WILLIAM J. RAPAPORT: Ethical Issuesin the Useof Computers, Deborah G. Johnson, John W. Snapper, eds.

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    With the success of Business and Professional Ethics as hot topics in philosophy, and with the ubiquity of computers in our lives and in the news, it was inevitable that Computer Ethics should come to be. On the other hand, as interesting and, perhaps, as valuable as this anthology is, reading it gave me the distinct impression that Computer Ethics is barely in the process of becoming: Out of the 33 readings, precisely *one* (not counting the editors' introductory essays) is both by a philosopher and about computers!

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    Ethical Issues in the Use of Computers is divided into five parts: Codes of Conduct for Computer Professionals, Issues of Responsibility, Privacy and Security, Computers and Power, and Software as Property. The editors are careful to note that they are not defining the field of Computer Ethics by this division. Each part begins with a brief introduction, and the essays-by philosophers, computer scientists, journalists, and lawyers *(lots* of lawyers)-date from 1890-1984.

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    In their general introduction, Johnson and Snapper distinguish among new problems arising through new technology, old problems given "odd twists," and old problems that have become more "urgent" or "significant" because of the new technology. They promise, for each section, background studies in ethical theory, applications of that theory to computer technology, and case studies. There are plenty of the latter, which are quite valuable; there is much of the former, if the definition of 'ethical' is extended to include "legal"; and there are many applications of *legal* theory, but-as noted-only one of the philosophical theory.

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    The book is intended for use in courses as well as for researchers. But its usefulness for researach is doubtful: there is no index (which is inexcusable for research *or* teaching), and many of the articles have had their notes deleted.

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    Part 1 offers five codes of conduct devised by various professional computer societies, one case study in the form of a Supreme Court opinion concerning a professional code (not one of those included) that was found to be overly restrictive, and two essays by philosophers:

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    John Ladd's 1980 "Quest for a Code of Professional Ethics," and Fay Sawyier's 1984 "What Should Professional Societies Do About Ethics?" Ladd argues that such codes are absurd, useless, and possibly harmful, while Sawyier analyzes the limits and responsibilities of professional societies, focusing on the Supreme Court case. (Why, however, put the interpretive essay *before* the case study?) As for the codes themselves, I suppose it's nice to have them all in one place, and it's interesting to see how they handle (or fail to) gender problems (two opt for 'he,' one uses 'I' and 'him/her,' one uses 'they,' and one uses 'one'). But the codes and the attendant issues are not really unique or central to *computer* ethics; they belong to the broader area of *professional* ethics.

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    Part 2 raises the question of who is responsible for defects or malfunctions in software.

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    This, presumably, is the *computer* issue of this part, while the *philosophical* issue is about the nature of responsibility *simpliciter*. This is one of the most interesting and important areas of computer ethics. Consider, for instance, the recent news item *(New York Times*, 14 August 1985) about the failure of a Union Carbide computer to accurately predict the route of an escaping chemical-a failure due to Union Carbide's failure to provide full specifications to the programmers: their program did everything it was supposed to do; but no program can be expected to do what it was not designed for. Such issues are also closely related to the message of Edsgar Dijkstra (founder of "structures programming"), which all computer science students ought to learn: only the presence of bugs can be demonstrated, never their absence.

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    This section is divided among four essays by lawyers and three by philosophers. Vincent Brannigan's 1980 "Liability for Personal Injury Caused by Defective Medical Computer Programs," Susan Nycum's 1979 "Liability for Malfunction of a Computer Program," Marvin Benn and Wayne Michael's 1982 " 'Multi-Programming' Computer

Litigation," and Jim Prince's 1980 "Negligence: Liability for Defective Software" review such legal issues as: Is software a service or a product? Who owns programs? Who is responsible for them when they fail? and such a practical issue as: How can a user "maximize the potential for recovery" in litigation? (Benn and Michael, p. 80). The chief benefits of articles such as these for philosophers are the ontological issues (What is a service? What is a product?) and to be able to see how legal reasoning differs from philosophical reasoning. But why *four* such articles? (The editors admit that the articles are redundant but think that redundancy is useful in the legal area.)
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From the philosophers, we have H. L. A. Hart's 1968 analysis of responsiblity, "Punishment and Responsibility," and Joel Feinberg's 1970 analysis of blame and fault, "Sua Culpa." The most interesting one, because it is the most relevant, is James Moor's 1979 "Are There Decisions Computers Should Never Make?" This seems a bit out of place, though, since it is concerned with responsiblity on the part of computers and their users, rather than on the part of programmers. It includes a nice survey of programs actually used in decision making, and raises a crucial moral issue (the concern also of Part 4): "What aspects of our lives, if any, computers should control" (p. 122). Among the philosophical issues Moor discusses are these: Do computers make decisions? Is computer decision making competent? And his answer is that it is an *empirical* question how good computers are at decision making. But Moor's essay seems to me to miss an important point: Such programs follow (or are) algorithms; algorithms-if designed well (and that's a big 'if')-are rational (or rationally behaving) entities; hence the question raised in the title of the essay is really: Are there decisions that should not be made rationally?
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In Part 3, the effect of computers on, and the importance of, privacy is examined, focusing on issues arising from the use and ability of computers to store and retrieve massive amounts of information at great speeds. A related issue that is *not* touched upon in the book are such problems arising out of research in artificial intelligence (AI) as: the use and ability of AI

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programs to *infer* facts from these databases or to *eavesdrop* on conversations (using naturallanguage-processing techniques); these techniques might not be perfect yet (or even for a very long time), but neither are they science fiction-which is more cause for concern: what if they are put into practice prematurely?
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R. Turn and W. H. Ware's 1976 "Privacy and Security Issues in Informations Systems" reviews the computer issues and techniques for safeguarding privacy. A selection from David Burnham's 1983 *Rise of the Computer State* describes the massive AT&T and FBI databases, with stories of their misuse. Alan Westin's 1967 "Privacy in the Moder Democratic State" discusses political and psychological needs for privacy in non-totalitarian societies. And something called the Privacy Protection Study Commission's 1977 "Personal Privacy in an Information Society" presents the recommendations of a government commission. These legal and computer-professional articles are balanced by two philosophical ones: James Rachel's 1975 "Why Privacy Is Important" and W. A. Parent's 1983 "Privacy, Morality, and the Law"; both of these criticize an article by Judith Jarvis Thomson-it would have been nice to have had her article, too.
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The most interesting piece in this section, however, is also the oldest: Samuel Warren and Louis Brandeis's 1890 "Right to Privacy," which presents nice examples of similar issues from a new technology of an earlier day: photography. Indeed, an interesting exercise for the reader would be to determine to what extent the conclusions of this article, now almost 100 years old, hold for computer technology. (It would have been a bit easier to read, though, if the numerous phrases in legal Latin had been translated.)
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Part 4 focuses on the power for communicating, planning, and analyzing accruing to a computer user: Do computers promote the centralization or the decentralization of power, and which is better? Unfortunately, *no* philosophers seem to have written on this topic; at least, none are included. Instead, we have an excerpt from Abbe Mowshowitz's 1976 "Conquest of the Will: Information Processing in Human Affairs," which reviews the literature on these issues; Rob Kling's 1974 "Computers and Social Power," which argues that "the balances of power and influence in an organization [shift in favor of those who receive information] when information is channeled through automated systems" (pp. 270-71); an article from *Time* on the effect on students in poor school districts of their lack of access to personal computers; and Herbert Schiller's 1978 "Computer Systems: Power for Whom and for What?," a survey of database networks.
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Fortunately, though, we are also given two fine essays by computer scientists who are philosophically sophisticated. There is an excerpt from Joseph Weizenbaum's 1976 *Computer Power and Human Reason* on the impossibility of getting rid of computers once they have been integrated into society-even a society that could have gotten along quite nicely without them. Weizenbaum's book is must reading for anyone interested in computers in general and in computer ethics in particular. I only wish more of his writings had been included in other sections of this anthology.

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The other bright spot is Herbert Simon's 1979 "The Consequences of Computers for Centralization and Decentralization." This essay makes a nice companion piece to Moor's, since it argues that (de-)centralization is the wrong notion for analyzing the importance of computers-the nature of decision making is the relevant one.

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The final Part, on software as property, harks back to Part 2. Here, there is an interesting ontological as well as legal issue: whether software is more like creative writing (in which case, it's copyrightable but not patentable), or more like an invention (in which case, it's patentable but not copyrightable), or more like a mathematical formula or theorem (in which case, it's neither). Two legal cases are included: the Supreme Court's *Diamond v. Diehr*, which concluded that some software is patentable, *and Apple Computer v. Franklin Computer*, which came down on the side of copyrighting software. A third position-treating software

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as a trade secret-is defended in Joseph Scafetta's 1977 "Computer Software and Unfair Methods of Competition." Michael Gemignani-who is one of the best and most prolific writers on legal issues concerning computers-is represented by his 1980 "Legal Protection for Computer Software," a survey of legal issues and cases, advocating copyrighting. His essay also includes a brief, but valuable, discussion of the nature of computers and computer programs. A student would do well to read this for useful background information before studying the other articles. Finally, philosophy is represented by Morris Cohen's 1927 "Property and Sovereignty"; this is, however, an article aimed at lawyers.

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As you can tell if you've read this far (or skipped to this closing paragraph), I'm disappointed. But I'm not sure at whom. There are lots of interesting articles in this anthology, but there are lots of boring ones and too many that don't deal with strictly *ethical* (as opposed to *legal)* issues. There are also some surprising gaps: nothing on teenage hackers "breaking into" corporate and government computer systems, virtually nothing on the ethical implications of research in the cognitive-simulation aspects of AI (what if it succeeds?; what rights do/should intelligent computers have?), and nothing on the nature of military-related research (in AI in particular, but in computer science on the whole). Surely there are ethical issues here. If these problems with the book are the fault of the editors, then it would be nice to see a better anthology. But if the editors have done their job (and I have no reason to think that they haven't), then it would be even nicer to have more *philosophers* writing on these important issues in computer ethics.

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