since there is no proof that emulation affects the current market, there is even less proof that the emulation of old videogames affects the market as well and that the value of the Intellectual Property tied to old games is affected by emulation. However, there is in fact proof that emulation helps videogame companies to hold their franchises and keep them going as was proven by the example of the game "Frogger" having a sequel being made because people were still playing the original and thus in that way emulation helps videogame companies earn more profits from their franchises as well.

Amongst other findings discovered in this paper is the fact that despite the multiple efforts that have been made to fight against videogame preservation, it was found that the fair use doctrine is malleable enough to modify it in order to make arguments towards videogame preservation being considered fair use. This is because the essence of the copyright law is not to bestow upon the authors a long lasting monopoly over their products, but rather its purpose is to enable artists to profit from their work and then surrender it to the public so that the cultural value of it may be rescued by the public domain. Such is the reasoning behind fair use as well, because the fair use doctrine was

made by the courts of the United States in an attempt to protect the uses that people could give to copyrighted products that fall in line with the spirit of the copyright law. The preservation of games is one such use because it works to benefit the public domain and to delete the problem of missing market as well as the wound that it leaves upon culture when such games are not preserved. Because videogame preservation follows the spirit of the copyright law, the fair use doctrine can be used to defend such a use. Even though there are authors that point out that it is difficult to actually defend an abandonware enthusiast using the fair use doctrine, the truth is that so long as there is a viable legal argument and precedents in favor of their cause, there is still a chance to defend them.

Another one of the findings discovered through the making of this paper is that “Sony Computer Entertainment, Inc v. Connectix Corp” can potentially be used to protect other means of videogame preservation. It was discovered that using the arguments made in “Sony Computer Entertainment, Inc v. Connectix Corp” it can be argued that PC porting also falls under fair use because this precedent along with “Sega Enterprises Ltd. v. Accolade, Inc.” enables abandonware enthusiasts to be able to disassemble videogames and reach the source code in order to be able to reverse engineer it to make a new version of the game. However it must be noted that this argument can be fought against because when copying the source code the assets will also be copied and these cannot be reverse engineered as they are mostly images and not ideas, thus they are protected by the copyright law. This issue can be circumvented if the assets of the original game are not used to make the new PC port and only the source code is reverse engineered. This finding could potentially enable PC ports to be made through legal means which was considered to be not a viable option before this research was made.

Many things were learnt by the researcher that made this paper. Namely the first thing that was learnt was that court records of cases in the United States of America are not easy to find, in fact there are only a few sources that have the complete set of papers that comprise the entire case file. However it was rather easy for the researcher to find precedents in a reliable way as it seems that precedents are better preserved in the United States because of their importance. It was also learnt that normally court cases that involve

copyright law in the United States are not always decided by using statute based arguments, what is meant by this is that the courts will often apply the fair use doctrine test rather than study if an argument that is based on a statute is particularly valid. It seems as though the interpretation of certain statutes in such cases is not as important as determining whether a certain use can be classified as fair. This is proven by reading the ruling in “Sega Enterprises Ltd. v. Accolade, Inc.” where the defendant offered two arguments based on statutes and yet those were rejected in favor of applying the fair use doctrine.

Another piece of knowledge that was revealed to the researcher of this paper is the fact that the copyright terms established in 17 U.S.C. are outdated for modern standards. Because it is a common practice in the videogame industry for contractual arrangements to be made so that all rights to videogames are owned exclusively by videogame developing companies. The fact that the copyright terms are still tied to the life of the author reveals that the copyright law was made when authors were only human and not companies. Because of this, the rights to videogames are now tied to a company’s life which never ends which in turn creates a situation where companies hold a monopoly over their works and thus they are never released to the public domain, contradicting the spirit of the copyright law.

In regards to the case studies that were performed in this paper, the researcher learnt that even though videogame developing companies have all the resources to pursue any videogame preservation case, they fail to make arguments that are compelling or even legally sound. In the case of “Nintendo of America Incorporated v. Mathias et al” the plaintiff’s arguments did not match the evidence given. Plaintiff’s complaint was littered with statements that could have been easily proven wrong with the proper knowledge of the defendant’s website and how it operated. This is inconceivable because there were arguments that could have been made against Matthias, for instance, Nintendo could have argued that Matthias was earning money and was living off of the website rather than using the donations to keep the website running. Another argument was that Matthias was providing original BIOS codes, which is illegal because only reverse engineered BIOS codes are allowed to be shared and obtained. Nintendo could have also argued that the

copies of the games that were provided were from consoles that were still on the market and the argument would have been made stronger if the company showed just how much of those game titles' revenue was lost due to this. It is quite baffling to see that this case ended in a settlement when the defendant could have won by both proving plaintiff's arguments to be wrong and using the fair use defense as well.

Yet another piece of knowledge that was discovered by the researcher during the course of their research was that the United States of America belongs to a list of few countries that understand the complexity of videogames regarding copyright and how they cannot be protected by just one set of rules. They also understand that because videogames are so complex, in order to protect them they must analyze the elements that encompass it on a case-by case basis, in such a way that they can determine which rules are best to protect such works. Not to mention that it was discovered that nowhere else in the world can videogame preservation be protected other than in the United States of America because fair use only exists there. It is the only country where it can be argued and pointed out that videogame companies do not have a right to keep their old videogames unavailable forever.

As a byproduct of the research that went into making this paper there a series of topics that this paper could not touch upon because they would warrant an entirely new paper to be dedicated to them. One such topic is the issue of "mods" and the legal status of them; this is because "mods" are programs that are often applied to copies of ROMs. Often times these "mods" are made in order to improve upon the original product or just modify the game in often humorous or creative ways. Knowing now that ROMs can be copied by a customer who owns a legal copy of a game, the question is whether they can make "mods" on them and if they can, the question would be to what extent it would be considered legal to modify such a copy. This question is relevant because unlike emulation, "modding" or applying "mods" to a game deals with much more than just a copyright issue, "modding" requires the modification of the game's assets rather than just copying them, thus a study must be performed about which kinds of modifications, can be made to the assets of a videogame without rendering the entire act illegal in itself. In making such a research, the

researcher must study which assets are covered by other forms of protection applied to intellectual property such as trademarks and patents.

Another topic that warrants a new paper to be made would be the matter of how the U.S. Congress could modify the copyright law to benefit videogame preservation. While it is true that videogame preservation is protected in some ways by the current statutes made to protect copyright, the truth is that the issue will not disappear until it is fully addressed. The issue with that is that there needs to be a careful study on how such modifications to the law must be done without aiding piracy and letting warez traders benefit from them. The statutes must allow for specific ways of doing videogame preservation, but at the same time they must be flexible enough so that more people can perform it and thus the games become available to the public, perhaps one of these modifications could take the form of exemptions specifying how old do videogames have to be in order to be preserved.

This paper's final thoughts are that videogame preservation is still alive in the U.S. even though some claim it should not exist because videogame developing companies are the only ones allowed to preserve their games. A study of the facts has revealed that the current situation is dire, most of videogame history has been lost to time and the abuse that videogame developing companies do using their rights as authors. The laws of copyright were made for a single purpose and that is to give privileges to artists and protect their works from plagiarism for a limited amount of time, enough for them to profit off of their work. However the laws of copyright were not made for the artist to hold a monopoly and prevent them from reaching the public domain. When videogame developing companies willingly abandon their games, they abuse their rights as authors, harm both society and their own industry by keeping them locked away from new programmers that wish to learn from them. While the law does benefit videogame developing companies, it also provides benefits videogame preservation but these are so few that they hardly help eliminate the issue altogether. Lastly, the only solutions that can be seen as feasible to solve videogame abandonment are either changing the laws or winning a court case to establish a precedent so that abandonware enthusiasts living in the U.S. can finally be allowed to preserve games in order to save the future of the videogame industry.

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