

Epistemic Value Theory and Information Ethics

DON FALLIS

School of Information Resources, University of Arizona, 1515 East First Street, Tucson, AZ 85719, USA; E-mail: fallis@email.arizona.edu

Abstract. Three of the major issues in information ethics — intellectual property, speech regulation, and privacy — concern the morality of restricting people’s access to certain information. Consequently, policies in these areas have a significant impact on the amount and types of knowledge that people acquire. As a result, epistemic considerations are critical to the ethics of information policy decisions (cf. Mill, 1978 [1859]). The fact that information ethics is a part of the philosophy of information highlights this important connection with epistemology. In this paper, I illustrate how a value-theoretic approach to epistemology can help to clarify these major issues in information ethics. However, I also identify several open questions about epistemic values that need to be answered before we will be able to evaluate the epistemic consequences of many information policies.

Key words: epistemic value theory, epistemology, information ethics, intellectual property, philosophy of information, privacy, social epistemology, speech regulation

1. Introduction

1.1. INFORMATION ETHICS AND PHILOSOPHY OF INFORMATION

Information ethics is an area of applied ethics that addresses policy decisions of the following sort:¹

- Should we adopt strong intellectual property legislation such as the *Digital Millennium Copyright Act* or the *Sony Bono Copyright Term Extension Act*. (cf. Hoffmann, 2001, pp. 49–54)?
- Should there be any government regulation of speech (cf. Mill, 1978 [1859], pp. 15–52; Goldman, 1999, pp. 213–217)?
- Should the privacy rights of library patrons be absolute (cf. Garoogian, 1991, p. 231)?

The information policy decisions addressed by information ethics typically have to do with restrictions on people’s access to information.² For example, the exclusive rights of creators to control their intellectual property often have the effect of restricting access to information.³ Also, whenever a government regulates speech, it is restricting its citizens’ access to information. Finally, protecting people’s privacy (e.g., by not informing FBI agents about what suspected terrorists have checked out from the library, see Garoogian, 1991, p. 218) typically involves restricting access to personal information.

According to Luciano Floridi (2002, p. 138), the philosophy of information is concerned with “how information should be adequately created, processed, man-



Minds and Machines 14: 101–117, 2004.

© 2004 Kluwer Academic Publishers. Printed in the Netherlands.

aged, and used.” Thus, information ethics clearly falls within the scope of the philosophy of information (cf. Floridi, forthcoming). Information ethics, however, is not the only area of philosophy that is concerned with “how information should be adequately created, processed, managed, and used.” In particular, there are important connections between *epistemology* and the philosophy of information (cf. Floridi, forthcoming).

Accessing information is clearly not the same as acquiring knowledge, but the first is typically valuable precisely because it is an effective means to the second (cf. Goldman, 1999, pp. 3–4; Fallis, 2002, p. 1).⁴ Thus, information policy decisions that involve restrictions on people’s access to information can have a profound effect on knowledge acquisition. As a result, information ethics is unique among areas of applied ethics in having an important epistemological component. And seeing information ethics as part of the philosophy of information has the benefit of highlighting this epistemological component.

1.2. ETHICS AND EPISTEMOLOGY

Many non-consequentialist arguments have been given for particular information policies.⁵ For example, a popular non-consequentialist argument for intellectual property rights is based on John Locke’s theory of property rights (cf. Hettinger, 1989, pp. 36–37). Also, a popular non-consequentialist argument for privacy rights is based in the autonomous nature of human beings (cf. Benn, 1984). However, most people (even many non-consequentialists) think that what the right social policy is depends at least partly on the consequences that it has. In this paper, I will investigate the prospects for a consequentialist evaluation of information policies.

Because information policies can have a profound effect on knowledge acquisition, evaluating their *epistemic* consequences is an especially important part of a consequentialist evaluation of such policies (cf. Goldman, 1999, p. 6). For example, the most common arguments for intellectual property rights appeal to consequentialist considerations (cf. Hettinger, 1989, p. 47). Also, John Stuart Mill (1978 [1859], pp. 15–52) famously argues against government regulation of speech on the grounds that it has bad epistemic consequences (e.g., such regulation keeps people from being exposed to many different points of view which is essential if people are going to be *justified* in their beliefs). Furthermore, information policies are often adopted precisely because of their epistemic consequences (cf. the justification for intellectual property rights in the *United States Constitution*, Article I, Section 8). As a result, in order to determine which information policy had the best consequences, we have to be able to evaluate the epistemic consequences of information policies. In other words, in order to resolve the ethical issue, we have to resolve the epistemic issue.⁶

There are two important senses in which epistemic consequences can be good. Much like happiness, knowledge is *intrinsically* a good thing (cf. Ross, 1930,

pp. 139–140). Thus, the goodness of the epistemic consequences of information policies needs to be factored into a consequentialist evaluation. However, knowledge is very often good because it leads to other good consequences such as happiness (cf. Goldman, 1999, pp. 73–75). To the degree that knowledge is *instrumentally* valuable, the goodness of these other consequences, rather than the epistemic consequences themselves, needs to be factored into a consequentialist evaluation. Factoring in the epistemic consequences themselves would be to “double count” the value of acquiring knowledge (cf. Kirkwood, 1997, pp. 16–17). However, good epistemic consequences are typically a means to a very diverse range of other good consequences (cf. Frické et al., 2000, p. 481). As a result, when evaluating policies that are intended to bring about good consequences by bringing about good epistemic consequences, it is often more efficient to treat the good epistemic consequences as a *proxy* for the good consequences that they lead to (cf. Kirkwood, 1997, pp. 24–25).⁷ In that case, we still need to be able to evaluate the epistemic consequences of information policies.

Of course, the fact that a policy has good epistemic consequences does not necessarily mean that it has good consequences overall. In fact, acquiring knowledge can sometimes lead to bad consequences (cf. Ross, 1930, p. 139; Paterson, 1979, p. 93).⁸ For example, a disaffected teenager might use the *Anarchist's Cookbook* (Roger, 2003) to learn how to make bombs and how to steal phone service or a stalker might use information on the Internet to track down his victim (cf. Tavani and Grodzinsky, 2002, p. 124). It would clearly be better *all things considered* for these individuals to remain ignorant of certain facts.⁹ In these cases, epistemic considerations are *trumped* by non-epistemic considerations.¹⁰ As a result, information policies ultimately do need to be evaluated all things considered. But the important problem of determining the relative weights of epistemic values and non-epistemic values is beyond the scope of this paper.

Finally, it is important to note that being able to evaluate the consequences of information policies is not all that is required to make information policy decisions. We also have to be able to predict what the consequences of those information policies are likely to be. Since it is very difficult to accurately predict the consequence of large-scale policy decisions, disputes about information policies often turn on the factual question of what the consequences of those information policies are likely to be. For example, Goldman (1999, pp. 212–213) questions whether unrestricted access to information will actually lead to people being exposed to many different points of view, as Mill assumes.¹¹ However, as I discuss in the following sections, disputes about information policies also often turn on the value-theoretic question of whether one outcome is epistemically better than another. As James Moor (1985, p. 267) notes in the context of computer ethics, “the consideration of alternative policies forces us to discover and make explicit what our value preferences are.” Thus, in this paper, I simply follow the standard accounts of what the epistemic consequences of various information policies are likely to be and focus exclusively on this value-theoretic question.

1.3. EPISTEMIC VALUE THEORY

It might be argued that the epistemology of these issues is completely straightforward. Restrictions on access to information interfere with people's ability to acquire knowledge. Thus, on purely epistemic grounds, less restriction is always better. For example, it might be argued that a policy of keeping certain information private only has epistemic costs. As Goldman (1999, p. 173) puts it, "epistemology focuses on the means to knowledge *enhancement*, whereas privacy studies focus on the means to knowledge *curtailment* (at least decreasing knowledge in the hands of the wrong people)."¹²

However, it turns out that almost all policies on restricting access to information have epistemic costs *and* epistemic benefits. For example, while a policy of keeping library circulation records private may interfere with the ability of FBI agents to acquire knowledge, it *enhances* the ability of library patrons to acquire knowledge. This is because, if library circulation records are *not* kept private, library patrons may not feel free to access information that they need (cf. Garoogian, 1991, p. 229). As a result, in order to evaluate the epistemic consequences of information policies, we need to know (a) what the epistemic costs and benefits are and (b) how to weigh the epistemic costs and benefits against each other. More generally, we need to be able to say when one outcome is epistemically better than another. In other words, we need an *epistemic value theory*.

Very little work in epistemology has taken a value-theoretic approach (cf. Ross, 1930, p. 145), but there is some. For example, philosophers of science, such as Isaac Levi (1962) and Patrick Maher (1993), have tried to characterize the "epistemic utilities" of scientists (i.e., the goals that guide their knowledge seeking activities). However, since their work focuses specifically on the epistemic goals of scientists, it turns out not to be sufficient to evaluate the epistemic consequences of information policies. More recently, several epistemologists, such as Michael DePaul (2001), Wayne Riggs (2002), and Linda Zagzebski (2003), have taken a value-theoretic approach that is not restricted to scientists. However, since their work focuses almost exclusively on the question of why it is more valuable for an individual to have knowledge rather than just true belief (cf. Plato (1961 [380 BC], *Meno*, p. 98a), it also turns out not to be sufficient to evaluate the epistemic consequences of information policies.

Alvin Goldman (1999), however, has tried to develop an epistemic value theory that can be applied to a wide range of different areas where epistemic consequences are at stake.¹³ For example, he explicitly uses this theory to evaluate policies and practices in education, in the law, in communication technology, and in government, as well as in science.¹⁴ In the following sections, I will show how Goldman's value theory can also be applied to issues in information ethics. However, since Goldman (1999, p. 100) has only provided a "relatively simple and uncluttered framework," he leaves a number of important questions about epistemic values unanswered. In this paper, I identify several open questions that need to be answered

before we will be able to evaluate the epistemic consequences of many information policies.

2. Intellectual Property

2.1. COMPARING EPISTEMIC OUTCOMES

Traditional epistemology tends to focus on the epistemic state of a single individual (cf. Goldman, 1999, p. 4). However, we are often concerned with the epistemic states of others as well as ourselves (cf. Kawall, 2002). In fact, we are often concerned with the epistemic states of many individuals. Information policy decisions, because they have an impact on the epistemic states of large numbers of people, are a case in point.

When we are concerned with the epistemic states of many individuals, we will have to compare different epistemic outcomes. Consider the following two tables:

Outcome A:		
p ₁	p ₂	p ₃
5	10	5

Outcome B:		
p ₁	p ₂	p ₃
5	5	5

In the tables, p_1 , p_2 , and p_3 are three different individuals and the numbers represent the amount of knowledge that each individual possesses. For example, in outcome A, p_1 and p_3 possess the same amount of knowledge, but p_2 possesses more knowledge than either of them. Now, given the voluminous literature on the topic, it is clear that even saying *when* an individual has knowledge (much less *how much* knowledge she has) is a very difficult task. However, in this paper, I will assume that the epistemic states of individuals can be ordered in this way.

The question for epistemic value theory is, which of these two outcomes is epistemically better? This is an easy case. It is clear that outcome A is epistemically better than outcome B. Everyone does at least as well with respect to knowledge possession in outcome A and someone does better. In other words, outcome A is *Pareto superior* to outcome B.

Following John Broome (1991, p. 152), I will say that an ordering of epistemic outcomes is *Paretian* if one outcome is epistemically better than another whenever the first is Pareto superior to the second. This seems to be a reasonable constraint on the ordering of epistemic outcomes (cf. Goldman, 1999, p. 94). For example,

even though an outcome where a disaffected teenager knows how to make bombs is not better *all things considered* than an outcome where he does not, it is clearly *epistemically* better.

Unfortunately, this constraint does not determine a *complete* ordering of epistemic outcomes. Since most information policies have epistemic costs as well as epistemic benefits, we often have to compare outcomes where neither outcome is Pareto superior to the other. In other words, there are many cases where some people do better with respect to knowledge possession in one outcome, but other people do better in the other outcome. Intellectual property policy is arguably a case in point.

The standard story (see, e.g., Hettinger, 1989, pp. 47–48) is that, if we adopt relatively weak intellectual property laws, information will be disseminated more freely and, thus, more widely. However, if we adopt relatively strong intellectual property laws, creators and publishers will have greater motivation to create more information. If this story is correct, then weak intellectual property laws might be expected to lead to something like outcome B while strong intellectual property laws might be expected to lead to something like the following outcome:¹⁵

Outcome C:		
P ₁	P ₂	P ₃
3	10	3

Thus, in order to determine which intellectual property policy is better on epistemic grounds, we have to determine whether outcome B or outcome C is epistemically better. But in this case, neither outcome is Pareto superior to the other.

One way to deal with this situation is to find a new intellectual property policy that leads to an epistemic outcome that is Pareto superior to both outcome B and outcome C. For example, we might adopt strong copyright laws, but also adopt robust “fair use” and “first sale” limitations on copyright. The fair use limitation on copyright allows people to make socially beneficial uses of copyrighted works that do not substantially interfere with the copyright holder’s ability to make a profit (cf. Hoffmann, 2001, pp. 25–26). The first sale limitation on copyright allows libraries, once they have purchased a copy of a book, to lend that particular copy to patrons without getting permission from the author (cf. Hoffmann, 2001, pp. 37–38).

Under this sort of intellectual property policy, even if they cannot afford to purchase a book, p_1 and p_3 can still access the information in that book. For example, they might check the book out of the library and/or make photocopies of a single chapter of the book.¹⁶ Thus, we might actually have a lot of information disseminated as well as a lot of information created. As a result, we might end up in an outcome (e.g., outcome A rather than outcome C) which is Pareto superior to outcome B.

Unfortunately, we will not always be able to find a new information policy that leads to an epistemic outcome that is Pareto superior to all of the alternatives. As a result, we often have to compare epistemic outcomes where neither outcome is Pareto superior to the other. In order to do this, we have to be able to aggregate the knowledge possession of several individuals into a single number that represents the total amount of knowledge possession in the epistemic outcome (cf. Broome, 1991, p. 24). Such a method of aggregation determines a complete ordering of epistemic outcomes.

2.2. AGGREGATING KNOWLEDGE POSSESSION OVER PEOPLE

Goldman (1999, p. 93) suggests that we aggregate knowledge possession by calculating the *average* amount of knowledge possession in an epistemic outcome.¹⁷ This is analogous to a utilitarian aggregating happiness by calculating the average (or total) amount of happiness in an outcome. This *utilitarian* method of aggregating knowledge possession determines a Paretian ordering of epistemic outcomes. Thus, this utilitarian method of aggregation says that outcome A is epistemically better than outcome B. But this method also allows us to decide whether outcome B or outcome C is epistemically better. In particular, this utilitarian method of aggregation says that outcome C is epistemically better than outcome B.

However, it is not clear that this is necessarily the right way to order epistemic outcomes. As Goldman (1999, p. 94) notes, there are many other methods of aggregating knowledge possession that also determine a Paretian ordering of epistemic outcomes. For example, we might adopt a method that gives a different weight to different people's knowledge possession. In fact, Goldman (1999, p. 96) considers a case (*viz.*, the distribution of knowledge among the crew of a ship, see Hutchins, 1995) where we should probably give higher priority to specific people with a greater "need to know." He says that "a veritistically good practice for such an enterprise would promote the required distribution of knowledge, even if that does not translate into a high average knowledge across the whole team." In such a case, whether outcome B is epistemically better than outcome C depends on whether p_2 is a person that really needs to know. Also, though Goldman does not explicitly consider this possibility, we might adopt a method — analogous to Rawls' (1971, p. 75) difference principle — that gives higher priority to the epistemically "least advantaged." This *Rawlsian* method of aggregation says that outcome A is epistemically better than outcome B, but it also says that outcome B is epistemically better than outcome C.

It should be noted, however, that not every analogue of a method of aggregating happiness is an acceptable way to aggregate knowledge possession. For example, an egalitarian might hold that "it is better, for the sake of equality, to take good from better-off people without giving any to the less well-off" (Broome, 1991, p. 184). Such an egalitarian method of aggregating knowledge possession says that

outcome B is epistemically better than outcome A despite the fact that outcome A is Pareto superior.¹⁸ However, such an egalitarian method of aggregation is not nearly as plausible in the case of epistemology as in the case of ethics. Such an ordering of epistemic outcomes is arguably a case of ethical considerations (viz., a concern for an *equal* distribution of knowledge) *trumping* epistemic considerations.

In any event, the different methods of aggregating knowledge possession that do determine a Paretian ordering of epistemic outcomes sometimes disagree about which outcomes are epistemically best. Thus, in order to determine which intellectual property policy has the best epistemic consequences, we have to decide which of these methods to adopt.

There is at least one important feature that distinguishes the utilitarian method from the Rawlsian and need-to-know methods. In the latter two methods, the determination of which outcome is epistemically best is influenced by non-epistemic considerations. For example, someone who adopts the need-to-know method is arguably influenced by practical considerations. Also, someone who adopts the Rawlsian method is arguably influenced by ethical considerations (viz., a concern for a *just* distribution of knowledge). Admittedly, in order to determine which information policy has the best consequences, we do have to consider all of the consequences, non-epistemic as well as epistemic, of that policy. However, the goal in developing an epistemic value theory was simply to say which policy has the best *epistemic* consequences (cf. Goldman, 1999, p. 6). Ideally, this should be determined on purely epistemic grounds. As Goldman (1999, p. 95) puts it, we want to avoid “abandoning the specialized, veritistic mission of epistemology in favor of a more purely pragmatic enterprise.”

Unlike the other two methods, the utilitarian method of aggregating knowledge possession can be defended on purely epistemic grounds. According to utilitarianism, happiness is the ultimate good (cf. Sidgwick, 1874, p. 411). Thus, an outcome with more happiness is better than one with less.¹⁹ Similarly, knowledge is the ultimate epistemic good. Thus, an outcome with more knowledge possession is epistemically better than one with less. Any other ordering of epistemic outcomes will sometimes say that an outcome with less knowledge possession overall is epistemically better than an outcome with more knowledge possession.

Even so, it is not completely clear that the other Paretian orderings of epistemic outcomes are epistemically unacceptable. The captain of a ship, for example, does not want to maximize the knowledge possession of her crew. However, this does not mean that she values ignorance or error above knowledge (cf. the case of the disaffected teenager). She simply wants knowledge to be distributed among the crew in a way that facilitates the effective functioning of the ship. When some people do better with respect to knowledge possession in one outcome, but other people do better in the other outcome, the utilitarian method always resolves the conflict in favor of the outcome with more knowledge possession overall. However, it is not clear that it is epistemically unacceptable to resolve such conflicts on the basis of non-epistemic considerations instead.²⁰ As Goldman (1999, p. 96) puts it,

“sensitivity to relative amounts of interest should play a modest role in accessing a practice’s epistemic credentials.”

But whatever method of aggregating knowledge possession that we adopt, there is one further complication that must be addressed. Goldman clearly suggests that we aggregate *knowledge tokens*. In other words, two people knowing the same fact is twice as good as only one of the two people knowing that fact. However, an outcome where one person knows several facts clearly seems to be epistemically better than an outcome where several people know the very same fact. For example, Andrew Wiles finding the first proof of Fermat’s Last Theorem (see, Faltings, 1995) is clearly much more valuable than one more mathematician learning an existing proof of the Prime Number Theorem.²¹ As a result, if we are interested in maximizing knowledge possession, we might want to aggregate *knowledge types* instead.²² Also, weak intellectual property laws are probably better at maximizing knowledge tokens while strong intellectual property laws are probably better at maximizing knowledge types. Thus, this issue must be resolved before we can use our epistemic value theory to evaluate the epistemic consequences of intellectual property policies.

Finally, along with Goldman, I have been making the plausible assumption that an epistemically acceptable method of aggregating knowledge possession must determine a Paretian ordering of epistemic outcomes. However, if we are interested in maximizing knowledge types as well as knowledge tokens, it is not clear that this assumption is correct.²³ For example, suppose that, in outcome A, the knowledge possessed by p_1 and p_3 is a subset of what p_2 knows. Also, suppose that, in outcome B, these three people all know completely different things. In that case, even though outcome A is Pareto superior to outcome B, we might argue that outcome B is epistemically better because it includes more knowledge types (viz., 15 rather than just 10).²⁴ This suggests that it may be too strong to say that one outcome is epistemically better than another whenever everyone does at least as well with respect to knowledge possession and someone does better. We may only be able to say that one outcome is epistemically better than another whenever everyone does at least as well with respect to knowledge possession *and there are at least as many knowledge types* and someone does better *or there are more knowledge types*.

3. Speech Regulation

3.1. HAVING TRUE BELIEFS VERSUS AVOIDING ERROR

Other issues in information ethics, such as speech regulation, raise still further questions about epistemic values. The two epistemic values that are most commonly discussed by epistemologists are (a) having true beliefs and (b) avoiding error. As William James (1979 [1896], p. 24) put it, “we must know the truth; and we must avoid error — these are our first and great commandments as would-be

knowers; but they are not two ways of stating an identical commandment, they are two separable laws.” In some cases, one outcome will include more true beliefs and fewer false beliefs than another outcome.²⁵ In such cases, it is clear that the first outcome is epistemically better than the second.²⁶ However, in many cases, one outcome will include more true beliefs, but another outcome will include fewer false beliefs. Speech regulation policy is arguably a case in point.

In my analysis of intellectual property, I made the tacit assumption that access to information is always correlated with acquiring knowledge. However, information can mislead people as well as lead them to true beliefs. For example, certain sorts of advertising can lead consumers to acquire false beliefs about the safety and effectiveness of products. As a result, the justification for government regulation of advertising is that it will “reduce the incidence of false messages and consequent error on the part of consumers” (Goldman, 1999, p. 202).²⁷

Along these same lines, Goldman (1999, p. 212) concludes that “if hearers are disposed to believe certain categories of statements, even when the evidence or authority behind them is dubious, it may sometimes be preferable not to disseminate those statements.”²⁸ Mill, however, argues against government regulation of speech on the grounds that such regulation can make it more difficult for people to acquire true beliefs. For example, Mill (1978 [1859], pp. 16–33) points out that, when censors (who are fallible human beings) try to restrict access to information that might mislead people, they will invariably end up restricting access to information that might lead people to true beliefs. Even though they reach opposite conclusions about speech regulation, Mill and Goldman are probably both right about the facts: unrestricted access to information can lead to more true beliefs while restricting access can lead to fewer false beliefs.

Since it arguably comes down to a disagreement about (epistemic) values rather than facts, the debate between Mill and Goldman about speech regulation raises a question for epistemic value theory. In particular, we have to be able to compare epistemic outcomes where one includes more true beliefs and the other includes fewer false beliefs. In order to do this, we have to be able to aggregate the number of true beliefs and the number of false beliefs into a single number that represents how well an outcome does with respect to these two epistemic values. In other words, we have to determine the relative weight of these two epistemic values.

Unfortunately, there is no consensus among epistemologists over what the appropriate weighting is. Goldman (1999, p. 89) himself (implicitly) suggests that the two values should be given equal weight (cf. Goldman, 2000, p. 331). René Descartes (1988, [1641], p. 76) and David Hume (1977 [1748], p. 111) think that relatively more weight should be given to avoiding error. Thus, they would probably support Goldman’s conclusion that it is better to regulate speech.²⁹ James (1979 [1896], 31–32), however, seems to think that relatively more weight should be given to having true beliefs. He says that “a rule of thinking which would absolutely prevent me from acknowledging certain kinds of truth if those kinds of truth were really there, would be an irrational rule.” This suggests that he would

not want to take a chance of restricting access to information that might lead people to true beliefs. In other words, he would probably support Mill's conclusion that it is better to regulate speech.

In response to this situation, a number of philosophers (e.g., Levi, 1962, p. 57; Lehrer, 1975, p. 71; Field, 1982, p. 565; Kitcher, 2001, p. 264) have concluded that there is no single appropriate weighting of these two epistemic values.³⁰ In fact, they claim that the appropriate weighting should be determined by the non-epistemic considerations in each case. So, for example, error avoidance with respect to knowledge about medicine is probably more important than error avoidance with respect to knowledge about sports. If this is correct, then it is just not possible to determine an ordering of epistemic outcomes on purely epistemic grounds.

3.2. AGGREGATING KNOWLEDGE POSSESSION OVER TIMES

In addition to the problem of determining the relative weights of having true beliefs and avoiding error, an analysis of speech regulation raises another question about epistemic values. Knowledge is distributed among different people, but it is also distributed among different times. In fact, some information policies may have better epistemic consequences in the short run while other policies may do better in the long run. Speech regulation policy is arguably a case in point.

Goldman's arguments suggest that regulating speech can keep people from being immediately misled by "certain categories of statements." However, even if the dissemination of these statements has the consequence of less knowledge today, Mill's arguments suggest that people are more likely to ultimately acquire knowledge on a topic if access to information is not restricted. In other words, restricting access to information can lead to more knowledge in the short run while unrestricted access can lead to more knowledge in the long run. If this is correct, we will have to compare epistemic outcomes like these (where t_1 , t_2 , and t_3 are three different times in chronological order):

Outcome X:		
t_1	t_2	t_3
0	3	3

Outcome Y:		
t_1	t_2	t_3
0	0	5

The numbers here represent the amount of knowledge possessed by an individual at different times. I will assume that these numbers factor in the value of error avoidance as well as the value of having true beliefs.

Goldman does not explicitly address the issue of aggregating knowledge possession over times. Goldman (1999, p. 93) does, however, claim that acquiring true beliefs *faster* is epistemically better. So, for example, outcome X is epistemically better than the following outcome:

Outcome Z:		
t ₁	t ₂	t ₃
0	0	3

In general, it seems safe to say that, if as much knowledge is possessed at every time and more knowledge is possessed at some time, then one outcome is epistemically better than another outcome. In other words, orderings of epistemic outcomes should be Paretian with respect to times as well as with respect to people.³¹ However, this does not tell us whether outcome X or outcome Y is epistemically better.

Now, it might be suggested that, as a matter of empirical fact, we will not have to compare outcome X with outcome Y in order to determine what speech regulation policy has the best epistemic consequences. For example, it might be pointed out that knowledge today typically leads to more knowledge in the future. As a result, it is more likely that we will need to compare outcome Y with the following outcome:

Outcome W:		
t ₁	t ₂	t ₃
0	3	5

Since outcome W is Pareto superior to outcome Y, it is clear that it is epistemically better. However, there will not always be an information policy that leads to an epistemic outcome that is Pareto superior to all of the alternatives. As a result, we will often have to compare epistemic outcomes where neither outcome is Pareto superior to the other. In order to do this, we have to be able to aggregate knowledge possession at several times into a single number that represents the total amount of knowledge possession in the epistemic outcome (cf. Broome, 1991, p. 25).

One possibility is to adopt a utilitarian method of aggregating knowledge possession over times. However, the utilitarian method is subject to the same concerns that were discussed earlier in this paper. For one thing, we need to decide if

we are aggregating knowledge tokens or knowledge types. Also, there are many other methods of aggregating knowledge possession that also determine a Paretian ordering of epistemic outcomes.

Instead of the utilitarian method, we might adopt a method that gives a different weight to knowledge possession at different times. In fact, there are many cases where we should probably give higher priority to knowing *at the right time* (i.e., when that knowledge is needed). In such a case, whether outcome X is epistemically better than outcome Y depends on whether t_2 or t_3 is when we really need to know. Alternatively, we might apply a *discount rate* to knowledge possession. Economists often apply a discount rate to commodities because future commodities are usually worth less than present commodities (cf. Broome, 1994, pp. 137–139). If the discount rate on knowledge possession is high enough, this method says that outcome X is epistemically better than outcome Y because knowledge at t_3 is worth less than knowledge at t_2 . Of course, it is not clear that a discount rate should be applied to the good, epistemic or otherwise (cf. Broome, 1994, p. 131). These issues must be resolved before we can use our epistemic value theory to evaluate the epistemic consequences of speech regulation policies.

4. Privacy

While the issue of informational privacy may not seem to be epistemologically very interesting, it has a major epistemological component. There are epistemic costs to keeping certain information private, but, as noted above, there are also significant epistemic costs to violating people's privacy (cf. McDowell, 2002, p. 55). People do not always act freely (e.g., they may not seek the information that they need) if they think that their actions may be observed (cf. Benn, 1984, p. 241). Thus, privacy violations can have a significant "chilling effect" (Garogian, 1991, p. 229) on people's access to information and interfere with their ability to acquire knowledge. For this reason, Ashley McDowell (2002, p. 56) concludes that "it is because less knowledge would be accrued that social epistemology should judge that libraries should not violate confidentiality, not because it is an immoral thing to do."

In addition, an analysis of informational privacy raises all of the value-theoretic issues that have been addressed in this paper. First, some people (e.g., FBI agents) do better with respect to knowledge possession under one privacy policy, but other people (e.g., library patrons) do better under another privacy policy. This, in order to decide which privacy policy has the best epistemic consequences, we have to adopt a particular method of aggregating knowledge possession over people. Should we adopt a utilitarian method where everyone's knowledge possession has equal weight? Or should FBI agents be given higher priority because they have a greater "need to know" than the average library patron?

Second, one privacy policy will probably lead to more true beliefs, but another privacy policy will probably lead to fewer false beliefs. For example, with the

latest information and computer technology, information about a person can easily be shared by different institutions, but errors can be very difficult to correct (cf. Spinello, 1995, pp. 119–120). If such information is not kept private, such errors can lead to false beliefs that can have dire consequences (e.g., an individual may be unable to secure medical insurance because of errors in her medical records). Thus, in order to decide which privacy policy has the best epistemic consequences, we have to determine the relative weights of having true beliefs and avoiding error.

Third, one privacy policy will probably lead to more knowledge possession in the short run, but another privacy policy will probably lead to more knowledge possession in the long run. For example, The FBI wants information about suspected terrorists today whereas the “chilling effect” on library patrons is only going to kick in down the line. Thus, in order to decide which privacy policy has the best epistemic consequences, we also have to adopt a particular method of aggregating knowledge over time.

5. Conclusion

The philosophy of information brings together issues in ethics and issues in epistemology. In this paper, I have argued that epistemic considerations are critical to major issues in information ethics. I have also argued that we need to develop an epistemic value theory to help clarify these issues. Finally, I have identified several open questions about epistemic values that need to be answered before we can evaluate the epistemic consequences of information policies. But even in the absence of conclusive answers to these questions, trying to develop an epistemic value theory provides a useful framework for thinking through important epistemological issues in information ethics.

Notes

¹Information ethics should not just be restricted to ethical issues that are raised by *information and computer technology*. Similarly, the philosophy of information is more than just the philosophy of computation (cf. Floridi, 2002, p. 138). Of course, advances in technology have made issues in information ethics much more pressing (cf. Moor, 1985). For example, way back when books had to be copied by hand, unauthorized copying was as much of a problem (cf. Hoffmann, 2001, p. 4).

²Luciano Floridi and J.W. Sanders (2002) offer a more sweeping conception of information ethics.

³As Edwin Hettinger (1989, p. 36) notes, intellectual property laws typically require some form of *disclosure* (e.g., publishing a book or patenting an invention). Thus, these laws guarantee some degree of access to information. But this still does not help someone who cannot afford to purchase a particular book.

⁴The issue of precisely how information leads to knowledge is beyond the scope of this paper.

⁵A broader notion of consequence might turn some of the traditionally non-consequentialist considerations into consequentialist ones (cf. Broome, 1991, p. 4). But everything that I say in this paper applies even on a more traditional notion of consequence.

⁶Linda Zagzebski (2003, p. 19) discusses certain non-consequentialist connections between epistemology and ethics. For example, epistemic praiseworthiness is sometimes a prerequisite for moral praiseworthiness.

⁷Mill (1978 [1859], 15–52) and Goldman (1999) evaluate the epistemic consequences of policies and practices where knowledge is mainly of instrumental value.

⁸Some pieces of knowledge might also be *intrinsically* bad, such as the knowledge involved in “the admiration of what is ugly and the conscious cultivation of viciousness” (Paterson, 1979, p. 92). However, as Paterson (1979, p. 100) himself notes, it is not clear “whether an accurate analysis of most of these undeniably evil states of mind would in fact show them to be based on ‘knowledge’, and not rather on some kind of deep misdirectedness or plain error.”

⁹Julia Driver (1999) argues that certain moral virtues actually require ignorance.

¹⁰Even when knowledge leads to bad consequences, we still need to factor in the goodness of the epistemic consequences.

¹¹Goldman notes that it is very easy for many sides of an issue to simply disappear into the sheer mass of information that is now available through the Internet and other information sources.

¹²As a result, Goldman (1999) does not explore the issue of privacy in his work on social epistemology.

¹³Goldman (1999, p. 5) uses the term “veritistic” rather than the term “epistemic” because he is solely concerned with knowledge *qua* true belief.

¹⁴R.W.K. Paterson (1979) also suggests how an epistemic value theory might be developed to evaluate policies in education.

¹⁵Of course, this story might be disputed. For example, Hettinger (1989, pp. 49–50) questions how good of an incentive intellectual property laws really provide. However, as noted above, I am focussed only on the value-theoretic question of whether one outcome is epistemically better than another.

¹⁶Since they are only able to access the book for a limited time (or only a limited part of the book), p_1 and p_3 still may not be able to acquire as much knowledge as someone (such as p_2) who can afford to simply purchase the book. However, they will probably acquire more knowledge than they would under weak copyright laws because less information would be created in that case.

¹⁷Strictly speaking, if we are interested in maximizing knowledge possession, we should probably calculate the *total* amount of knowledge possession rather than the *average* amount of knowledge possession (cf. Sidgwick, 1874, pp. 415–416). But this distinction will only matter when we are comparing outcomes that involve different numbers of people.

¹⁸There are methods of aggregating knowledge possession that give value to equality, but still determine a Paretian ordering of epistemic outcomes (cf. Broome, 1991, p. 184).

¹⁹There are other defenses of the utilitarian method of aggregation. John Harsanyi (1977, pp. 48–52), for example, argues that making an *impartial* decision about the distribution of welfare is equivalent to using the utilitarian method of aggregation. Also, Henry Sidgwick (1874, p. 422) argues that the results of using the utilitarian method of aggregation cohere with our common sense morality. However, it is not clear that appeals to impartially or common sense morality would help to provide a purely epistemic defense of a utilitarian method of aggregating knowledge possession.

²⁰In fact, it seems unavoidable that non-epistemic considerations should play a role if epistemic consequences are serving as a proxy for consequences all things considered. Also, as I discuss in the following section, several epistemologists have concluded that non-epistemic considerations should play a role in another aggregation problem in epistemic value theory.

²¹I am assuming here that finding the first proof of Fermat’s Last Theorem has roughly the same value as finding the first proof of the Prime Number Theorem.

²²In fact, we might even want to aggregate knowledge types that exist in Karl Popper’s (1972, pp. 106–119) *World 3* of “objective knowledge” rather than aggregate knowledge types that exist only in the *World 2* of human minds.

²³Also, it is not clear that this assumption is correct if *collective knowledge* does not supervene on individual knowledge (cf. Hardwig, 1985, p. 349). However, much like Broome (1991, p. 166) with respect to good in general, I will focus here only on collective epistemic good that supervenes on individual epistemic good.

²⁴In fact, whether having more knowledge types or having more knowledge tokens is more valuable may depend on non-epistemic considerations. Also, strictly speaking, different knowledge types might have different epistemic values. For example, knowing that the Prime Number Theorem is true is probably more valuable than knowing that a particular number is prime. As a result, I should really talk about *the amount of knowledge (types)* rather than about *how many knowledge types*. I will ignore this complication here.

²⁵Different true beliefs might have different epistemic values. As a result, I should really talk about *the amount of true belief* rather than about *how many true beliefs*. I will ignore this complication here.

²⁶This is analogous to the constraint that a method of aggregating knowledge possession over people must determine a Paretian ordering of epistemic outcomes.

²⁷Of course, the justification for government regulation of some speech (e.g., pornography) is largely independent of its epistemic consequences.

²⁸Goldman (2000, p. 332) says that, while he thinks that “restrictions on message *senders*” can have “veritistic benefits,” he does not endorse “restricting potential *receivers* from receiving information that has already been disseminated.” But it is not clear why this distinction is epistemically relevant. Both sorts of restrictions can have a similar effect on knowledge acquisition.

²⁹Of course, we would not need to regulate speech in order to keep from being misled if, as Descartes (1988 [1637], p. 26) recommended, people simply did not rely on the testimony of others.

³⁰Riggs (2003) has suggested that the epistemic value of *understanding* might determine what the weighting should be

³¹Of course, even this may be too strong for the same reasons given at the end of section 2.2 above.

Acknowledgements

I would like to thank Luciano Floridi and Kay Mathiesen for helpful suggestions on this paper. Also, I would like to thank Ray Ennis, David LaBrie, Alvin Goldman, Bill Talbott, Peter Lewis, and Amie Thomasson for valuable discussions on this topic.

References

- Benn, S.I. (1984), ‘Privacy, Freedom and Respect for Persons’, in F.D. Schoeman, ed., *Philosophical Dimensions of Privacy*, Cambridge: Cambridge University Press, pp. 223–244.
- Broome, J. (1991), *Weighting Goods*, Cambridge: Basil Blackwell.
- Broome, J. (1994), ‘Discounting the Future’, *Philosophy and Public Affairs* 23, pp. 128–156.
- Descartes, R. (1988), *Selected Philosophical Writings*, New York: Cambridge.
- DePaul, M.R. (2001), ‘Value Monism in Epistemology’, in M. Steup, ed., *Knowledge, Truth, and Duty*, Oxford: Oxford University Press, pp. 170–183.
- Driver, J. (1999), ‘Modesty and Ignorance’, *Ethics* 109, pp. 827–834.
- Fallis, D. (2002), ‘Introduction: Social Epistemology and Information Science’, *Social Epistemology* 16, pp. 1–4.

- Faltings, G. (1995), 'The Proof of Fermat's Last Theorem by R. Taylor and A. Wiles', *Notices of the American Mathematical Society* 42, pp. 743–746.
- Field, H. (1982), 'Realism and Relativism', *Journal of Philosophy* 79, pp. 553–567.
- Floridi, L. (2002), 'What Is the Philosophy of Information?', *Metaphilosophy* 33, pp. 123–145.
- Floridi, L. (forthcoming), 'Open Problems in the Philosophy of Information', *Metaphilosophy*.
- Floridi, L. and Sanders, J.W. (2002), 'Mapping the Foundationalist Debate in Computer Ethics', *Ethics and Information Technology* 4, pp. 1–9.
- Frické, M., Mathiesen, K. and Fallis, D. (2002), 'The Ethical Presuppositions Behind the Library Bill of Rights', *Library Quarterly* 70, pp. 468–491.
- Garoogian, R. (1991), 'Librarian/Patron Confidentiality: An Ethical Challenge', *Library Trends* 40, pp. 216–233.
- Goldman, A.I. (1999), *Knowledge in a Social World*, New York; Oxford.
- Goldman, A.I. (2000), 'Replies to Reviews of *Knowledge in a Social World*', *Social Epistemology* 14, pp. 317–333.
- Hardwig, J. (1985), 'Epistemic Dependence', *Journal of Philosophy* 82, pp. 335–349.
- Harsanyi, J.C. (1977), *Rational Behaviour and Bargaining Equilibrium in Games and Social Situations*, Cambridge: Cambridge University Press.
- Hettinger, E.C. (1989), 'Justifying Intellectual Property', *Philosophy and Public Affairs* 18, pp. 31–52.
- Hoffmann, G.M. (2001), *Copyright in Cyberspace*, New York: Neal-Schuman.
- Hume, D. (1977), *An Enquiry Concerning Human Understanding*, Indianapolis: Hackett.
- Hutchins, E. (1995), *Cognition in the Wild*, Cambridge: MIT Press.
- James, W. (1979), *The Will to Believe and Other Essays in Popular Philosophy*, Cambridge, MA: Harvard University Press.
- Kawall, J. (2002), 'Other-Regarding Epistemic Virtues', *Ratio* 15, pp. 257–275.
- Kirkwood, C.W. (1997), *Strategic Decision Making*, Belmont, CA: Duxbury.
- Kitcher, P. (2001), 'Knowledge and Tradition', *Philosophy Topics* 29, pp. 251–270.
- Lehrer, K. (1975), 'Reason and Consistency', in K. Lehrer, ed., *Analysis and Metaphysics*, Dordrecht: Reidel, pp. 57–74.
- Levi, I. (1962), 'On the Serious of Mistakes', *Philosophy of Science* 29, pp. 47–65.
- Maher, P. (1993), *Betting on Theories*, New York: Cambridge.
- McDowell, A. (2002), 'Trust and Information: The Role of Trust in the Social Epistemology of Information Science', *Social Epistemology* 16, pp. 51–63.
- Mill, J.S. (1978), *On Liberty*, Indianapolis: Hackett.
- Moor, J.H. (1985), 'What Is Computer Ethics?', *Metaphilosophy* 16, pp. 266–275.
- Paterson, R.W.K. (1979), 'Towards an Axiology of Knowledge', *Journal of Philosophy of Education* 13, pp. 91–100.
- Plato (1961), *Plato: The Collected Dialogues*, Princeton: Princeton University Press.
- Popper, K. (1972), *Objective Knowledge*, Oxford: Oxford University Press.
- Rawls, J. (1971), *A Theory of Justice*, Cambridge, MA: Harvard University Press.
- Riggs, W.D. (2002), 'Reliability and the Value of Knowledge', *Philosophy and Phenomenological Research* 63, pp. 79–96.
- Riggs, W.D. (2003), 'Balancing Our Epistemic Ends', *Nous* 37, pp. 342–352.
- Roger, T.J. (2003), *Anarchist's Cookbook*, <http://isuisse.iffrance.com/emmaf/indanarcook.html>.
- Ross, W.D. (1930), *The Right and the Good*, Oxford: Oxford University Press.
- Sidgwick, H. (1874), *The Methods of Ethics*, Chicago: University of Chicago.
- Spinello, R.A. (1995), *Ethical Aspects of Information Technology*, Upper Saddle River, NJ: Prentice Hall.
- Tavani, H.T. and Grodzinsky, F.S. (2002), 'Cyberstalking, Personal Privacy, and Moral Responsibility', *Ethics and Information Technology* 4, pp. 123–132.
- Zagzebski, L. (2003), 'The Search for the Source of Epistemic Good', *Metaphilosophy* 34, pp. 12–28.