

Abstraction, Ethics and Software: Why Don't the Rules Work?*

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ABSTRACT

A theory is presented that one of the reasons why the use of unlicensed software is so widespread and unstigmatized is that legislatures, courts and other bodies which create policy operate at a higher level of abstraction than do individuals, and that abstraction is a key factor in the divergence of societal behavior from that condoned by legal statute. This theory is explored through a pilot study consisting of medium depth interviews with two volunteers who had used unlicensed software. Their attitudes, understanding of the law, and characterization of their use of unlicensed software as based on "need" is reported. In addition, the concept of face is examined, and how it is maintained while violating law. It is suggested that further studies, using multiple methodologies, (in-depth interview, focus groups, and surveys) be conducted prior to developing further policy or legislation regarding intellectual property protection for software.

ABSTRACTION, ETHICS AND SOFTWARE: WHY DON'T THE RULES WORK

In the United States, and in much of the rest of the world, there appears to be a major divergence between the dictates of law regarding intellectual property and individual behavior. This divergence seems pervasive, spanning all socio-economic groups and educational levels. Software copying is particularly rampant.

Estimates of the extent of copying range from one illegal copy for every software program sold (see [10]) to 90% of all software packages in use (see [11]). The theft of all forms of intellectual property has cost businesses in the United States more than US\$40 billion annually in lost sales, with losses through software copying, or piracy, estimated at between \$2 and \$3 billion a year (see [5]). While the mass copying for resale in Hong Kong, Singapore and Taipei have been the focus of much of the popular press (see [10]) there has been widespread copying domestically, by individuals for their personal use and within educational, industrial, and governmental organizations (see [5]) despite ADAPSO warnings (see [1]).

While the debate has been extensive as to what form of intellectual property protection should be afforded software, (copyright, patent, or trade secret), just what is protected (source code, object code, algorithm, function or appearance) (see [6]),

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and the very nature of property itself (see [2] [3] and [9]) little attention has been paid to discovering the underlying, and unwritten, value system that appears to permit individuals to perform an illegal act (software copying) with little regret, fear, remorse and social stigma (see [11]) and how such a value system relates to the formal system of values represented by statutes and regulations.

Goffman [7] maintains that moral rules followed by individuals derive from the ritual organization of social encounters and interchanges that preserve face, or social legitimacy. Deetz [4], states that to examine policy is to examine meaning construction. If these viewpoints are embraced, then key to any intellectual property policy would be understanding how social meaning, or values, are constructed by individuals and in relation to formal values in general, and intellectual property in particular.

Previous Studies

Studies that have addressed software copying and individual ethics or values have been conducted within the disciplines of Business or Human Relations (see [12], [10], and [11]), and though they have not examined the policy implications they provide a starting point for the investigation. A study conducted by Swinyard, Rinne & Keng Kau [10] compared the difference in attitudes toward software copying between American and Singapore business students by evaluating choices made in a number of hypothetical situations. While it concluded that American base their moral decisions on the nature of the decision itself and Asians more on the outcomes of the behavior, it did indicate that in both groups there was a greater tendency to copy when the benefit of copying was realized by family and community rather than just the individual doing the copying.

Another study, conducted by Taylor and Shim [11], compared the copying activities of business executives with business college faculty members. It found that business executives reported less personal copying of software, and less knowledge of colleagues copying than did faculty members. There was no statistical difference between the two groups in their rating of the ethics of software copying for work rather than personal use, (both groups found it unethical). The same study reported that software copying is more prevalent in the not-for-profit organizations than in financially secure profit-making ones. Two interesting questions raised by this study were: why are academics willing to copy software even when they think it unethical? and what effect will this have on students?

A major attempt to understand how moral decisions are made was undertaken by Weber [12]. Using a survey, a study was conducted to examine the linkage between Rokeach's instrumental and terminal values, (which link social or personal motivations to either competence or moral considerations), and Kohlberg's six levels of the moral reasoning process. The hypotheses addressed the coordination of particular values with specific stages of moral reasoning, but overall postulated that the higher the level of personal values the higher the stage of moral reasoning. It concluded that "The individuals' moral reasoning process is the vehicle used to activate, filter, and translate personal values into behavior." (see [12] pg. 457).

The Problem

We are confronted with a three-tiered problem. At the highest level the question can be stated as "What is the relationship between formally adopted societal values, such as laws and rulings, and group norms or individual values?" At the next level, the question might be restated as "How does this relationship play out in terms of the various aspects of information policy?" At a level of even greater specificity, the problem becomes "What accounts for the conflict between social values and intellectual property laws, and how do individuals accommodate this conflict (that is, save face while countenancing or performing an illegal act), and what are the implications for intellectual property policy?"

The Theory

Postulate:

Legislatures and courts tend to operate at a higher level of abstraction than do individuals (see [3]), and therefore there is often a gap between laws and rulings and public acceptance of the tenets. In the area of intellectual property, the level of abstraction of an issue or process or property is the key factor in the divergence of societal mores and actions from legislative statutes and ruling.

Corollaries:

If They Didn't Want Me to Copy It They Wouldn't Have Made It So Easy: The Abstraction of Form Corollary.

The less fixed or concrete the physical form of a process or property, and the easier it is to copy or transmute it, the less likely is it to be seen or treated as a protected entity.

Isn't It Basic: The Abstraction of Concept Corollary.

Processes or properties which produce no or little end products, but which provide a theoretical frame for research or procedures will appear "basic" and not protected.

Its Simple to Change: The Abstraction of Format Corollary.

The ability to easily convert a property from one format to another obscures the concept of the property being fixed in a form, and protected in that form.

He/She Still Has It: The Abstraction of Ownership Corollary.
and

No One Gets Hurt: The Abstraction of No Harm Sub-Corollary.

Property is usually considered to belong to the individual or organization that possesses it, not to its creator. When a property

is in a form that it can easily be copied without the immediate owner being deprived of the property there is little sense of harm being done

The Study

Methodology

In order to gain a greater understanding of how individuals construct meaning around intellectual property, a pilot study was conducted, consisting of two medium-depth interviews. These interviews attempted to elicit how the respondents understood and interpreted intellectual property laws, how they viewed the concept of property *per se*, and its relationship to ethics, as well as to learn what reasoning patterns prompted software copying, and how, if at all, was "face" maintained. To do this volunteers who had used unlicensed software were recruited via announcements in classes in a school of Library and Information Studies. It was assumed that due to the nature of their studies any volunteers would be somewhat familiar with intellectual property laws and be able to address questions concerning them.

Four open ended questions and a guideline sheet were developed based on the theoretical concepts to be investigated using interview preparation techniques outlined by McCracken [8] (See Table One for questions). As each interview progressed the respondent were encouraged to elaborate on his or her response. Each interview was taped and later transcribed with all possible identifying characteristics omitted. No attempt was made to capture all pauses, exclamations, or other verbal or non verbal behavior. The transcripts were then analyzed for 1) stated reasons for use of unlicensed software, and 2) any theme emerging within each interview or across interviews. For this purpose a theme was defined as a recurring pattern of statements or concepts. Attention was also directed to how the respondents constructed the concept of property in relation to software and then related this concept to other forms of property, particularly with regard to level of abstraction. While no question directly posed the question of face maintenance, statements that seem to be an attempt to maintain face in Goffman's sense were also noted.

The Interviews

Respondent One was a male in his mid-30's. The interview lasted approximately a half-hour. The major theme that emerged was a plea of ignorance. The respondent made seven distinct statements disclaiming specific knowledge of intellectual property laws, yet made four statements explicitly affirming he was aware of the relevant applicability of the laws. Reasons for copying software fell into three categories of gain: the saving of time; the saving of money; and the accomplishment of a project. In addition, need was mentioned as a reason, but not elaborated on other than in terms of gain. Abstraction of form was addressed implicitly though characterization of the media as "accessible" and "transferable", and more explicitly by the statements "its [software] so easy to transfer or copy, the ethical implications are less clear than just stealing someone's car", and abstraction of ownership in "The idea of taking something that doesn't belong to you is less clear." Though not addressed in the questions, the respondent introduced the concept of copying videotapes and print materials as a commonplace occurrence, and

made an analogy between these forms of copying and the copying of software, which could also be taken as a reference to the abstraction. The respondent was unable to point to any differences between tangible property and software, other than software being more transferable and easier to copy, and did not address any underlying relationship between property laws and ethics.

Four types of statements made by this respondent were classified as attempts to maintain face: statements of ignorance regarding intellectual property law at the time of unlicensed software use; statements implying that copying is a common practice; statements implying a lack of ethical clarity due to the nature of the media; statements indicating a wish not to further violate the law, or to make recompense for past actions.

Respondent Two was a female in her mid-20's. The interview lasted approximately 45 minutes. The main theme emerging from this interview was a claim of unfairness in the pricing of software. A complimentary theme of ethics being situational also ran through the interview, with such statements as "If its somebody I know personally, or some organization that needs the money . . . I'll go ahead and make the effort to make a contribution and pay the full price." Abstraction was addressed by characterizing intellectual property as an exchange of information, and recognizing it as different from tangible property, without explaining the basis of the difference, however this position was later modified by stating that "software as *personal* property doesn't seem different from a car or a house" (emphasis added). An implied reference to the abstractions of ownership and harm, was made by the statement "with software I'm not taking something away from the person who bought and paid for it."

This respondent characterized the current intellectual property laws as "unenforceable" and "unrealistic" and suggested that the shareware approach would be better. She clearly indicated that she saw the purpose of the intellectual property system as applied to computer programs as being one that would foster the development of the best software.

As with Respondent One, the main theme of Respondent's Two' replies could be seen as an attempt to maintain face, only in this respondent the theme was the unfairness of the system. Other face saving statements included indicating having paid for software where the respondent thought situational ethics called for it, depreciating the impact of her copying actions and a strong characterization of her actions to get free software as prompted by need, not desire. She also firmly stated the harmless of her action. Of interest is that while the respondent lauded the shareware system, and initially indicated she honored it, at the end of the interview she indicated that in only two instances had she actually paid fees to the software developers. Another theme that was observed in this interview was the respondent's acknowledgment of existence of contradiction in her position.

Discussion

The Interviews

When asked for their general feelings about the rules and regulations governing the use and licensing of software, neither respondent addressed the question directly, or addressed specific laws or regulations in terms of being equitable or needing

change. Even though question number two was phrased to elicit reasons why people in general might use unlicensed software, both respondents answered the question in terms of their own motivations and their own situations, and did not speculate on why others might use unlicensed software.

Each respondent, at first, said there was no or little difference between software and tangible property, and then when pressed to consider the issue said there was a distinction, but were unable to state what it was other than form. Both cited the harmlessness to the person owning the software copied from as compared to a deprivation of ownership caused by the theft of tangible property. While both acknowledged a loss to the software publisher, neither seemed to place much importance on that fact.

Questions and Response Summaries

<u>QUESTIONS</u>	<u>RESPONDENT 1</u>	<u>RESPONDENT 2</u>
What are your general feelings about the rules and regulations governing the use and licensing of software ?	Don't know. Don't understand them.	Unenforceable. Should be like shareware.
What factors do you think cause people to use unlicensed software?	Need Accessibility. Financial Savings. Time Savings	Financial Savings. Need.
How would you compare software to other forms of property, such as a real estate, clothing, computers, books and records.	Its more transferable, easier to copy. No other differences ----- Different but can't explain it	Software the same as other property Copying doesn't deprive anyone of their rights. ----- Different but can't explain it
How do you think property laws relate to individual ethics?	In terms of software the ease of being able to copy make ethical implications less clear.	Think laws tries to turn ethics into a set of standards, but there is still confusion because there are no absolutes.

Table One

When asked to discuss the relationship between property law and ethics, Respondent One related this to the previous question of how software differs from tangible property and discussed what he felt to be the different ethical implications caused by

form, and did not address the question. Respondent Two, on the other hand, essentially described laws as a futile attempt to standardize ethics, which she characterized as being up to the individual. She did not relate the concept of property itself to either law or ethics, though she depicted it as something to be protected. These responses are summarized in Table One.

Both respondents said they "needed" the software, not that they desired it, or wanted it, or just had the opportunity to acquire it. While the raising of the acquisition of a software package to the level of a necessity such as food or shelter may be part of maintaining face, it may also be a real statement of the respondents perception of the situation, and perhaps the real situation. Respondent Two clearly states that she would not been able to engage in a for-profit business without the use of unlicensed software. What neither respondent addresses, however, is at what point, if at all, does a need transfer into a right. (One has trouble picturing *Les Miserables* maintaining its force if Jean Val Jean was convicted for stealing a meal planning program).

What stands out is the inability, or unwillingness, of both respondents to address in depth the theoretical aspects of the questions. The impression given is that they had never taken the time to consider the problem from an ethical perspective that was wider than the justification of their actions, or even realized that they hadn't.

How Do the Results Relate to the Theory

Two of the concepts addressed by the corollaries were explicitly expressed by both respondents. The ease of copying, an expression of the Abstraction of Form Corollary, was clearly indicated as a contributing factor by both respondents in regard to copying both software and videotape. The Abstraction of Ownership Corollary and the Abstraction of No Harm Sub-Corollary, also appear to be affirmed by both respondents. Each characterized the use of unlicensed software as something that does no harm to the person its taken from, meaning the owner of the licensed version, and only marginally considered the software company, who, under law, would be the plaintiff in any suit for illegal copying.

Methodology

The problem under investigation involves the subjective construction of the meaning or nature of property, the values that prompt action, and the maintenance of face. To ascertain the first two concepts some form of self-reporting by participants is necessary. This pilot study used a medium length interview with only a few basic questions as a means of prompting a report. While this approach was able to uncover some of the values that affected action, and provide data from which face maintenance judgments could be made, it left other areas unrevealed, particularly the concept of intellectual property as compared to tangible property.

In pursuing this topic of study further, a triangulation of methods would probably be most productive, incorporating long interviews with 10-15 individuals (2-3 hours each with a greater array of initial questions), five focus groups (one with academics, one with business executives, one with students and one with

office workers, and one with home computer users) and surveys aimed to gather information from more members of the populations from which the focus groups are drawn. While this pilot only involved volunteers who had used unlicensed software, any further study would probably yield more meaningful results if both users and non-users of unlicensed software participated. This would provide the opportunity to examine what characteristics exist in each group, and to compare the groups for differences, assuming that all the users of non-licensed software who participate in the study are honest in their reporting of that fact.

Implications

This study only ascertained the opinions of two individual, so certainly cannot be used as a basis for generalization, yet it does reflect the findings of other studies that indicate that a large percentage of the U.S. population lack knowledge of intellectual property laws, rules and regulations. This lack of knowledge is perhaps even more telling in this study, where the two respondents are both enrolled in a Master of Library Science program, where concern for the protection of intellectual property rights is traditional. This lack of specific knowledge, the difficulty the respondents appear to have in articulating a clear ethical position, and the impression that each respondent was really considering these issues for the first time, point to a need to address, and stress, these issues in a wider forum, or in multiple forums, including classrooms and workplaces.

In terms of policy, it is clear that mechanisms are in place to allow the maintenance of face while using unlicensed software. While this indicates at least some disparity between social values and legal values, it was not possible from the interviews conducted to pinpoint the cause, though the abstraction of the media appears to be instrumental. While both respondents mention cost of licensed versions as a factor in the use of unlicensed software, neither indicate how removing intellectual property protection would reduce cost. It is clear that before any meaningful change in policy can be contemplated it will be necessary to conduct further studies on how individuals construe the meaning of intellectual property.

Summary

While the theft of intellectual property has been rampant, especially in the area of the use of unlicensed software, little research has addressed the underlying value system and concepts that support this practice in the general population and allow the practice to be unstigmatized. A theory was presented that the abstract nature of software contributes to the divergence of societal behavior from that condoned by legal statute. To explore this theory, understand the relationship of software to tangible property, and property to ethics, and to examine how face, or social standing, is maintained while violating law, a pilot study was conducted, consisting of two interviews with volunteers who had used unlicensed software. While saving of money and time were given as the main reasons for such use, a construct of "need" as justifying use of licensed software also emerged. The respondents, however, had difficulty in addressing the more theoretical questions, and appeared to lack knowledge of intellectual property law and to have not previously given consideration to the underlying ethical question. Both

respondents were perceived as manifesting multiple means of attempting to save face. It is suggested that further studies, be conducted prior to policy issue decisions.

References

1. ADAPSO. (1984). *Thou shalt not dupe*. Arlington, VA: ADAPSO.
2. Alfino, M. (1991). Intellectual property and copyright ethics. *Business & Professional Ethics Journal*, 10, 85-109.
3. Cohen, M. (1927). Property and sovereignty. *Cornell Law Quarterly* 13, 8-30, and reprinted In D. Johnson & J. Snapper (Eds.) (1985). *Ethical issues in the use of computers* (pp. 293-304). Belmont, CA: Wadsworth Publishing
4. Deetz, S. (1994). Communication studies as a disciplinary response to contemporary social problems.. In (Ed.). *Future of the Field* (pp. 1-18).
5. Forester, T. & Morrison, P. (1990). Software theft. In (Ed.). *Computer ethics: Cautionary tales and ethical dilemmas in computing* (pp. 27-39). Cambridge, MA: MIT Press
6. Gemignani, M. (1985). Legal protection for computer software: The view from '79. In D. Johnson & J. Snapper (Eds.). *Ethical issues in the use of computers* (pp. 294-324). Belmont, CA: Wadsworth Publishing
7. Goffman, E. (1967). On face-work. In (Ed.). *Interaction ritual: Essays on face-to-face behavior* (pp. 5-45). New York: Pantheon Books
8. McCracken, G. (1988). The long interview. *Qualitative Research Methods*, 13. Newbury Park, CA: Sage Publications.
9. Steering Committee for Intellectual Property Issues in Software, Computer Science and Telecommunications Board & National Research Council Commission on Physical Sciences, M. (1991). *Intellectual property issues in software*. Washington, D.C.: National Academy Press.
10. Swinyard, W.R., Rinne, H., & Keng Kau, A. (1990). The morality of software piracy: A cross-cultural analysis. *Journal of Business Ethics*, 9, 655-664.
11. Taylor, G. . & Shim, J.P. (1993). A comparative examination of attitudes toward software piracy among business professors and executives. *Human Relations*, 46, 419-433.
12. Weber, J (1993). Exploring the relationship between personal values and moral reasoning. *Human Relations*, 46, 435-463.