

Xbox Bans: Justified Punishment or Aggressive Power Struggle

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CSC 300: Professional Responsibilities

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November 21, 2011

Abstract

Since the dawn of home video game systems, people have been modifying game consoles' hardware to extend their capabilities. This can be seen as early as the PacMan home arcade system. [7] The newest set of consoles, or the "next gen" consoles, are no exception. Many ways to modify Microsoft's Xbox 360 have been found. One of the more popular reasons for modifying an Xbox is to enable it to play unofficial games. These unofficial games include homebrew, backup, and pirated games. [34]

In November 2009 Microsoft banned anywhere from 600,000 to 1,000,000 consoles from ever playing on Xbox Live again. The banned consoles were ones that Microsoft believed were modified, however some innocent users also had their consoles banned. Now the question arises: Is it ethical for Microsoft to ban Xbox 360 consoles just because they *suspect* the hardware is modified? I argue that because of the collateral damage of banning innocent users and the legal capabilities of a modified Xbox, Microsoft cannot ethically ban modified Xboxes.

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1 Introduction

In 2005 the Xbox 360 was released. Along with the new console came the next generation of Xbox LIVE. Microsoft touts Xbox LIVE as an "unbeatable entertainment experience" that offers community, games, and media.[5] Xbox LIVE is the only option for Xbox users wishing to play online. However, it was not long after the release of the Xbox 360 that users began to experiment with the console and find ways to enhance its abilities. These "enhancements" included bigger storage devices, new case cooling/designs, and flashing the optical drive's firmware.[34] It was the latter that roused concerns from Microsoft. "Flashing" an optical drive allows new firmware to be loaded onto the drive. This new firmware gives the user the ability to play unofficial games including homebrew, backup, and pirated games.

Microsoft viewed any modification of the Xbox¹ as a piracy attempt and reacted strongly, either banning the user's Xbox LIVE account or the console itself from being able to connect to Xbox LIVE. In November 2009, as part of their "commitment to combat piracy and support safer and more secure gameplay for the more than 20 million members of the Xbox Live" Microsoft permanently banned 600,000 to 1,000,000 consoles from Xbox LIVE.[26][36]

¹Any reference to "Xbox" refers to the Xbox 360. Original Xboxes are outside of the scope of this paper.

2 Facts

Below are facts relevant to Xbox LIVE, Microsoft's ability to ban consoles from Xbox LIVE, the bans in November 2009, and Xbox 360 modifications.

The Xbox 360 is a video game console made by Microsoft. The hardware in an Xbox is very similar to the hardware in a desktop computer including a full-sized motherboard, hard drive, and graphics card.[6] When a user purchases an Xbox, they purchase the console with all contained hardware, i.e., the user buys the hardware, not the license to use the hardware.[22] The software on the Xbox however, is licensed to the Xbox user.[27] The software on the Xbox only allows official games licensed by Microsoft to be played on the console. The games themselves also have copy protection on them. Opening the case of an Xbox voids any warranty between the user and Microsoft.[27] In 2009 a retail Xbox cost between \$200 and \$300 depending on the model.[33]

Xbox LIVE is a service for users of "authorized devices" which includes Xboxes and is paid for on a recurring basis. The service that Xbox LIVE provides is access to Microsoft's online media. This includes the ability to play games online with other Xbox LIVE users, the ability to interact with other users outside of games, and access to approved third party applications such as Netflix streaming media.[5] Xbox LIVE is the only official channel allowed for an Xbox

to connect to the internet and for users to play across the internet.[29] To use Xbox LIVE, a user must accept the Xbox LIVE Terms of Use, Code of Conduct, and Suspension Policy. These documents include the user's consent that their "hardware had not been modified in any unauthorized way".[29][30][28] At the time of the bans, there were about 20 million subscribers to Xbox LIVE.[36] If a user had a positive balance on their Xbox LIVE account (paid for extra time) and the account was banned, all of the extra balance was forfeited.[28]

Microsoft has the ability to ban any Xbox LIVE account or Xbox console at any time. Any breach of the Terms of Use or Code of Conduct may result in an immediate ban.[28] Although Microsoft states that it will only ban Xbox consoles for violations of the Terms of Use or Code of Conduct, unmodified consoles have previously been banned on suspicions of having modified hardware.[24] A console ban results in the console not being able to connect to Xbox LIVE or receive any direct updates from Microsoft. However, a user may still receive updates by waiting for them to be released online, downloading them, burning them to a disc, and then manually installing the updates from the disk onto the console. A banned Xbox console still retains the capabilities to play games offline. Microsoft has previously stated that console bans are permanent.[20] Along with the ability to ban consoles at will, Microsoft has the ability to collect any information

about an Xbox including "information about [Xbox LIVE] performance, your [Xbox console], and your [Xbox LIVE] and [Xbox console] use".[29]

In both November 2007 and 2008 Microsoft banned an unnamed number of Xbox consoles for being modified. In November 2009 Microsoft banned anywhere from 600,000 to 1 million Xbox consoles from Xbox LIVE.[16] The timing of the bans coincided with the release of "Call of Duty: Modern Warfare 2" which was "the mostly highly anticipated Xbox 360 game of the year".[26]

There are many different goals and methods of modifying an Xbox console. There are methods that don't involve opening the case such as purchasing a new hard drive.[34] There are entire communities dedicated to modifying the case of the Xbox and not the actual hardware.[4] Cooling is also a target for Xbox modifiers. As for any computer, heat dissipation is an issue with the Xbox and many Xbox hardware enthusiasts find ways to help cool the case. Some of these methods involve slight modifications to the hardware, usually in the form of making an extra connection to a power line.[9] There are also modifications that involve either replacing or adding new chips to the console to increase functionality or defeat protections/securities.[6] Most common, there is a modification that involves rewriting, flashing, the firmware on the Xbox's optical drive. The new firmware may contain the ability to play unlicensed

games. In this paper, any reference to Xbox modifications will refer to flashing the Xbox's optical drive. As previously stated, a flashed optical drive allows users to play homebrew, backup, and pirated games. Homebrew games are games that users create themselves and have not been licensed. Backup games are copies of games that a user legitimately owns. Pirated games refer to unofficial copies of games that the user does not own. It has also been proven that unmodified Xboxes can scratch game discs to the point of making the disc unusable.[32]

3 Research Question

Is it ethical for Microsoft to ban Xbox 360 consoles from Xbox LIVE that they suspect have modified hardware?

4 Importance

There are a few important issues that are raised by this matter. First, there is the issue of trust between customer and developer. Should a hardware provider trust their clients to not use their hardware for malicious activities. Secondly, there is the issue of a service provider modifying the hardware of the platform that they service. This could be akin to to a car's navigation service provider disabling the car's gps if it detects the car running a red light.

5 Extant arguments

In November 2009 when the bans took place, there were many different people who weighed in on this issue. However, many of the arguments assumed that this is a simple case of video game pirates being punished for their illegal activity. The lack of popular knowledge about console modifications lead to many arguments begin the same. However, some people with technical knowledge on console modification did voice their arguments.

5.1 Affirmative Arguments

It is ethical for Microsoft to ban any Xbox it suspects of having modified hardware.

5.1.1 Lawrence "Major Nelson" Hyrb

Lawrence Hyrb is the Xbox LIVE Director of Programming and he believes that banning modified Xboxes will help keep "gameplay safe and secure for [a] community of more than 14 million members". He has stated that action has only been taken against "a small percentage of Xbox 360 consoles that have been illegally modified in order to play pirated games". Hyrb also states that the "health of the video game business depends on customers paying for the genuine products and services they receive".[21]

5.2 Negative Arguments

It is not ethical for Microsoft to ban any Xbox it suspects of having modified hardware.

5.2.1 Transmatrix, Tech Blogger

A tech blogger known only as Transmatrix argues that modifying hardware should not result in any negative action. He even says that the act of having a modified console does not breach any copyright laws. Playing backups of games you already own should also be allowed. Especially since the Xbox has a history of scratching discs to the point that they are unusable.[32] He then goes on to make the analogy that having a modified Xbox is like owning a gun in that "we don't throw people in jail for owning guns, just as we shouldn't penalize a person for owning a hacked console".[14]

5.2.2 Enigmax, Tech Blogger

Another tech blogger, also remaining anonymous, by the name of Enigmax makes a point very different than Transmatrix. Enigmax argues that if Microsoft had just banned the user's account, then they would be perfectly fine ethically. However, since Microsoft banned the console itself they are actually damaging the user's property. Since the Xbox will no longer be able to connect to Xbox LIVE, this "means that if that particular Xbox 360 gets [sold] (which is going to happen) the person buying that unit will find

that it has reduced functionality". Because the console now has a decreased value and reduced functionality it has been damaged.[17]

6 Analysis

The Software Engineering Code of Ethics (SE Code) is the ethical standard that all software engineers are to use as a moral framework in their practice of software engineering. The SE Code was created by a joint task force of Association of Computing Machines (ACM) and Institute of Electrical and Electronics Engineers Computer Science branch (IEEE-CS) on the Software Engineering Ethics and Professional Practices.[3]

To hold Microsoft's actions up to the SE Code, it is necessary to first show how the SE Code applies to them. The SE Code of Ethics states that it applies to practitioners of software engineering, managers, supervisors, and policy makers.[3] Microsoft is currently the largest software company in the United States.[38] Furthermore, Microsoft produces the Xbox console and provides the Xbox LIVE service. Therefore the SE Code applies to Microsoft in the matter of banning Xboxes.

6.1 Section 1.02: Moderate Interests

SE Code 1.02: Moderate the interests of the software engineer ... the client and the users with the public good.

This code tries to ensure that software engineers attempt to consider and balance (moderate) the interests of all parties impacted by their software. To relate SE Code 1.02 to Microsoft's Xbox bans, the code must first be modified. In this case, "the software engineer" can be seen as the Microsoft Corporation as a single software engineering entity. The "client" and "users" in this case are the same. Xbox owners² can be seen as both the purchasers, "clients", and the ones who use the system, "users". The public good must be defined in a larger scope. Since the SE Code never defines the "public" or "public good", we must define "public good" as the well being of Xbox owners and Xbox game developers.

With the appropriate substitutions, SE Code 1.02 becomes:

Substituted SE Code 1.02: Moderate the interests of Microsoft ... and Xbox owners with the well being of

Xbox owners and Xbox game developers.

Before we can consider whether or not Microsoft moderated interests, we must first consider all classes of Xbox owners. There are standard Xbox users that use unmodified Xbox consoles and play only official games. Then we have Xbox users who use a modified console to play backup or homebrew games. For the purpose of this paper, these users will be referred to as "backup users". Finally, there are Xbox users who use a modified console to play pirated games. These users will be referred to as "pirate users".

Standard users are interested in playing on Xbox LIVE without interruption. Therefore, promoting their "well being" is as simple as not banning them and maintaining the status quo. Microsoft assures this in a statement to MSNBC saying that "if an Xbox Live member follows the Xbox Live terms of use, purchased a retail copy ... and played the game on an unmodified Xbox 360, no action will be taken".[16]

On the other hand, backup users are interested in using a modified console to play unofficial but previously purchased games. Promoting the well being of backup users would require Microsoft to allow backup users to either play on their modified Xboxes or provide them a method for backing up their games. Since Microsoft provides neither of these options, they do not promote the well being

²Here "Xbox owners" refers to people who own an Xbox and use Xbox LIVE

of backup users.[16]

For pirate users' interests to be satisfied, Microsoft would have to allow them to play pirated games on modified consoles. Microsoft clearly disallows this in the form of console bans. Therefore, pirate users' well being is not satisfied.

Finally, the well being of the software developers who make the Xbox games needs to be considered. Satisfying the game developers' interests would involve protecting their products' rights and promoting their product. In this situation Microsoft attempts to protect the game developers by deterring piracy.

Now that the "public" has been defined, we must see if their interests have been "moderated". To do this we must consider the nature of this code. Attempting to moderate certain interests with the public good is clearly a Utilitarian effort. Therefore, we will use a Utilitarian standpoint to address the issue of moderation.

6.1.1 Utilitarian View - Happiness Utility

Utilitarianism argues that when confronted with a decision, one must always choose the path that has the greatest net gain, or smallest net loss, or utility.[31] "Utility" can be defined many ways but in this section we will just use a more common form of utility, happiness. As a metric for happiness we will use the number of people affected. Now we must ask ourselves whether or not Microsoft

adequately moderated the interests of all involved parties from a Utilitarian standpoint. To do this all we need to do is see if the majority of those involved gained or lost happiness. Determining exact numbers is difficult at best, but we can make some conservative assumptions that will be enough.

Standard Users

According to Microsoft, at the time of the ban Xbox LIVE had about 20 million subscribers.[16] This number also includes the users that had their consoles banned. Removing 1 million banned users, we are left with 19 million standard users. Did the happiness of these users increase or decrease? I believe that the answer is neither. There are the cases that a friend, rival, or enemy was banned resulting in a change in happiness, but those would be impractical to research or statistically derive. Because the status quo was maintained for standard users, there was no change in happiness.

Backup and Pirate Users

These two sets of very different users have been grouped together because of my statistical inability to determine the difference between a banned backup user and a banned pirate user. However, because of their shared loss of happiness there is no need to separate them. Both backup and pirate users lost happiness from Microsoft's actions because they lost their access to Xbox LIVE. As stated in the "Standard Users" section, about

1 million users³ were banned and would fall into this group.

Game Developers

The Entertainment Software Association (ESA) claims that there are over 120,000 individuals whose employment depends on game software.[35] Going by the assumption that piracy hinders the software industry, game developers' happiness would be increased by Microsoft's actions.[15]

Results of this analysis are summarized in Table 1:

Table 1: Summary of Utilitarian Analysis

Group	Net Happiness	Size
Standard Users	No Change	19 million
Backup & Pirate Users	Negative	1 million
Game Developers	Positive	120,000
Total	Negative	880,000

Microsoft's actions lead to a net loss of happiness and therefore failed to moderate the different users' interests according to Utilitarian standards using a happiness utility.

³Reports from this time are between 600,000 and 1 million users. However, the 400,000 difference will later show not to matter.

6.1.2 Utilitarian View - Financial Utility

Another common utility measure is financial transfer. Did those affected by an action gain or lose wealth? We will let "wealth" be both property and money. Financial gain is often a more realistic measure than happiness because wealth is more tangible. Wealth can be measured in finite terms whereas we can only get a feeling towards the gain or loss of happiness. Now lets reconsider all the groups using a financial utility.

Standard Users

Once again, the status quo was maintained for standard users. These users did not earn any extra money, nor did they lose and money or property. Therefore, these users remain neutral.

Backup and Pirate Users

These users share the common misfortune of having their Xboxes banned. A banned Xbox loses the functionality of being able to connect to Xbox LIVE and receive updates. This loss of functionality means that the Xbox has been devalued because it has less functionality. Now that we have established that backup and pirate users have incurred a financial loss, we must establish how much was lost. A banned Xbox still maintains the ability to play games offline, so it is not useless. However, I argue that for users whose Xbox has been banned, they must purchase an entirely new console to regain the functionality, playing online,

that they have lost. In November 2009, a retail Xbox console ranged in price from \$200 to \$300 depending on the included features.[33] Taking the conservative value, we have one million users who would need to buy a new console at \$200 each. That means that this group lost \$200 million.

Game Developers

According to the Business Software Alliance and Entertainment Software Association, piracy costs the video game industry billions a year.[11][18] To come up with this value, the assumption is made that every copy of a game pirated is a copy that is not sold. Therefore the financial gain for this group would be in the billions. However, recent testimony by three US professors to the US International Trade Commission calls these statistics into question. These three professors state that it is "madness to assume that someone who would pay some low amount for a pirated product is the same person who would pay some amount that's six or 10 [times] that amount for a real one".[19] They went on to say that the media companies have incentive to make their losses seem large.[19]

In 2010 three European researchers, Nico van Eijk, Joost Poort, and Paul Rutten, studied the effects of file sharing and piracy on the entertainment industry. They found that direct losses in piracy were countered by an increased awareness of the product caused by the

piracy and file sharing. Eijk, Poort, and Rutten found that piracy and file sharing actually increased the revenue of the entertainment industry.[37]

In January 2011 a Japanese researcher, Tatsuo Tanaka, studied the effect of piracy and video sharing sites on DVD sales and rentals of Japanese TV animation (anime). He found that although DVD rentals were negatively impacted, DVD sales were boosted. Like Eijk, Poort, and Rutten, Tanaka finds that piracy and internet sharing activities act as a positive promotional tool.

Within this group there are a variety of reports on the impact of piracy on the entertainment industry (including the video game industry). These reports range from billions in losses to actual gains. Therefore, I cannot make a decision on the net financial impact to piracy on game developers.

We see that pirate and backup users have a net financial loss of about \$200 million. However, the financial impact for game developers range anywhere from billions in losses to some amount of gains. Because the outcome of this utilitarian analysis depends exclusively on whose numbers I take, I will take none. Because of conflicting reports, this matter cannot be decided with a financial utility.

6.2 Section 1.06: Be Fair

SE Code 1.06: Be fair and avoid deception in all statements, particularly public ones, concerning ... software methods and tools.

For this section, we will use "fair" to refer to treating people in a manner that is "free from self-interest, prejudice, or favoritism".[2] We will let the "software methods" refer to banning Xbox consoles from Xbox LIVE. "Software tools" will be the tools that Microsoft uses to check if a console is modified.

Substituted SE Code 1.06: Be free from self-interest, prejudice, or favoritism and avoid deception in all statements, particularly public ones, concerning banning Xboxes from Xbox LIVE and the software used to check if a console is modified.

6.2.1 Be Fair

In a statement regarding the bans that took place in November of 2009 Microsoft stated that "all consumers should know that piracy is illegal and that modifying their Xbox 360 console to play pirated discs violates the Xbox LIVE terms of use, will void their warranty, and result in a ban from Xbox LIVE".[26] Here Microsoft makes it look like all users who modify their Xboxes does so to play pirated games. However, there are many

reasons to modify an Xbox that does not involve playing pirated games such as using a larger harddrive, putting in better cooling, and playing backup games.[34] Is the act of grouping together every user who modifies their console and pirate users "free from self-interest, prejudice, or favoritism"? Microsoft clearly shows prejudice when grouping together pirate and backup users. Both groups circumvent the standard path that most Xbox users follow of buying or re-buying games. This makes the groups seem similar enough that Microsoft can get away with just grouping them together. Microsoft therefore acted unfairly when grouping together all Xbox users who modified their Xbox console.

6.2.2 Avoid Deception

In another statement regarding the November 2009 bans, Microsoft stated that "if an Xbox LIVE member follows the Xbox LIVE terms of use, purchased a retail copy of 'Modern Warfare 2' and played the game on an unmodified Xbox 360, no action will be taken".[16] However, there have been multiple reports of users without a modified Xbox and legitimate copies of games being banned.[39][12][24] If Microsoft knew that their software that picked out modified Xboxes was faulty and may choose some unmodified ones, then they were being knowingly deceptive. However, Microsoft may not have known at this point that their software is faulty thereby not mak-

ing this statement knowingly deceptive. Unfortunately for Microsoft, this statement coupled with later actions make them deceptive. After Microsoft encountered many users whose consoles were wrongfully banned, Microsoft started to quietly unban these consoles.[25][12] When Microsoft banned Xboxes they made multiple public statements about how all people who had modified consoles were pirates and how only pirates will be banned.[26][20][16] But when they were faced with their error and unbanned innocent consoles, Microsoft was dead silent. Many users were even unbanned with no word from Microsoft.[13] By purposefully drawling attention to the banning of Xboxes and then being silent about unbanning Xboxes, Microsoft is being deceptive.

6.2.3 Kant's 2nd Categorical Imperative

To consider the ethicality of Microsoft with regards to SE Code 1.06 I will consider Kant's Second Categorical Imperative:

Act in such a way that you treat humanity, whether in your own person or in the person of any other, always at the same time as an end and never merely as a means to an end.[23]

Kant is saying in this imperative that people should always be treated as the end goal of an action, they should never

be used just to accomplish some other goal. Does Microsoft use people when they were unfair or when they were deceptive?

Unfair

I believe that Microsoft's goal in their public statements after the November 2009 bans was to gather support for their actions. They had just cut 600,000 to one million users' access to Xbox LIVE without warning and now they had to justify their actions. By grouping together all people who have modified Xboxes Microsoft is able to help gather support for their actions by saying that all banned users were pirates.[20] Therefore, Microsoft was not only unfair but they also used people as a means to an end and broke Kant's Second Categorical Imperative.

Deceptive

Kant's Second Categorical Imperative forbids deception. The act of deception is "causing to accept what is false as truth".[2] Therefore the act of deception is treating people as means and not ends which is in direct contradiction to Kant's Second Categorical Imperative.

According to Kant's Second Categorical Imperative and SE Code 1.06, Microsoft was unethical in both how they treated non-pirate users who had modified Xboxes and how they were deceptive in their statements regarding banning and unbanning Xbox consoles.

6.3 SE Code 2.03: Use of Client's Property

SE Code 2.03: Use the property of a client ... only ... with the client's ... knowledge and consent.[3]

In this application of the SE Code, the first thing that needs to be established is what "use" is. Since the issue is about Microsoft banning modified Xboxes, the act of banning the console would be "using" it in this case. The "property" in this matter is the user's Xbox. But, does the user actually own the Xbox. Upon closer inspection of the warranty booklet that comes with a retail Xbox I found no indication that the Xbox was licensed and not sold to the customer. It was explicitly stated that the software on the hardware is licensed and not sold to the user, the hardware however was not specified.[27] A call to Microsoft's Xbox support center confirmed that the hardware is sold and not licensed to the customer.[22] Therefore, the "property" referred to in this section of the SE Code will be the user's Xbox.

The word "client" can be synonymous with the word "customer".[2] Using this definition we can let the "client" referred to in this section of the SE Code be the Xbox owner. Note that the owner of an Xbox who is also an Xbox LIVE user is a customer twice over. They were first a customer when they purchased the hardware and once again when they

pay the periodic fees for Xbox LIVE.

"Knowledge" in this case would be the knowledge that Microsoft is banning the user's console from Xbox LIVE, so in this case "knowledge" is closer to "awareness". The awareness that the user's Xbox is being banned. For this matter, "consent" would be the user agreeing to let Microsoft ban their console. This consent may occur during or before the act of banning.

Substituted SE Code 2.03: Ban the user's Xbox ... only with the user's ... awareness that they are being banned and have given consent to the ban.

The two factors in this new rule that must be debated are that the user was aware and if the user gave consent.

6.3.1 Awareness

Was the user aware of the ban before it took place? No, Microsoft gave no warning that the user was being banned. The user was definitely not aware that they were being banned.[30]

6.3.2 Consent

Did the user consent to allowing their Xbox to be banned? According to the Xbox LIVE Terms of Use, using of Xbox LIVE is accepting all terms in their Terms of Use as well as their Code of Conduct. The Code of Conduct further states that "some offenses

warrant an immediate permanent suspension, including without limitation: hacking, modding, fraud, ..." [30] This clearly states that "modding" (modifying) will result in a ban. However our definition of "modding" is clearly defined as flashing the optical drive, but Microsoft does not have a clear definition. The term "modding" in the Terms of Use is ambiguous and has not anywhere else in the Code of Conduct or Terms of Use been defined.[29][30] "Modding" may refer to modifying a case, game, software, or hardware.[4][6][1] Even if Microsoft meant to refer to only hardware modifications, that is still too ambiguous. One example of a hardware modification that does not breach any other part of the Terms of Use or Code of Conduct is installing better cooling to help protect the hardware.[9] Because the Code of Conduct is ambiguous here, any user consenting to the Code of Conduct does not necessarily give consent to have their Xbox banned for "modding".

6.3.3 Deontology

To address the ethicality of Microsoft in the matter of SE Code 2.03, I will apply deontological principles. Deontology involves following a set of rules regardless of the consequences.[10] Microsoft, as a software developing entity, has a duty to follow the SE Code. Microsoft, as a service provider, also has a duty towards their customers to provide the agreed upon service. In this case, the rule Microsoft

should follow would be the Substituted SE Code 2.03. Does Microsoft follow this rule regardless of the consequences? No, Microsoft did not provide any indication to the user that they were being banned, nor did they get the user's consent to the ban. Therefore, according to deontological principles, Microsoft acted unethically with regards to SE Code 2.03.

6.4 Section 3.13: Accurate Data

SE Code 3.13: Be careful to use only accurate data ... and use it only in ways properly authorized.

In this application of the code the term "use" refers to Microsoft determining if a console should be banned. "Accurate data" refers to proof that a console's hardware has been modified.

Substituted SE Code 3.13: Be careful to determine if an Xbox console should be banned based on proof that the console's hardware has been modified ... and that proof should only be used in ways properly authorized.

The two parts of this code that now need to be questioned are whether or not Microsoft was able to gain "proof that a console's hardware has been modified" and whether they used that information in "ways properly authorized".

6.4.1 Accurate Data

In Xbox LIVE's Terms of Use, Microsoft states that they may "collect certain information about [Xbox LIVE] performance, your [Xbox console], and your [Xbox LIVE] and [Xbox console] use".[29] Through this it is clear that Microsoft has the ability to collect information about an Xbox console, but is this information accurate? There have been hundreds of reports of unmodified Xbox's being banned, but can they be trusted?[39][24] Xbox owners would have nothing to lose by saying that their console was unmodified and unjustly banned and they may get lucky and get some sort of compensation if they are believed. Fortunately, there is at least one user who documented his entire experience of having his unmodified Xbox banned and what he went through to get it unbanned. He even included copies of emails to Richard Kaplan, the Vice President of Customer Support.[12] After a few weeks Microsoft acknowledged their mistake and replaced the banned console. This proves that the data Microsoft gathered was not accurate enough to avoid all innocent users.

However, how accurate is Microsoft's software expected to be? In her paper, "On Testing Non-testable Programs", Elaine Weyuker discusses the reality of testing programs with no oracle. She states that a "program is non-testable if either an oracle does not exist or the tester must expend some extraordinary amount of time to determine whether or not the output is correct".[40] Does the

software that determines if an Xbox is modified fall into either of these categories? Creating an oracle would require knowing how every Xbox console connected to Xbox LIVE would act. At the time of the bans, there were about 20 million Xbox LIVE users.[16] This may be feasible if no users modified any hardware. However, because users have modified their hardware Microsoft has no way of telling signals a console could send back in response to the verification software. Checking to see if the output from the program is correct is as infeasible as creating an oracle. Checking the output would require Microsoft to check the results that came back from all 20 million consoles and verify those with the actual hardware. Microsoft's Xbox verification software clearly falls within the realm of non-testable programs according to Weyuker.

6.4.2 Ways Properly Authorized

Did Microsoft use the data in "ways properly authorized"? Microsoft has used the data that they acquired to ban consoles. I have already shown in section 6.5 that Microsoft was not authorized to ban a user's Xbox console.

6.4.3 Deontology

To explore the ethicality of Microsoft in regards to SE Code 3.13 I will once again apply deontological principles. As with SE Code 2.03, Microsoft has a duty to follow the SE Code and a duty towards

the customer. In this case my rule will be Substituted SE Code 3.13. Does Microsoft follow Substituted SE Code 3.13 regardless of the consequences? No, they do not. Regardless of how that data was used, Microsoft used inaccurate data. This is a situation where errors of commission are not acceptable because they damage the property (ban Xbox) of innocent customers. Because of their use of inaccurate data, Microsoft was unethical according to deontological principles and SE Code 3.13.

6.4.4 Relativism

Deontology took a very strict view of this matter. Relativism however is a bit more relaxed, using relativism we may need to consider the situation and consequences.[8] Lets take a rule-based, relativistic look at the ethics of Microsoft regarding SE Code 3.13. Lets keep Substituted SE Code 3.13 as our rule, but now consider the situation. According to Weyuker, the software to check if an Xbox is modified is non-testable. Furthermore, there have not been any reports of large amounts⁴ of incorrectly banned Xbox consoles. This indicates that Microsoft did some form of testing or quality assurance on this software. Due to these two reasons, Microsoft was ethical according to Relativism and SE Code 3.13.

⁴Compared to the 600,000 to 1 million banned consoles.

7 Conclusion

Four different portions of the SE Code of Ethics were discussed, and the results summarized in Table 2.

Table 2: Summary of SE Code Analysis

SE Code Rule	Ethical System	Result
SE Code 1.02	Utilitarian Happiness Utility	Unethical
SE Code 1.02	Utilitarian Financial Utility	Undecided
SE Code 1.06	Kant	Unethical
SE Code 2.03	Deontology	Unethical
SE Code 3.13	Deontology	Unethical
SE Code 3.13	Relativism	Ethical
Final Conclusion		Unethical

As you can see in Table 2, I found Microsoft in violation of almost all SE Code sections analyzed. Therefore, Microsoft acted unethically when they banned 600,000 to 1 million Xbox consoles in November 2009.

Microsoft may have been ethical in their intentions of injuring console game piracy when they banned the Xbox consoles on November 2009. However, the means by which they did it and their failure to consider all the involved parties make their actions unethical.

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