Massachusetts Institute of Technology

Department of Electrical Engineering and Computer Science

6.805: Ethics and Law on the Electronic Frontier

The Sword, the Thief and the EULA

A virtual property crisis in online videogames

Author: Roberto Carli [rcarli@mit.edu]

Date: December 1, 2007

Recent episodes within Massively Multiplayer Online Role-Playing Games (MMORPGs) introduced the problem of virtual property regulation. The economic value of virtual property within MMORPGs is undeniable. At the same time, the role-playing environment of MMORPGs determines important differences between acceptable and criminal behaviors in virtual worlds vis-à-vis our society. Through End-User License Agreements (EULAs), software companies deny the economic value of virtual property and enforce strict copyright over all game content. A free-trade solution would be legally difficult to implement, while a no-trade solution is impossible to implement. As a result, we may soon face a virtual property crisis.

[KEYWORDS: MMORPG, virtual property, EULA, World of Warcraft]

Contents

1. Introduction

In March 2005, Zhu Caoyuan borrowed a valuable ancient sword from his friend Qui

Chengwei. Instead of returning it after a few days as he promised, Caoyuan decided

to sell the sword on eBay, making a profit of 7,200 yuan, about $870. Chengwei

immediately reported the theft to the Shanghai police, who replied that no crime

had been committed as there was no concrete evidence that could be presented.

Frustrated, Chengwei obtained a knife and murdered his friend [1].

This story does not seem very different from the background of many crime reports, for all but

one fundamental element: the precious stolen Dragon Sword never existed in real life. Zhu

Caoyuan and Qui Chengwei were both players of Legends of Mir 3, a popular Massively

Multiplayer Online Role Playing Game (MMORPG), and the Dragon Sword was one of the

highest-valued and most difficult to obtain virtual items within the game.

It is now easy to imagine the reaction of Shanghai police to the theft report filed by Mr.

Chengwei, and his not being able to prove the loss of an $870 value. The rise of virtual property

is starting a crisis in the concepts of economic value and property-related crimes, whose

unforeseen consequences may span up to extreme episodes. If these issues are neglected,

there may even be more virtual swords killing real people.

2. Problem Definition

The story of the Dragon Sword murder raises some fundamental questions about regulations

within MMORPGs. While South Korea and China lead the rankings for number of game players,

the United States still features numbers ranging in the millions. It is therefore reasonable to

think about how current USA regulations would be applied to a case similar to the Dragon

Sword episode. Would it be acceptable to steal the sword? Would it be ok to sell it on eBay?

Would it be possible to file a complaint, or would the police ignore such episodes? It is

important to address such questions in a country where MMORPGs feature increasing amounts

of players, and online economies progressively grow more complex and valuable.

The problem, however, is not limited solely to virtual crimes, but it extends to the entire

concept of a virtual economy. With the ever-expanding online MMORPG community,

companies mostly based in Korea and China make profits by creating virtual property through

intensive gaming and reselling it in the real economy. The economic pipelines connecting real

and virtual world are varied and hard to control, and are establishing a highly profitable trade

market.

Currently, US lacks regulations covering MMORPG virtual property, while game developers

require players to sign license agreements that simply deny the economic value of in-game

objects. I argue that both a free-trade approach and a fully restrictive solution present

important problems, which make them unfeasible, and since virtual economies are constantly

expanding, the lack of a feasible solution may cause a virtual property crisis, which we should

start dealing with. While I point out that there is no simple solution to this crisis, I also outline

some key questions that need to be addressed in order to face the problem.

In order to argue my thesis, I will use the Dragon Sword case as an analytic framework, while

referencing notable episodes from popular MMORPGs that demonstrate and outline the

boundaries between virtual role-playing and real life behaviors. In particular, the framework

episode raises three main questions:

- **Does the sword carry economic value?** In general, is it logical to argue that

  virtual objects within videogames should be economically valuable?

- **Was it a crime to steal the sword?** Or was it just a game? In other words, where

  is the boundary between role-playing within a videogame and committing a

  crime?

- **Could the sword be sold on eBay?** Who was the rightful owner of the sword, the

  player or the game developer? How do software license agreements affect this

  property issue?

2.1 Brief Definition and History of MMORPGs

MMORPGs are Internet-based videogames, characterized by the interaction of a large number

of players in a permanent virtual world. Players use the game by controlling one or more

fictional characters (Avatars) in a usually fantasy-based environment.

The fantasy aspect is the most fundamental constituent of all role-playing games. The main

characteristic of role-playing is being able to impersonate a character which, in its background,

personality, abilities and general "role," is very different from the player. Similarly, the role-

playing character lives in a fictitious world which is fundamentally dissimilar from the real world.

The setting may be an alien planet, medieval Europe, the future, or even a setting similar to

today's world for all but the presence of magic. The ability to become a different person and explore a different world is the defining characteristic of role-playing games.

Most MMORPGs are based on character progression and social interaction. The usual focus of these games is to make one's character advance in the virtual world, by increasing its skills and its virtual property. Skill advancement is a slow process, obtained through a mix of player skills and prolonged game playing (usually fighting), while virtual property and money can be obtained at any time and in any quantity, thus giving a character the theoretical possibility of becoming "rich" almost immediately.

Figure 1: A World of Warcraft character riding a flying creature over a city. The ability to impersonate an imaginary character in a fantasy world is fundamental in role-playing games.

Another fundamental aspect of MMORPGs is social interaction. Players are almost always surrounded by other player-characters, with whom they can communicate, cooperate, exchange goods and money and often fight. These interactions are fundamental and required for progressing in the game, and most games offer the possibility of establishing official, organized social structures (guilds).

Commercially, MMORPGs present a wide variety of solutions. Some games must be purchased while others are free, and most games require players to pay a monthly fee, which guarantees continued game support, updates and additional content. Some games are free, but most free games provide ways of obtaining special benefits, usually in the form of virtual goods, by paying real money.

A more uniform characteristic of MMORPGs is found in the End-User License Agreement, or EULA. All MMORPGs, and most games in general, require users to accept an agreement defining the developer's intellectual property over the entire game content, and often stating the right of the developer to interrupt the game agreement at its pleasure.

Initially, a rough equivalent of MMORPGs was found in text-based online role-playing games. In 1991 the first true MMORPG, *Neverwinter Nights,* was introduced, already presenting a graphical representation of the virtual world, and a basic structure for character progression and social interactions. In later years more advanced MMORPGs, notably *Ultima Online* (1997) and *Everquest* (1999), marked the popular success of MMORPGs. Currently, with more than 8 million subscribers, Blizzard's *World of Warcraft* (2004) is by far the most popular online game.

2.2 *Second Life* and other special cases

As a result of the increasing popularity of MMORPGs and the growing complexity of their

internal economies, some developers started building interactive virtual universes that feature

complex economic systems, the most notable experiment being *Second Life* (2003) by Linden

Research. These products do not qualify as MMORPGs, yet the gaming neophyte can easily

confuse the two. This understandable confusion, combined with the many relevant ideas

introduced by *Second Life* and similar products, calls for a descriptive parenthesis of these

products.

While similar for many aspects to MMORPGs, there are some fundamental differences that

clearly separate games such as *Second Life* from conventional role-playing games. *Second Life*

revolves around the concept that virtual money can be freely exchanged for real currency, so

that, just by playing the game, smart players can make a real profit. Game developers in *Second*

Life are in charge of establishing and regulating all exchanges between the virtual and real

world, by doing things such as paying weekly "stipends" to players and maintaining a two-way

money exchange with a market-determined floating rate. Thanks to this mechanism, early

players who invested in *Second Life* money and property have made impressive profits, and

many companies are currently investing in *Second Life* land, which is usually used as a virtual

advertisement space.

Figure 2: Barak Obama's virtual headquarters in *Second Life*. Obama was the first US presidential candidate to use *Second Life* his campaign [15]. The introduction of real world political campaigning shows how *Second Life* lacks the immersive role-playing environment that characterizes MMORPGs. Also, the in-game banner in the background is an example of user-generated content within the virtual world, another fundamental difference between *Second Life* and MMORPGs. Photo: Dan Sklarew.

Another fundamental difference between *Second Life* and MMORPGs is the possibility for users

to independently generate additional game content. Virtual objects and buildings in *Second Life*

can be programmed or modified by users, who can ultimately insert and distribute their

creations within the game. This characteristic, combined with the concept of privately owned

virtual land, creates a constantly changing role-playing environment, which is recursively

shaped by the game users. Finally, the users' freedom to modify the game also implies that the EULA of *Second Life* be substantially different from that of MMORPGs.

Ultimately, the player objectives in *Second Life* are different from those of MMORPGs. Character development is secondary to property trade, and the presence of real-world companies disrupts the stable and immersive fantasy environment that characterizes MMORPGs.

Elements of economic and role-playing freedom, together with the tight connections between real and virtual world, clearly separates Second Life and similar products from MMORPGs. However, later in this paper many ideas borrowed from *Second Life* will be considered and analyzed as possible solutions to the virtual property issues in MMORPGs.

3. The sword: virtual property value

Within the virtual boundaries of *Legends of Mir 3*, the Dragon Sword was one of the most rare, useful and sought-after objects. However, within the realms or real life, this weapon is nothing but a one-line instantiation of a piece of code written by game developers. Same thinking applies to any other object, skill, or character feature within all MMORPGs. This dichotomy raises the question of whether it is legitimate to claim that virtual property carries real value.

3.1 Time and scarcity as a measure of value

When thinking of virtual property, MMORPG players immediately associate its value with a simple measure: the average time it would take for a player to obtain the particular object. This rule of thumb can be used to universally match the relative value of all virtual property within

all games. Expensive items either require a long time or a massive dose of luck to obtain, whereas easily obtainable items come for cheap. It is then evident that virtual value is not correlated with usefulness or entertainment potential, which would make intuitive sense within a game, but rather with its scarcity, just like real life objects. In *Ultima Online*, notably, one of the most expensive items is a horse of a rare color: not the beauty of the color or an "upgrade" that makes the horse go faster, just the color rarity determines the horse's value.

3.2 In-game work vs. entertainment

It is possible to argue that, even though property value is associated with scarcity, obtaining such property requires nothing more than playing the game, an entertaining activity for which the players are ready to pay a subscription. MMORPG players, however, would agree that not all activities within the game are entertaining: obtaining valuable items usually requires the continuous repetition of a simple action, like killing the same type of enemy, for an extended time: not a properly entertaining activity. This practice, commonly known as *farming*, represents the online equivalent of working, as opposed to playing, which is supposed to be fun. The game *World of Warcraft* (WoW) provides a perfect example of this division. Within this game, activities such as dueling other players or defeating the most powerful enemies are considered very entertaining. However, in order to be successful at entertaining activities, the player needs money to buy potions, repair equipment etc., and money is made through farming. In fact, just like in real life, repetitious in-game activities (farming) tend to produce a net gain in goods, while entertaining activities (dueling) produce a net loss. When chatting with a WoW player, it is common to hear things like "Sorry, I cannot play with you, I have to go farming

because I'm short on money." Many other examples can confirm that playing a MMORPG in order to obtain goods is not an entertaining activity, while expending the goods obtained is, thus establishing a strong parallel between virtual and real money.

3.3 Farming

Another example of economic value is given by the presence of professional *farmers*. Mostly located in China and Korea, these businesses sell virtual money in exchange for real money. Additionally, they offer to control a player's character in order to increase its skills (known as *leveling*) for a fee. This practice has become so common that, within the virtual realms of *World of Warcraft,* players easily recognize characters played by professional farmers either to obtain money or to increase the client's character's skills. In South Korea, the practice of professional *farming* has become so common and profitable that the government is planning to legislate regulations specifically for this type of business[9]. To establish an entertaining parallel, if farming companies were available in the real world, it would be possible to leave your physical self for a couple of hours per day, while a skilled paid worker exercises your body and feels the pain of the push-ups: with such an option available, it is easy to see how the richest would also become the fittest.

Figure 3: WoW characters on sale online. The character price is determined by its experience level and by the value of the objects it possesses. While forbidden by developers, the practice of selling virtual MMORPG characters is extremely common. Similarly, virtual goods and money are also on sale. Many gamers are willing to pay upwards of $400 for a WoW character at maximum level. "Used" characters are cheaper than the "custom" characters provided by farming companies: getting a character to maximum level in fact requires more than 350 hours of intense gameplay, thus farming companies cannot match the low prices of previously owned characters. On the other hand, buying a used character carries a higher risk of being spotted by the developers, which would cause the account to be cancelled.

3.4 Inflation

Finally, another sign of the economic value of virtual property is given by the presence of

market dynamics and inflation within the in-game economy. It has been shown that virtual

markets exhibit many of the characteristics of real markets, such as demand and supply curves

and anticipation. For example, when the game developers announce a game upgrade, the in-

game prices almost immediately reflect the changes in product demand and supply that the

upgrade will imply.

Figure 4: Metal bars being sold in a WoW auction house. "Khorium" is a typical virtual commodity, a necessary element for "crafting" powerful objects, whose price is determined by market rules, and immediately reflects changes in supply and demand.

Another fundamental characteristic of MMORPGs is the great tendency towards inflation,

internally known as "mudflation." Within most MMORPGs, killing computer-controlled enemies

rewards the player with new goods, and the killed enemies are instantiated again after a few

minutes. This characteristic turns enemies into an in-game money source, which the developers

must counterbalance by inserting equivalent sinks. *World of Warcraft* developers, for example,

implemented a repair system which effectively requires players to pay virtual money in order to

fight: equipment is damaged with use and needs to be repaired by a computer controlled

character, acting as a money sink. The cost of repairs increases more than proportionally as the

character's equipment becomes more valuable, in a fashion similar to a variable tax brackets

method. Also, *WoW* inserted transaction fees within the in-game auction system. Conversely,

developers that have failed to insert enough money sinks within the game (notably *Star Wars*

Galaxies), have experienced internal economy failures and consequent loss of subscribers

simply due to excessive inflation. Websites such as *mudflation.com* go as far as tracking and

reporting the relative exchange rates between money in virtual environments, with exchange

rates changing mostly due to inflation.

3.5 Developers' power to create and copy: virtual goods and diamonds

An important argument against economic value is that the instantiation of a piece of code can

be infinitely replicated by the game developers. In theory, if virtual goods were really valuable,

a game developer could make himself instantly rich by instantiating many valuable objects, thus

implying the paradox of generating wealth in a few mouse clicks. However, instant generation

of wealth would not happen for two reasons. First, as I already discussed, in-game prices are

determined by market rules, thus sharply increasing the supply of a good would quickly cause

the equilibrium price to fall. Second, and most important, developers strictly regulate

instantiation rules. While the software house has the right to create and use virtual properties,

developers' rules regarding instantiation are strictly enforced internally. For example within

WoW, game-masters, god-like characters controlled by developers who act as supreme judges

within the game, are strictly prohibited from solving problems and conflicts by instantiating

objects, so as not to be considered as potential –or, even worse, exploitable– money sources.

Figure 5: Statistic of a valuable weapon in World of Warcraft. The usefulness is determined by the weapon characteristics (damage, bonuses etc.). The name of the weapon is written in purple, signifying that it is of epic (extremely rare) quality. When buying an epic-quality weapon, the player can safely assume that it is very rare, thus very valuable. When compared to other MMORPGs, World of Warcraft has a more rigid property market, due to the game's binding system, developed by Blizzard to prevent inflation. The writing "binds when picked up" under the object's name implies that only the character who first obtains the item may use it, thus preventing any resale.

As a comparison, virtual goods may be considered similar to diamonds. Diamonds are very rare,

thus very valuable, yet nowadays the possibility may arise of producing undistinguishable

diamond replicas, created artificially in labs out of cheap sand, which would bring down the value of diamonds to almost nothing. However, while the market believes the possibility of artificial diamonds entering the market unlikely, diamonds continue having a high market value, just like virtual goods do.

3.6 Conclusion

While intangible and potentially easy to replicate, virtual goods carry real economic value. This value is confirmed by the possibility of the exchange for real money, the work required to obtain virtual goods and the low likeliness that such goods would be replicated by developers.

4. The thief: role-playing versus law-breaking

Within the realms of *Legends of Mir 3*, one player stole another player's virtual property. Stealing is one of the behaviors that are socially unacceptable and punished within all real-world societies. By making a superficial comparison between virtual and real domains, opposing views may be taken on whether real life rules should apply to virtual worlds. In order to prevent episodes such as our framework murder case, unacceptable behaviors should be punished, yet game mechanics should also be respected. When considering where to place the boundary, however, it is fundamental that different decision be taken for different games.

4.1 Status quo in the United States

Currently, the only country in the world planning on having MMORPG-specific regulations is South Korea [3], where the very high number of players and the high economic value surrounding online gaming has pushed institutions towards examining the problem. For the

United States, on the other hand, online gaming is simply equivalent to chatting. While issues

such as harassment are being addressed, it is easy to see how regulating only the written

communication between players cannot cover all the complex interactions within MMORPGs.

Many issues concerning privacy, player-character coupling, and virtual property are not being

addressed by US law. For the purpose of this paper, I will only discuss issues involving virtual

property.

4.2 Real life versus role-playing

When deciding how to regulate behaviors within MMORPGs, it is important to consider two

strong opposing arguments. On one hand, I previously argued that virtual property carries

economic value, thus all behaviors infringing laws on property should be enforced within online

games.

On the other hand, MMORPGs are fundamentally based on their respective role-playing

environments. Role-playing allows the player to immerse in a fantasy-based world, where the

physical and social rules of the real world do not apply. Just like in a role-playing game players

can perform magic, at the same time they are able to impersonate an assassin, a thief or a con-

man. A good role-playing game must give the player freedom to impersonate any characters as

long as its presence and behavior is realistic within the virtual world. In a fictitious fantasy

environment, a player impersonating a burglar should be allowed to steal: not allowing him to

do so would be as disruptive to the game immersion as seeing two other characters chat about

the latest baseball game. While harassment offenses are currently punished by standard laws

(regardless of the role-playing environment), dealing with property-based torts should take into account the role-playing environment in which the game is set.

4.3 Establishing the boundary

Just like each MMORPG has a well-defined background story and role-playing environment (fantasy, sci-fi, etc.), each game should have a well-defined boundary between socially acceptable and unacceptable behaviors, established by a combined analysis of the game environment and the player community. While drawing the boundary may seem like a hard and highly arbitrary decision, I argue that the boundary is quite evident within, yet not consistent across, all MMORPGs. Even better, the in-game societies are autonomously defining the appropriate boundaries, and it should be the developer's job to clearly state them. The best way to show how in-game communities independently define their own boundaries is to proceed by examples.

4.4 Acceptable behaviors

Some behaviors that would be unacceptable in our society are perfectly tolerated within some MMORPGs. Virtual murder is an evident example. In the game *Ultima Online*, when meeting a character of the opposing faction, it is possible to attack him, eventually starting a fight to death, at the end of which the winning character can take any possessions left on the loser's dead body. If, for example, the loser is carrying a very valuable object, being murdered would be equivalent having lost real money. However, murdering another character and taking its goods is considered acceptable (if not necessary) within the role-playing environment. In some cases, though, some characters may decide to honor their dead opponent by leaving all the

goods on the corpse, allowing the losing player to resurrect and recover all its property. Such

characters will acquire an in-game reputation as merciful duelers.

An even more extreme example of acceptable behaviors is found in the science-fiction based

game EVE online. In this game, players can use virtual money and goods to build or buy

spaceships. Such spaceships range incredibly in price and size, and can be permanently

destroyed as a result of a lost fight, effectively losing the entire value of the ship. On December

11th 2006, following an assault from a large group of opposing players, for the first time a class-

titan ship, the most valuable property in the game, was destroyed. This virtual ship takes more

than 2 months to be completed, and costs around 700 billions in Eve Online's virtual money

which, at the 2006 "exchange rate" set by faming companies, roughly corresponds to an

impressive $60,000. However, the group of players owning the virtual ship did not complain

about the episode in any way outside the virtual world environment. In this case, role-playing

rules make it socially acceptable to completely destroy someone else's virtual property, even

though it may be worth the real-life equivalent of $60,000 plus two months of work.

4.5 On the borderline

Some behaviors are on the line of socially acceptable. In this case, online communities cannot

punish the offender in real-life, however they organize in-game punishments to deter such

behaviors.

An example of boundary behavior is *World of Warcraft's* so-called "ninja-rolling." When

cooperating with other characters, *WoW* allows the formation of an in-game group. When in a

group, all the money found by group members is automatically divided equally amongst the

players. The valuable objects found, however, cannot be divided, so a different method is used. Valuable equipment cannot be used by all characters, but rather the usability depends on the character belonging to a certain class: for example, warriors cannot use wands while mages cannot use shields. Additionally, because of internal game mechanisms, equipping the objects retrieved on one's character is economically preferable to reselling them. For this reason, when it comes to dividing objects, group members can choose between declaring a "need" or "greed." Only players who "need" the object (the one declaring that they can and will equip it on themselves if obtained) join an automatic dice-rolling for deciding who obtains it. When faced with a shot at a very rare object, however, some players choose to "need" it even if they cannot use it, because of the money they could make by reselling. This behavior, called "ninja-rolling" is considered highly inappropriate, yet not illegal. While a single instance of ninja-rolling may prove profitable, frequent "traitors" rapidly develop a bad reputation: honest players will be reluctant to invite a known "ninja" into their group, practically banning them from the majority of in-game activities.

Another borderline behavior, still within *World of Warcraft*, involves in-game frauds. A player may send many "wrapped" objects via virtual mail to other players; in order to "unwrap" the object and see what it is (out of pure curiosity), most recipients will to pay a high on-delivery fee to the sender, only to find, to their disappointment, that the "gift" is a worthless object. *WoW* players are known to use similar cons to effectively gain money by exploiting other players' trust, but again, the word can spread very quickly on the Web.

Ninja-rolling and virtual frauds are examples of borderline behaviors. While they should not be prosecuted outside the realms of the game, online communities find ways of punishing the offenders within the role-playing boundaries.

4.6 Crossing the line

Even considering the role-playing component of MMORPG, some behaviors are evidently crossing the line of personal property and represent true offenses.

The first, obvious example comes from the framework case: stealing the Dragon Sword. In the case of *Legends of Mir 3*, the game itself does not feature a mechanism for characters to steal other characters' goods. In this case, Caoyuan was not role-playing a thief, he was simply abusing the trust of a real-life friend and willingly circumventing the role-playing barriers set by the game itself, not to mention that the virtual property was sold online in exchange for real money.

Another example of behavior that should be prosecuted, and was prosecuted, is given by a well-known case of the virtual mugging in *Lineage II* [8]. In August 2005, A Japanese man was arrested for having "mugged" virtual property from other players of the MMORPG *Lineage II*. Instead of playing by the role-playing rules, the man had programmed in-game "bots", automated programs designed to independently control an in-game character. The bots were programmed to kill other characters and rob them of their virtual goods, which the man then sold online for real money. Such types of behaviors evidently fall beyond acceptable role-playing boundaries, and represent serious property-based offenses.

4.7 Conclusion: the boundary is evident, but not fixed

In conclusion, it is easy to see how some behaviors, while unacceptable in our society, fall within reasonable role-playing in MMORPG, while other actions completely violate both role-playing rules and personal property. While it is not hard to see where the boundary lies, however, it is also clear that such boundary depends on the specific characteristics of the game. Therefore, it should be the developer's responsibility to examine and explicitly define each game's role-playing boundaries of acceptable behavior, while also taking into account the intrinsic economic value of virtual property. Just like personal harassment is considered unacceptable even within a game chat, these definitions should be extended from simple communication to the full spectrum of virtual actions that a character can do in a MMORPG. While it would be unrealistic to expect a videogame company to legally enforce correct behaviors on its players, it is fundamental that such companies define the boundaries so that, if legal actions or legislative efforts are taken, it is made clear whether an action represents a crime within the game.

5. The EULA: the developer's monopoly over virtual property

The entire discussion on virtual property economic value and regulations can be completely invalidated by a single aspect: the developer's intellectual property on the game, as defined in the EULA. All MMORPGs require the players to agree to a EULA before their account is activated. With the notable exception of *Second Life* and a few other games, which, as discussed, cannot

be considered to MMORPGs, most agreements feature a clause very similar to what can be

found in *World of Warcraft's* EULA, reported below:

"All title, ownership rights and intellectual property rights in and to the Game and all copies thereof (including without limitation any titles, computer code, themes, **objects**, **characters**, character names, stories, dialog, catch phrases, locations, concepts, artwork, character inventories, structural or landscape designs, animations, sounds, musical compositions and recordings, audio-visual effects, storylines, character likenesses, methods of operation, moral rights, and any related documentation) are owned or licensed by Blizzard. The Game is protected by the copyright laws of the United States, international treaties and conventions, and other laws. The Game may contain materials licensed by third parties, and the licensors of those materials may enforce their rights in the event of any violation of this License Agreement."

While in a regular videogame this statement would simply be used to prevent copyright

infringement, in the context of a MMORPG this statement implies, amongst other things, that

all virtual goods within the game are sole property of the developer company. This means that,

independently of the real money, virtual money or time that the player spent to achieve a

particular virtual item, the item itself remains just an instantiation, a copy of proprietary code,

therefore it is property of the company.

5.1 Blizzard, eBay and the EULA's legal status

Independently of the players' opinion regarding their ownership on virtual property, EULAs are

currently being used by software companies, most notably WoW's Blizzard, to forbid any

exchange between the virtual and real domains. As of today, players discovered buying or

selling WoW property on platforms such as eBay are immediately banned from the game, their

characters and virtual property destroyed.

It is important to notice that, while claiming property over all in-game content, developers do

not try to exploit their copyrights for economic benefits. In other words, if WoW players try to

sell their objects on eBay, Blizzard destroys their accounts, but does not try to claim the eBay

profits. If that were the case, as previously discussed, the economic value of all virtual property

would immediately collapse to nothing.

5.2 Developers' rationale against virtual property trading

Developers who oppose virtual property trading do not only do it on the basis of copyright

infringement, but rather in order to maintain the highly sought-after "gameplay balance."

Famed developer Blizzard holds a firm belief that, for a game to be truly excellent, there should

be no steep obstacles and no easy tricks towards the achievement of objectives. In order to do

this in a continuously expanding game such as WoW, Blizzard programmers make an enormous

effort tuning the game mechanics in order to make sure that the game offers no blatantly easy

way to accomplish a hard objective (the dreaded "game exploits"). In light of this, the Blizzard

view against property trading is that such mechanisms would completely destroy the balance

and the rewards system of the game. As a result, they claim, there would be no easier trick to

unbalance the game than spending some real money on one's character to instantly make it

better than someone else's.

While the argument is certainly valid, the corruption of game balance from trading is prevented

by a few mechanisms. First, the game does not allow "young" characters to wield powerful

items. In order to use the most powerful equipment, characters have to play for many hours in

order to increase their skills, known as leveling. Leveling can also be accomplished by hiring

professional *farmers* to do it for you, as discussed above. However, this practice could be

prevented by restricting account access to authorized IP addresses. Second, and most

important, it is well known that complex videogames are not for everyone, as playing them

requires a certain set of skills. In most MMORPGs, a novice player would never be able to win a

duel against a veteran, even when controlling a stronger character. Just like a fast car needs a

good pilot, MMORPGs are designed so that advanced characters are very hard to control, and

their effective power depends on the skills of the player, which cannot be purchased on eBay.

Particularly in games where losing a fight implies a high cost in virtual money, such as Eve

Online, an unskilled player spending a lot of money to purchase expensive equipment will find

himself completely deprived of his benefits within a few fights.

5.3 Developers' protection against accidental damage

Together with a game balance argument, developers also have economic reasons to claim

property over all virtual goods. Technically, virtual goods are nothing but information stored

over a server's hard drive. But when recognizing monetary value of virtual goods, accidentally

erasing a single virtual object such as Eve Online's class-titan ship could make the company

liable for a $60,000 damage. Such damage could obviously be repaid by re-instantiating the

property, but this in turn would complicate the internal company rules on object instantiation;

re-instantiating objects would be equivalent to producing the first artificial diamond, which

could cause the market to lose trust and collapse. However, companies are already protected

against such accidental damages. For example, WoW's EULA states:

"NEITHER BLIZZARD NOR ITS PARENT, SUBSIDIARIES OR AFFILIATES

SHALL BE LIABLE IN ANY WAY FOR ANY LOSS OR DAMAGE TO PLAYER

CHARACTERS, VIRTUAL GOODS (E.G., ARMOR, POTIONS, WEAPONS, ETC.)

OR CURRENCY, ACCOUNTS, STATISTICS, OR USER STANDINGS, RANKS, OR

PROFILE INFORMATION STORED BY THE GAME AND/OR THE SERVICE."

This sort of insurance seems perfectly reasonable, and should be kept in MMORPGs' EULAs,

meaning that players should take this unlikely risk into account when dealing in virtual property:

just like the house you bought can be destroyed by a hurricane, your brand new magic wand

can be destroyed by a hardware failure.

5.5 Developers' rights

In conclusion, it seems that the EULA, while overly restrictive, is a necessary tool not only to

protect the company's rights over intellectual property, but also to protect the integrity and the

original vision behind the videogame. First, the developers' claim of copyright over all virtual

property is enforced to prevent trading, but never to increase the company's profit. Second,

regulations are used to keep the role-playing environment and game play balance as originally

envisioned by the developers. Third, companies use EULAs to protect themselves against

accidental damage to the virtual world and property, as it would be unrealistically harsh to hold

developers legally liable for game damage which is only one power failure away. Any possible

solution for the issues of virtual property should therefore aim to preserve some important

rights that software developers are currently enforcing through their games' EULA.

6. An analysis of possible solutions

After considering all the issues raised by the newborn concept of virtual property, it is useful to

propose and evaluate possible solutions. As seen in the introductory analysis, the status quo of

denying the value of virtual property does not prevent the economic exchanges between the

real and virtual world, thus giving rise to issues such as the framework scenario. However, any

feasible solution should not only address such economic value ("the sword"), but also the

complex economic and game play consequences of property exchange ("the thief"), as well as

the rights of game developers ("the EULA"). Let us try to formulate a solution and assess it

based on these criteria.

6.1 First-sale doctrine and free trade

After arguing that virtual property carries economic value, the most straightforward solution

would be the full acknowledgement of such value, and the opening of economic borders

between virtual and real world, in line with the current trends of full integration between real

and internet-based domains[5]. The rationale is that while the Internet, generator of virtual

worlds, started as a separate, isolated dimension, the current scale and complexity of the

interactions between real and virtual domains calls for a comprehensive view of both. This

approach is the basis behind online games such as *Second Life*, based upon the concept of free

trade and virtual-real property exchange. The acknowledgement of economic value is the basis for this solution, thus there would be no problems on this aspect.

As for the EULA, a free-trade solution would require a way for virtual property to be acknowledged without violating the company's copyright. In Second Life, this problem is solved in a peculiar way: by allowing users to create and copyright in-game content. As already discussed, however, such solutions would not be compatible with MMORPGs, as user-generated content would inevitably disrupt the balance and role-playing atmosphere of the game.

A feasible approach to the EULA problem in a free-trade solution comes from the recording industry and the first-sale doctrine. CDs and other medias containing proprietary music are subject to copyright, thus may not be copied or modified without authorization. However, as stated in the Copyright Act, once copyrighted material has been legally obtained, the purchaser is allowed to *transfer* (i.e. buy/sell) the copyrighted material. This legal approach could be applied to virtual property, which technically represents a legally obtained (though not purchased) copy of copyrighted material. However, EULAs and software companies in general have been avoiding the implications of first-sale doctrine by selling their products not as a copy of the software, but as a license to use it. The legal issues concerning first-sale doctrine and licensing of copyrighted material are still highly debated and no uniform position has been found [12] [15], yet for the sake of conciseness, I will assume that such a solution for free-trading would be legally feasible and accepted.

Still, one problem remains to be solved, concerning the possible law infringements caused by virtual property violations. Again, for the case of Second Life, the solution is simply to conform in-game policies regarding virtual property to real world laws. In a free-trade solution for MMORPGs, however, in-game regulations should obviously conform to the role-playing environment, thus creating some discrepancies which could be used for financial advantage. Economic theory predicts that no financial system can be stable if it can be exploited continuously and without risks for the purpose of monetary gain (so-called *arbitrage*) [16]. In a free-trade solution, the interface between virtual and real worlds would create the conditions for *arbitrage*, since funds could be transferred instantaneously and at zero cost between two asymmetric markets. In such a case, discrepancies in regulations may form profitable, risk-free loopholes that can be continuously exploited. It is not far-fetched to imagine corporations investing in virtual property for tax reasons, and such kind of behaviors would eventually trigger the destruction of the current online economy. One way of preventing *arbitrage* would be to eliminate all asymmetries between the two economies. This *Second Life* solution, to conform the in-game rules to real life laws, would inevitably disrupt the role-playing environment, and effectively transform a MMORPG into a completely different (and likely less enjoyable) product.

6.1.1 Problems with free trade

Overall, a complete free-trade system would present many problems. First, there are legal issues concerning the first-sale discipline on copyrighted material. Second, and most important, the analysis unveils a complete dichotomy between a stable online economy and a functional role-playing environment. Briefly, once a virtual economy is opened to cost-free exchanges with

the real world, such economy is going to be unstable and collapse due to *arbitrage* unless it

conforms to real-world regulations.

Again, a compromise would be to only allow exchanges at a cost high enough to neutralize

potential loopholes. This method, however, would force software developers to enter the

complex industry of finance regulations and market management. Also, the conversion of

virtual-to-real currency is essentially cost-free, thus there would be an inevitable rise of

unofficial exchange markets, adding more complexity to the issue. For the reasons above, and

again for the sake of conciseness, I shall not discuss this option any further.

6.2 Imposing barriers

Another potential solution would aim at the opposite direction: imposing structural barriers to

the free exchange between real and virtual world. Of all MMORPGs, World of Warcraft again is

currently the one getting closest to this approach. In-game mechanisms such as object-

character binding (Figure 4) that regulates object trading, combined with a very severe and

vigilant attitude towards internet-based property exchange, can limit the amount of

transactions between virtual and real economy. Blizzard also makes a constant effort to spot

and erase traded characters and virtual money, while appealing to major exchange websites

such as eBay to forbid all WoW-based auctions.

However, previous experience teaches that efforts towards eliminating any sort of Internet-

based exchange never represent a feasible solution to a problem. As for in-game efforts,

structural limitation to free trade can only be used up to a certain extent, since such limitations

also inhibit the internal mechanics of the virtual economy, ultimately making a game less entertaining.

7. Conclusion: a virtual property crisis

The economic value of virtual property within MMORPGs is undeniable, and represents the inevitable product of virtual worlds with increasingly complex societies and economies. The current situation neglects the problem, and episodes such as the Dragon Sword case are the symptoms of such negligence.

The virtual property issue, however, does not offer an easy solution. Several fundamental aspects that any solution must account for, such as the integrity of the game's role-playing environment, the stability of the virtual-real property exchange and the developers' copyright, are difficult to integrate, and at times are directly contrasting. The complexity of the problem, combined with the large and ever-increasing size of MMORPG markets, legitimates the definition of a virtual property crisis.

Recent history shows that every time a new yet intangible product reaches the market and accounts for significant economic value, such product triggers a property crisis. Just as it happened with music, cinema, and software, now MMORPGs are raising the question mark on how to deal with virtual property. Just as it happened with music, cinema, and software, the solution to the virtual property crisis is complex, imperfect and unclear. One way of dealing with the problem, however, is to outline and raise the key questions that any feasible solution needs to address:

- Can a virtual economy interact with the real world while remaining stable, and without offering *arbitrage*? And how can it do so while preserving the virtual world's own regulations and role-playing environment?

- Can a software house safely recognize the player's right to own, buy and sell virtual property while preserving its copyright? Can the first-sale doctrine apply to virtual property?

- For crimes related to virtual property, how should the law monitor and enforce regulations? And can the law respect behaviors that, while unacceptable in our society, are tolerable in a role-playing environment?

- Is it possible to prevent or control all exchange of money and property between the real and virtual world? What are the consequences of uncontrolled exchanges?

As MMORPGs and their virtual economies increase in number, size and complexity, the forward-looking reader will recognize that a virtual property crisis may be incumbent. While an analysis of limit cases unveils seemingly unsolvable conflicts, a set of carefully balanced, experience-driven regulations may lead to an appropriate management of virtual property. The first step towards a feasible solution, however, is to recognize the importance of the virtual property issue and keep in mind that, if overlooked, even a virtual sword may give us a deep cut.

8. Acknowledgements

I would like to thank Michael Fischer, Shekhar Krishnan, Casey O'Donnel and Henry Jenkins for their feedback. I would also like to thank Matteo Gri, who first directed my attention towards economic issues in online videogames.

9. References

[1] "Game theft led to fatal attack," BBC News, 31 March 2005. Available online at: http://news.bbc.co.uk/1/hi/technology/4397159.stm on December 15, 2007

[2] Castronova, Edward, "The Right to Play." New York Law School Law Review, Vol. 49, No. 1, pp. 185-210, 2004. Available online at http://ssrn.com/abstract=733486

[3] Castronova, Edward, "Real Products in Imaginary Worlds." Harvard Business Review, pp. 20-22, May 2005 Available online at SSRN: http://ssrn.com/abstract=759924 on December 15, 2007

[4] Chein, Allen "A Practical Look at Virtual Property," St. John's Law Review, Vol.80 No.3, 2006

[5] "Better Together" The Economist, Vol. 385, No. 8558, 8 December 2007. Available online at: http://economist.com/opinion/displaystory.cfm?story_id=10251972 on December 15, 2007

[6] Jenkins, Peter S, "The Virtual World as a Company Town: Freedom of Speech in Online Role Playing Games." The Journal of Internet Law, Vol. 1, No.8, pp. 8-18, 2004.

[7] Klang, Mathias "Avatar: From Deity to Corporate Property," Information, Communication & Society, Vol. 7, No.3, pp. 389 – 402, 2004

[8] Knight, Will "Computer Characters Mugged in Virtual Crime Spree," NewScientist, 18 August 2005. Available online at: http://www.newscientist.com/article.ns?id=dn7865 on December 15, 2007

[9] Paul, Ryan "Korea Considering Gold Farming Regulation," Ars Technica News, 2006. Available online at: http://arstechnica.com/news.ars/post/20061227-8503.html on December 15, 2007

[10] Taylor, T.L. "Does WoW Change Everything?" Games and Culture, Vol.1, No.4, 2006

[11] Steinkuehler, Constance "The Mangle of Play" Games and Culture, Vol.1, No.3, 2006

[12] "Bauer & Cie v. O'Donnel" United States Supreme Court, May 26 1913. Available online at:
http://caselaw.lp.findlaw.com/scripts/getcase.pl?navby=case&court=us&vol=229&page=1 on December 15, 2007

[13] "Blizzard v. BNETD" United States Court of Appeals, June 20, 2005. All documents available online at the Electronic Frontier Foundation: http://www.eff.org/cases/blizzard-v-bnetd on December 15, 2007

[14] Ward, Mark "Does Virtual Crime Need Real Justice?" BBC News, 2003. Available online at: http://news.bbc.co.uk/1/hi/technology/3138456.stm on December 15, 2007

[15] Wheaton, Sarah "Obama is First in their Second Life," The Caucus, New York Times Politics Blog, 31 March 2007. Available online at:
http://thecaucus.blogs.nytimes.com/tag/barack-obama/2007/03/31/ on December 15, 2007

[16] "Arbitrage" Wikipedia. Available online at: http://en.wikipedia.org/wiki/Arbitrage on December 15, 2007

[17] "First-sale Doctrine" Wikipedia. Available online at:
http://en.wikipedia.org/wiki/First-sale_doctrine on December 15, 2007

[18] "Microsoft Corporation v. Zamos" Wikipedia. Available online at:
http://en.wikipedia.org/wiki/Microsoft_Corp_v._Zamos on December 15, 2007