

**Categorical Embarrassment: Ethical Failures in the Sony BMG Copy Protection Software  
Scandal**

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On my honor as a University Student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments.

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## **Introduction**

On October 31, 2005, a security researcher revealed an intricate, dangerous software suite that music label Sony BMG Music Entertainment (“Sony BMG”) sold to consumers under the aegis of CD copy protection (Russinovich). As Sony BMG responded to the controversy, the company downplayed security concerns and even created new dangers in the uninstallation software it later released to consumers (Fordahl, 2005; Sony BMG, 2005; Halderman & Felten, 2006). Analyses soon emerged which detailed the breadth of the technical and legal problem Sony BMG created. There are many investigations into Sony BMG’s wrongdoing with respect to the law and to cybersecurity; however, the current understanding of the scandal fails to account for Sony BMG’s ethical obligations. As a result, the research literature does not provide a complete look at what ethical obligations should be considered to avoid similar malpractice. The Sony BMG copy protection software was not obviously illegal, so simply questioning the legality of the software and its supporting documents like its end-user license agreement (EULA) are unlikely to address underlying ethical issues (Mulligan & Perzanowski, 2007). In this analysis, I explain that Sony BMG’s conduct related to its CD copy protection software—the applications XCP and MediaMax—was unethical in its treatment of consumers. Drawing on Kant’s categorical imperative, I investigate whether Sony BMG’s actions were morally and ethically acceptable according to the universal law of nature (the “universality principle”) and the humanity formula (the “reciprocity principle”). Using contemporaneous publications that showcase XCP and MediaMax’s technical details, Sony BMG’s subsequent communication with consumers, the Sony BMG EULA offered to consumers, a newspaper article demonstrating novel harms that Sony BMG’s software posed, and later regulatory action against Sony BMG, I

demonstrate that Sony BMG behaved immorally and unethically toward consumers according to both the universality principle and the reciprocity principle.

### **Literature Review**

Multiple analyses of the Sony BMG digital rights management (DRM) software scandal explain the case's technical and legal implications but fail to explore the case's ethics. A 2006 paper by J. Alex Halderman and Edward Felten documents widespread technical problems with the Sony BMG software: XCP and MediaMax. Halderman and Felten emphasize that, regardless of development intent, XCP and MediaMax were in their actual interaction with users no different from malicious software ("malware"). Parts of the software covertly transmitted users' IP addresses and listening habits to Sony and DRM vendor servers (Halderman & Felten, 2006); the authors note that this "undisclosed data collection, in combination with other practices—installation without informed consent and the lack of an uninstaller—made XCP and MediaMax fit the consensus definition of spyware" (Halderman & Felten, 2006, p. 85). Sony BMG's software exhibited behavior no different from harmful software. The authors also attest that XCP and MediaMax each introduced new, severe vulnerabilities to users' computers. XCP hid its own software using a special file and folder name prefix which malware could mimic to remain undetected on users' systems using Sony's methods (Halderman & Felten, 2006). MediaMax 5 stored its protection code in a folder, then made the folder's permissions so broad that any user could replace MediaMax's code with their own code; on future runs of the MediaMax player application, users could then unwittingly activate extremely powerful malicious code that now had a high level of control over their systems (Halderman & Felten, 2006). Halderman and Felten provide an in-depth technical analysis of why Sony BMG's software was harmful. While gesturing at the ethics behind the software, however, Halderman and Felten do not provide a

meaningful ethical analysis; rather, the authors largely stay within the scope of a technical investigation.

Deirdre Mulligan and Aaron Perzanowski provide a complementary analysis that explores the business and legal context around the Sony BMG software. Mulligan and Perzanowski (2007) concur with the core information in Halderman and Felten's (2006) paper while arguing that DRM market influences and surrounding copyright law, particularly the Digital Millennium Copyright Act (DMCA), are inseparable from the case's technical events. First, the authors argue that, by limiting the number of copies that can be made from a protected disc, the XCP and MediaMax DRM software decreased the perceived value of protected CDs to consumers. The prospect of a lower perceived value incentivized Sony BMG to mislead consumers about the kinds of protection present on the CDs and therefore avoid sales decreases. The market conditions, however, quickly shifted according to consumer reactions. Mulligan and Perzanowski (2007) theorize:

The particularly strong reaction may also have stemmed from the lack of any perceptible fair trade-off...customers paid the expected price, and not only received less than they bargained for in terms of CD functionality, but were also saddled with undisclosed privacy and security risks (pp. 1186–1187).

Hiding the full details of the protected CDs not only prevented consumers from making informed decisions but made consumer outrage and subsequent product value decreases more intense. Additionally, the authors argue that copyright law intensified the problems of the Sony BMG case by discouraging researchers from investigating and publishing security risks. The thrust of Mulligan and Perzanowski's (2007) legal argument is that "the DMCA was perhaps the primary component of the legal framework that failed to prevent the rootkit incident" (p. 1198). The

DMCA's prohibition on circumventing copyright protections meant that security professionals could possibly incur legal penalties for disabling and evading DRM technology even when conducting legitimate research. Moreover, publishing findings related to DRM technology and its risks could be construed as "trafficking" in the means of circumventing copyright protections and as further violating the DMCA (Mulligan & Perzanowski, 2007). With security researchers prevented from openly auditing copyright protections, the Sony BMG copy protection software could come to market while posing serious security risks for consumers.

Halderman and Felten (2006) explain why the Sony BMG software is technically dangerous; Mulligan and Perzanowski (2007) examine the market and legal factors that made the Sony BMG case possible and, ultimately, as severe as it was. Neither publication, however, meaningfully addresses the ethical issues behind the Sony BMG case. I will extend the existing literature to develop a view of why Sony BMG's XCP and MediaMax copy protection software were unethical.

### **Conceptual Framework**

My analysis of the Sony BMG DRM software controversy proceeds using Kant's categorical imperative, which provides frameworks to examine the moral implications of Sony BMG's actions. The categorical imperative is a moral command ("imperative") which applies regardless of the characteristics of an individual actor or situation (is "categorical"). The categorical imperative has several versions, two of which will be employed. First, the "universal law of nature" (referred to in other sources and herein as the "universality principle") states that individuals should act only in ways that advance and logically justify a universal law (van de Poel & Royakkers, 2011, p. 90; Johnson & Cureton, 2022, para. 34, 37). The universality principle mandates a four-step process when proposing an action: first, construct a maxim for

that action; second, extend the maxim to apply to all rational actors, like human beings, as a binding principle; third, ask whether the new world created in the second step can naturally give rise to the maxim; and fourth, ask whether one could or would rationally choose to act on the maxim in this new world. If and only if the action, as a maxim, passes all four criteria, the action is permissible (Johnson & Cureton, 2022). Effectively, Kant’s universality principle mandates that, to justify its morality, any action must be made a universal law and evaluated as to whether that universal law results in a logical world. If an action can substantiate a universal law without creating a contradictory world, then the action is permissible; otherwise, the action is impermissible.

The second formulation of the categorical imperative used in this analysis is the “humanity formula” (referred to in other sources and herein as the “reciprocity principle”), which holds that one should never act in a way to treat humanity as means only (or “mere means”), but as an end in itself (van de Poel & Royakkers, 2011, p. 91; Johnson & Cureton, 2022, para. 45). Treating human beings as instrumental to an end in some capacity is acceptable; completely rejecting others’ humanity and reducing them solely to instruments is not. For Kant, “humanity” encompasses the full complement of distinct human features like rationality. Human beings demand respect not in degree, but in their intrinsic nature; the “recognition respect” individuals deserve in Kantian ethics is distributed equally based on their immutable humanity rather than proportionally based on their moral virtue (Johnson & Cureton, 2022).

Using Kant’s categorical imperative, I begin the analysis that follows by encapsulating Sony BMG’s implementation of copy protection software in a maxim appropriate for the universality principle. I follow the universality principle’s four-phase process to evaluate an action’s moral acceptability and, from this, determine whether Sony BMG’s actions in this

maxim satisfy this first version of the categorical imperative. I then evaluate Sony BMG's copy protection using the reciprocity principle. Since Sony BMG's actions affected human CD consumers, Sony BMG's actions will be examined for their impact on consumers' humanity. The extent to which Sony BMG respected consumers' rationality will inform whether Sony BMG treated consumers acceptably as means or unacceptably as mere means; the conclusion to this, therefore, will determine whether Sony BMG satisfied the second version of the categorical imperative.

## **Analysis**

### **Sony BMG's Violation of the Universality Principle**

Sony BMG created an irreconcilable maxim with its actions related to its copy protection software and thus violated the universality principle. Through XCP and MediaMax, Sony BMG formed the maxim that it would act to protect its own property even at the possible expense of others' property. Sony BMG's property was its music and related assets sold on protected CDs—defined in the relevant end user license agreement (EULA) as “digital content”—and others' property included users' operating systems and users' computers (Sony BMG, 2005). Sony BMG's EULA demonstrates its formulation of this maxim. In Article 4, Sony BMG (2005) declares that the “licensed materials” on protected CDs, defined as the “digital content” and “software” on them, “shall remain owned and/or controlled solely and exclusively by SONY BMG and/or its LICENSORS.” Note here Sony BMG's assertion that the licensed materials belong to it or to licensors (potential third parties other than Sony BMG); Sony BMG is establishing the first part of its maxim under the universality principle by declaring the scope of its own property. Sony BMG establishes the second part of its maxim, that it will protect its property even at the possible expense of others' property, later in the EULA. In Article 7, Sony

BMG (2005) states that a user signing the EULA “hold[s] the SONY BMG PARTIES harmless from and against any and all liabilities, damages, costs, expenses, or losses arising out of your use of the LICENSED MATERIALS.” Sony BMG acknowledges the possibility of harm from using the licensed materials, which includes the software bundled on the CDs; however, Sony BMG disclaims its responsibility for damages arising from consumers’ use of the licensed materials. Sony BMG holds that while it is protecting its own property, it is not responsible for damage to consumers’ property. In the EULA, Sony BMG sets the stakes of its copy protection software and, on its own terms, formulates a maxim that can be analyzed under the universality principle.

The technical details of Sony BMG’s software demonstrate that the company not only formulated this maxim but acted on it. Mark Russinovich, a security researcher, broke the story of Sony BMG’s XCP rootkit by publishing an analysis on October 31, 2005. Russinovich’s (2005) description underscores the scope of Sony BMG’s actions and their technical implications:

Not only had Sony put software on my system that uses techniques commonly used by malware to mask its presence, the software is poorly written and provides no means for uninstall. Worse, most users that stumble across the cloaked files with a RKR scan will cripple their computer if they attempt the obvious step of deleting the cloaked files (para. 21).

Observe how Russinovich (2005) identified that XCP “uses techniques commonly used by malware” (para. 21). Whether Sony BMG intended to behave with malice against XCP users, it did so by selling users dangerous software. XCP was not accidentally harmful. Note further Russinovich’s (2005) assertions that “the software is poorly written and provides no means for



uninstall,” and Russinovich’s conclusion that “most users...will cripple their computer” if they attempt to remove XCP themselves (para. 21). Sony BMG carried out the second part of its proposed maxim: risking harm to others’ property in the pursuit of protecting its own property. In fact, not only did XCP risk damage to others’ property, but it realized that damage when interacting with users’ computers.

Malware programs soon took advantage of XCP’s “cloaking” properties to hide their own activities. The direct link between Sony BMG’s software and malware’s dangers to consumer computer property underscores the incoherence of Sony BMG’s maxim as a universal law. From this incoherence, it follows that Sony BMG’s maxim is unacceptable under the universality principle. On November 11, 2005, BBC News reported that “security experts speculated that [XCP] would be easy to hijack...now anti-virus companies have discovered three malicious programs that use XCP’s stealthy capabilities” (“Viruses use Sony anti-piracy CDs,” paras. 7–8). Consider the causal relationship between XCP’s features and malware’s ability to use them to their advantage. The capacity of subsequent malware to threaten and damage consumers’ property was inseparable from the cloaking technology that Sony BMG introduced with XCP. In addition to the direct risks and damage that Sony BMG created for consumers’ property, XCP supported further malicious action that damaged consumers’ property.

Sony BMG’s copy protection violated the universality principle. Considering the universality principle’s four-phase evaluation of an act as a maxim, Sony BMG first decided that it would protect its own property even at the risk of damaging others’ property. Sony BMG then acted on this maxim in its deployment of XCP and MediaMax. If this maxim is made a universal principle, the maxim is conceivable—rational actors can still conceive of protecting their own property even when considering the risks that may be posed to others’ property—but creates an

untenable world. Sony BMG's software created both the risk of severe damage to end users' computer property and cases of actual damage. In a world with this "protect absolutely" maxim as a universal principle, rational actors would not will this maxim due to their knowledge of the severe damage that others' property protection measures would create for their own property. The context of everyone protecting their own property while simultaneously having their property damaged by others' protective actions does not stand; thus, Sony BMG's actions are morally unacceptable according to the universality principle.

### **Sony BMG's Violation of the Reciprocity Principle**

Sony BMG violated the reciprocity principle by treating its consumers as mere means to an end rather than an end in themselves. Sony BMG violated its consumers' humanity (that is, the features that make them uniquely human) by repeatedly, meaningfully deceiving them and violating their rationality. Sony BMG's public frequently asked questions page about XCP demonstrates that it deceived consumers in its statements. As of November 2, 2005<sup>1</sup>, Sony BMG's answer to whether claims of XCP being malware were merited was, "[o]f course not. The protection software simply acts to prevent unlimited copying and ripping...It is otherwise inactive. The software does not collect any personal information nor is it designed to be intrusive to your computer system" (para. 7). Sony BMG makes multiple assertions here that technical details readily contradict. First, notice how Sony BMG emphatically answers "of course not" to whether it was true that XCP was malware or spyware. Analyses including the original Russinovich (2005) blog post and the Halderman and Felten (2006) paper described Sony BMG's content protection software, including XCP, as having unmistakable features of malware

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<sup>1</sup> The Wayback Machine capture is dated to November 2, 2005. This is when the Wayback Machine indexed the page, which may be after the webpage itself was updated. It is necessarily true, however, that Sony BMG updated the webpage with this language on or before November 2, 2005, when the Wayback Machine captured it.

and spyware. Sony BMG mischaracterizes its XCP software even when technical experts assess otherwise. Next, note how Sony BMG (2005) declares that XCP “is otherwise inactive” when not “act[ing] to prevent unlimited copying and ripping.” This is again wrong: Russinovich (2005) observed that XCP’s “\$sys\$DRMServer” component frequently scanned his system and fetched process information from the operating system multiple times per scan (para. 14). Sony BMG knew or should have known that these declarations were incorrect based on public information yet made the claims anyway to its consumers. Sony BMG’s further claims on this FAQ page are more contestable and depend on definitions of “intrusive” and “personal information” (Mulligan & Perzanowski, 2007); nonetheless, Sony BMG deceived its consumers in its direct public statements and treated them as mere means to an end of property protection.

Even if it is true that Sony BMG violated its consumers’ rationality in its statements after the fact, that does not, by itself, prove that Sony BMG violated consumers’ rationality in its offering of the copy protection software. It is true that Sony BMG authorized its surreptitious copy protection actions, if implicitly, in the EULA users agreed to when using the media player software to play protected CDs. In Article 3 of its EULA, Sony BMG (2005) states that

SONY BMG and each LICENSOR reserve the right to use the SOFTWARE and/or any APPROVED MEDIA PLAYER to enforce their respective rights in and to the DIGITAL CONTENT, including any and all restrictions on use set forth in this Article 3, at any time, without notice to you.

The agreement Sony BMG makes with its consumers does in a sense respect their humanity: consumers can and should read the provisions of the EULA, including this condition, to understand that Sony BMG can enforce restrictions on consumers’ use of the player software and applicable CDs without notice. Even secondary sources support this: Mulligan and Perzanowski

(2007), for instance, acknowledge regarding consumers' relationship to EULAs that "courts are reluctant to excuse violations on the basis of unclear language. Nor do courts excuse consumers from license obligations on the basis of their failure to read EULA terms" (p. 1208). Sony BMG may have respected consumers' rationality with the software itself by informing consumers of Sony BMG's right to enforce restrictions; this holds even if the EULA did not explicitly indicate XCP's rootkit deployment and continuous scanning behavior.

Nonetheless, the argument that consumers implicitly agreed to XCP's rootkit and Sony BMG's spyware-like tactics, and therefore that Sony BMG did respect their rationality, is insufficient. Later regulatory action by the United States Federal Trade Commission (FTC) found that Sony BMG had engaged in unfair and deceptive practices. In its complaint against Sony BMG, the FTC (2007) stated as a violation of the FTC Act that

Respondent has failed to disclose, or has failed to disclose adequately, that the XCP and MediaMax CDs will: (1) install software on consumers' computers; (2) through the installed software, limit to three the number of physical copies of the CD that the consumer can make directly from the CD using the computer; and (3) through the installed software, allow the direct transfer of the music files only to playback devices that use the secure Windows formats or the Sony ATRAC format. These facts would be material to consumers in their purchase or use of the CDs. Respondent's failure to disclose these facts, in light of the representation made, was, and is, a deceptive practice (p. 4).

Focus here on the FTC's (2007) declaration that Sony BMG "has failed to disclose, or has failed to disclose adequately" the specific technical behaviors of XCP and MediaMax. The fact that Sony BMG may have disclosed these behaviors implicitly in the EULA does not mean it did not

deceive consumers. Whether by outright failing to disclose the full nature of XCP and MediaMax or by downplaying that information, Sony BMG engaged in a “deceptive practice” (FTC, 2007, p. 4). Through this behavior, Sony BMG deceived its consumers in the actual offering of XCP and MediaMax and violated the rationality component of their humanity under the reciprocity principle.

The accompanying FTC decision and order in the Sony BMG case demonstrate what Sony BMG should have done to properly respect its consumers’ rationality. In the order’s sections I–III, the FTC (2007) requires Sony BMG to “clearly and prominently disclose” the nature of the software’s interaction with consumers (e.g., limits on number of copies, file transfer capabilities, software installation, and preventing CD playback and copying if installation is declined) (p. 3–4); moreover, Sony BMG is required to avoid installing software unless it has met disclosure requirements and unless the consumer, having clear knowledge of their relationship to the software, unambiguously agrees to its installation (FTC, 2007). In sections IV–V, the FTC (2007) requires Sony BMG to cease collecting information about consumers’ usage of previously sold software copies and to more explicitly disclose the scope and purposes of collecting consumer usage information. In section VI, the FTC (2007) directly addresses Sony BMG’s technical wrongdoing through XCP and orders as reparations that Sony BMG shall not install or cause to be installed on a consumer’s computer any content protection software that prevents the consumer from readily locating or removing the software, including but not limited to by: (1) hiding or cloaking files, folders, or directories; (2) using random or misleading names for files, folders, or directories; or (3) misrepresenting the purpose or effect of files, directory folders, formats, or registry entries (p. 5).

Notice the FTC's (2007) rebuke of XCP's underlying "hiding or cloaking" technology that conceals its activities and complicates user efforts to remove it themselves (p. 5). The scope of the FTC's ruling encompasses not just Sony BMG's marketing of its copy protection technology or the vagueness of Sony BMG's EULA; rather, the FTC also rules against the core technological features of Sony BMG's copy protection. Sony BMG could have used copy protection software that obeyed constraints like these but chose not to. Not only did Sony BMG fail its consumers, but the extent of its failure was so grave that regulatory correction from the FTC was required. Sony BMG systematically disrespected its consumers' rationality by understating the extent of copy protection measures present in the media player software it sold with CDs; hiding its copy protection measures from the typical user's view of their operating system in a way that users did not adequately consent to; and designing its software in a way to thwart easy uninstallation. Thus, Sony BMG engaged in a course of action in the deployment of its copy protection software that was morally unacceptable under the reciprocity principle.

Sony BMG's actions surrounding its copy protection software were immoral and unethical according to the universality principle and the reciprocity principle. The software's direct damage to consumers' computers and the risks it created for users through security vulnerabilities meant that Sony BMG was willing to damage others' property as a necessary cost of protecting its own property. Due to the gravity of the damage posed to consumers' computers and the fact that real examples exist of malware written to exploit Sony BMG's software, it is reasonable to conclude that users with full knowledge beforehand would not accept Sony BMG's maxim. If extended as a universal principle, in fact, no rational actor could will to act on the maxim since a world where every actor attempted to protect their property in this way would have their own property damaged by others' tactics. Moreover, Sony BMG's deception regarding

the true nature and implications of its software violated the reciprocity principle. The EULA delivered alongside the protection software did not appropriately inform users of the software's rootkit methods and techniques. Users did not have the information required to rationally consent to the software installation. Even as the software's risks became public knowledge, Sony BMG downplayed its wrongdoing and the dangers its software exposed consumers to. Before, during, and after the fact, Sony BMG violated consumers' rationality to such an extent that regulatory intervention was required to correct its actions. Sony BMG acted on a maxim that would have been unacceptable as a universal principle, then treated consumers as mere means to an end, and failed to meet its duties under two versions of the categorical imperative as a result.

### **Conclusion**

By introducing property protection software that could and did damage others' property, then concealing the nature of its software, Sony BMG acted immorally according to both the universality principle and reciprocity principle versions of Kant's categorical imperative. Focusing on the Sony BMG copy protection scandal through an ethical lens demonstrates the full scope of the problem in a way that a purely technical or legal focus cannot. To prevent similar controversies and breaches of consumer trust, individuals ought to account for not only what went wrong, but why it was wrong. Selling the XCP and MediaMax copy protection software was not ultimately wrong either because the software introduced malignant vulnerabilities on users' computers or because the software's legal authorization was dubious; rather, the software was ultimately wrong because its design expressed unethical values and because it unjustly treated consumers as a mere means to an end.

## References

- Fordahl, M. (2005, November 2). Sony to offer patch to reveal hidden copy-protection software. *The Associated Press*.  
<https://advance.lexis.com/api/document?collection=news&id=urn%3acontentItem%3a4HGB-8N70-009F-R0C5-00000-00&context=1519360&identityprofileid=SPSDK651712>.
- Halderman, J. A., & Felten, E. W. (2006). Lessons from the Sony CD DRM episode. *Security '06: 15th USENIX Security Symposium*, 77–92.  
[https://www.usenix.org/events/sec06/tech/full\\_papers/halderman/halderman.pdf](https://www.usenix.org/events/sec06/tech/full_papers/halderman/halderman.pdf)
- Johnson, R., & Cureton, A. (2022, January 21). Kant's moral philosophy. In E. N. Zalta & U. Nodelman (Eds.), *The Stanford encyclopedia of philosophy* (Fall 2024 ed.). Stanford University. <https://plato.stanford.edu/entries/kant-moral/>
- Mulligan, D. K., & Perzanowski, A. K. (2007). The magnificence of the disaster: Reconstructing the Sony BMG rootkit incident. *Berkeley Technology Law Journal*, 22, 1157–1232. [https://heinonline.org/hol-cgi-bin/get\\_pdf.cgi?handle=hein.journals/berktech22&section=51&casa\\_token=RiLxAvtolMAAAAA:iJM285Nq69xTx4kCJrX0N3r7MG6UgJ1CbEhdVKl873e3rw7O\\_i2niTDG69emoJVUVoXw92JZ1Q](https://heinonline.org/hol-cgi-bin/get_pdf.cgi?handle=hein.journals/berktech22&section=51&casa_token=RiLxAvtolMAAAAA:iJM285Nq69xTx4kCJrX0N3r7MG6UgJ1CbEhdVKl873e3rw7O_i2niTDG69emoJVUVoXw92JZ1Q)
- Russinovich, M. (2005, October 31). Sony, rootkits and digital rights management gone too far. *Mark's Sysinternals Blog*.  
<http://web.archive.org/web/20051102053346/http://www.sysinternals.com/blog/2005/10/sony-rootkits-and-digital-rights.html>



Sony BMG Music Entertainment. (2005, November 3). *End-user license agreement*.

Sysinternals.

<http://web.archive.org/web/20051103052303/http://www.sysinternals.com/blog/sony-eula.htm>

Sony BMG Music Entertainment. (2005, November 2). *Frequently asked questions*. XCP.

<https://web.archive.org/web/20051102052620/http://cp.sonybm.com/xcp/english/faq.html>

United States Federal Trade Commission. (2007, June 28). *Sony BMG Music Entertainment, in the matter of. Complaint*.

<https://www.ftc.gov/sites/default/files/documents/cases/2007/06/0623019cmp070629.pdf>

United States Federal Trade Commission (2007, June 28). *Sony BMG Music Entertainment, in the matter of. Decision and order*.

<https://www.ftc.gov/sites/default/files/documents/cases/2007/06/0623019do070629.pdf>

Viruses use Sony anti-piracy CDs. (2005, November 11). *BBC News*.

<http://news.bbc.co.uk/2/hi/technology/4427606.stm>

van de Poel, I., & Royakkers, L. (2011). *Ethics, technology, and engineering: An introduction*. Wiley-Blackwell.