Ethics and Information Technology **4:** 37–54, 2002.

The uniqueness debate in computer ethics: What exactly is at issue, and why does it matter?[1]

Herman T. Tavani
Department of Philosophy, Rivier College, 420 Main Street, Nashua, New Hampshire 03060, USA;
E-mail: htavani@rivier.edu

Abstract. The purpose of this essay is to determine what exactly is meant by the claim *computer ethics is unique*, a position that will henceforth be referred to as the CEIU thesis.[2] A brief sketch of the CEIU debate is provided, and an empirical case involving a recent incident of cyberstalking is briefly considered in order to illustrate some controversial points of contention in that debate. To gain a clearer understanding of what exactly is asserted in the various claims about the uniqueness of computer ethics, and to avoid many of the confusions currently associated with the term "unique", a precise definition of that term is proposed. We then differentiate two distinct and radically different interpretations of the CEIU thesis, based on arguments that can be found in the relevant computer ethics literature. The two interpretations are critically analyzed and both are shown to be inadequate in establishing the CEIU thesis. We then examine and reject two assumptions implicit in arguments advanced both by CEIU advocates and their opponents. In exposing and rejecting these assumptions, we see why it is not necessary to accept the conclusions reached by either side in this debate. Finally, we defend the view that computer ethics issues are both philosophically interesting and deserving of our attention, regardless of whether those issues might also happen to be unique ethical issues.

Key words: CEIU thesis, cyberstalking, ICT ethics, moral issues, moral principles, objects of moral consideration, uniqueness advocates, uniqueness debate

Abbreviations: CEIU – Computer Ethics Is Unique; ICT – Information and Communication Technology

The CEIU debate: Introduction and overview

The legitimacy of computer ethics as an independent field of applied ethics has been and continues to be challenged. One aspect of this challenge is apparent in an ongoing debate over whether there is anything unique or even special about the moral problems considered by computer ethicists. At one end of the spectrum in this debate are those who believe that, essentially, there is nothing new or special about ethical issues involving the use of computers. Following Deborah Johnson (2001) and others, we refer to those who hold this view as "traditionalists". Proponents of the traditionalist position would claim that privacy violations are privacy violations and that crime is crime, whether or not particular privacy violations or particular crimes happen to involve the presence or use of computers and information/communications technology (ICT).[3] Tradition-

[1] An earlier version of this paper was presented at the 16th Annual Conference on Computing and Philosophy (CAP 2001), Carnegie Mellon University, Pittsburgh, PA, August 10, 2001. Portions of the present essay are excerpted from the introductory chapter of my forthcoming book *Ethics in an Age of Information and Communication Technology* (John Wiley and Sons, Publishers). Other sections of this essay expand upon my discussion of the question "are computer ethics issues unique?" in Tavani (2001) and in Spinello and Tavani (2001).

[2] The CEIU acronym has also been used by Don Gotterbarn and Simon Rogerson (1998) in their analysis of the question whether computer ethics is unique. However, the purpose and scope of the present study is different, in significant respects, from the analysis of the CEIU controversy included in the paper by Gotterbarn and Rogerson. Essentially those authors, arguing from the perspective of computer ethics as a practical field of applied ethics involving computer professionals, believe that the CEIU debate has been counterproductive to the development of computer ethics as a field of professional ethics. In contrast to Gotterbarn and Rogerson, I believe that the CEIU controversy has been useful in helping to understand why computer ethics is a philosophically interesting field of applied ethics and why it deserves the attention of philosophers.

[3] In this essay, I use the expression "ICT" to refer to the entire range of computing, information, and communication technologies, from standalone computers to privately owned

alists tend to believe that claims about the uniqueness of computer ethics have been overstated and that such claims are indefensible on philosophical grounds. According to traditionalists, we can use traditional categories of morality to analyze these issues and we can simply apply traditional ethical theories to the specific moral issues associated with computers and ICT.

At the other end of the spectrum are philosophers who hold that at least some aspects of computer ethics are unique. The reasons for exactly why they hold the CEIU thesis vary among individual uniqueness advocates. For example, some proponents of CEIU suggest that at least certain computer ethics issues did not exist before the advent of computing and ICT and that such issues are unique because they are *new* ethical issues. Other CEIU advocates suggest that computer ethics issues are unique because ICT has introduced certain moral problems that cannot be understood and analyzed adequately via our conventional moral framework. This group of uniqueness advocates suggests that what is needed is either a new type of ethical theory (at minimum) or possibly a whole new framework of morality. We will consider in detail each of these interpretations of the CEIU thesis.

Before analyzing specific arguments advanced both by CEIU advocates and their opponents, I briefly consider a specific empirical case illustration of a stalking incident on the Internet. Note that this particular case, which illustrates certain points of contention at issue in the CEIU debate, is intended merely to provide a backdrop for my analysis of various claims involving the CEIU thesis. No analysis of cyberstalking itself as a moral issue is included in this essay, since my primary concern here is with the CEIU controversy.

Case illustration: Stalking on the Internet

In October 1999, twenty-year-old Amy Boyer was murdered by a young man who had stalked her via the Internet. The stalker, Liam Youens, was able to carry out most of the stalking activities that eventually led to Boyer's death by using a variety of tools available to him on the Internet. Through the use of standard Internet search facilities, for example, Youens gathered information about Boyer that was readily accessible from databases available to online search requests. Simply by using certain tools available to any Internet user, he was able to find out where Boyer lived, where she worked, what kind of vehicle she drove, etc. In addition to using Internet search tools to acquire personal information about Boyer, Youens was also able to use certain online tools provided by Internet Service Providers (ISPs) to set up two Web sites. On one site, he posted information about Boyer, including a picture of her; and on the other site, he described, in explicit detail, his plans to murder Boyer.

The Amy Boyer case has raised a number of controversial questions, many of which would seem to warrant closer scrutiny from a moral point of view. One question at issue here is whether there really is anything special about Boyer's murder, including the stalking activities that led to her eventual death. Let us briefly consider how traditionalists and uniqueness advocates each would likely be inclined to assess this specific incident.

In response to the Boyer incident, a traditionalist would take the view that "murder is murder", and that, unfortunately, several homicides occur each day. On this view, whether a murderer uses a computing device or Internet tools to assist in carrying out a particular murder would seem irrelevant, or at least would not obviously seem to be a factor that makes a qualitative difference in a homicide. A traditionalist would also be committed to the position that there is really nothing special about cyberstalking incidents in general – irrespective of whether or not those incidents result in the death of the victims – since stalking activities have had a long history of occurrence in the "off-line" world. According to this view, the use of Internet technology would be seen simply as the latest in a series of tools or techniques that have become available to stalkers to assist them in carrying out their criminal activities. On the one hand, this view might seem quite plausible. For while moral issues involving crime have been exacerbated by computing technology, the issue of crime itself as a moral concern is hardly new. The same analogy could be made with moral issues involving privacy, free speech, intellectual property, and so forth. While these and other issues have been aggravated by the use of computing technology, they were nonetheless included among the cluster of moral issues that were considered and debated in ethical disputes long before the advent of computing and ICT. And, of course, these issues were considered by applied ethicists to be moral issues in virtue of their deeper connections to fundamental moral categories such as justice, fairness, obligations, rights, autonomy, value of life, etc.

Uniqueness advocates, on the other hand, would suggest that there are certain aspects of cyberstalking that raise either new or special ethical problems. Proponents of this view can point to a number of factors which, either individually or in combination, they believe would support such a position. For one

computer networks (Local Area Networks and Wide Area Networks), to the Internet itself.

thing, they can point out the relative ease with which stalking activities can now be carried out in cyberspace. Simply by using a computing device with Internet access, one can now stalk a targeted victim without having to leave the comfort of his or her home. Uniqueness advocates would then go on to raise issues having to do with both the scope and scale of stalking crimes that are now possible. Through the use of Internet technology, for example, an individual can stalk multiple victims simultaneously through the use of multiple "windows" on his computer. The stalker can also stalk victims remotely – i.e., the stalker can target victims living in distant states and countries. Also, through the use of Internet technology a stalker can, as Liam Youens did, easily acquire personal information about his or her victim because of the availability of such information that is readily accessible from electronic databases via online search engines. Furthermore, a stalker can roam the Internet anonymously, or under the cloak of a certain alias (pseudonym), which makes it much more difficult for law-enforcement agents to track down that stalker, either before or after the stalker has caused physical harm to his victim. Because of the ease of electronic stalking, individuals who might never have considered the possibility of stalking a victim in physical space might be tempted to engage in one or more stalking activities in virtual space. These and other factors, uniqueness advocates point out, have contributed to the possibility of cyberstalking crimes in particular, and cyber-related crimes in general, of occurring in a manner and on a scale that would not likely have been possible prior to the advent of the Internet. In this sense, then, cyberstalking can be viewed by CEIU proponents as a different *kind* of crime from stalking in the "offline world".

It has also been argued that cyberstalking activities have significant implications for our expectations about a cluster of ethical and social issues, ranging from privacy and security to speech and censorship to more general concerns involving moral responsibility and legal liability.[4] Consider once again the specific case involving Amy Boyer. Was Boyer's right to (or at least her expectations about) privacy violated because Youens could retrieve personal information about her via Internet search engines?[5] Did Youens have a "right" to set up a dedicated Web site about Amy Boyer without Boyer's knowledge and express consent; and did Youens have a right to post on that Web site any kind of information about Boyer – regardless of whether that information was harmful, defamatory, etc.? Is such a right one that is protected by free speech? Should the two ISPs that enabled Youens to post such information to Web sites that reside in their Internet "space" be held legally liable, especially when information contained on those sites can easily lead to someone's being physically harmed or, as in the case of Amy Boyer, murdered? And do ordinary users who happen to come across a Web site that contains a posting of a death threat directed at an individual or group of individuals have a moral responsibility to inform those individuals whose lives are threatened? These kinds of questions are among those which, according to some, contribute to the need for us to consider whether certain aspects of computer ethics as unique or special.

Essentially, the questions raised in the Amy Boyer case are part of a larger question – viz., has the ability to use ICT to stalk victims made a relevant difference? Has it made a *moral* difference? As noted above, my brief discussion of the Boyer case was not intended to focus our attention on moral issues involving recent ICT incidents. Rather it was used to illustrate one of the many ways in which certain uses of ICT raise ethical issues that might be considered to be either unique or at least special in some sense.[6]

[4] I have argued elsewhere (Tavani 2000) that cyberstalking is not a "genuine computer crime", because stalking crimes can occur independent of computer technology. However, I have also argued that online stalking activities raise a number of moral issues that are worthy of philosophical consideration (see Grodzinsky and Tavani 2001).

[5] Amy Boyer's stepfather has argued that his stepdaughter's privacy was violated because DocuSearch, an online commercial enterprise that handles search requests about persons, made personal records about Boyer available to Youens. I have argued elsewhere (Tavani 1998) that certain uses of Internet search-engine programs to retrieve information about persons raise serious concerns for personal privacy, despite the fact that information currently available via the Internet could be considered a "public information". I have also suggested (see Tavani 1999) some ways in which policies could be developed that would address specific privacy problems raised by Internet technologies, including search-engine programs. In particular, I have suggested that a theory of privacy introduced by James Moor (1997) can be used to understand better and to resolve certain Internet-related privacy concerns that seem to span the public/private divide.

[6] A number of alternative examples could have been used to illustrate similar or related moral concerns about the uses of Internet technology in particular, and ICT in general. In fact, case examples involving the impact of the Internet for ethical concerns abound. One has only to read a daily newspaper or to view daily television news programs to be inundated with stories involving the Internet and some allegedly "novel" implications for privacy, free speech, property, security, and so forth.

Two interpretations of the CEIU thesis: Clarifying what is meant by "unique"

It is perhaps worth noting that, in recent times, the term "unique" has often been used in broad and sometimes extended sense. As a result, the meaning of that term is now less clear and is sometimes also a source of confusion. According to *Webster's New World Dictionary*, for something to be genuinely "unique", it must be "one and only; single; sole" or "having no equal". However, many people now use the word "unique" in a much broader sense to refer to something that is "highly unusual" or that at least is "not very common" or "not typical". To address, in a meaningful way, the central question in this study, I must first ask in what sense of "unique" can aspects of computer ethics be said to be unique. I propose a definition of "unique" that perhaps could be viewed as a middle ground between the traditional, and arguably narrow, sense of the term and the much broader use of "unique" found in many contemporary contexts. On my view, it is not necessary that something be "one of a kind" to qualify as unique. On the other hand, something's being "highly unusual" is not sufficient for that thing to count as unique. What, then, is required for something to be unique?

I include in my meaning of "unique" a requirement regarding the notion of "novel or new". However, I do not intend to imply that any novel or new phenomenon, *X*, is *ipso facto* unique. Instead, *X* must be new or novel in a way that challenges either: (a) our existing schemes for categorization and classification of that particular phenomenon; or (b) our existing modes of explaining and analyzing *X*. In other words, the sense of "novel or new" used to capture the meaning of "unique" that I am advocating is such that for some phenomenon *X* to be unique, *X* will require either a new category or classificatory scheme, a new theory, or possibly an entirely new foundational structure.

As noted in the preceding section, the debate over the uniqueness of computer ethics issues is one that is ongoing in the computer ethics literature. A closer look at that literature, however, suggests that a great deal of ambiguity can be found there in the various claims involving CEIU. This ambiguity is, in large part, responsible for what I believe to be a serious confusion about what exactly is at issue in the uniqueness debate. I argue that at least two distinct and radically different claims involving the CEIU thesis tend to get conflated in the literature, where it has been argued that computer ethics is unique because either:

(1) ICT has generated either *new moral issues or new moral objects*, which in turn require new moral categories to describe and classify these new issues or new objects; or

(2) Certain ethical problems involving the use of ICT have stretched and strained our existing moral framework so profoundly that *new moral principles* are required to understand and explain those problems.

In (1), the claim is that *something new* has been introduced by ICT – i.e., one or more new ethical issues or new ethical objects. It is also suggested that these newly generated issues or objects do not fit into any of our preexisting categories or classificatory schemes. So we need one or more new moral categories to describe the new ethical issues or objects generated by ICT. Note, however, that no claim is made in (1) that these new issues cannot be analyzed via our standard moral principles – that is, through our existing moral theories in particular, or our overall moral framework in general.

In the case of (2), the claim is that *something new* is required to understand and approach at least certain kinds of ethical problems involving ICT. What is asserted here is that we need either (a) a new moral theory or (b) possibly a whole new system of ethics. Note that in (2) no claim is made that new or unique ethical issues themselves have been introduced by ICT. For example, the specific ethical issues involving ICT might turn out to be variations of traditional ethical issues. But these issues might also have been exacerbated by ICT in ways that they can no longer be handled by our existing moral principles. It is also important that these ethical issues themselves might, on this view, fit easily into one of our conventional or preexisting categories of moral issues.

So in the case of (1), we need a new category to describe what some uniqueness advocates claim are genuinely new ethical issues that have been introduced by ICT. However, on (1), we do not necessarily also need new moral principles to approach and analyze these ethical issues. The opposite is the case in (2). There we need a new moral principle, in the form of a new moral theory or an entirely new moral framework. And we need one or more new ethical principles even though the ICT issues themselves might not be genuinely new or unique ethical issues.

In the sections that follow, we elaborate on what is meant by these distinguishing characteristics having to do with what exactly is purported to be unique about computer ethics. We next examine each interpretation separately.

Interpretation 1: Computer ethics is unique because either new moral issues or new moral objects have been generated by ICT

Some CEIU advocates claim that with respect to morality, ICT has generated certain *new things* – i.e., new "things" in the form of either new ethical issues or new moral objects. In attempting to make sense of this view, we can first ask what exactly is meant by the expression "ethical issue?" For our purposes, an ethical issue can be viewed as a particular kind of moral concern or as a cluster of related moral concerns, whose content form a topical area of controversy. Such topical areas involving ICT would include general categories such as privacy, intellectual property, crime, and so forth. For example, privacy threats involving e-commerce activities and intellectual property disputes involving the Napster Web site would both be specific examples of current ethical issues involving ICT. They are *issues* in the sense that describe topical areas of concern involving a certain kind of content; and they are *ethical* issues because the certain kinds of concerns involving these content areas involve fundamental or core moral notions such as fairness, justice, rights, and so forth. In many cases, ethical issues can be fairly easily identified, distinguished, and labeled.

Some CEIU advocates have made a very different kind of claim regarding the nature of what exactly has been newly introduced by ICT. On this view, it is not held that any new specific moral issues per se' have been generated. Rather, it is argued that ICT has introduced of a new kind of moral entity or "moral object". That is, some proponents of CEIU suggest that the development and use of ICT has introduced new "objects of moral consideration".

So with respect to the claim that ICT has introduced *something new* into the domain of moral discourse, we can ask CEIU advocates whether they mean either: (a) *new ethical issues* have been generated, or (b) *new ethical objects* have been introduced. We examine both claims, beginning with an analysis of the view that certain new ethical issues have been generated by the use of ICT.

Interpretation 1a: ICT has generated new ethical issues

Walter Maner (1996) has argued that computer technology has introduced certain moral issues that did not exist before the introduction of computing technology and that could not have existed if that technology had never been invented. Of course, one question we could ask Maner is: Which new moral issues have been generated? Can any specific new moral issues be easily identified? Consider once again the cyberstalking incident involving Amy Boyer. In that case, we saw that several ethical concerns, including issues such as privacy, anonymity, security, free speech, etc., arose. But are any of those moral issues genuinely new or unique to ICT? And if so, which moral issues fit this description? How, then, would a uniqueness advocate such as Maner reply to the challenge posed by traditionalists – viz., the challenge to point to the new and unique ethical issues generated by computer technology?

Consider two possible responses: one from the point of view of a software engineer who faces a decision involving the design of a certain type of computer system, and another from the vantage-point of an ordinary user who faces a decision about whether to make unauthorized copies of computer programs and files. First, a software engineer might argue that certain ethical issues having to do with computer design – e.g., an issue concerning whether he or she should participate on a team of engineers that would design of a computer system to deliver weapons for biological or chemical warfare – are unique because they never would have arisen had it not been for the invention of computer technology. In one sense this claim is true; but it is true only in a trivial and philosophically uninteresting sense. Clearly, ethical issues associated with design decisions involving technology arose long before computer technologies were developed and used. Engineers have been (and continue to be) faced with ethical choices involving whether or not to participate in the design of certain kinds of technological systems. For example, in the period preceding the advent of computing and ICT, engineers were faced with decisions about whether to participate in the design of aircraft used to deliver conventional as well as nuclear bombs. Whether those particular aircraft systems happen to involve computer software or hardware components, however, would not seem crucial here to any claim that certain new or unique ethical issues – at least in a nontrivial sense of "unique" – have been introduced by ICT.

Next consider the case of any ordinary computer user faced with the decision of whether to download from the Internet a proprietary software program that has not been authorized by the manufacturer of that software to be distributed freely over the Internet. In this case, one might argue that ethical issues surrounding software piracy are unique because pirating computer software would not have been possible if computer technology had not been invented. Again, such a claim might be true in a trivial sense.[7]

[7] In one sense it would be impossible to steal a computing device, such as a computer printer for instance, if computers had never been invented. However, that factor alone would not make the theft of such a device a unique kind of crime, at least

However, the issue of piracy as a moral concern existed before, and continues to exist independent of, computer technology. For example, one could "pirate" proprietary audio tapes simply by using two or more analog tape recorders. Moral issues surrounding the pirating of audio tapes are, at bottom, the same issues underlying the pirating of computer software (even if the technologies themselves are appreciably, even radically, different). Issues involving piracy and computing arise not because of the technology involved but because ultimately piracy issues have to do with larger and more fundamental ethical issues involving property rights, fairness, etc.

Based on the examples involving ICT that we have considered thus far, there would seem to be little evidence to suggest that this particular technology has generated any new or unique moral issues, at least in a nontrivial sense of "unique". So should we infer that uniqueness advocates such as Maner are mistaken? Consider two additional interpretations of what Maner might intend in his claim.

Perhaps what Maner really intends to assert when he claims that computer ethics issues are unique is not that the specific moral *issues* themselves – e.g., specific issues involving personal privacy, intellectual property, etc. – are new or unique; but rather that there are certain new or unique features of computer technology itself. For example, he asserts that computers are "uniquely malleable",[8] "uniquely, complex", "uniquely fast", and so forth. Although Maner offers us an interesting explanation as to why these technical features of computer technology might be unique, he does not provide an account of why any of the moral issues themselves, which have come to be associated with that technology, should be viewed as new or unique. Certain technological features such as malleability might indeed be unique, as Maner suggests, to computer technology. However, it does not necessarily follow that because of the malleability of this technology that any new ethical issues have emerged.

Another possible interpretation of what Maner might intend in his claim about the uniqueness of ethical issues involving computer technology can be found in his remarks regarding the lack of an "effective analogy" for understanding computer ethics issues. There he says, for example, that our inability to find "satisfactory non-computer analogies" for moral issues involving computers "testifies to the uniqueness of computer ethics". Maner also asserts that this lack of an effective analogy forces us to "formulate new moral principles" and to "find new ways to think about the issues presented to us". This claim, however, is considerably different from the one examined in this section (having to do with the view that *new ethical issue*s have been introduced), and instead is is essentially a variation of the second interpretation of the CEIU thesis, which we will consider below in our discussion of Interpretation 2 of CEIU. First, we briefly examine the claim that ICT has introduced something new in the form of moral objects or moral entities.

Interpretation 1b: ICT has introduced new objects that deserve moral consideration

We noted above that some have argued that new "objects" of ethical consideration have been introduced by ICT. While claims involving the introduction of new moral objects are very different from assertions that new ethical issues have been generated, the two claims need not be mutually exclusive. So it is possible to subscribe to both Interpretations 1a and 1b. On the other hand, most CEIU advocates who hold Interpretation 1a have been silent with respect to the question whether new moral objects also have been introduced. In fact, very few CEIU advocates have explicitly subscribed to Interpretation 1b.

Hans Jonas (1984) argued that "modern technology" has made possible certain kinds of actions which, in turn, have disclosed "new objects of ethical consideration". But what exactly are these "new objects"? And why do they deserve ethical consideration? While virtually everyone agrees that humans deserve moral consideration, some argue that such consideration should also be extended to certain nonhuman entities as well. For example, many animal rights activists argue that animals deserve ethical consideration in the sense that animals should be granted certain kinds of treatment and protection. Some environmental ethicists have argued that we should extend the domain of ethical consideration

not in a significant or in a philosophically interesting sense of "unique". For example, one could not steal an automobile if automobiles had never been invented. But the fact that one can now steal an automobile, as well as a computing device, has not affected our understanding of theft as an ordinary or conventional moral category. At least some proponents of the CEIU thesis would argue that the theft of computer software, on the other hand, has challenged our understanding of the concept of theft; and because of this, those proponents would further argue that computer technology has introduced either a new or special kind of ethical problem.

[8] Here, Maner appears to use the expression "logical malleability" in a sense that is very similar to the one introduced by James Moor (1985), in which it is held that a distinguishing feature of computers that separates them from other machines is their malleability. Unlike typical machines that are designed to perform a single function – e.g., machines such as automobiles, airplanes, and microwave ovens – a computer, depending on the set of software instructions it is given, can perform multiple and diverse tasks.

suggested by animal rights advocates to include additional "objects" such as trees, land, and the ecosystem itself. Recently, Luciano Floridi (1998, 1999) has argued that the realm of ethical consideration should be extended beyond mere life forms (such as humans, animals, trees, and the entire ecosystem) to include a certain kind of inanimate entity or object – viz, information itself or what he refers to as "data entities".

It is important to note that while Floridi believes that information entities deserve moral consideration, he does not argue for the position: "computer ethics is unique because ICT has generated a new moral object (in the form of information)". In fact, Floridi himself is very careful to point out that he is not a proponent of (what we have been referring to) the CEIU thesis. Nonetheless, he does endorse the view that a new kind of moral object or entity has been introduced by ICT.

Because many of the arguments that claim new moral objects have been introduced by ICT also suggest the need for new moral principles to to contain or handle these objects, we will postpone any further discussion of claims involving newly introduced moral objects until our analysis of moral principles in Interpretation 2b of CEIU. We will also critically examine claims involving the introduction of new moral objects at a later point in this essay, when we consider Floridi's arguments for his methodological scheme of "Information Ethics".

Interpretation 2: Computer ethics is unique because new moral principles are required to approach ethical problems involving ICT

Not all CEIU advocates are convinced that any new moral issues themselves, or any new moral objects, have been generated by ICT. For example, some advocates for this view have argued instead that certain extant moral issues have been significantly exacerbated by ICT. They then go on to point out that some extant moral issues have been so aggravated by ICT that our traditional moral principles cannot be applied in our analysis of these those moral issues. As a result, these proponents of CEIU believe that new moral principles are required. What exactly do we mean by "moral principles" and how do these principles differ from moral issues?

We have already seen that a moral issue can be understood as a particular kind of ethical concern whose content can be brought under a topical area. And we saw that ethical concerns involving topical areas such as personal privacy and intellectual property would be examples of moral issues. We also saw in our discussion of Interpretation 1a that while it was fairly easy to identify and label an ethical issue, it was also quite difficult to identify any ethical issue involving ICT that is a genuinely new ethical issue. But we have not yet ruled out the possibility that we might need one or more new moral principles. Moral principles, as distinct from moral issues (and from moral objects), can be thought of as rules that guide us in our approach to understanding and analyzing ethical issues. As such, a moral principle can be either (a) an ethical theory or (b) or an entire system of theories and concepts that make up a moral system. We examine both senses of "moral principle" in the sections that follow, and we begin with an analysis of a moral principle in its form as an ethical theory.

Interpretation 2a: A new ethical theory is required

In the introductory section of this study, we saw that many opponents of CEIU, which we labeled "traditionalists", assume that we can simply apply existing ethical theories to moral issues involving computer technology. Certain CEIU advocates, however, have questioned our ability to apply standard ethical theories, such as consequentialist and Kantian theories, to all ethical problems involving ICT. Proponents of Interpretation 2a of CEIU do not believe that standard ethical theories are sufficiently robust to handle certain kinds of ethical problems involving ICT. In fact, they believe that a completely new ethical theory is needed.

One recent argument for the view that a new kind of ethical theory is needed for the information era has been advanced by Krystyna Gorniak (1996). Gorniak believes that just as the "revolution" brought on by the printing press affected our social institutions and ethical values in profound and fundamental ways, so too has the computer revolution. And because the computer revolution is global in its impact, Gorniak claims that we will need a new global or universal ethical theory.[9] Such a global ethics, she further claims, will require a universal ethical theory that will be accepted by the "global community". So Gorniak reasons that just as the printing-press revolution required new ethical theories, e.g., theories such as those introduced by Bentham, Kant, and Mill in the period following the impact of the printing press, so too will a new theory be needed to respond to problems generated globally by the use of computers and ICT. Gorniak also believes that this new ethical theory would have to be accepted by all members of the global community, and not just by those in the West.

[9] In considering the implications of Krystyna Gorniak's position for the future of computer ethics, Terrell Bynum (2000, 2001) refers to her view as the "Gorniak hypothesis", which he contrasts with the "Johnson hypothesis" (i.e., Deborah Johnson's prediction about the future of the field).

Although Gorniak provides an interesting description of the global impact of computing with respect to ethical and social concerns, it is not altogether clear from her analysis why we would necessarily need a new universal ethical theory for cyberspace. Clearly, the use of computing technology has had a global impact, as Gorniak correctly points out. But does she mean to assert that a new ethical theory for cyberspace is required merely *because of* this global impact of computing? And if she assumes that computer ethics is unique because it is the only branch of applied ethics whose issues are truly global in scope, then it would seem that she is mistaken. Consider, for example, certain moral issues that are often analyzed under the heading of business ethics – i.e., issues involving bribery in international negotiations, child labor, industrial pollution, and so forth. Certainly these ethical concerns also have a global impact. Does it likewise follow, then, that we will need a universal ethical theory for moral issues involving business, as well as for computer technology? On Gorniak's logic, it would seem that we do. But is such a view tenable?

Gorniak does not provide any compelling evidence for her claim that standard ethical theories, such as utilitarianism, Kantianism, virtue ethics, and so forth, cannot be extended to moral issues involving computers and ICT. And even if existing moral theories could not be applied in the straightforward sense that many traditionalists believe they can, it still would not follow that a brand new ethical theory is needed. Philosophers, such as Bernard Gert,[10] James Moor,[11] and Jeroen van den Hoven,[12] have recently argued that standard ethical theories, albeit with certain slight modifications in some instances, can successfully be applied to moral issues involving computer technology. Unfortunately, an in-depth examination of the kinds of theories proposed by these thinkers would take us beyond the scope of the present study.

Proponents of Interpretation 2a seem to have overlooked the possibility that certain "standard" ethical theories might be either directly extended, or perhaps modified or possibly even combined in certain ways such that they could then be applied, to computer ethics issues. Instead, they assume that a brand new ethical theory is needed for analyzing moral problems involving computers and ICT. However, arguments presented by Gorniak and others[13] for such a view are not convincing. So the claim that computer ethics requires a new ethical theory, distinct or apart from traditional ethical theories, would seem to be one that is, thus far at least, unwarranted. Of course, it is quite likely that standard ethical theories will continue to be refined and revised in response to certain challenges posed by ICT. But as Moor (2001) has recently speculated, ethical theory in the future should be recognizable, even if it ends up being somewhat "reconfigured".

Interpretation 2b: A new ethical system is required

Perhaps the most radical formulation of the CEIU thesis can be found in the claim that a new system of ethics is needed to handle the kinds of moral concerns raised by ICT. According to this view, we need more than simply a new ethical theory to comprehend fully and to analyze the qualitatively different aspects of moral problems generated by ICT. This is so, proponents of Interpretation 2b argue, because our traditional categories of morality are no longer adequate to contain certain kinds of moral problems that arise in cyberspace. It should be noted that this interpretation of CEIU also questions certain metaphysical underpinnings of ethics and moral values.

The essence of what is asserted in Interpretation 2b is perhaps best expressed by Carl Mitcham (1997), who asks if "*ethics in any traditional sense is possible*" (Italics Added),[14] given that cyberspace "transforms not just calculations and communications but the sense of body, self, and culture". Proponents of this interpret-

[10] Bernard Gert (1999) has argued that his theory of "common morality", originally introduced in his book *Morality* (1998), can be extended to issues in computing, such as those involving the morality of copying proprietary software.

[11] James Moor (1999a) has put forth an interesting theory entitled "just consequentialism", which incorporates aspects of both utilitarian and Kantian theories. He shows how such a theory can be applied to specific cases involving computer technology. Moor (1998b) has also shown how a type of virtue ethics can be applied to resolving certain kinds of ethical issues that face many computer professionals.

[12] Jeroen van den Hoven (1997) has argued that aspects of Rawls' notion of the Wide Reflective Equilibrium can be used in the process of resolving certain kinds of ethical issues involving computer technology.

[13] An argument similar to Gorniak's in certain respects, but also less developed and less straightforward than Gorniak's, has been put forth by Richard Mason (1986). Luciano Floridi (1998, 1999a) and Floridi and Sanders (2001a, 2001b) have also argued that a new ethical theory is needed for computer ethics. However, since their rationale for a new theory is not linked to a defense of the CEIU thesis, Floridi's and Floridi and Sanders' arguments are not considered in this section. However, they are examined in a later section of this essay.

[14] This passage is originally cited in D. Michelfelder (2000). Note that Mitcham simply raises the question whether we need a new foundation for ethics in cyberspace. It is not clear whether he also asserts that, in fact, we do need such a system. A somewhat similar question is posed by Terrell Bynum (1998, 1999) when he asks whether we need a new "global information ethics" because of the ubiquitous nature of computing.

ation of CEIU suggest that the answer to Mitcham's question is *no*. Some supporters of Interpretation 2b appeal to a variation of a line of reasoning first articulated by Hans Jonas (1984), who believed that modern technology causes us to question standard approaches that we have previously relied upon to analyze moral problems.

Jonas claims that "modern technology"[15] has introduced "actions of such novel scale", that our former framework of ethics "can no longer contain them". His argument is somewhat complex; and, unfortunately, it cannot be examined here in the depth that it deserves. For our purposes, however, I believe that the essence of Jonas' argument can be expressed as follows: The powers of modern technology create for us a new moral condition by creating novel powers to act; novel powers to act, in turn, disclose new objects of ethical consideration; and, consequently, novel powers to act require "novel ethical rules and perhaps even a *new ethics*". Because some proponents of CEIU believe that ICT has also created "novel powers to act", which in turn have generated novel objects of moral consideration, they conclude that a new system of ethics is required for cyberspace.

First, we can ask whether ICT has provided us with any "novel powers to act". At the very least, it would appear that such technology has made possible "novel modes" for human action. Consider, for example, that Liam Youens was able to stalk his victim without ever having to leave his house. He was also able to locate the whereabouts of his victim, via a few clicks on a computer; and he was even able to disseminate personal information about Boyer, as well as explicit details of his plans to murder her, to a potentially worldwide audience. These activities, which arguably are novel modes for action, might also qualify as "novel powers to act", depending on what Jonas means by the latter expression. But I will not pursue that question here. Instead, let us assume that ICT has provided us with certain novel powers regarding human action. Does it follow that we would then need "novel rules" in the sense of a radically new conception of ethics because of these alleged new powers for human action? Has our moral condition been so radically altered *because* of these new possibilities for human action that we need a brand new system of ethics? The fact that we are able to raise questions such as this suggests that Interpretation 2b of CEIU is by no means uncontroversial.

[15] It should be pointed out that Jonas, in his discussion of ethical implications of "modern technology", was not referring to ICT. Instead, he had in mind ethical problems resulting from other kinds of "modern" technologies, such as those involving atomic power and nuclear warfare.

Next consider the aspect of Jonas' claim that links the introduction of "new objects for moral consideration" to the need for a new system of ethics. [Recall that we briefly considered what is meant by an "object of moral consideration" in our discussion of Interpretation 1b of CEIU.] First, we can ask whether, in fact, any new objects of moral consideration have been introduced by ICT. And regardless of whether such objects have been introduced, a question similar to my earlier one still stands: even if some new moral objects have been introduced, does it follow that we then need a brand new system of ethics to contain those objects? Dianne Michelfelder (2000) rejects the claim that cyberspace has provided us with (any "novel powers to act" that would in turn generate) new objects of moral consideration. From this she infers that we should reject the corollary claim that a new system of ethics is needed for cyberspace. Her rejection of the latter claim would seem justified in virtue of what we have seen thus far. However, while there are good reasons to accept Michelfelder's conclusion that we do not need a new framework of morality to handle ethical issues in cyberspace, there are also good reasons to be skeptical about the premises she uses to establish her position.

Michelfelder argues, in effect, that no fundamentally new system of ethics is needed for cyberspace *because* no new objects of moral consideration have been introduced. Extending Jonas' scheme to ICT, Michelfelder's argument can perhaps be expressed as follows: A new cyberspace ethics is needed if and only if new objects of moral consideration have been introduced by ICT; but no such objects have been introduced; therefore, we do not need a new cyberspace ethics. In evaluating this argument, we can question each of Michelfelder's premises, the first of which I take to be a variation of interpretation 2b of CEIU.[16]

[16] It is important to point out that Michelfelder's argument is more complex than the reconstructed version of it provided above. Michelfelder (2000) states: "If cyberspace were to give us new objects of moral consideration, then we would have reason to believe, following Jonas, that its presence and our interactions within it are ushering us into a new moral condition". It is Michelfelder's contention, however, that we have reason to be skeptical that cyberspace either "expands our powers of action" or "drastically alters the nature of the self". And since cyberspace has not provided us with any "novel powers to act", to use Jonas' phrase, Michelfelder infers that cyberspace has not disclosed any new objects of moral consideration. In making this inference, Michelfelder suggests that if such objects had been introduced by cyberspace, then we would need a new cyberspace ethics. Hence, I infer from her remarks that she holds the following view: the introduction of new objects of ethical consideration involving ICT would be both a necessary and a sufficient condition for a new cyberspace ethics.

I begin with a look at her second premise – ICT has not introduced any new objects of moral consideration – which is questionable, I believe, because it does not take into consideration the possibility that certain kinds of electronic agents or "softbots" might qualify (or soon qualify) as entities or "objects" that warrant moral consideration. For example, since some of these sophisticated "autonomous artificial agents" are alleged to be both rational and autonomous, it might be the case that these agents deserve some moral consideration. It might also be the case that these agents could be held morally responsible for certain actions. Such electronic agents might qualify as "objects of moral consideration" on Kantian grounds, where criteria of "rationality" and "autonomy" are paramount, even if they might have problems qualifying on Aristotelian grounds (where the criterion of having a biological substrate would seem to be essential). Note, however, that in this essay I will not defend the view that these agents should be treated as entities that deserve moral consideration. Instead, I raise the possibility that such agents might plausibly deserve such consideration in order to show that Michelfelder's premise asserting that no new moral objects have been introduced is at least questionable.

More important for our discussion of Interpretation 2b, I believe, is Michelfelder's main premise – viz., a new cyberspace ethics is needed if and only if new objects of moral consideration have been introduced by ICT. I believe that this claim is also highly questionable. For example, the introduction of new objects such as automobiles, arguably, have had ethical significance; yet these objects have not required a brand new formulation of ethics or a new ethical theory. On the other hand, ethical theories such as utilitarianism and Kantianism have emerged without any corresponding "new moral objects" requiring the introduction of such ethical theories. So even if new objects of moral consideration (such as artificial agents, for instance) have been or will soon be introduced, we could still reasonably ask whether that factor alone would constitute a condition that is either necessary or sufficient for a new system of ethics for cyberspace. Of course, on Michelfelder's analysis of Jonas' position, it would seem that the answer to such a question is *yes*.

As in the case of Interpretations 1a and 2a of the CEIU thesis, it would appear that we have good reasons to reject Interpretation 2b as well. Having shown that none of the interpretations considered thus far is adequate, does it follow that we must, by default, accept the traditionalist position on the CEIU controversy? Before conceding that the traditionalist account is correct, we should first consider whether there might be certain assumptions implicit in arguments advance by both traditionalists and uniqueness advocates, which are worth exposing and critically analyzing?

Two assumptions underlying arguments for and against the CEIU thesis

With respect to CEIU, traditionalists assert what uniqueness advocates deny, and visa versa. So both views cannot be correct. However, both could be wrong. In other words, if it could be shown that uniqueness advocates and traditionalists arguments rest on one or more mistaken premises are false, then both could be wrong. In this section, we consider two questionable assumptions that can be found in arguments advanced by both defenders and opponents of the CEIU thesis.

Assumption #1: Computer ethics is a legitimate field of applied ethics only if it has some unique ethical issues

One assumption inherent in arguments advanced by some CEIU advocates as well as by some traditionalists can be expressed in terms of the following conditional statement: If computer ethics is a legitimate field of applied ethics, then it must have some distinctive, i.e., unique, ethical issues. Such a view can be found in certain remarks of Walter Maner (1999), whose argument for Interpretation 1a of CEIU we considered earlier. Maner suggests that in order for computer ethics to be a legitimate field, it must have a set of issues that are peculiar or unique to it. He specifically asserts that to "exist and to endure as a separate field, there must be a unique domain for computer ethics distinct from the domain of moral education, distinct even from the domains of other kinds of professional and applied ethics". So perhaps a large part of Maner's motivation for holding the CEIU view is based on this assumption of a connection between uniqueness of issues in a given field of applied ethics and the philosophical legitimacy of that field. But we can reasonably ask Maner, as well as others who might hold this assumption, why such a requirement should apply.

A moment's reflection will reveal that any requirement linking the legitimacy of a specific field of applied ethics to the requirement that at least some ethical issues be unique to that particular field is one that is questionable and, most likely, untenable. For example, certain moral issues considered by those working in the field of bioethics overlap with issues analyzed by philosophers working in the fields of medical ethics and environmental ethics; and there are certain moral issues in legal ethics which overlap with those in business ethics, and so forth. Indeed it is difficult to find a single ethical issue that exclusively in

the domain of any one branch of applied ethics. Why, then, would the requirements be different in the case of computer ethics? And if the requirements need not be different, then it would seem that this assumption held by uniqueness advocates such as Maner is mistaken. Should the field of computer ethics be dismissed as illegitimate merely because other fields of applied ethics also happen to examine some of the same issues – e.g., issues such as privacy and crime? And even if there are no genuinely new or unique ethical issues involving ICT, does it necessarily follow from this factor alone that computer ethics is not a legitimate field of applied ethics? If it does, then it would also seem to follow that other branches of applied ethics must be illegitimate as well.

Asumption #2: Computer ethics deserve philosophical analysis only if it has some unique ethical issues

Another assumption, which is also inherent in arguments advanced by at least some uniqueness advocates as well as by some traditionalists, can be expressed in the form of the following conditional statement: If computer ethics issues are philosophically interesting and are deserving of philosophical attention, then those issues *must* be unique.[17] Because uniqueness advocates believe that computer ethics issues are clearly philosophically interesting and deserving of our attention, those advocates affirm the antecedent of this conditional and then conclude that such issues must therefore be unique. Traditionalists, on the other hand, would deny the consequent of the conditional (i.e., reject the claim that certain computer ethics are unique) and thus conclude that computer ethics issues are not philosophically interesting and deserving of philosophical attention. But is such an assumption defensible?

Must we *either* affirm the conditional's antecedent or deny its consequent? If so, then would not a similar requirement hold for other areas of applied ethics as well. And if it does, then the burden would be on each field of applied ethics – e.g., business ethics, legal ethics, environmental ethics, etc. – to show that it has one or more unique ethical issues in its domain in order to qualify as a field that is deserving of philosophical attention. I do not believe that we must either affirm the antecedent or deny the consequent of the conditional statement expressed in the preceding paragraph. And in the sections that follow, I will attempt to show why computer ethics issues deserve philosophical attention, regardless of whether those issues also happen to be unique.

[17] It should be noted that not all uniqueness advocates and not all traditionalists hold this assumption. In fact, Michelfelder (2000) and Floridi and Sanders (2001b) have explicitly decoupled or de-linked claims having to do with whether issues in computer ethics are philosophically interesting from claims about the (alleged) uniqueness of computer ethics.

Three models for approaching foundational issues in the ceiu debate

We have seen that the arguments advanced by proponents for each of the two main interpretations of the CEIU thesis fall short in their respective attempts to prove that computer ethics issues are unique in some significant sense. We have also seen that because these arguments fail to establish the CEIU thesis, we should not necessarily infer that the traditionalist's account of the CEIU controversy is correct either – for we saw that arguments advanced by both traditionalists and uniqueness advocates alike proceed from one or both of two questionable assumptions. While uniqueness advocates may have overstated their position, it would seem that traditionalists have understated the problem of comprehending how certain moral problems arise out of the use of computer technology. As Floridi and Sanders (2001b) so aptly point out, uniqueness advocates (or what they describe as proponents of the "radical approach") run the risk of "isolating computer ethics from more general ethical discourse". On the other hand, those authors point out that traditionalists (who they refer to as advocates of the "conservative approach") run the risk of missing what might be "intrinsically new" to computer ethics – i.e., what is new or novel not so much at "the level of problems and concepts" but rather at "the level of contribution to metaethics".

Although neither the traditionalists nor the uniqueness advocates have given us an adequate answer to the CEIU question, it could be argued that each side in this debate has nonetheless caused us to reflect on a number of interesting philosophical issues that underpin the uniqueness controversy. Let us next examine three models of computer ethics, none of which in itself gives us a precise answer to the CEIU question, but each of which offers some additional insights that can help us to understand better some core issues that are inherent in the uniqueness controversy.

Approach #1: The Johnson model

Deborah Johnson has not taken a definitive stance on one side or the other in the CEIU debate. Certain of her remarks on the uniqueness controversy, however, suggest that she intends for her position to be construed as one that is "middle ground". Using an analogy based on the genus-species model, Johnson (1999) suggests that ethical issues raised by computer technology can

best be understood as a "new species" of (existing) generic moral problems. On this view, we have old (traditional) ethical problems, but with a new variation or new twist.[18]

Initially, Johnson's model might seem appealing because it suggests that each side in the uniqueness debate is partially correct. Some critics, however, have been skeptical that Johnson's genus-species analogy can provide us with an adequate analysis of the uniqueness controversy. For example, James Moor (1998) and Floridi and Sanders (2001b) have each criticized Johnson's metaphor, and each uses a different kind of argument to show why Johnson's analogy is ineffective. I believe that the most fundamental problem with Johnson's model is that it does not take into consideration the kinds of distinctions we have drawn with respect to the two main interpretations of CEIU. For example, what does Johnson mean by "ethical problem"? Are we to understand "ethical problem" as an *ethical issue* of the type we considered in Interpretation 1a? Or does Johnson mean by that term the kind of problem we considered in Interpretation 2 of CEIU? Which sense of "ethical problem" she intends, of course, will make all the difference in the world with respect to how we are to understand Johnson's model.

If Johnson means by "ethical problem" an ethical issue such as privacy or intellectual property, then Moor's criticism would clearly seem to apply. For example, Moor believes that Johnson's genus-species analogy is misleading because in certain cases an issue that was previously considered simply a variation of an existing species might evolve into a new species. Moor also goes on to note that placing new species into an old genus may do as much to "redefine the genus as to categorize the species". As Moor (1998) so aptly puts it, "when a species evolves dramatically it can, at some given point, emerge as a new genus". So on this view, a particular issue (i.e., species) involving some aspect of privacy (as the genus) could evolve so dramatically that it becomes transformed in such a way that we have a new issue altogether (i.e., a new genus such as "privacy in public").

If on the other hand, Johnson means by "moral issue" the kind of problem associated with challenges to our ability to analyze an issue because we lack an appropriate moral principle, then Floridi and Sander's criticism of Johnson's "evolutionary metaphor" would seem to apply. Floridi and Sanders believe that Johnson's genus-species metaphor, rather than "resolving the tension" between traditionalists and CEIU advocates, simply "incorporates this tension". It does so, they believe, because new species of moral problems could conceivably be "so revolutionarily different from their ancestors" that they might require a "radically different and perhaps even a unique *approach*" [Italics added].

So at least one difficulty in understanding what Johnson means to assert in her genus-species analogy is understanding what she means by "moral issue". But even if we set aside the ambiguity in her use of that particular expression, another difficulty remains with Johnson's analogy. Consider her use of the term "variation". That is, let us assume that by "ethical problem", Johnson means "ethical issue in the sense described in Interpretation 1a. What does she intend for us to understand when she says that computer ethics issues are variations of existing moral issues – i.e., old ethical issues with a new twist? If she means simply that computer ethics issues are minor variations of existing moral problems, then many traditionalists would no doubt agree with her.[19] If, on the other hand, Johnson means by "variation" a broad range of possibilities that include minor variations at one of the spectrum and major "transformations" of ethical issues at the other end, then her position would seem to be consistent with that held by certain uniqueness advocates as well. Where exactly does Johnson come down on the CEIU question?

If we look at what Johnson (2000) has to say about the future of computer ethics,[20] where she predicts that computer ethics issues will eventually become issues of "ordinary ethics", it would seem that she ends up defending a view that is much closer on the traditionalist side of the debate. However, until we can determine exactly what it is that Johnson means by her

[18] Elsewhere, Johnson (1997) has argued that with respect to ethics, Internet technology has three characteristics worth considering: its *scope* which is global and interactive; the ability to communicate with *anonymity*; and the *reproducibility* of information on the medium". Although she notes that these features may make a "moral difference" in that they make behavior in an electronic network morally different from offline behavior", Johnson does not claim that the Internet has introduced any *new* ethical issues. John Weckert (2000) makes a case similar to that of Johnson's with respect to anonymity, reproducibility, and so forth.

[19] As Floridi and Sanders (2001b) so eloquently put the matter, the ethical problems in question might be so minor in scope that they could be "purposefully disregardable for any theoretical purpose".

[20] In her predictions about the future of computer ethics, Johnson suggests that, as a separate field of applied ethics, computer ethics may "disappear". However, she does not suggest that ethical issues currently associated with computing will go away; instead she believes that certain issues now viewed as computer ethics issues will become simply issues of "ordinary ethics". What Johnson says about the future of computer ethics might lead some to infer that her position on the CEIU debate is closer to that of traditionalists than to the one held by uniqueness advocates such as Maner.

claim that computer ethics issues are "new twists" or "new variations" of existing moral problems – regardless of whether those problems apply to what we have distinguished as Interpretation 1 or Interpretation 2 of CEIU – it is difficult to determine where Johnson herself stands with respect to the CEIU thesis.

In fairness to Johnson, it should be noted that her genus-species analogy, even if it doesn't provide us with an altogether satisfactory answer to the uniqueness question, is nonetheless heuristic in the sense that it invites us to analyze the CEIU debate from an interesting perspective. Johnson (2001) also provides us with an interesting observation about the respective vantage-points used by uniqueness advocates and traditionalists. For example, she points out that one's perspective on (what we have referred to in this study as) the CEIU debate is often influenced by one's starting point. Because uniqueness advocates are inclined to start from the vantage-point of computer technology, Johnson suggests that advocates of this view are drawn to certain unique features about that technology. And since uniqueness advocates tend to focus on the new and ostensibly unique aspects of computer technology itself, Johnson believes that they also view at least some of the ethical issues associated with the technology as unique. She also suggests that if one starts instead from the vantage-point of ethics, as traditionalists tend to do, then one tends to focus more broadly on issues of human behavior and human values than on the specific features or aspects of the technology itself.

I believe that Johnson's analysis is useful in helping us to understand certain presumptions that uniqueness advocates and traditionalists each would appear to bring to the CEIU debate. So even if she has not provided us with a satisfactory answer to the CEIU question, Johnson's has contributed to our understanding of certain biases that the two sides bring to the debate involving the question of uniqueness in computer ethics.

Approach #2: The Floridi/Sanders model

An interesting and provocative model for analyzing certain "foundationalist" issues in computer ethics has been introduced by Luciano Floridi (1998, 1999a, 1999b, 2001) and expanded upon by Floridi and Sanders (2001a, 2001b). Although Floridi and Sanders do not put forth a straightforward answer to the question whether computer ethics issues are unique,[21] certain of their remarks about the "foundational" requirements for computer ethics can help us to understand better some important issues that underpin the CEIU debate. While I cannot discuss, in the space allocated in this section of the present study, all of the complexities and subtleties contained in Floridi's and in Floridi and Sanders' arguments, I will nonetheless attempt to highlight and critically analyze those aspects of their arguments that apply to the CEIU debate.

First, it is worth pointing out that Floridi (1999a) has argued that the legitimacy of computer ethics as an independent field worthy of philosophical analysis is threatened because computer ethics lacks a "methodological foundation". What is needed to provide such a methodological foundation, he further argues, is a distinct kind of ethical theory – i.e., a separate "macroethics", as he refers to it. He believes that the macroethical theory needed for computer ethics would have to be distinct from "standard" ethical theories such as utilitarianism, Kantianism, and virtue ethics. Instead, it will resemble, in certain respects, a type of macroethical theory advocated by some researchers in the field of environmental ethics, who have argued that we should extend the sphere of moral consideration to include life forms in addition to humans. The macroethical theory proposed by Floridi and Sanders is similar to the one used by certain environmental ethicists in the sense that the former theory would also grant moral consideration to entities or objects other than human beings. On the other hand, the two macroethical theories would differ in at least one important respect, since the theory advocated by Floridi and Sanders would grant moral status to certain non-biologic entities, as well as to life forms. Arguing that computer ethics should have a foundation based on the concept of "information", Floridi (1999a) calls his macroethical theory "information ethics" or "IE".

At first glance, it might seem that Floridi's argument for IE, which calls for a new ethical theory, is simply another variation of what we earlier described as the Interpretation 2a of the CEIU thesis. However, unlike those who subscribed to that interpretation, neither Floridi nor Floridi and Sanders assert that a

[21] Floridi and Sanders (2001b) claim that the novelty of computer ethics is "not so dramatic as to require the development of an utterly new, separate, and unrelated discipline". This passage might be interpreted to suggest that Floridi and Sanders would defend the traditionalist view in the CEIU debate. However, in that same work, the authors also assert that ethical issues in computing "transform in a profound way the context in which moral issues arise" and thus not only "add new dimensions to old problems", but also cause us to "rethink methodologically, the very grounds on which our ethical position is based". Here, the authors might be interpreted as supporting a version of CEIU. This interpretation might seem further warranted in light of Floridi and Sanders' remarks on the "novelty of computer ethics", which the authors claim "shows the limits of traditional approaches to ethical discourse" and encourages a "modification in our metaethical perspective".

new ethical theory is needed *because* computer ethics is unique. In fact, Floridi and Sanders (2001b) explicitly state that computer ethics issues are "not uncontroversially unique". So Floridi and Sanders should not be viewed as defenders of the CEIU thesis, at least not in any straightforward way. Rather, they believe that their IE theory is needed because it provides a *methodological foundation* that would legitimize computer ethics as an independent philosophical field of study. This rationale for *why* a new ethical theory is needed differs, in one very significant respect, from the reasons given by advocates of Interpretation 2a. Hence, my reluctance to include the Floridi/Sanders approach to the CEIU controversy in that category of arguments advanced by uniqueness advocates.[22] However, what are we to make of Floridi and Sanders' claim that a distinct methodological foundation based on theory of IE is needed for computer ethics? Before analyzing that claim, I believe that it is important for us first to get a clearer understanding of what Floridi (1998) means by his claim that information has "moral worth".

Floridi (1999b) provides an interesting account of the ontological status of "information", which lies at the core of his IE theory. Unfortunately, an examination of his remarks on the ontology of information and "data entities", in the detail that it deserves, would take us beyond the scope of the present study.[23] So we will focus our attention on his theory of information as it pertains to claims involving moral consideration, which have been advanced both by Floridi (1998, 19991) and Floridi and Sanders (2001a, 2001b). The authors argue that with respect to the kinds of entities that deserve moral consideration there is even a more basic entity than life forms – viz., *information*. On the Floridi/Sanders model, the following comparisons and analogies are made: (i) a "data entity" is analogized to a (biologic) life form; the infosphere to the ecosphere; and entropy to pain. These analogies are critical in helping us to understand what Floridi and Sanders mean when they assert that information deserves moral consideration. I will briefly summarize some key points in their arguments by appealing to such analogies.

Drawing from certain analogies involving ecology and the "ecosphere", and the recent attention such notions have received from environmental ethicists, Floridi and Sanders suggest that we should explore a domain that they refer to as the "infosphere". Their recommendation that the "infosphere" be viewed as an analog to the "ecosphere" is instructive in the following sense. Floridi and Sanders (2001b) point out that research in environmental ethics has introduced new moral entities or what we earlier referred to as new "objects of moral consideration". The authors point to the example of "land ethics", which some environmental ethicists have argued shows the need to broaden the sphere of moral consideration to include entities in addition to humans and animals, i.e., entities such as trees, ecosystems, etc.

Floridi and Sanders also note that when ethicists began to analyze moral issues involving the environment, some argued that none of the standard ethical theories – e.g., utilitarian, Kantian, and virtue ethics theories – were adequate. For example, whereas virtue ethics is "agent oriented" in that it focuses on the moral character development of individual agents (i.e., persons), utilitarianism and Kantianism are "action oriented" in that they are concerned with the consequences and motives of individuals engaged in moral decisions. While action-oriented theories focus primarily on agents and the actions of those agents, those theories attend only minimally to the "recipients" (or objects) or moral actions. Floridi and Sanders acknowledge that action-oriented theories are "relational" in the sense that those theories consider both the act of the agent and the impact of the act on recipients (objects) of the actions. However, the authors also believe that these "standard" ethical theories are deficient because they do not accord sufficient attention or consideration to the recipient or what Floridi and Sanders refer to as the "patient" involved in the moral action. The authors also believe that the improvement with the macroethical theory used by some in the fields of environmental ethics, bioethics, and medical ethics is that it is "patient oriented" – i.e., because that theory takes into account as potential recipients or patients certain kinds of "entities" in addition to human beings and animals. For example, such "patients" can include trees, ecosystems, etc., as entities deserving moral consideration. Floridi and Sanders (2001b) argue that a shortcoming of the environmental macroethical theory, and the primary reason

[22] Floridi's position on the uniqueness question is indeed difficult to classify even though it is tempting to include the Floridi/Sanders model in my second category (Interpretation #2) of the CEIU thesis. Doing so, however, would be inaccurate since Floridi and Sanders do not claim that computer ethics issues are unique. It might also be suggested that the Floridi/Sanders model merits its own category (e.g., a possible "Interpretation #3"), based on a certain alleged "methodological uniqueness". Such an interpretation might be formulated along the following lines: "computer ethics is unique because it requires a distinct or separate methodology". However, it is important once again to point out that Floridi and Sanders do not claim that computer ethics issues are unique, even if they do assert that this branch of applied ethics requires a distinctive methodology.

[23] Readers interested in his remarks on the ontology of information should consult Floridi (1999b, 2001).

why that theory will not work for computer ethics, is that it limits the kinds of "patients" that qualify for moral consideration to biologic life forms. Hence, the bias in that macroethical theory for the environment and biological life forms, which Floridi and Sanders describe as a theory that is "biocentric".

Whereas environmental ethics is "biocentric" with respect to which objects it is willing to extend the status of moral consideration, Floridi and Sanders point out that Information Ethics (or IE) is "ontocentric". IE is ontocentric because it grants moral status to inanimate objects – i.e., to non-biologic objects or entities – as well as to entities that can be regarded as standard life forms. Floridi and Sanders (2001a) argue that moral good and evil can be "determined even in the absence of biologically sentient participants". An interesting aspect of the Floridi/Sanders approach to the CEIU debate is that it not only causes us to consider the ontological status of information, but it also questions whether non-biologic entities (e.g., "data entities") ought to be brought into the realm of moral discourse. This feature of their model is especially useful because a better understanding of the ontology of information could also help us to determine whether at least certain kinds of electronic agents, which would seem to qualify as "data entities" of some sort, should be granted moral consideration. Floridi and Sanders (2001a), in their discussion of "artificial evil", draw an interesting distinction between what they call "autonomous electronic agents" and "heteronomous electronic agents". Such a distinction could potentially help us to sort out some important questions having to do with whether we should grant moral status to certain kinds of electronic agents, but not to others. Recall our earlier discussion having to do with whether certain kinds of electronic agents might be considered worthy of moral consideration, which we briefly alluded to in our analysis of Interpretation 2b of the CEIU thesis.

Let us now return to Floridi and Sanders' claim that IE is a requirement for an adequate methodological foundation for computer ethics – a claim that was briefly described earlier in this section. Is such a claim tenable? I believe that we can question Floridi and Sanders' position that a methodological foundation such as IE is necessary for computer ethics to be a legitimate field. We can question that claim even if we accept that Floridi and Sanders' overall model is useful in helping us to understand many key issues that underpin the CEIU debate. And we can question this claim even though, as we saw above, that model is especially useful in helping us to approach issues involving the ontology of information itself as well as issues involving the potential moral status of certain kinds of electronic agents. So it would seem that one could, in principle, accept the IE theory advanced by Floridi and Sanders without necessarily having to accept their corollary claim that the field of computer ethics requires a new methodology.

Approach #3: The Moor model

A third model worth considering is one that has been advanced by James Moor (1985, 1998a, 2001). As in the case of Johnson and of Floridi and Sanders, Moor does not offer a direct answer to the CEIU question. He does, however, explicitly address several of the critical issues that underpin this controversy. In order to understand Moor's contribution to the CEIU debate, it is important to understand first his overall conception of computer ethics as a philosophical field of inquiry. Essentially, Moor argues that because computer technology, unlike previous technologies, is "logically malleable", it gives rise to "new possibilities" for human action. These new possibilities can, in turn, create certain "vacuums" i.e., vacuums regarding normative rules and policies (*viz.*, "policy vacuums") to guide the new choices for action made possible by computers, and vacuums regarding conceptual frameworks that enable us to understand clearly the nature of certain normative issues that emerge. Moor claims that even after the "conceptual muddles" are resolved and the emergent moral issues have become more clearly understood, we sometimes discover that existing policies cannot be applied easily to those issues. So we often need to create and justify new policies in response to certain vacuums generated by computing technology. On Moor's analysis, computer ethics is the specialized field of identifying policy vacuums created by computers, clarifying conceptual confusions surrounding those issues, and then formulating and justifying new policies for those areas in which either there are no existing policies or where existing policies cannot be adequately extended. The field of computer ethics is needed, Moor (1998) argues, because "routine ethics" is not able to handle adequately many of the normative issues that can and do arise from the use of computing technology.

On Moor's view, if anything is unique about computer ethics it is the technology involved, which easily leads to the introduction of policy vacuums. However, Moor is very careful to point out that we should not infer that computer ethics issues are unique *because* computer technology alone generates policy vacuums. He correctly notes, for example, policy vacuums involving ethical issues can be and have been generated in non-computer technology contexts as well. For instance, genomic and genetic research in bioethics can lead to policy vacuums regarding

personal privacy and the use of genetic markers.[24] So we should not infer that the only technology to generate policy vacuums is computer technology. On the other hand, Moor (2001) believes that computer technology, because of its logical malleability and its diverse applications, can produce "larger quantities" of policy vacuums than the number of such vacuums generated by other technologies. And it is in this sense that he believes that computer ethics is "special, if not unique".

It would seem that Moor's analysis, as briefly summarized in the previous two paragraphs, provides the foundation for a compromise view in the CEIU debate that strikes a promising balance between the traditionalists and the uniqueness advocates. Because of the large number of policy vacuums generated by computers, we can see why at least some computer ethics issues might be special in some sense, even if the issues involved in those policy vacuums are not ultimately unique ethical issues. This position, though different from that advanced by uniqueness advocates – at least by those expressed in the two interpretations of the CEIU thesis – could be understood as an aspect of Moor's analysis that is sympathetic to the uniqueness advocates. However, his view can also be understood as one that is sympathetic to the traditionalists as well. And this is apparent when Moor (2001) asserts that computer ethics, as in the case of other branches of applied ethics, must "draw on traditional ethical concepts of justice, rights, informed consent, etc., for it to be understood and effective as a field of applied ethics".

Moor has provided us with a useful model for analyzing issues central to the CEIU debate. It is a model on which we can also continue to build in the future. Expanding on Moor's insight that ethical concepts such as privacy may look different after an "influx of problems in computer ethics", I believe that some of our core ethical notions – e.g., our notions of autonomy, agency, responsibility, and so forth – may look different as well. It would also appear that in the future, conceptual muddles will no doubt continue to arise and will likely stretch and strain some of our fundamental moral concepts and categories. As we saw earlier in our analysis of Interpretations 1b and 2b of the CEIU thesis, as well as in our analysis of the Floridi/Sanders model of computer ethics, the introduction and evolution of electronic agents causes us to reconsider whether our existing moral categories having to do with agency and autonomy are still adequate or whether those notions might need to be modified and extended because of certain challenges posed by ICT. I believe that Moor's model can help us recognize and possibly anticipate similar challenges that will likely continue to stretch our current moral categories.

[24] See, for example, Moor (1999b). It would also seem that recent controversies over the moral status of frozen embryos and the implications those debates have for our concepts of "parenthood" and "personhood" confirm the claim that policy vacuums can emerge from areas other than computer technology per se.

Concluding remarks

A principal goal of this essay has been to offer a clearer picture of what is meant by the claim that computer ethics is unique. To achieve that goal, I argued that it was useful to distinguish between two broad and radically distinct interpretations of the CEIU thesis, each of which can be found in some form or variation in the computer ethics literature. In closing, I would like to reiterate **three** important claims made in this essay. **First**, I have argued that there is no compelling evidence to support the claim that computer ethics is unique in the sense that it: (a) introduces new ethical issues or new ethical objects, or (b) requires a new ethical theory or a whole new ethical framework. I have also argued that we should not, by default, infer that the traditionalists are correct merely because we can reject the arguments advanced thus far by those who support the CEIU thesis.

Second, I have defended the view that ethical issues involving computers and ICT are philosophically interesting and are deserving of our consideration, regardless of whether such ethical issues also happen to be unique in some significant or "genuine" sense of that term. In defending this position, I have also argued that attempts to link the legitimacy of computer ethics as a authentic branch of applied ethics to any requirement that (at least some) computer ethics issues must be unique ethical issues is based on an assumption that is mistaken.

Third, I have argued that models of analysis for computer ethics proposed by Luciano Floridi and J. W. Sanders and by James Moor are especially useful in helping us to understand exactly why computer ethics is legitimate field of applied ethics that deserves philosophical analysis. I have suggested ways in which we can use both models as we go forward with such an analysis of computer ethics issues. For example, whereas Floridi and Sanders' model can be applied to questions involving both the ontological and the moral status of electronic agents in cyberspace, Moor's model can be used to unravel conceptual muddles and to identify policy vacuums that will no doubt continue to arise. We saw that Moor's model is very useful in helping us to understand and analyze current muddles, such as those involved in the recent cyberstalking case

that we briefly considered, where some of our conventional moral notions involving privacy, anonymity, free speech, etc., have been stretched and strained. Not only will further development and use of ICT continue to create new policy vacuums and new conceptual muddles involving our moral notions at the level of specific problems such as privacy and free speech, but I believe that future uses of this technology may also present challenges to some of our more general and fundamental moral categories as well. For example, it is very likely that we will need to revisit core moral notions such as autonomy, agency, and moral responsibility. I believe that both Moor's and Floridi and Sanders' models can help us to anticipate and possibly resolve at least some of these issues.

Acknowledgements

I am especially grateful to Lloyd Carr, a colleague at Rivier College, for his helpful comments on an earlier draft of this essay. This paper has also benefited from discussions with Terry Bynum (Southern Connecticut State University), Luciano Floridi (Oxford University), Deborah Johnson (University of Virginia), and James Moor (Dartmouth College).

References

T.W. Bynum. Global Information Ethics and the Information Revolution. In T.W. Bynum and J.H. Moor, editors, *The Digital Phoenix: How Computers are Changing Philosophy*, pp. 274–289. Malden, MA: Blackwell Publishers, 1998.

T.W. Bynum. The Development of Computer Ethics as a Philosophical Field of Study, *Australian Journal of Professional and Applied Ethics*, 1(1): 1–29, 1999.

T.W. Bynum. A Very Short History of Computer Ethics, *APA Newsletter on Philosophy and Computers*, 99(2): 163–165, Spring 2000.

T.W. Bynum. Ethics and the Information Revolution. In R.A. Spinello and H.T. Tavani, editors, *Readings in CyberEthics*, pp. 9–25. Sudbury, MA: Jones and Bartlett Publishers, 2001.

L. Floridi. Does Information Have a Moral Worth in Itself? In L.D. Introna, editor, *Proceedings of the Conference on Computer Ethics – Philosophical Enquiry: CEPE98*, pp. 144–158. London School of Economics, 1998.

L. Floridi. Information Ethics: On the Philosophical Foundation of Computer Ethics. *Ethics and Information Technology*, 1(1): 37–56, 1999a.

L. Floridi. *Philosophy and Computing: An Introduction*. New York: Routledge, 1999b.

L. Floridi. *Open Problems in the Philosophy of Information* (The Herbert A. Simon Lecture on Computing and Philosophy). Presented at the 16th Annual Conference on Computing and Philosophy (CAP 2001), Carnegie Mellon University, Pittsburgh, PA, August 10, 2001.

L. Floridi and J.W. Sanders. Artificial Evil and the Foundations of Computer Ethics. *Ethics and Information Technology*, 3(1): 55–66, 2001a.

L. Floridi and J.W. Sanders. *Computer Ethics: Mapping the Foundationalist Debate. Ethics and Information Technology*, Vol. 4, No. 1, 2002.

B. Gert. *Morality: Its Nature and Justification*. New York, Oxford University Press, 1998.

B. Gert. Common Morality and Computing. *Ethics and Information Technology*, 1(1): 57–64, 1999.

K. Gorniak-Kocikowska. The Computer Revolution and the Problem of Global Ethics. In T.W. Bynum and S. Rogerson, editors, *Global Information Ethics*. Special Issue of *Science and Engineering Ethics*, 2(2): 177–190, 1996.

D. Gotterbarn and S. Rogerson. Computer Ethics: The Evolution of the Uniqueness Revolution. In M.J. van den Hoven, editor, *Proceedings of the Conference on Computer Ethics – Philosophical Enquiry: CEPE97*, pp. 151–159. Rotterdam, The Netherlands, University of Erasmus Press, 1998.

S.F. Grodzinsky and H.T. Tavani. Is Cyberstalking a Special Kind of Computer Crime? In T.W. Bynum, et al., editors, *Proceedings of the ETHICOMP 2001 Conference*, 2: 73–85. Gdansk, Poland: Mikom Publishers, 2001.

G.D. Johnson. Ethics Online. *Communications of the ACM*, 40(1): 60–65, 1997.

G.D. Johnson. Sorting Out the Uniqueness of Computer-Ethical Issues. In L. Floridi, editor, *Computer Ethics*. Special Issue of *Etica and Politica*, 2 (Available online at http://www.univ.trieste.it/~dipfilo/etics_e_politica/1999_2/homepage.html.), 1999.

G.D. Johnson. The Future of Computer Ethics. In G. Collste, editor, *Ethics in the Age of Information Technology*, pp. 17–31. Linkoping, Sweden: Center for Applied Ethics, 2000.

G.D. Johnson. *Computer Ethics*. 3rd ed. Upper Saddle River, New Jersey: Prentice Hall, 2001.

H. Jonas. *The Imperative of Responsibility: In Search for an Ethics of the Technological Age*. Chicago, IL: University of Chicago Press, 1984.

W. Maner. Unique Ethical Problems in Information Technology. In T.W. Bynum and S. Rogerson, editors, *Global Information Ethics*. Special Issue of *Science and Engineering Ethics*, 2(2): 137–154, 1996.

W. Maner. Is Computer Ethics Unique? In L. Floridi, editor, *Computer Ethics*. Special Issue of *Etica and Politica*, 2 (Available online: http//:www.univ.trieste.it/~dipfilo/etics_e_politica/1999_2/homepage.html.), 1999.

I.R. Mason. Four Ethical Issues of the Information Age. *MIS Quarterly*, 10(1): 5–12, 1986.

D. Michelfelder. Our Moral Condition in Cyberspace. *Ethics and Information Technology*, 3(1): 147–152, 2000.

C. Mitchham. *Thinking Ethics in Technology: The Hennebach Lectures and Papers 1995–1996*. Colorado: Colorado School of Mines, 1997.

H.J. Moor. What is Computer Ethics? *Metaphilosophy*, 16(4): 266–275, October 1985.

H.J. Moor. Towards a Theory of Privacy for the Information Age. *Computers and Society*, 27(3): 27–32, 1997.

H.J. Moor. Reason, Relativity, and Responsibility in Computer Ethics. *Computers and Society*, 28(1): 14–21, 1998a.

H.J. Moor. If Aristotle Were a Computing Professional. *Computers and Society*, 28(3): 13–16, 1998b.

H.J. Moor. Just Consequentialism and Computing. *Ethics and Information Technology*, 1(1): 65–69, 1999a.

H.J. Moor. Using Genetic Information While Protecting the Privacy of the Soul. *Ethics and Information Technology*, 1(4): 257–263, 1999b.

H.J. Moor. The Future of Computer Ethics: You Ain't Seen Nothing Yet. *Ethics and Information Technology*, 3(2): 89–91, 2001.

A.R. Spinello and H.T. Tavani. The Internet, Ethical Values, and Conceptual Frameworks. In R.A. Spinello and H.T. Tavani, editors, *Readings in CyberEthics*, pp. 1–8. Sudbury, MA: Jones and Bartlett, 2001.

T.H. Tavani. Internet Search Engines and Personal Privacy. In M.J. van den Hoven, editor, *Proceedings of the Conference on Computer Ethics – Philosophical Enquiry: CEPE97*, pp. 214–223. Rotterdam, The Netherlands, University of Erasmus Press, 1998.

T.H. Tavani. Privacy and the Internet. In M.M. Placencia, editor, *Privacy and the Constitution*, pp. 114–125. Hamden, CT: Garland Publishing, 1999.

T.H. Tavani. Defining the Boundaries of Computer Crime: Piracy, Break-Ins, and Sabotage in Cyberspace. *Computers and Society*, 30(3): 3–9, 2000.

T.H. Tavani. The State of Computer Ethics as a Philosophical Field of Inquiry: Contemporary Perspectives, Future Projections, and Current Resources. *Ethics and Information Technology*, 3(2): 97–108, 2001.

J. van den Hoven. Computer Ethics and Moral Methodology. *Metaphilosophy*, 28(3): 234–248, 1997.

J. Weckert. What is New or Unique About Internet Activities? Chap. 3 in D. Langford, editor, *Internet Ethics*. New York: St. Martin's Press, 2000.