

BT 308
Professional Issues

Assignment 2 Essay

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Question 3 - Global Information Ethics

Two important thinkers, Krystyna Górnica-Kocikowska (1995) and Deborah Johnson (1999) have recently argued that computer ethics will disappear as a separate branch of ethics and that 'local' ethical theories will be superseded by global ethics that will become the 'ordinary' ethics of the information age.

Examine their individual claims and explain whether you think they are expounding the same hypothesis, and whether you agree with these hypotheses and why.

Accepted Modernity

The hypotheses of Krystyna Górnica-Kocikowska and Deborah Johnson, on initial examination, seem not only to affirm the disappearance of computer ethics as a branch of applied ethics and the emergence of a global ethic, but also stress the impact of the computer revolution on humanity. Their expositions differ where Górnica claims parochial ethics, including those of Kant and Bentham, will be supplanted by a new universal ethical system kindled by today's computer ethics, while Johnson reasserts her previously stated opinion that computer ethics will continue to presuppose traditional systems (Bynum, 2001) and are merely an extension of human instrumentation (Johnson, 1999).

Górnica (1995), recognising post-modern arguments, such as Norris's (1993) Wittgensteinian claim that only culture-specific examination provides valid interpretation of ethical issues, quite reasonably indicates that the ethical systems of Kant and Bentham were manifestations and summaries of the European Enlightenment, building on the foundations left by the early social contract theorists. Górnica questions the universalism of their theories by labelling them European and their dismissal of those, who by lack of rationality, were not deemed 'partners in discourse'. This critique of their systems is not expanded, but illustrates the problem of applying traditional ethics to a world globalised by the computer revolution. Despite this determination, Górnica still relies on what Gray (1998) describes as revisionist Kantian notions to conceive her vision of a global ethic. She displays awareness of post-modern neo-pragmatism, but relies on language-games, noted by Foucault (1970) as the *non sequitur* of modernity, that deny the inequities of human nature in favour of rationalism, to circumvent them. Her hypothesis exhibits regret of certain possibilities, such as the potential for computers 'to serve as a tool for gaining and maintaining a dominion over the world by one particular group of humans' (Górnica, 1995:325), but can do nothing but advocate rationalism or optimism to defend against them. Johnson makes far broader use of utilitarianism and Kantianism to explain her approach to computer ethics (Bynum and Rogerson, 2004), relying on them to directly solve 'new species of familiar moral issues' (Johnson, 2001:21).

Whilst Górnjak and Johnson's hypotheses are in themselves both logical and well-supplemented by evidence, their reliance on contemporary interpretations of utilitarianism and rationalism make them vulnerable to any future where these ethical systems are devalued. It will be argued, in this paper, that we have already arrived at such a juncture and whether ethical globalisation is the inevitable conclusion their theories predict.

Post-Modern Interrogation

The theories of universalism and internationalism were originally fostered within European and American intellectual circles, members of which, as followers of traditional Western philosophies, considered themselves rational and 'enlightened'. Richard Rorty, quoted in Blosser (1995), is critical of the reasoning of this *nomenklatura*, stating that truth is 'that which your peers let you get away with saying'. Norris (1993) adds to this opinion, commenting on those who believe discourse through subjective conformation to reach a universal truth is the ultimate moral guide. In fact, the concept of ethical globalisation through cyberspace will, by its democratic nature, be subject to the *mores* of the general population, rather than any traditional elite. Since Gross (1997:85) states that cognitive development theory demonstrates that only 5-13 percent of any given population is capable of post-conventional reasoning, it is not impossible to conceive that this will create a situation even more parlous than a perceptually-imbalanced elite. Just as liberal democracy requires the broad tolerance of overlapping ethnic, religious and social groups not incompatible with average cognitive ability, its shared concepts of justice and morality are based on the higher reasoning of principled moral actors. If this is the case, it is unlikely that the same system can prevail into the heavily democratised information age, where morality will be dictated by *agumentum ad hominem* instead of enlightened leadership. While traditional theory, such as that of David Hume and John Stuart Mill, has shaped modern attitudes, illustrates humankind as capable of political and ethical subtlety, Higgens (1980) states that there are relatively few principled moral thinkers in the general population and efforts to cultivate extensive moral development have proved disappointing. Barger (1987) finds a wide divergence of ethical views, even within the typically Kantian environs of a university campus. If we accept these circumstances, it is difficult to reconcile them with Kantian thinking, which, according to Ahmad (2003), provided a distinct part of the background from which capitalism emerged and globalisation is emerging.

If the objective of pluralism is not, as MacPherson (1977) asserts, to cultivate a distinct moral ethos, then the permeation of the global ethics supported by Górnjak and Johnson is itself a contradiction of Kantian belief. Further, the concept of contemporary man as a disinterested individual more politicised now by interest groups than principled moral actors, bears closer examination. Gross (1997) states that despite James Madison foreseeing the dangers of 'factions' they were in full bloom by the time of Alexis de Tocqueville's visit to America in 1831. De Tocqueville reported that 'political associations' and the 'freedom of association', while important to prosperity and liberty, had the potential to be 'perverted and carried to excess by others' (de Tocqueville, 1835:81) and to contrive a 'tyranny of the majority'. Whilst many these interest groups transformed themselves into

invaluable civil rights movements, others, notably business-oriented associations, remained dedicated to narrow goals, often contrary to the common weal. These 'lobby groups' are starting to appear to represent a tyranny of the minority, holding a grip on modern politics that forces legislation against the interests of the majority. The important lesson here is that increasing democratisation, a feature already much in evidence since the beginning of the computer revolution, does not necessarily mean increasing liberty or the long-term global introduction of the kind of Kantian ethical standards envisaged by Johnson and Górnjak.

De Tocqueville (1856) decries the centralisation of government as a condition ripe for discontent and, potentially, revolution. In observing the early United States, de Tocqueville (1835) observes the converse view that strong local government, seen at township and to a lesser degree state level, allows diversity and sows content in a population whose laws reflect itself. If these are the case, how is it possible that a globalised world, as envisaged by Johnson and Górnjak, will flourish under a universal ethic if it continually sows discord by the very centralisation it requires to exist? It could be noted that the nation-less condition of international communism envisaged by Marx and Engels (1985) required, in its practical application, a strongly authoritarian nature to even temporarily succeed. The reversion of former Soviet territory to ethnically delineated boundaries should be noted. Additionally, if exposure of one culture to another increases tolerance, there seems little historical evidence. Bolstering this early criticism with a contemporary view, David Post, in his examination of decentralised law-making, observes legal scholars' rediscovery of 'the important role played by informal systems of decentralised, consensus-based social control in shaping human social behaviour' (Post, 1999:147).

The Communist Manifesto explains that the very existence of the proletariat leads inevitably to revolution (Marx and Engels, 1985). But Buchanan (1979:267) points to Marx's underestimation of capitalism's resilience and how its powerful contradictions, through reform, have 'given way to the tolerable tensions of the welfare state'. The dissipation of this state provision through increased globalisation, a possibility supported by Teeple (2000), could lead to the reversal of that potential for revolution. Common opinion may be that Marx has been disproved or discredited since the collapse of the Soviet Union, but it may simply be that the conditions required for his theories do not exist at this time. When Marx and Engels (1985) describe the proletariat as stripped of 'every trace of national character' due to that class's position outside of society, it could be argued that the reverse might also be true. Interestingly, they proclaim the result of this lack of social cohesion is that 'law, morality and religion.... [become]so many prejudices'. Teeple (2000) points to the possible advent of a Second Bourgeois Revolution as a consequence of globalisation and the information age. This, combined with capitalism's dependence on technology improving human life, the future verity of which is disputed by both Hijazi (2004) and Joy (2000), could well lead to the polarisation of society, and possibly breed, once again, the capacity for revolutionary change. These are robust counters to Johnson and Górnjak's account of the emergence of global ethics. These arguments, at the very least, put in some doubt the possibility of a global ethic under capitalism.

The Aporias of Post-Post-Modernity

A possibility that requires further examination is how increased social interconnectivity engendered by the information age might allow geographically and socially separated adherents to coalesce, reinforcing disparate ethnic, political and societal ethics, rather than subsuming them. This is actually supported in Johnson (2001), where the author suggests that the ‘certain kind’ of anonymity of the Internet encourages people to act out behaviours they would not participate in face-to-face. These activities, if they are religiously, politically or criminally motivated, can be encouraging to those whose ethics do not conform to Górnjak and Johnson’s desired Kantian pattern, and destructive to the concept of a single global online ethic. One only has to view Muslims resident in European nations being recruited or financially contributing to previously obscure or prescribed fundamentalist groups via cyberspace to see this in action. Denning (2001) cites both the 1999 Kosovo campaign and the autumn 2000 riots of the Second Intifada as events in which persons not normally motivated to militancy performed acts of Internet sabotage and ‘hacktivism’. This is likely to be the tip of the iceberg with cyberterrorism, as increasing sophistication and access to more powerful processing become commonplace.

Emotivism, described by MacIntyre (1984), and originally heralded by Hume’s concept of total moral theory, demonstrates that all moral debates are merely expressions of preference or feeling subjected to peer pressure. These, MacIntyre claims, due to the multitude of peer groups, are most often evinced by disagreement and ‘interminable character’ and mostly do so requiring no rational examination of human nature. Similarly, O’Neill (1989:173) supports Wittgenstein’s methods of moral reflection showing that ‘disparate moral traditions will lead to no shared conclusions’. These constitute a strong criticism of Górnjak and Johnson’s disavowal of ethical relativism. He also theorises that we have so fragmented our morality that we have nearly lost a comprehensive understanding of it: denigrating it to a kind of consumer ethics, where customers pick and chose morals from competing brands as required. This analogy can be stretched to question whether some people have the ability to match outfits or furniture, and why still fewer can become fashion stylists or interior decorators. Norris (1993) reports Foucault’s description of this contemporary analytical moral philosophy as a post-humanist acceptance of discourse as the limit of intelligibility, and his observation that the Kantian subject is a transcendental observance, now approaching the end of its cycle. Accepting these views on the ethical decision-making ability of modern society’s opinion-formers again leads us to question how a more democratic forum, such as the Internet, will help in the manifestation of a unifying ethic. Combining this dialectic with cognitive development theory might lead to the conclusion that humanity requires the guidance of a benign elite, a function previously filled by a variety of figures and groups, including the absolutism of God, but all later eschewed by modern liberalism.

Much of the ‘pop-ethics’ Gotterbarn (1992) is concerned with can be associated with the sort of pop-intellectualism recognised by Foucault (1991) in his identification of the dangers of an ethical system dictated by received trends. The emergence of these easily understood morals, ironically similar to a contemporary Ten Commandments, reflects Western society’s trend away from religion. Since Nietzsche suggests that humanity’s inevitable rejection of God would lead to humanity’s losing any type of moral reference point, this seems appropriate. The problem with this concept for a

single global ethic is that it requires either authoritarian application, Johnson's (1999) unwelcome 'certain kind of rational thinking', or the prerogative of a superlative being, underwritten by a resurgence of religious belief. Extending the franchise of cognitive moral relativity and value is an almost certain impossibility.

Górniak and Johnson both base their hypotheses on the idea that the computer revolution is an event similar to the advent of the printing press, the technology that overtook both the Industrial Revolution and the Enlightenment. As we have seen, aspects of the Enlightenment and Kantian philosophy are progressively being regarded as self-destructive, in the sense that the promotion of individual thought divides society, rather than unites it. Applied to the masses, the logical product is consumerism, Enlightenment's illegitimate child by democracy. If this is the case, one should be loathe to found a system of global ethics on it. Since AJP Taylor, writing his 1967 introduction to the Communist Manifesto noted the frustration of 19th Century philosophers seeking a world-system (Marx and Engels, 1985), and the 20th Century has certainly come no closer. Perhaps global disunity, like CS Lewis's description of war, is a 'permanent human situation' (Lewis, 2001).

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Appendix I

Deborah Johnson

Computer Ethics in the 21st Century

Unpublished Keynote Address from ETHICOMP 1999

Held at Luiss Guido Carli University

Rome, 6th-8th October 1999

Ethicom99

The Future of Computer Ethics

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Introduction

When Simon Rogerson asked me to give the keynote address at this conference, he asked me to present my thoughts on the future of computer ethics. He seemed to want me to predict what the important issues of the future would be and/or to lay out an agenda of what needed to be done (should be done) in the future.

Initially, I resisted, wanting instead to present a portion of the new edition of *Computer Ethics*. But he prevailed and I agreed. In the end, however, I think you will find that I have done a little of both; that is, I have fulfilled his request and I have engaged in a bit of resistance. I have speculated about the issues of the (near-term) future, and at the same time, have somewhat deflected the question by suggesting that the field of computer ethics may and, perhaps should, disappear in the future.

You can probably guess the reasons for my reluctance to predict the issues of the next century and to lay out an agenda for the future. Predictions about the future almost always turn out to be wrong. They are often an exercise in futility as something that no one much noticed turns out to be the most powerful innovation, or as some completely unforeseen event intervenes and changes the direction of development. So, if you don't like being wrong (and I don't), then you should not make predictions (or at least, don't make them public and put them 'on the record').

Another, perhaps more sinister, view is that predictions about the future are disguised attempts at self-fulfilling prophecies. One predicts what one wants to happen; sometimes one predicts what one does not want to happen, hoping something will be done when what's on the horizon is seen.

In any case, my reluctance to predict the future of computer ethics also has a more interesting side. As I began to think about the future of computer ethics, I found myself presuming that the ethical issues follow the technology. That is, I found myself reluctant to make predictions about the future of computer ethics because that would involve predicting the directions of development of computer technology. Right or wrong, this presumption is an interesting one and probably needs to be examined.

Looking Back

Of course, examining the connection between computer technology and computer ethics takes us into the past (not the future). That is, it is partly, at least, an empirical question whether the field has progressed in this way. The question is: have the ethical issues in computing followed the development of computer technology?

On the one hand, this seems both true and as it should be. New technologies create new possibilities and the new possibilities have to be evaluated. As Jim Moor puts it, new technologies create policy vacuums and the task of computer ethics is to fill the policy vacuums. In other words, the ethical issues **are** the policy vacuums, and policy vacuums are created when there is a new development or use of computer technology.

On the other hand, in some ideal sense, it would seem better if it were the other way around – technology followed ethics. Suppose, that is, that we lived in a world in which when ethicists (or ordinary people, for that matter) identified unethical situations or arrangements, engineers and computer scientists would pick up on these issues and design technologies to change/remedy/improve the situation.

This does sometimes happen. For example, this seems to be the case with privacy-enhancing technologies. The topic of ‘design’ seems to me, an important topic for future exploration. If we could get designers of technology to think about the ethical and social implications of their designs before they became a reality, the world might be a better place.

In any case, it would seem that while there is movement in both directions (computer ethics following computer technology and computer technology following computer ethics), the former is much more common and much more dominant. However, in case I am leaping too quickly to this conclusion, let me briefly and in broad brush-strokes sketch the history of computer ethics -- as I understand it and as responsive or reactive to technological developments. Let me emphasize that this account may be more of a personal history with computer-ethical issues, than an accurate historical account of the field.

To my mind, the first ethical concerns that were raised about computers were only vaguely expressed and they touched on a variety of topics. One of the most salient was that computers threatened our notion of what it means to be human because computers could do the very thing that was considered unique to humans, rational thinking. Along with that idea came, particularly in science fiction, the idea that computers might take control as decision making was turned over to them. I’m thinking here not just of the movie 2001, but of Asimov stories and Jim Moor’s article, “Are Their Decisions that Computers Should Never Make? (1979).

One could argue that those concerns were not exactly ethical in character; after all, no one argued, that it was immoral to go forward with the development of computers because of the threat to our concept of human being. And the decision making issue focused on what computers can and cannot, or should and should not, do. These might be better understood simply as social impact issues except that they go to the heart of morality insofar as they are directed at what it means to be a moral agent. It is also worth noting that these concerns were not so much the result of an effect or impact of the **use** of computer technology. Rather, the threat arose from the very idea of computer technology. The idea of the technology was threatening independent of its use.

One could argue as well that this idea about computer technology has turned out to be one of its richest aspects. That is, the model of human thinking that computers

provide has spawned the thriving new fields of artificial intelligence and cognitive science.

Slightly later in the literature on computers, the more distinctly ethical issues began to take shape in the works of Joseph Weizenbaum and Abbe Mowshowitz. In oversimplified terms, the issues here were focused on the threat of big government, large scale organizations, and **privacy**, as well as a continued concern about the dominance of a certain kind of rational thinking. And, of course, in this period, the late 1970s, the Privacy Protection Commission did a major study of privacy. In hindsight, the concern about big government and privacy can be seen to follow the technology in the sense that in those early days, computers were being used primarily to create and maintain huge databases and, of course, to do large numerical calculations. The large-scale calculations were primarily (though not exclusively) for government activities such as weapons development, space travel, and the census.

The next major technological shift in the technology was the development of small computers (remember the phrase “microcomputers” and “personal computers”). Attention turned, for a time at least, to the democratizing aspects of computers. Quietly, at the same time, remote access had come on the scene, first just as remote access to large mainframes; later as a web of telecommunications connections between small computers.

I think of this period as a period dominated by concerns about software and the ethical issues surrounding it. The development and spread of microcomputers brought computer technology visibly and powerfully into the consumer marketplace. Software was recognized as something with enormous market value, and hence, all the ethical issues having to do with property arose. Should software be owned? If so, how? Would current intellectual property law do the needed job? Along with property rights issues come issues of liability and responsibility. In the marketplace, if individuals buy and use software (and computers), they want to be able to rely on them.

During this period, the market in computer games took off and it was also during this period that more attention began to focus on hackers. On the one hand, hackers were responding to the commercialization of computing. They did not like the idea of property rights in software. At the same time, those who were acquiring property rights and/or making a business of computing, saw the threat posed by hackers. Hackers posed a threat to property rights and to system security.

In the 1990s, attention turned to the Internet and that is because the coming together of computers, telecommunications, and media was the next major development in the technology. (This may turn out to be “the” – if not “one of the” - major technological development of the 20th century). And when it comes to the Internet, the ethical issues expanded to almost every aspect of life. We are now in a process of recreating much of the world onto this new medium and it would seem that every type of activity that takes place on the Internet has posed ethical issues, be it social meetings, buying and selling, politics, or whatever. Indeed, in my first paper on the Internet [“Ethics on-line” *CACM*, 1996], I suggested that many of the ethical issues surrounding the Internet arise from its **unusual scope** (breadth of reach, in the

hands of individuals, cheap, easy to use), the availability of **anonymity/pseudonymity**, and the **reproducibility** of the medium.

One other thrust of the technology that grew slowly during the 80s and 90s was the use of computer technology for a wide variety of visualization activities. Here I am thinking not just of computer graphics and gaming but of the use of computer technology in a variety of simulation activities and medical imaging. Ethical concerns have been raised about this thrust of computer technology but very quietly and slowly.

Summary

1960s and 70s – data bases and large-scale calculations, hints about artificial intelligence -- vague expressions of concern about a threat to concept of human being, centralization of power or big government, privacy

1980s – microcomputers and the beginning of remote access, games and entertainment -- commercialization, property rights, liability issues, hackers

1990s – coming together of telecommunications, media and computers into the Internet, the Web – a wide range of social, economic and political issues and especially globalization [secondarily, visualization and virtual reality become issues]

So, to bring this historical account quickly to a close, it seems clear that **computer ethics has followed computer technology** and its evolution, moments of innovation, and periods of permeation/assimilation.

This means, as I suggested earlier, that to have a vision of the future of computer ethics, one must have a vision of the future of the technology. Unfortunately that is not something I feel especially competent to undertake, though it is, I believe, precisely what Simon asked me to do, so I will try.

My predictions for the future of computer ethics provide a picture of two trends working in opposite directions, one following the technology and the other changing the pattern I just described.

Looking Forward -1

The first trend extrapolates out from what is happening now and suggests that by far the most challenging issues of the 21st century will have to do with the harmonization of the global social, economic, and political world. This globalization will be driven by and shaped by computer technology, or more accurately the Internet and the Web. This line of thinking follows the expansion and permeation of the Internet as the most powerful development of computer and information technology.

This line of thinking points to two big issues for the near term future, (1) jurisdiction and (2) systems of trust. And, of course, all the already recognized issues

in computer ethics -- property rights, crime, accountability -- only in the next century the challenge will be to work these out on a global scale. I can't say that I understand how these issues will be worked out. I confess I am not even sure how to think about them, though it is certainly worth trying.

Jurisdiction

To tell you that jurisdiction will be the issue of the future is probably not to tell you anything that you have not already noticed. Certainly in the U.S. we are experiencing problems with jurisdiction between the states, as in the famous case of obscene material being accessed from one state (where it violates a local statute), though it is produced on a server in another state (where it did not violate local statutes). Or, in the more mundane issue of which state, if any, is entitled to collect taxes on which, if any, economic activity on the Internet. These issues are just beginning to be addressed by the courts and by politicians. I suspect we will eventually need much more comprehensive and innovative thinking about the best way to handle these issues.

It is the same on a global scale and the issues are even more complex because of the matter of national sovereignty. The focus for now seems to be working out agreements in specific domains so as to facilitate global economic activity. So, for example, we have the WTO working out property rights agreements and other international organizations working out how to harmonize policies on personal data that crosses national borders. We also have law enforcement agencies working out jurisdiction for crime on or through the Internet. These are the issues of the 21st century and they will, no doubt, shape the future.

It is difficult to get a handle on all of the jurisdictional issues because they are complex and have never arisen before in the way they are now being raised. The embedded ethical issues are the most daunting for they touch especially on national sovereignty and to some extent on individual sovereignty.

Assuming that many aspects of economic activity will have to be harmonized, it seems that the requirements for harmonization will pressure nation states to conform in ways that shrink their autonomy. One can see this happening, for example, in the European Union where there is pressure on countries to conform to membership requirements. Nation states that might otherwise choose to organize themselves in other ways are pressured by the threat of being economically weakened, to adopt policies that they might not otherwise want to adopt. Economic pressure, in effect, becomes an alternative to war and coercion. It may be better than guns and bombs, but we ought to at least acknowledge that the biggest and strongest nations may be bullying the smaller and weaker.

A more gentle way to put this is to say that the meaning of national sovereignty will change in the 21st century, and along with it will come a new meaning for citizenship and national identity. Individuals will have the option to develop a wide variety of alliances along lines other than geography. A crystallized version of the issue here is to ask whether the members of a global democracy should be nation states or individuals. Needless to say, the answer makes all the difference in the world.

Systems of Trust

The 21st century will bring new systems of trust, though I confess again that I have only the vaguest ideas about what this means. What I mean by this is that individuals establish identities on the Internet and engage in a variety of activities for which they may or may not be held accountable. Engaging in many of these activities involves forming expectations about how one will be treated and what one's actions mean. The range here is probably enormous but to mention a few of the domains that I have in mind, they include chat rooms, banking, buying and selling, email, and participating in political (civic) action. In each of these domains, individuals will need to have an identity and they will want to know, so to speak, the rules of the game. The rules of the game will create expectations and individuals will trust that they will be treated in certain ways for the purposes of that activity. For example, banking will be confidential, what one says in a chat group can't be correlated with one's home address, one can have separate identities for civic participation.

In a sense, the big question will be the coordinate-ability of diverse identities. But within each domain, the issue will be trust. Institutions will need to identify individuals for various purposes but the technology may allow limited identification. Cryptography and security in general (and the capacity to achieve degrees of anonymity and pseudonymity) will, I believe, be important areas of concern for the short-term future.

Looking Forward – 2

While jurisdiction and systems of trust seem to me the most important issues of the near-term future, I want to suggest that these issues may not be framed – in the future – as issues of “computer ethics.” The second direction of my thinking about the future of computer ethics is to suggest that computer ethics may, and probably should, disappear in the 21st century. To be sure, I am not hypothesizing that the issues I just identified – jurisdiction and systems of trust -- will disappear in the future. Rather, I am suggesting that they will **not** be posed or framed as issues of computer ethics.

I have come to this view by working on (and puzzling over) a fundamental and persistent interrelated set of questions in computer ethics: Is there anything unique about computer-ethical issues? Why is a special field needed? What is the domain of computer ethics? Answers to these questions suggest that the ethical issues arising from and surrounding computer and information technology are issues that have to do with the **instrumentation of human action**. But let me not go too quickly here.

The question whether computer-ethical issues are unique has been a controversial and challenging issue. I believe that much (though not all) of the disagreement on this issue has to do with whether one starts with a focus on computer technology or with a focus on ethics.

If you start with the technology, your attention is implicitly on the uniqueness of the situations that arise. For example, the fact that the owner of software still has what is stolen – in the case of software theft -- seems radically unique when compared

to the theft of an automobile or television. The fact that I can download a patented process held on a server in another country and use it to process information in my home computer, also seems unique. The fact that a machine can make decisions and implement them (e.g., buying and selling stocks) using general criteria I have given the machine and the machine does things well beyond what I could have anticipated (e.g., by instantaneously responding to other transactions taking place), likewise, seems unique.

Computer technology is unique; nothing quite like it (at least, in scale) existed before its invention. And it does allow us to do things we couldn't do before (or at least, it allows us do things more easily, more cheaply, more quickly, with less effort, than we could do before).

On the other hand, if one starts with ethics, then one thinks in terms of human actions and interactions. Ethics is about human behavior and human values. Ethics is about what humans do to one another or their natural environment, what they owe to one another, and what are fair or just social arrangements. One thinks of institutions that are good for humans and those that are not good. And, one uses a set of ethical notions to try to understand what is happening in situations involving computers. In this respect, ethics has little to do with technology. Technology may come into play, but only insofar as it affects human action, interaction, or institutional arrangements. From this starting place, it is not exactly computer technology that poses or could pose an ethical issue but rather what the technology makes possibility for human action and interaction.

Now, if one starts from here, one understands that an ethical issue cannot be recognized as an ethical issue unless the situation can be understood in moral terms or categories. In other words, if you describe a situation to me (be it one involving computer technology or not), I won't be able to understand it as an ethical dilemma or involving an ethical component, unless I see its relationship to a moral concept such as harm, obligation, fairness, respect, etc. I won't be able to grasp the ethical character of the situation unless I can place it in a moral framework. This may mean seeing that some moral rule is being violated or seeing that some ethical value is being threatened, e.g., the value of human life or autonomy or justice.

It is this perspective that has lead me to the view that computer-ethical issues are new species of generic moral issues or problems or dilemmas. The new situation has to be classified into a traditional moral category or framed using familiar moral terms before the issue can be understood as ethical. Hence, we classify situations created or changed by computer technology in familiar terms though we simultaneously recognize that they have features unlike other cases.

I am not going to push the genus-species idea here. Rather what I want to suggest is that what brings the two starting places together – starting with the uniqueness of the technology and starting with traditional moral concepts and categories -- is the recognition that technology provides the instrumentation of human action.

When human beings act, they do something, and 'the doing' involves moving their bodies in some way. Often human actions are simply instrumented through the human body; I move a part of my body – my arm, my vocal cords, my eyes. On the

other hand, human actions are often instrumented through technology (in addition to the human body). I don't just move my arm, I pick something up and manipulate it, e.g., a stick, a fork, a gun. In moving my body, I do something -- I flip a switch, turning on a light. I focus my eyes on a monitor, move my fingers on a keyboard and send messages to others.

So, human actions are often instrumented via technology and, most importantly, the technological instrumentation changes what is possible for human beings to do. It changes what human beings 'do' when they act. Examples abound and are endless. Think of all the technology that has made this conference possible. It includes the technology by which buildings are constructed, the electricity lighting and heating the buildings, airplanes and automobiles and trains to get us here, and on and on.

And, technology does not just facilitate individual action, it also makes a wide range of institutional arrangements possible, such as corporations, universities, governments, professional associations, conferences, etc. That is, certain institutional arrangements would not be thinkable, let alone realizable without technology. The Internet, national political elections, Mc Donalds. You name it.

Let me repeat here. Ethical issues always, at their core, have to do with human beings and their actions and interactions, and I will add here the way they arrange themselves into social organizations, social practices, and social institutions. Ethical issues always have to do with what human beings do on their own and to and with others. Technology comes into play because it instruments human action. It mediates between movements of our bodies and outcomes. It mediates between human beings in simple and complex ways. With movements of my fingers, I press keys and, in so doing, I send words. I may communicate (without speaking) or I may pay for something or I may launch a virus. Computer technology allows and facilitates and even constitutes human action. An example of computer technology constituting a human action is provided by the case of computer viruses or cookies. Computer viruses and cookies are incomprehensible without computer technology. Because of the technology, a few simple movements of my fingers mean something and have a powerful effect.

Ethics (be it ethics as a scholarly field or everyday ethics or ethical theory) has not traditionally dealt with or focused explicitly on the instrumentation of human action. But it is important to note that ethical concepts and theories (principles, rules, norms) have always presumed an instrumentation of human action. The most obvious and perhaps most important way this has been done is in the presumption that human beings have bodies of a certain kind and they are responsible for movements of their bodies.

It should be noted that human beings are not considered responsible for all movements of their bodies, e.g., reflex reactions, but it would take me too far afield to explore this distinction. The important thing to note for our purposes is that technology becomes incorporated into the conception of an action. So, for example, when I move my fingers against the trigger of a gun, we say I fired the gun or I shot so and so. My action is instrumented with the gun. Similarly, I move my fingers and launch a virus or send a message.

Even though ethical claims, ethical theories, and ethical concepts almost always presuppose an instrumentation of human action, ethicists have rarely focused on the instrumentation. It is tempting to say that the instrumentation of human action has largely been ignored and made invisible, but it is probably more accurate to say that it is dealt with implicitly rather than explicitly. The person who intentionally picks up the gun, aims, and presses the trigger cannot use in his defense that he only moved his fingers. Likewise for the person who launches a virus or sends an insulting message. We incorporate technology into our conception of an action.

Need I say the obvious: computer technology **instruments** human action in ways that it has never been instrumented before. The physical events that occur when an action takes place in a computerized environment are different than would have occurred if the same type of action took place without a computer or with some other technology. When I write a paper by hand, pencil moves over paper. When I use a typewriter, levers and gears move. When I use a computer, electronic impulses change configurations in microchips. In this example, of course, the changes in physical events that take place when I write seem morally insignificant. In all three cases, I create words and a text. However, there are many cases in which the switch from no technology to technology or from one technology to another, changes not just the physical events constituting an action, but also the possibilities for action, and the character of the action—in morally significant ways. Perhaps the best example here is the act of launching a computer virus. Computer technology and the Internet have made it possible for an individual sitting in a room alone to press buttons in certain ways (launching a computer virus), and in so doing, wreak havoc in the lives of thousands of people. A world instrumented with computer technology has very different possibilities for human action than a world without computer technology.

Again, the important point to note is that ethical claims and theories generally presume a world instrumented in a certain way. When new technologies are introduced, if the possibilities for human action are changed, prevailing ethical notions may be disrupted. Think of all the concern expressed about the atom bomb, nuclear energy, genetic engineering. In these cases, the new technology meant that human beings could do things they couldn't do before or could do things on a new scale or with greater ease, or more cheaply. It appears in such situations that we have "new" ethical issues. The new technologies did not challenge ordinary ethics in the sense of suggesting that prevailing moral principles or theories were wrong. Rather, they challenged ethics because they made it possible for humans to do things that they couldn't do before and hence, things that hadn't been thought of in ethical terms. In other words, prevailing ethical notions **presumed** a certain instrumentation for human action and the instrumentation changed.

However, once the new instrumentation is incorporated into ethical thinking, it becomes the presumed background condition. As people come to understand what it means to act in a computerized environment, the meaning and consequences of their actions are understood, they are held responsible for their actions, and there is nothing special about them. What was for a time an issue of computer ethics becomes simply an ethical issue. Copying software becomes simply an issue of intellectual property. Selling software involves certain legal and moral liabilities. Computer professionals understand they have responsibilities. On-line privacy violations are simply privacy violations.

So, as we come to presume computer technology as part of the world we live in, computer ethics as such is likely to disappear. That is, it is likely to disappear as a special field of study. Those who teach ethics will simply teach ethics and many of their examples or cases will involve computer technology. Computer professionals will recognize their field as involving ethical issues as do lawyers, doctors, accountants, teachers, and engineers. (I admit, these occupations recognize the ethical issues in varying degrees.)

Conclusion

So, I offer you a picture of the future of computer ethics in which computer ethics **as such** disappears, as the issues that might involve or center on computer technology are simply issues of ordinary ethics. That is, I suggest a world in which those who think about and talk about and draw attention to ethics simply presume a world in which individuals and institutions can do all the things they can do with computer technology.

When computer-ethical issues have disappeared, the field of ethics will have changed not so much in what it sees as its agenda, but in what it presumes about the world it must address. In other words, ethical issues will be more complicated and challenging than ever before. We will be able to say both that computer ethics has become ordinary ethics and that ordinary ethics has become computer ethics.