

sense there, we cannot easily use or access it. We can regard a glass of water as storing a Library of Congress, but in practice there is no good reason to do so. By contrast, a file stored in a possibly very complicated way is nonetheless accessible and potentially useful to us.

If this is right, then there is a problem with viewing information's intrinsic value as something independent of our own interests as producers and consumers of information. The problem is that information does not *exist* independently of our (or someone's) interests as producers and consumers of information. Or, alternatively, information exists in an essentially unlimited number of different ways: what we count as information is only a minute subset of all the information there is. Which of these two cases obtains is largely a matter of viewpoint. On the former view, even if inanimate information has moral value, it has value in a way that is more tied to a human perspective than Floridi lets on. On the latter, there is simply too much information in the world for our actions to have any net effect on it.

5. Conclusion

The immediate lesson of the last two sections is that overall complexity, or quantity of information, is a poor measure of intrinsic moral worth. Now this conclusion, even if true, may not appear to be terribly damaging to Information Ethics, as the latter embodies no specific theory of how to measure moral worth. It may simply be that some other measure is called for. However, I would argue that the above considerations pose a challenge to any version of Information Ethics, for the following reason.

As we have seen, the number of (informational) objects with which we interact routinely is essentially unlimited, or at least unimaginably vast. If each object has its own inherent moral worth, what prevents the huge number of informational objects that we do not care about from outweighing the relatively small number that we do care about, in any given moral decision? For example, I might radically alter the information content of a glass of water by drinking it, affecting ever so many informational objects; why does that fact carry less moral weight than the fact that drinking the water will quench my thirst and hydrate me? The answer must be that virtually all informational objects have negligible moral value, and, indeed, Floridi seems to acknowledge this by saying that many informational objects have "minimal" and "overridable" value. But that claim is rather empty unless some basis is provided for distinguishing the few objects with much value from the many with little value.

Of course, one answer is simply to assign moral worth to objects based on *how much we care about them*. That would just about solve the problem. Moreover, that is more or less what it would *take* to solve the problem, insofar as the objects that must be assigned minimal value (lest ethics become trivial) are in fact objects that we do not care about. However, this is not an answer Floridi can give. Moral worth is supposed to be something objects possess intrinsically, as parts of nature. It is not supposed to be dependent on our interests and concerns. Thus, what is needed is an independent standard of moral worth for arbitrary objects which, while not based directly on human concern, is at least roughly in line with human concern. And so far that has not been done.

Endnotes

1. See, for example, Floridi 2007, Floridi 2008a, etc.
2. See Floridi 2008b.
3. See Shannon 1948. For a good modern introduction, see MacKay 2003.

4. A base-2 logarithm is used because information is measured in bits, or base-2 digits. If information is to be measured in base-10 (decimal) digits, then a base-10 logarithm should be used. In general, the Shannon information content is defined to be $\log_b (1/p(M))$, with b determined by the units in which information is measured (bits, decimal digits, etc.).
5. This figure is obtained from the number of molecules in a mole (viz. Avogadro's number, approximately 6×10^{23}), the number of grams in one mole of water (equal to water's atomic weight, approximately 18), and the number of grams in 8 ounces (about 227).

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Understanding Luciano Floridi's Metaphysical Theory of Information Ethics: A Critical Appraisal and an Alternative Neo-Gewirthian Information Ethics

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1. Floridi's Information Ethics

Being beyond the scope of this short paper and unavoidably constrained by space, I can but offer the briefest of expositions of Floridi's rich and complex theory, but hopefully I can at least provide in a summarized form the direction and main rationale of that theory and importantly not misconstrue it in the process. In addition, I shall offer some well intentioned and hopefully helpful critical observations and then proceed to offer an alternative approach to IE based on Alan Gewirth's rationalist ethical theory, specifically his argument for the foundational moral principle of morality, the Principle of Generic Consistency (PGC), extended and adapted for that purpose.

Beginning with the uncontroversial empirical observation that our society is evolving, both quantitatively and qualitatively, into an information society, Floridi introduces the concept of *infosphere*, the informational equivalent of "biosphere." According to Floridi, *infosphere*

denotes the whole informational environment constituted by all informational entities. ...It is an (intended) shift from a semantic (the infosphere understood as a space of contents) to an ontic conception (the infosphere understood as an environment populated by informational entities). (Floridi 2007, 4)

Floridi goes on to claim that this informational shift from the semantic to the ontic is resulting in the *re-ontologization* of the world that "transforms its intrinsic nature" (Floridi 2007, 4) so that the world can now be ontologically re-conceived according to Floridi as being fundamentally constituted by the infosphere and not merely the biosphere, as was previously thought. As an example, he cites nanotechnologies and biotechnologies that "are not merely changing (re-engineering) the world in a very

significant way (as did the invention of gunpowder, for example, but actually reshaping (re-ontologizing) it" (Floridi 2007, 4).

As a result of this ontologization, information is becoming our ecosystem and we, together and in interaction with artificial agents, are evolving into informationally integrated *inforgs* or *connected informational organisms* (Floridi 2007, 5-6). Floridi predicts that "in such an environment, the moral status and accountability of artificial agents will become an ever more challenging issue" (Floridi 2007, 5).

From this initial ontological thesis, namely, the ontologization of the infosphere or the metaphysics of information, it is easy to anticipate Floridi's next theoretical move. On the basis of his metaphysics of information Floridi posits a "new environmental ethics" when information ethics ceases to be merely "*microethics* (a practical, field-dependent, applied, and professional ethics)" and becomes instead "*a patient-orientated, ontocentric* {as opposed to merely biocentric}, *ecological macroethics*" (Floridi 2007, 7-8). "Information ethics is an ecological ethics that replaces biocentrism with ontocentrism," a substitution in the concept of biocentrism of the term "life" with that of "existence" (Floridi 2007, 8). This substitution, as we shall see below, is both crucial and problematic in Floridi's overall thesis of Information Ethics.

The claim that information ethics can be conceived and ought to be conceived as an environmental macroethics is Floridi's most interesting, ambitious, and challenging claim in his theory and constitutes the crux of his whole controversial argument that rightly or wrongly is conducive to raising many incredulous stares. For the claim amounts to nothing less than the clear implication, as expressed openly by Floridi himself, that existence, not life, is the mark of morality; that which determines the moral status of not only humans and other sentient beings, including their natural environment—the whole biosphere, but moreover, at the most ultimate level of inclusiveness ever conceived in moral philosophy before, the moral status of the whole caboodle, everything that exists, has existed, and ever will exist in the Universe as informational objects. Which, essentially, insofar as anything can be conceived as an informational object, means practically *everything*, including artefacts, works of art, gardening tools, coffee mugs, tea-cups, carpets, pebbles, rocks, clarinets, and, if I am not mistaken, kitchen utensils such as knives, for example. This is an *ethics of being* on a grand scale that considers the *destruction, corruption, pollution, and depletion* of informational objects as a form of *entropy* whose increase constitutes an instance of evil that should, all things being equal, be ethically avoided (Floridi 2007, 9).

In IE, the Ethical discourse concerns any entity, understood informationally, that is, not only all persons, their cultivation, well being, and social interactions, not only animals, plants, and their proper natural life, but also anything that exists, from paintings and books to stars and stones; anything that may or will exist, like future generations; and anything that was but is no more, like our ancestors or old civilizations. Information Ethics is impartial and universal because it brings to ultimate completion the process of enlargement of the concept of what may count as a centre of a (no matter how minimal) moral claim, which now includes every instance of *being* understood informationally, no matter whether physically implemented or not. In this respect, IE holds that every entity, as an expression of *being*, has a dignity, constituted by its mode of existence and essence.... (Floridi 2007, 9)

The above evocative passage encapsulates the essential characteristics of Floridi's Information Ethics and illustrates its extensive scope. It is, as Floridi states, a universal ethics that applies equally to all informational objects in the Universe. I will go as far as saying that it seems to offer a kind of Stoic Pantheistic Ethics (my phrase) that endows everything in the Universe with a moral significance and status through a pre-determined divine rational order in which everything is ontologically inter-connected and of which everything forms an ontic part, no matter how big or small.

2. Some Sceptical Observations

It seems that, according to Floridi, the basis of having a moral status is the *informational state* possessed by an entity (Floridi 2007, 10). Insofar as all entities whether sentient or non-sentient can be conceived as having this informational state, then they are entitled to a moral status:

The result is that all entities, qua informational objects, have an intrinsic moral value, although possibly quite minimal and overridable, and hence they can count as moral patients, subject to some equally minimal degree of moral respect understood as a *disinterested, appreciative, and careful attention*. ...There seems to be no good reason not to adopt a higher and more inclusive, ontocentric perspective. (Floridi 2007, 10)

I agree with Floridi that there would be no good reason not to adopt such a higher and more inclusive moral perspective if there were, in fact, good objective and independently grounded reasons for adopting such a perspective. This would, in fact, be a welcome extension to the moral fabric of the world. But merely declaring such a moral status for all informational objects on the basis of their informational state alone does not constitute such justified reasons. That is to say, the informational status of the informational objects cannot of itself provide them with a moral status any more than the human status of people can of itself provide them with a moral status.

By contrast, Alan Gewirth's Principle of Generic Consistency (PGC)¹ that was briefly cited above could be applied to argue that the natural property of purposive agency that acts as the sufficient condition for having rights to freedom and well being can be extended to purposive agents and patients other than human beings, for example, to animals and androids. Insofar as animals and other sentient beings can be said to possess some degree of purposive and goal-orientated behavior that requires them to possess some minimal degree of freedom and well being, they too are entitled to rights to freedom and well being as patients if not as agents. For insofar as one recognizes that animals and other sentient beings possess purposive agency, minimal as that may be, and that this alone is a sufficient condition for granting them a moral status, one must at least rationally acknowledge that they too have rights to freedom and well being, at least as patients, on pain of self-contradiction. Some similar argument is also required for extending the moral status to non-sentient informational objects and inforgs. But what could it be?

My reading of Floridi suggests that ontic existence alone qua informational object suffices to establish the moral status of the informational object. But why is this so? How can existence of itself entitle an entity including human beings to a moral status? What is required in establishing such a claim is to show that ontic existence per se, and in particular ontic existence qua informational object, endows one with intrinsic value and thus a moral status. But how can a morally neutral and value-neutral ontological property such as existence confer of itself moral value and moral status to the entity that possesses it, be it sentient or non-sentient?

Unless justified reasons can be provided that lend support to the claims (a) that the mere existence of non-sentient entities as informational objects renders them intrinsically valuable by virtue of existence itself having an intrinsic value, which by extension is bestowed on anything that possess it, be it sentient or non-sentient; and (b) by virtue of the possession of that intrinsic value, informational objects of any kind should be accorded a minimal moral status; the claim that non-sentient informational objects have an intrinsic value and hence a minimal moral status cannot be sustained. If I am not mistaken, I do not think Floridi has provided independently justified reasons in support of the two claims referred to above, namely, that existence *per se* has an intrinsic normative value, which by extension is bestowed on anything and everything that possesses it as informational objects or inforgs, be they sentient or non-sentient.

Floridi seems to merely assert that existence has an intrinsic value at the threshold of some Level of Abstraction (LoA) which confers a moral status on all that possess it (all informational entities both sentient and non-sentient) without providing independent and objective justified reasons to demonstrate why this is the case. He does, however, state that “moral agenthood,” and I suppose by parity of argument moral patienthood as well, “depends on a LoA.” He goes on to say that “morality may be thought of as a ‘threshold’ defined on the observables in the interface determining the LoA under consideration” (Floridi and Sanders 2004, *On the Morality of Artificial Agents*). The question, however, arises of how and why on the basis of such a LoA at some defined observable threshold does the conferring of intrinsic moral value to all informational objects take place and does so independently of any anthropomorphic perspective.

Unless I have misunderstood how the LoA is applied in the attribution of moral value to informational objects and moral agency in general, the conferring of moral value to informational objects, especially of the non-sentient kind, seems rather mysterious. Isn’t the LoA part of the anthropomorphic perspective? If it is, how is the moral value attributable to informational objects independent of that perspective, which it needs to be, if moral value is to be attributed to them from outside an anthropocentric perspective that only intrinsically and unconditionally valuable entities such as sentient beings and their supporting environments can be said to have?

Moreover, how can the choice of a LoA, which of itself is a value-neutral concept, generate the moral value of informational objects? If it is the *choice* of the LoA that is the basis for conferring moral value to informational objects and not the LoA itself, how does that *choice* of itself confer value to informational objects and, importantly, what are the reasons for thinking that the *choice* of a LoA is able of itself to confer moral status to informational objects? What needs to be shown is that the LoA is somehow a morally conferring property or concept, independently of the choice made of that LoA or that the choice itself of that LoA somehow of itself confers a minimal moral value to informational objects. However, I do not think that this has been shown, at least not by justified reasons based on some independently objective argument.

3. Information Ethics without Metaphysics

By contrast to existence, purposive or goal-orientated behavior can confer value in the manner demonstrated by Alan Gewirth’s argument for the PGC (1978). Namely, the necessary conditions for purposive agency, freedom, and well being, which are also necessary for a meaningful and worthwhile life, provide the basis for having rights to freedom and well being and hence provide the universal foundation for the moral status of all purposive agents or patients, be they human or non-human.

One way to extend the moral status to non-sentient informational objects could be accomplished by showing how non-sentient informational objects possess in some sense and to some degree a form of purposive agency or some other teleological property that is value conferring. Insofar as information can be said to be goal-orientated or teleological in some relevant sense, this might not prove impossible, difficult though as it might seem at present.

Consider this argument. I will refer to it as the *Argument from Designed-in-Purposive Agency* (*A-DiPA*). Artefacts and other non-sentient informational objects have a functional instrumentality. They are designed to perform a certain specific functional and instrumental role. Take a knife, for example. The functional role of a knife is to cut materials of a certain kind. It has been designed with that functional purpose in mind. This functional role or purpose is inherently designed in the knife and as such *inheres* in the knife unless removed. All things being equal the knife when used as intended will cut perfectly well according to the purpose for which it was designed—its design-in-purpose. Now let us suppose that someone *for no good reason* and merely on a whim destroys the teleological (its design-in-purpose) and functional capacity of the knife to cut. Let us also assume that this someone, call him Mack, is the owner of the knife. The knife is now blunt and has lost its functional purpose of cutting. No doubt the knife has been *damaged* (harmed) instrumentally as it can no longer fulfill the instrumental role or the purpose for which it was designed and created. But has any moral harm been committed and, if so, to whom and by whom?

To answer this question let us first ask a different question: Would it have been better if Mack had not and for no good reason destroyed the capacity of a perfectly good knife to cut? If the answer to that question is yes, as it is likely to be, we can then proceed and ask what kind of damage or harm has been committed. I think we can allow that an instrumental harm has taken place which would have been better had it not occurred. What about a moral harm? Has the knife suffered a moral harm by it being made blunt? Clearly not as an agent, since the knife lacks the capacity for agency. Following Floridi and Sanders (2004, 349) the knife can be said to lack agency because it lacks its three essential features of interactivity (*response to stimulus by change of state*), autonomy (*ability to change state without stimulus*), and adaptability (*ability to change the “transitions rules” by which state is changed*).

However, even if the knife lacks the capacity for agency in the full-blooded and traditional sense, could we not argue that the knife, because of its inherent or *designed-in-purposiveness* or *designed-in-teleology*, has some other type of distributed agency (Floridi and Sanders 2004, 351) or *contributive* agency (Korsgaard 1983, 172), which affords it some minimal moral role? After all, a knife can be used to murder, a typical immoral action. Let us assume that if the murderer had not possessed a knife he would not have been able to commit the murder, and thus an immoral act would not have taken place. Under this assumption, the knife can be said to have contributed to the murder in virtue of its inherent teleology or *designed-in-purposive-agency* (*DiPA*), or that the immoral act of the murder can be defined as *morally distributed* across a *moral-field* or *moral-network* that at least includes the murderer (the prime moral agent), the teleological instrument (the knife as a morally contributing and instrumental agent), and the victim (the moral patient). Following Floridi and Sanders (2004, 366-69), I will argue that although the knife can, of course, not be held in any way morally *responsible* for the murder it can, nevertheless, be held *accountable* in virtue of its contributed role to the murder via its designed-in-purposive-agency or *DiPA*. There is, as Floridi

and Sanders rightly claim, a conceptual difference between moral responsibility and moral accountability. Although an earthquake can be held accountable for the moral harm of its victims as the primary *cause* of that harm it cannot, because it lacks the relevant full-blooded agency, be held morally responsible.

Adapting and extending Gewirth's argument from the Principle of Generic Consistency on the basis of which it is shown that purposive agents have rights to freedom and well being for the sufficient reason that they are purposive agents (that is, they possess the natural property of purposive agency), can we not reasonably say that artefacts such as knives with a designed-in-purposive-agency (the designed-in goal or purpose to do x, in the case of the knife, x = to cut) have to some minimal degree *prima facie* rights to (Art)freedom (artificial freedom) and (Art)well being (artificial well being) as patients if not as agents? That is to say, can we not reasonably say that such artefacts have the right not to have their (Art)freedom in exercising their designed-in-purposive-agency thwarted or interfered with for no good reason, or their (Art)well being violated by having their DiPA, within which their (Art)well being can be defined and understood in terms of *what they are good for* (their designed-in "functional goodness" or "designed-in-capacity" to do x) reduced or eliminated for no good reason?

Can we not say, following this line of thinking, that Mack's knife that was rendered useless by being made blunt for no good reason had its (Art)freedom and (Art)well being unjustifiably violated and thus suffered not only an instrumental harm by having its instrumental functional role damaged, but also a moral harm qua artefact worthy of some minimal respect owed to it by virtue of its DiPA? Although the instrumental role of the knife can be replaced by the replacement of the damaged knife by a new one, the knife itself that was made blunt for no good reason has not only lost its replaceable instrumental functionality but also its irreplaceable particular inherent capacity to do what it was designed to do best, namely, cut well. That inherent capacity is something that the knife possessed as a thing-in-itself and as such it is something that can be valued for its own sake and not merely instrumentally for the sake of being able to cut well for some human agent.

Following Korsgaard's distinction between objective intrinsic and unconditional value on the one hand and objective but extrinsic conditional value on the other (1983), I will argue that the knife has suffered moral harm by being damaged; that is, by having its DiPA to cut well rendered useless.

According to Korsgaard something X has an objective extrinsic but conditional value if X meets the relevant conditions under which it is held to be valuable and X is also something that is valued for its own sake or as an end, and *in addition* to its instrumentality as a means (1983, 184ff). Going along with Korsgaard we can then say that a knife or other relevant informational object is valued or can be valued partly for its own sake as an end in addition to its instrumental use as a means for human ends, provided certain relevant conditions are met. For example, that when a knife is used it is used for good ends and not for bad ends. Having this dual value, both instrumental as a means and extrinsic or inherent value² as an end, the instrumental disvalue of a knife or other object that is being used to commit a moral wrong diminishes and tramps its inherent value as an end. This follows from the fact that the knife and other objects of this ontological type only have conditional value so that it would be justified to destroy a perfectly good knife if that were the only way to prevent a murder, for example.

In the case of Mack's knife, by contrast, both the extrinsic and instrumental value of the knife have been diminished,

eliminated, in fact, *for no good reason*; that is to say the conditions under which the knife is considered or can be considered valuable have been violated by the blunting of the knife, *for no good reason*. The qualification *for no good reason* is crucial and seems to point in the opposite direction in which Floridi's argument for assigning moral value to informational objects seems to go. For I am partly in agreement with Korsgaard although for Gewirthian reasons rather than Kantian as in her case, that the objective and inherent value or, for Korsgaard, extrinsic value of an object, or informational object as in Floridi's case, is not just a matter of the ontological status of the object qua informational object but of practical reason as well (Korsgaard 1983, 183-84). I said I am only *partly* in agreement with Korsgaard because her claim is that the extrinsic value or, in my case, inherent value of an object is only a matter of practical reason and not one of ontology. Orientating my own position somewhere between that of Korsgaard and Floridi, I want to argue that the value of an object and in particular an informational object is determined partly by its ontology by virtue of its designed-in-purposive-agency (DiPA)—the artificial equivalent of the natural property of purposive agency inherent in human beings and some other animals—and partly by the reasons we have for holding that artefact valuable, principally, in virtue of the reasons for which we hold artefacts of a certain kind to be good for doing x, by virtue of possessing the capacity to fulfill certain designed-in goals or purposes for doing x.

That is to say, what drives us to attribute objective but conditional value to an informational object as a thing valued for its own sake and not merely as an instrument for advancing our own ends, such as a knife, for example, are partly the reasons themselves for designing such objects. The value or goodness of those reasons is transferred through the designing and creation of those objects into the objects themselves. Through this transference of *reasonable* value into the objects on the basis of the functional excellence and efficacy of their designed-in-agency or functional teleology, the value transferred through the design of the objects persists to inhere in the objects until the conditions under which those reasons hold valuable and good are diminished or eliminated as when a knife designed for cutting bread is used to commit murder, for example. Note that a gun used to kill in self-defense does not have its inherent value diminished by its instrumental use where, by contrast, a gun used to murder does; that is, the instrumental disvalue of murdering someone diminishes or eliminates the inherent objective value of the gun.

Insofar as a knife can be said to have an inherent value or what Korsgaard defines as an objective extrinsic but conditional value, and insofar as Mack knife's value has been eliminated for no good reason (the relevant condition in this case), the elimination or diminution of the value of the knife or of any other teleological object can be said to be a moral harm. For the unreasonable elimination or diminution of an objective inherent or objective extrinsic conditional value is unjustified (because no good objective reason can be given for it) and hence morally wrong as it diminishes value overall. In the case of Mack's knife it diminished both instrumental and inherent value as the knife in its prime condition possesses both. It has the instrumental value of being used as a perfectly good knife to cut, an apple, for example, but it also possesses an inherent designed-in-purposive-capacity to cut whether or not it is ever used in that way. A good knife that lay dormant and was not used to cut would retain that inherent value regardless of whether its designed-in-purposive-capacity was put to instrumental use or not. And it is this conceptual distinction just made between the knife's *in-use-instrumental-value* exercised in cutting things and its inherent value, which it has by virtue of its *designed-in-purposive-value* that affords it the capacity to cut, that allows

us to ascribe to the knife and other objects or artefacts of the type that possess a designed-in-purposive-agency (DiPA), two inter-related values: one instrumental and one inherent.

4. Implications for Floridi's Ontological Thesis for the Moral Value of Informational Objects

In his paper "On the Intrinsic Value of Information Objects and the Infosphere" (2002) Floridi postulates the two theses that comprise his Information Ethics (IE) theory:

1. *The first thesis states that information objects qua information objects can be moral agents.*
2. *The second thesis states that information objects qua information objects can have an intrinsic moral value, although quite minimal, and hence that they can be moral patients, subject to some equally minimal degree of moral respect.*

My analysis above in terms of attributing inherent but conditional moral value to informational objects such as a knife, for example, seems to support both of Floridi's two theses of IE but without the metaphysical cost of having to postulate two extra metaphysical claims to the effect that (a) anything that exists in the infosphere as an informational object has moral value just by virtue of its ontic existence and (b) the unjustified damage or destruction of informational objects due to a lack of respect for their minimal moral worth causes information entropy, which is overall a bad outcome and one that ought to be avoided.

I have argued above that existence per se even qua information objects cannot of itself confer moral value. Floridi's motivation for choosing the primary ontological route to the moral worth of informational objects is that he thinks that existing ethical theories which are either predominantly anthropocentric such as Kant's theory, or various other biocentric theories which are more inclusive than Kant's theory but not sufficiently so, cannot account for the moral worth of non-sentient objects such as artificial systems like software agents in cyberspace (2002, 299), for example. If my analysis above is correct, Floridi's motivation is justified but misdirected. Justified because he is right in arguing that there is a theoretical need to extend the moral sphere to include not just all sentient and other living organisms in the biosphere but also all entities that qualify as information objects including non-sentient beings such as coffee mugs, knives, and software agents or webbots (Floridi and Sanders 2004, 370) in the infosphere. As he states, "*showing that both an anthropocentric and biocentric axiology are unsatisfactory is a crucial step*" (2002, 291).

However justified his motivation for extending the moral sphere to include not only the biosphere but also the infosphere is, the exclusive *ontocentric* orientation of his approach in seeking to confer moral value to information objects merely on the basis of their existence is misdirected because it lacks sufficient justification and the justification if any that it does have comes at a higher metaphysical cost than what is required. Ockham's razor counsels against ontological inflation and for metaphysical economy.

My Neo-Gewirthian approach, which locates the inherent moral worth and value of all informational objects, including human beings, animals, and inanimate objects such as artefacts, the whole of Floridi's infosphere in fact, in the natural property of *purposive agency* provides, I believe, adequate justification at no additional ontological cost. Contrary to Floridi, whose profound insights into the meta-theoretical need for attributing moral value to all informational objects qua informational objects I share, I have argued that we do not require additional ontological categories or extra metaphysical machinery for doing so. The capacity for purposive agency

alone, which is the natural property on the basis of which human beings and other sentient beings such as animals have inherent moral worth, can be adapted and extended, as I have shown above, to include other non-sentient information objects, such as knives, for example. Whereas sentient beings possess purposive agency naturally and inherently by varying degrees from very high in the case of human beings and perhaps high in the case of dolphins and whales to very low in the case of amoebas, non-sentient beings such as artificial agents on the higher scale and thermostats and knives on a lower scale possess an *artificial purposive agency* by design and teleological implantation that *inheres* in those objects and renders them inherently but conditionally morally valuable as I have argued above. By extension of Gewirth's argument for the Principle of Generic Consistency, they have rights to (Art)freedom (artificial freedom) and (Art)well being (artificial well being).

My Neo-Gewirthian approach of attributing inherent moral worth to all informational objects as entities to be valued for their own sake as ends in themselves, unconditionally with regard to human beings but conditionally with regard to non-sentient entities such as knives and other teleological artefacts, is partly in agreement with Floridi's claims that

There seems to be no good reason not to adopt a higher and more inclusive, ontocentric LoA. (2002, 291)

and that

The moral worth of an entity is based in its ontology. What the entity is determines the degree of moral value it enjoys, if any, whether and how it deserves to be respected and hence what kind of moral claims it can have on the agent. (2002, 294)

I say only partly because although purposive agency as the basis of all moral worth is itself an ontological category, it has the advantage of comprising a natural property with no need to introduce additional and costly metaphysical theoretical postulates to explain the moral worth of informational objects as Floridi does. For the capacity for purposive agency as the basis for attributing moral worth to an entity qua informational object, to some varying degree, is sufficient in explaining and accounting for the moral worth of both sentient beings, organisms, and systems that inherently possess the capacity for purposive agency naturally, and non-sentient entities such as artificial agents, for example, that possess the capacity for purposive agency contributively through having it artificially designed and implanted in them, by human agency. However, once implanted, that capacity for contributive purposive agency, which I named earlier in the paper as Designed-in-Purposive-Agency (DiPA), becomes and remains inherent within the non-sentient entity until removed or eliminated, again by human design.

As an inherent property, it has a moral value, both instrumentally and inherently as explained above (it has a dual value) that is independent of the wishes or sentiments of any particular human agent. A good knife is a good knife (one that has the capacity to cut well as designed to do) whether one wishes it or not, or whether or not it serves any particular human interest. Of course, if the use of knives for cutting became completely redundant and obsolete, they would lose the inherent and instrumental value that they now possess. It is for that reason that in agreement with Korsgaard I also wish to claim that the value of artificial entities such as knives and coffee mugs is partly conditional on their functional usefulness and their perceived value based on practical reason for which they were designed. But in disagreement with Korsgaard's Kantian perspective I wish to claim that this is, however, different in

the case of sentient beings, such as animals, for example, that retain their inherent moral value regardless of whether or not they have any functional use or value for human beings. Cows that can no longer produce milk or chickens that no longer lay eggs are still morally worthy of consideration in their own right regardless of human needs and interests.

This final point seems to accord with Floridi's own claim that

It seems reasonable to assume that different entities may have different degrees of relative value that can constrain a's [the agent's] behaviour without necessarily having an instrumental value, i.e., a value relative to human feelings, impulses or inclinations, as Kant would phrase it. (2002, 293)

Although the capacity for purposive agency both naturally in the case of sentient entities and artificially in the case of non-sentient entities creates a continuum of moral worthiness and moral consideration across a wide network of informational objects, that continuum is separated by qualitative divisions between those entities that afford them various differentiated degrees of moral value in terms of the complexity of their capacity for purposive agency. Using the metaphor of canal or river locks we can say that because the moral continuum of informational objects is porous, the capacity of purposive agency slips through the various qualitative moral divisions like water through the locks in a canal or river. However, the transitions from one qualitative moral division to another requires, as in the case of the raising of the water level in a lock to allow a ship to transit from one level of the canal to another, the raising of the level of complexity of an entity's capacity for purposive agency so as to enable its transition from a lower to a higher qualitative moral division. Thus, a software agent's capacity for purposive agency would have to be raised to that of an intelligent android that meets Floridi's and Sanders' conditions of full agency discussed above before it can proceed to a higher moral division close to that of human beings.

The conceptual distinctions between on the one hand responsibility and agenthood and on the other accountability and patienthood help explain the relative moral value of different entities. Thus, although we could only hold a software agent accountable but not responsible for the destruction of valuable information, we could by contrast hold an android or human agent both accountable and responsible due largely to their higher moral status. Similarly, although we ought to morally avoid killing a tiger unless in self-defense we cannot reasonably expect a tiger to morally reciprocate in the same moral way. This is because although a moral patient worthy of moral respect the tiger does not possess sufficient moral agency to warrant us holding the tiger bound to reciprocal moral obligations with regard to human agents. Thus, the four conceptual distinctions of responsibility/accountability and agenthood/patienthood go some way in explaining the relative moral value of different informational objects in relation to the moral relevance and significance of those conceptual categories in specific contexts.

6. Conclusion

Floridi's reference to Spinoza (2007, 9) seems to suggest that he may be entertaining, not explicitly but perhaps implicitly, a Stoic perspective with regard to his metaphysical thesis of Information Ethics. My alternative Neo-Gewirthian thesis of Information Ethics gives a more explicit expression to that implied suggestion. For my thesis is based on the view supported by argument that the moral value of all entities at least on Earth, both sentient and non-sentient, is comprised of a composite dual nature or double-aspect nature of being

at once *purposive-agentive entities* as well as entities imbued with *reason*: in the case of sentient beings, intrinsically and unconditionally, and in the case of non-sentient beings (such as artefacts) inherently but conditionally by *rational design*. It is my claim that it is this composite dual character that allows for the attribution of moral value to all entities, both sentient and non-sentient. This analysis is in keeping with a claim I make elsewhere that Gewirth's rationalist ethics and in particular my Neo-Gewirthian reconstruction and expansion of it, is essentially Neo-Stoic.³

Finally, there might be other necessary reasons of why Floridi introduces the machinery of his ontological metaphysics (see, for example, his "Informational Structural Realism," 2008, *Synthese*) but this cannot be for establishing the moral worth of informational objects because, as I hope to have demonstrated, none is required.

Endnotes

1. Due to constraints of space, I will not be able to provide a justification for Alan Gewirth's argument for the Principle of Generic Consistency (PGC) on which his derivation of rights to freedom and well being is based, as this is well beyond the scope and limits of this paper. I offer such a detailed defense in my *Ethics Within Reason: A Neo-Gewirthian Approach* (2006).
2. I prefer to use the term *inherent* rather than Korsgaard's *extrinsic* term because the value an artefact has by virtue of its DiPA inheres in the artefact and so it is not exclusively determined by the external reasons for which human beings hold it to be valuable. I should add, however, and perhaps this is in keeping with Korsgaard's position, that in the event that an artefact was no longer held to be valuable its inherent value by virtue of its DiPA could be revoked. For what can be designed-in can also be designed-out. This is in keeping with the correct thought that values are to a large degree determined by the underlying reasons for considering those values "valuable."
3. See Chapter 10 of Spence 2006, *Ethics Within Reason: A Neo-Gewirthian Approach*, 393-442.

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