# Is Technology for the Anthropocene an Impossibility? A Conversation about the Myko Project

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*We, the two interlocutors in this discussion, Mark Antaki and Richard Janda, have for the past number of years had periodic exchanges about the theoretical underpinnings and possible critique of a project that Janda has been leading, which seeks to signal to individuals the impacts of their choices upon collective environmental, health and social goods and to orient these individuals to make better choices. Antaki has sought to probe a number of paradoxes and challenges for legal normativity involved in using new forms of technology to address the accumulating and devastating externalities produced by our use of technology. A mutual fascination with the project and its critique led us to conclude that the discussion might have some broader saliency. This dialogue allowed us to share our preoccupations concerning the pervasive quality of technology in our lives and to explore how our efforts to redress the dominion of technology over nature might cede to the temptation to call upon new forms of technology in aid. Is this temptation to be resisted?*

M: Richard, your project has led to the development of an app for a cell phone. As I understand it, the app is supposed to help people become aware of their patterns of consumption, even their modes of life, and help them to become more responsible for their choices. Could you explain how the app grows out of your concerns about climate change and the Anthropocene, and in particular how a law professor got involved in such a project?

R: I had an experience in 2009 that felt as if the scales had fallen off my eyes. It was at the failed Copenhagen Summit that sealed the fate of the United Nations Framework Convention on Climate Change. As a jurist, I had come to imagine that a global treaty was the necessary pinnacle of achievement for the coordination of social norms to mitigate our impacts on the biosphere. The logic seemed compelling. Since each of us affects all of us in participating in an economy that generates unsustainable greenhouse gas emissions, only a collective framework governing all emissions could succeed in confronting the crisis. There had after all been a precedent. The Montreal Protocol on Substances that Deplete the Ozone Layer adopted in 1987 succeeded in curbing the use of these substances and in shrinking what came to be known as the 'hole in the ozone layer' (Strahan and Douglass 2018).  But at Copenhagen in 2009, it became obvious that the United Nations Framework Convention on Climate Change would not succeed despite the thousands of climate justice protesters and pious expressions of concern from world leaders. The atmosphere was grim from the very outset when the lead negotiator for the Obama administration, Todd Stern, stated, 'I actually completely reject the notion of a debt or reparations or anything of the like. For most of the 200 years since the Industrial Revolution, people were blissfully ignorant of the fact that emissions caused a greenhouse effect. It's a relatively recent phenomenon' (*New York Times* December 9 2012). This meant in practice that there would be no way to align the position of 'developing countries' with that of the industrialised world toward a common emissions trading framework. Sure enough, the 2009 process collapsed and all that could ultimately be salvaged from it was the hollow Paris Agreement of 2015, which has itself now unravelled.

For me, this was a dramatic failure of law. True, the politicians had allowed that legal instrument to whither and die. But the very idea of proceeding by way of a formal legal framework was itself left in tatters. What had been perhaps the most elaborate effort of all time to generate world-wide treaty-making capacity to address an existential challenge for the entire world's population had led to a dead end. So, I had to ask myself if there was another way to generate the requisite transformation

of social norms. If the transformation of the social and economic norms could not be achieved through a formal agreement of states binding all from the top down, might it be achieved through informal means? You know well my pedigree of work with Rod Macdonald on legal pluralism and informal normativity (Janda, Jukier and Jutras 2015). I had already come to believe that there was too much faith being placed in a kind of legal formalism and abstract positivism. So, I began searching for ways in which legal norms could be fashioned collectively without the apparatus of state treaties.

The work of Elinor Ostrom also served as a fascinating invitation to imagine how to favour the stewardship of collective goods. Although her Nobel Prize was in economics, much of her work paid attention to modes of informal governance and social signalling in the management of common pool resources (Ostrom 1990). If the problem we are facing, the very destruction of the biosphere, is the most significant tragedy of the commons ever produced, then decentralised, polycentric solutions like those explored by Ostrom would have to be deployed on a global scale.

M: Hearing you speak confirms my sense that your project involves a set of fascinating encounters with normativity. The research seems to come out of a sense of urgency in the face of a predicament that affects all humans. I cannot help but think of Hannah Arendt's idea of a 'negative solidarity' of humanity forged by technology and tied to humanity's capacity to destroy itself. In some sense, you wish to bring 'political responsibility' (Arendt 1968: 83) to this negative solidarity.

The inadequacy of (international) law – or of (international) law traditionally understood – to meet contemporary challenges is also a kind of Arendtian theme. I understand some of your past remarks as suggesting that the inadequacy of law you refer to is in part a version of the difficulties attendant to translating or transcribing the laws of nature into positive law – difficulties attendant to aligning *fusis* and *nomos* (Kelley 1990), or should we say, *fusis* and *tekne*? It's as if you've come to the conclusion that positive law traditionally understood cannot translate the laws of nature, in other words, the laws of the earth. If

human law is to align itself with the laws of nature, if a social contract is to be 'naturalised' or transformed into or supplemented by a 'natural contract' (Serres 1995), you seem to suggest that we need to turn to a different kind of legal or social normativity. In order to make possible this alignment, I see you turn in the direction of, among other things, 'nudging,' and behavioural economics.

One of the interesting things about your project, to put it too simplistically and reductively, is its use of 'a' technology – the cell phone – to answer a challenge unleashed by technology or, perhaps to be more precise, 'technique' (Heidegger 1977: 3).… I wonder about how the very thing you are turning to – the cell phone – could itself instantiate a great failure of human beings with regard to the earth. We've already spoken about how the cell phone is one of the least circular products out there, given its use of rare earth metals. We can also add to this the kind of critiques of the cell phone that confront it as an 'absolute device' (Ferraris 2014a: 59) itself invested in, so to speak, the transformations of beings, including human beings, into 'standing reserve' (Heidegger 1977: 18). Both the Anthropocene and the cell phone seem to point to a kind of 'total mobilisation' that may 'reveal human nature to itself' (Ferraris 2014b: 205). Your project raises the question of how they do so or could do so together.

R: Certainly, one can ask why we would do the crazy thing of relying upon the very mechanisms that disconnect us from the material conditions of our lives in order to produce some sort of collective action in response to these changes in material conditions. I'll share my state of mind and maybe I'm now on a path dependency of my own in giving this kind of answer. I think that what is 'de-materialising' us is what we have to pay attention to if we are to realign collective behaviour. If we could learn how to 'nudge' – to use the behavioural economics term – the representations of ourselves, those virtual creations in this world of social media, would we be able, in a sense, to amplify the shift in behaviour that is needed in the material world? To be more specific, if people are now actually oriented towards what their choices mean for Facebook and Instagram and Twitter identities and want to be

able to represent themselves successfully on such networks, can they be mobilised to improve social choices? If enough of them really care to be seen as 'virtuous' as regards collective impacts, can that in turn help to amplify their willingness to change settled habits involving patterns of consumption?

M: It sounds like one of the things we've been doing in our conversation is dancing around a distinction such as the one between reality and 'social reality' (Ferraris 2014a: 3). At first glance, the Anthropocene – which we have not quite spoken about directly so far – is not 'social reality' but 'material reality'. How does it become social reality? How does the normativity, the laws of nature, of the earth, that govern the Anthropocene become part of, tractable in, the laws of Facebook or social networks? It seems like part of what you are doing, what you are interested in, which I don't necessarily see in the phenomenological or media-technological takes on the cell phone, is not just that the cell phone transforms or reveals normativity …. Yes, that is all nice and good. But that is not the whole of our predicament. We need to translate 'the natural' into 'the social'. The traces or archives that interest us are not just those tied to the cell phone but the traces or the archives of the earth, on the earth ….

R: That is a profound observation. The term 'Anthropocene' has to do with traces on the earth. It's a hypothesis that geologists are apparently in the midst of debating, although they are in no great rush to resolve the matter because they are operating in geological time! The notion is that our trace upon the earth is such that we can characterise the sedimentary deposit of *Anthropos* as sufficient to characterise a new geological era. Examples of the Anthropocene from a geologist's point of view would be the bizarre rock forms that are now incorporating plastic or the fact that you can take soil samples anywhere on the planet now and find some traces of human activity. So, in fact, you are right, there is significant evidence of the ubiquitous material presence of human activity in the geological record. From another point of view though, as you put it, there is a need to take this material reality and turn it into a social reality. The problem could be turned upside down. From the vantage point of the geological record, the human trace is

an infinitesimal sort of surface trace and as quickly as it arises could be overwhelmed by what would replace it. Books have been written that project forward what the geological record will look like once we disappear, so as to predict what would quickly be re-absorbed and what would not (Weisman 2007). There's actually not that much that would be left for very long. Why am I saying that? The current material reality is only of significance as a representation back to us of a certain social outcome, namely 'the world without us', to borrow Weisman's title. The Anthropocene is only a relevant phenomenon to the extent that we care about whether a continued human trace is something to be sought. If that were not of significance, we would just observe a 2°C temperature increase ushering in runaway climate change corresponding to a mass extinction. We would also observe that this extinction would ultimately include the disappearance of a particular species that was responsible for the phenomenon. Whatever would then substitute for that particular bio-geo-climatic condition would simply arise. As we departed from it, the geological record would reveal itself as utterly immune to any normative orientation as regards us; unless the removal of our continuing trace upon the geological record is our moral recompense!

M: The very name of your app brings together, combines, both the archiving, inscribing of or on the earth and the connectivity actualised and symbolised by the cell phone. Can you tell us more about why your app is called 'Myko'?

R: Well, it's the Greek root for the family of organisms of the fungi kingdom, including yeasts, mushrooms and lichen. There were two reasons we chose that name. The first was that in nature, these plants are actually strong bio indicators. They register environmental impacts with exquisite sensitivity. Thus, if you go to the Île Sainte-Hélène and Île Notre-Dame in Montreal before and after the Grand Prix, one of the ways of telling that it took place is to look at the lichen because they degrade very quickly in response to the changing air conditions. So, these organisms can respond more acutely than technical instruments to changing environmental impacts. But the other reason

for the name is something called the mycorrhizal network, formed of fungal filaments existing in symbiosis with the roots of plants. This is what some people call, using totally upside down logic, 'the internet of trees.' You have probably seen that if you dig up the roots of trees that they have a kind of white fibrous material, the mycorrhizae. A representation of this phenomenon is in the film Avatar, strangely enough, since we're talking about avatars in virtual reality. The entire planet Pandora seems to be connected to the Tree of Souls. That was a mythical extension of the mycorrhizal network.

M: So, you don't really have the word 'Anthropocene' in the name of the app … but you have the bio-indication possibility of these organisms and their strong connectivity.

R: We wanted to underscore the notion of signaling and connectivity in the Anthropocene. In a forest, what the mycorrhizal network does is allow a parent tree to send nutrients to a sapling. So, it involves a mode of communication among these plants. We wanted to convey the idea that we were learning to communicate organically about the impacts that we're having on the planet. It was actually the student researchers who chose the name. One of our researchers proposed it, the students conducted a focus group exercise and this was the proposed name that had the most appeal.

M: As I understand it, your app makes use of different kinds of logic that lead us to think of normativity in different ways. Drawing on our previous conversations, I think I can name several. One logic is a logic of real-time signaling (and perhaps gathering) of information made possible by the cell phone and connectivity. This enables a kind of collective and individual representation of a sustainability footprint. This awareness of human beings, of their footprint, however, may not be sufficient to 'move' human beings to action.  A second logic, then, is that of 'nudging,' of finding ways to move people that do not involve explicit command or direction, that perhaps do not speak to 'practical reason' or to the 'will' as 'rules' do. A third logic is tied to social media, what I've called, perhaps inappropriately, a *thumodic* logic.[3] This is a logic of competition, of comparing oneself with others, of the desire

for 'recognition.' A fourth logic is tied to the video game and involves the building of a 'world' with different layers or 'levels' to be traversed or uncovered. ... Perhaps you can tell us about the different versions of Myko and the way in which each of these harnesses - or not - the different logics or normativities?

R: The first version was just set up to show you a score for a given action. It operated like a 'quantified self' tool that people use and follow, for example to know how many steps they've taken, or how many calories they've eaten or what heartbeat they are registering. It would just follow your behaviours, for example with respect to modes of transportation, and you entered them and you got a score, based on the life cycle analysis of the impacts of the behaviour, just by swiping the action that you'd taken from a list you set up. We had a leader board and so you could see where you ranked in comparison with others. It was a very real metrification of the score.

M: So … users entered their own data. And there was a kind of competition or thumodic element, of seeing and being seen, of seeking distinction.

R: Yes. We decided in the second version - which is in hibernation - to move away from that sort of purely metrified approach and make it more of a visual representation where you were taking care of yourself and taking care of your planet. We did it in a very, very simple way. We were playing on the idea of the old Tamagotchi digital pets. Children were really into them in the 1990s and they had to feed their virtual animals and pay attention to them for their animals to grow or indeed their digital pets could die. In our version of this idea, as people improved on their impacts in different domains - food, waste, energy and so on - trees would grow in their world corresponding to improving impacts; their world would become more lush with more sustainable behaviour. If you did something positive so many times, it would qualify you for a harder positive action ... and the branches of the trees would open up. As regards food, for example, if you gave up meat once a week, that would grow a branch on the food tree with a new leaf on it. You could open up other possibilities and eventually you

could become vegan. So, the platform was meant to incline you towards improving your impacts and growing your trees. And, to adopt a new behaviour involved learning something about the impacts of foregone behaviour and answering questions on quizzes.

M: So, the first version involved a kind of social media, thumodic logic and the second version led to some gamification, not in the sense of more competition or quest for recognition but in the sense of world-building, of virtual worlds? And the data was still gathered in the same way between the two versions? Can you tell me more about the move from the first to the second, about how you discovered 'gamification'?

R: We wanted to see what worked, and it was possible that different kinds of choice architectures, to use the behavioural economics term, would nudge differently. The reason the second one was called gamified was actually fairly technical. We built it with someone who had worked at Ubisoft and he looked at what we had in the first version and said, 'Oh, you've got individual scores and I know about game architecture, which requires that you move from level to level and that you have the ability to unlock new choices and outcomes.' We didn't want it to be a game like a video game, but we did want people to have the feeling that they were moving in a positive direction and were engaged by the experience. We wanted to go beyond the passive experience of the first version in which you would make your own checklist of things you wanted to do, say walk to work three times this week, and then when you did them you'd swipe right you would get points each time you fulfilled your own targets.

M: So, if I get it right, the first one is a multi-use tool. You can use it to set a range of different sustainability goals. The second one gives you more like an online persona with a narrative arc with a character who moves through a world: that's the gamification.

R: We didn't go far with the persona idea. However, we thought that we had made the first version of the Myko world and we imagined that it could become more and more like what you describe, depending upon how it appealed to people.

M: That's where perhaps there are different kinds of 'addictive

possibilities' to turn people onto environmentalism or what have you.

R: Yes, but we built it in a very sober stripped down way. We didn't want it to feel cartoonish to people. Thus, for example the branches and leaves of the tree were very suggestive and abstract rather than a formal depiction of a tree.

M: I see. So, we've talked a little bit about what I've called a thumodic logic as well as a little about gamification. Both of these involve moving people in specific ways. We have not really spoken about 'nudging,' however. Was there nudging in the app itself?

R: Well there weren't formal nudges or incentives built-in like having free tickets for public transit, but we planned to have trees planted for people who completed trees in the app and explored that in some detail. I observe that a system like this is widely used in China today. But our form of nudging was mainly the score itself and the desire to open up new branches. We sought to help people to get to the point that they would form new habits. However, we always sought to engage them in making those choices for themselves. The architecture of the app was designed to make it possible to incorporate further nudges and incentives that would help users to improve their own footprint.

M: And you have a third version?

R: Yes, we had 1.0, the metric tool, and 2.0, the virtual world, and now we are working on 3.0. The main problem we discovered with the second version was that people got bored with it eventually. At first it had a certain appeal, but then it wore off. Our initial reaction was that we had not made it addictive enough. But for some of the reasons you've invoked, I was not very attracted to that way of thinking. So, in a sense we went back to the original experiment and we said to ourselves that the problem is that we still hadn't succeeded in making this immediate or automatic. Each of the first two versions required people themselves to use the tool to enter what they had done so as to be able to get information back for themselves.

M: It seems to me that requiring users to enter their own data keeps the app at a certain distance from the users while still granting them a certain level of control, for example over which goals they wish to

achieve. This, one might say, makes the app more of a tool and a much less effective 'prosthetic' ... thus limiting the possibilities of what you have called 'real-time' law or normativity. On the other hand, if users do not need to enter their data themselves, the app might be closer to being a full-fledged prosthetic or 'conscience' app, providing a more immediate translation of the laws of the earth into human normativity. Of course, this kind of 'conscience prosthetic' and the way data entry might work raise all kinds of dystopian scenarios.

R: Yes. There's a huge dystopian potential to this. It's not just hypothetical anymore. It's manifest in the way China is trying to deploy exactly these kinds of ideas. China has a social score technology it is unfolding all across the country. China has sufficient facial recognition technology with capacity to deduct points from people who jaywalk. The idea is you're assigned a certain number of points and you can improve your score or diminish it depending on the choices you make. A lot of it seems to be targeted to some way of measuring loyalty.

M: But you still see something positive in this despite the dystopian potential?

R: Yes. You could say such a technology is precisely about rendering citizenship visible to people. If privacy can be protected, should I not hold myself to account for my citizenship failures? (I am thinking a little of Judith Butler's (2007) *Giving an Account of Oneself*). When I jaywalk, when I fail to pick up litter … whatever I do in falling short of some citizenship ideal should be made visible to me as much as my bank account is or can be. … Ideally, every kind of 'justice claim' should somehow be registered and made visible. At least, that's the idea. And, as soon as we make something visible to ourselves, we transform it into a social signal.

M: Does this not involve translating a citizen persona into a consumer one, so to speak?

R: You had said, in a previous conversation, that there might be some virtue to dealing with a kind of bounded rationality problem – people cannot absorb all the signals nature might send so perhaps we need a way of assembling into a unity what could then be disaggregated

if people want to look at it. The price signal already does that, perhaps in a way we don't like. What if all the externalities we are generating, all of our collective impact, were to be captured in some signal? Moving beyond the price signal is tied to attempts to measure sustainability and collective well-being – using a 'dashboard' of indicators – in a way that goes beyond GDP (Stiglitz, Sen and Fitoussi 2009).

M: But can we separate visibility to oneself and visibility to others, and if so how? What kind of 'sight' might be required or engendered by this demand for visibility? Think of James C Scott's (1999) *Seeing Like a State* and his exposition of failures to improve the human condition tied to this kind of sight. ... Think too, for example, of the institutionalisation and supervision of conscience in the history of the Church (Saada and Antaki 2018). Does the app not seek to generate but also institutionalise a kind of conscience? Does the social score not reflect a kind of calculable contribution to a collective salvation? Is it possible to 'generate' a conscience without institutionalising it? How so? What is the relation between the app as tied to a care of the self (Foucault 1997) and the app as signaling subservience, subordination, a willingness to be governed this way or to this extent? (Foucault 1990).

R: You have put some hard questions on the table. The effort to track our impacts has obvious Foucauldian implications. It invokes not only the image of the Panopticon but also brings to mind contemporary Omniopticons, as I've put it elsewhere – that is, all of us observing all of us. The other thing you've placed on the table – and perhaps tied to thinking of the app as a form of 'conscience' – is the relation of *fusis* and *tekne*. Might we embroil ourselves in a terrible contradiction in imagining that further investment in technology will allow us to re-align with *fusis*? With respect to the first issue, I am not terribly satisfied with my response at this juncture and am somewhat overtaken by events. I had imagined building privacy into the collection of data, dispersing it among all users on the blockchain, and making its third-party use governed by those who provide it. I thought such governance structures would legitimate this kind of collection of data. But the challenge is enormous.

We also need to mention the 'Hawthorne effect', a kind of flipside of the Panopticon, exactly what Bentham imagined would shift the behaviour of prisoners. The very fact of being observed changes the way one behaves. We have built a notional 'eye in the sky.' An 'eye in the sky' has been imagined for eons in relation to 'virtue' as we seek to be virtuous in the name of God. We have always had the idea that we will have to render our accounts to the one who sees everything that has happened.

I am also thinking of the famous 'Nosedive' episode of the series Black Mirror that everybody has been disturbed by, and that has come up in newspaper treatments of the Chinese social score example. In this episode, everybody is scoring everybody else and a woman watches her score diminish to the point of being driven insane. The entire world is divided into those who've opted out, and are totally socially marginalised, and those who can literally cash in on this social capital. People will respond to being put on display in this fashion. We have here the dystopian dimensions of a thumodic economy. … How can we produce a context in which the thumodic aspects of social interaction do not generate widely dystopian effects?

M: The example of China brings us in one direction and raises the dystopian potential of the project. However, the example may not enable us to perfectly name misgivings about the project or articulate well its critiques. For one thing, it does not capture the problem of technique as one not necessarily tied to specific political arrangements. In our conversations, we've identified two interesting ways to frame the problems tied to the kinds of logics which this app harnesses when these logics are pushed to their its limits. One is the idea that humanity would rely on one extremely significant 'externality' – the externalisation of intelligence, in the words of Michel Serres (2015: 25), in order to solve a problem of externalities, to use the economic term. ... Another is the question of the possibility or danger of relying on the 'virtual' in order to engender 'virtue.' Indeed, we discovered – to our delight – that 'virtual' and 'virtue' have the same root ... and that led us to wonder about their phenomenological (dis)connections!

R: If I recall, the question of the externalisation of intelligence came up in two ways. One was the question of how, specifically, to name our current epoch or predicament. The other was about thinking more clearly, naming better, what is going on with 'artificial intelligence'.

M: Yes, we had been thinking about how to name our epoch or predicament – late capitalism, neoliberalism, technique for example – and about whether or how such things as a thumodic economy fit into that. … What is 'new' exactly?

R: We can go back over time and discover various ways in which every generation imagined itself to be at some epochal moment. How is it we have the *thumos* to think of ourselves, and the Anthropocene as being at some epochal moment?

M: It came earlier, no? … nuclear weapons, negative solidarity. We are bound together by virtue of our ability to destroy everything.

R: There are three moments, I would say, maybe others: the Holocaust, nuclear annihilation, and the prospect of the end of life. This is all, I think, connected together. I am also thinking of a bit of Žižek (2011) and also Northrop Frye (2006) – the notion that the biblical narrative was already one that placed us in relation to some end, some end time. This feature of the religious imagination continues to imbue us.

M: I think too of Robert Meister's (2006: ix-x) analysis of different experiences of time and of end times, for example the 'prophetic' where the time to change is now as opposed to the 'messianic' where there is more time to be had between a first and a second coming. … The logic of the messianic, of buying more time, might be one of continuing to generate externalities … because there will be time to fold back in today's externalities.

If the 'end' to be avoided is a 'world without us,' it might be a perfect time for artificial intelligence to happen: an uncanny juxtaposition. The Anthropocene leads us to imagine a world without us and where the cell phone is tied to 'artificial intelligence,' to the externalisation of our intelligence. … I was reading about the development of a device that can 'hear' the words we say 'silently.' 'It's like having Siri listen to

your internal commands' reads the sub-title of a *Popular Science* article (April 6 2018).

R: But Siri is designed *not* to answer certain kinds of questions and to *not* form certain kinds of connections. Indeed, I read that the designers of Siri, which was bought out by Apple, had originally built certain functionalities into Siri that Apple later cut off because they thought people would find it too disturbing if Siri gave answers to certain kinds of questions. I went to a play last year at the Théatre d'Aujourd'hui which was entitled 'Siri'. The actress talked to Siri the whole time on stage. She actually found ways to get Siri to engage, to learn about Siri so she could start to gain certain indirect answers to questions. At the end, she asked Siri to tell her everything Siri knew about her. The play produced the bizarre sensation the playwright was seeking: that we started to care about Siri.

I described the perhaps somewhat redemptive view that our technology had given us the capacity to see our collective action … and orient ourselves in relation to outcomes we were seeing coming at us in real time or in close to real time. But you could have a different view. Like the film Stalker, Tarkovsky's masterpiece, where in fact we introduce ourselves into a world that is shedding itself of us. The externalisation of our intelligence is all that will be left once we produce the world without us … or the transition we will have created is to a kind of intelligence that could maintain itself in our absence. And that's the kind of thing that Stephen Hawking, Elon Musk, Bill Gates and others who signed what is in essence a manifesto against artificial intelligence were foreseeing. So it's not just the pure science fiction ravings about the Terminator. A pretty deep critique of what I am up to is that I am unwittingly or semi-wittingly engaged with others in producing the grounds of the possibility of the world without us.

M: Yes. This goes back to the earlier question of how the Anthropocene reveals us to ourselves, to borrow the words of Ferrari regarding the cell phone. I was thinking about whether and how both the Anthropocene and the cell phone are manifestations of technique, of the transformation of all beings into 'standing reserve.' This has

something to do with the cell phone as more a general instrument than a tool designed for one purpose, with the cell phone as an 'absolute device.' With technique, even ethical comportment – including those who are supposed to comport themselves ethically – becomes energy to be deployed, mapped, harnessed.

R: Michel Serres is the one who I felt helped me to understand the significance of this universal technology. I do detect a kind of Biblical narrative about how knowledge interacts with the destruction of the garden of Eden. This is how or why, over the course of our conversations, I shifted from 'universal dispositif' or 'absolute device' to 'externalisation of all knowledge' in my framing of things. That is what I've drawn from Serres, that we are carrying with us always at all moments every possible understanding of all things and the way we interact with ourselves. So, the cell phone is a further externalisation of knowing that pursues what we already accomplished with speech and writing and publication before.

We can think of speech as already making available to you and to me something that I seek to articulate or express about what I know. A *logos* moment. And then we can think of writing, for instance by way of Plato's *Phaedrus*, as producing distance from the direct expression of ideas in speech. And of course, the printing press as described in McLuhan's *Gutenberg Galaxy* (2011) further extends the distance from expression and enhances the autonomy of the text. What Serres is saying about the smart phone is that it actually goes a step further in placing my intelligence outside of myself. It could in fact produce a kind of autonomy to intelligence. We speak of 'artificial intelligence' as if it is something like ourselves in *tekne*. That is the way we've imagined it: something human-like placed into a *dispositif* which then begins to pursue objectives of its own. This kind of fantasy is captured in films likes *Ex Machina* or *Her*. But I think that overly personifies or anthropomorphises the artificial intelligence we are in the midst of creating. Machine learning algorithms, it seems to me, come closer to being like the artificial intelligence already imagined by Adam Smith (1761, 1776) when he wrote of an invisible hand that was able to orient

human beings collectively toward rational outcomes exceeding their own individual intelligence. There is a sense in which it is our collective intelligence that is augmented through the machine learning algorithms we are beginning to deploy. After all, these algorithms are 'trained' by us to pursue outcomes that we seek. There is a light film starring Johnny Depp, *Transcendence*, in which he – his intelligence – in essence gets uploaded into some form of digital universe. It has produced its own capacity to interact with all things. That's closer to the artificial intelligence we are creating now at the moment where everything derived from our own intelligence is extended into *tekne* and producing a form of autonomy from us. The driverless car exhibits this property.

You've raised the question of what it means to align the externalisation of our intelligence with the laws of the earth. I felt naively that there was something salutary and propitious to the fact that this universal *dispositif* emerged at the same moment that we could render visible everything that we could destroy. It put us back in the Garden of Eden so to speak. Now that you've eaten from this tree of knowledge or intelligence, what will you do with what you have taken?

M: And what happens to the 'virtue' you are interested in fostering with the externalisation of our intelligence? Or to modify the question and transform it into a different one: (how) can the virtual teach virtue?

R: What do we mean by the 'virtual' anyhow?

M: Is the virtual something that is not actualised but actualisable: is it a fitness or in that sense a virtue, basically?

R: The one transition in the etymology that I found interesting is to be 'virtually broke,' which suggests that you are all but broke but not quite broke.

M: This is like Aristotle discussing the Megarian School position in the Metaphysics where he introduces the idea of a potentiality. For the Megarians, when a cat is jumping, say, it can jump, but when it is not it cannot. However, when the cat is about to pounce, that would be the virtual. It is virtually jumping because it has that capacity, but it is not yet actualising it.

R: Right, when it's crouching and is about to pounce it has virtually pounced. The total concentration of potentiality just before its actualisation, as if you were winding a spring, and you know that when it releases it will uncoil. It has become taut and virtually sprung and that potentiality can be stored. So how would that idea of the stored, accentuated, unrealised potentiality as 'virtual' relate to virtual reality?

M: In effect, how did the computer scientists take over this world?

R: I see a step taken first as regards the use of memory in the computer. When it uses real memory, the computer's operating system stores data in a physical address. When it uses virtual memory, it puts it in a virtual address on the hard drive, from which it can be assigned to real memory. Virtual memory is both potentially real memory and a way of emulating real memory on another device.

M: As regards a virtual reality, what is interesting there is the presence of the term 'reality' as well. The phrase 'virtual reality' seems to be an oxymoron. However, I believe the connection is that virtual reality has everything but this tiny little slice of the real. But as we augment virtual reality, our perception of it and the sensations it can produce in us come closer and closer to resembling the so-called real world.

R: That's really interesting. What this would mean is that the computerised, digital world has succeeded in stocking up potential. What it has sliced off is the layer of actualisation. It allows us to inhabit potential in its entirety. When you think of it in that way it's true that these virtual worlds have the bizarre quality to them that you can jump anywhere or you can come back to life; there's never the reckoning of actualisation. Everything still remains possible. So, if you thought of it as pure potentiality or pure possibility, that would be a virtual reality.

M: I was wondering to what degree the idea of potentiality had been lost. Do you keep the idea of potentiality if the virtual emulates the real?

R: Well there is another theme embedded here that we haven't touched upon so much. We called it the thumodic, the sense that one would be exposed to public censure or shame, but there is also the sense of play. Virtual reality seems to connect to the ludic. I have re-read Huizinga's (1971) *Homo Ludens*. I have also been quite influenced by

Brian Massumi's (2014) *What Animals Teach Us about Politics*. Massumi focuses a great deal upon play. His figure is that of the animals that play-flight. They nip but they don't bite. The nip is a kind of potential biting and they're acting out all of the possibility of violence, but they are doing that playfully, without actualisation.

M: But we can do that too, without virtual reality.

R: Yes, but although Massumi does not write about this, there is something about virtual reality that is the reality of play or a reality that would always have the feature of play to it because it would never translate itself, to be Heideggerian for a moment, into a being-unto-death. Your avatar is something that in principle never perishes. You can lose at a game but you just start over.

M: But I think I want to resist that … because the nip has a proximity to the bite that the so-called virtual doesn't have. If two kids are play-fighting, they could punch a bit harder and are pulling punches. There is always a sense of pulling back and also of attunement, of attunement one to the other. In the play in virtual reality, there is no necessary sense of pulling back. It's as if one can unleash violence, potentially kill thousands of people. There is no nipping there. What I'm curious about is what fantasies or unconscious drives the virtual allows people to explore in a way that is different from the nipping form of play?

R: What you are saying is really well taken. There is a proximity between the nip and what it could become. The potentiality is standing in relation to an actualisation. If you were to sever the potentiality from the actualisation, and it were always only a nip, perhaps you could construct a world entirely of that sort. Call it Westworld, where basically even if you unleashed yourself fully that would never translate itself into all of the slaughter that your senses were experiencing. That may be one of the problems with virtual reality and where its relationship to virtue starts to break down. Is there something about virtue that gave to the name virtual precisely something that stood in relation to the actual in the sense of exercising manhood or displaying the behaviour or capacity that in its potential prepared for the actual? I just learned of

the training in virtue of the Maasai warriors whose potential to defend the community and its herd of animals is only celebrated once they have killed a lion. In this sense, for there to be virtue in the virtual, it trades upon its eventual actualisation. Now, however, in virtual reality, virtue has become so utterly detached from its actualization that there is a kind of gap or breach introduced into the display of virtue. This may be a feature of contemporary discourse insofar as people engaging on social media sense themselves to be in a virtual space rather than a public forum or agora of some kind, where the actual implications of anger, fear and humiliation are directly lived out. I think there is something about the complete storage of potentiality unrelated to actualisation that is very significant for our capacity to be virtuous. There may also be contexts in which living with the actualisation of the virtual accentuates rather than numbs our disorientation. Apparently the American pilots of drones face equal or perhaps even greater post-traumatic stress disorder engaging in what can feel like virtual combat as they confront the actualisation of the attacks they have unleashed on civilians (Telegraph 2015).

M: A few things come to mind in what you are saying. One concerns the virtual as a 'replacement for' the metaphysical or other world. Perhaps we are living in end times and thus there is a looming relationship to the afterlife. Does the virtual produce anything significant in relationship to that situation? Is it where I seek salvation? This world is not good enough for me; I am miserable or bored, so I go into the virtual where there is redemption and salvation and I can find my better self. So that is one potentiality.

R: Well I am not a gamer but so often it seems to be the opposite: let's plunge further into the dystopian, because that way we can accustom and inure ourselves to that experience without actually having it.

M: Well that could also be *ressentiment*, like the weak find the pleasure of being the strong in that place where you don't have to face death for real. I don't know exactly how Massumi treats this, but the thing about nipping is that it is play fighting with another real animal.

There is a social dimension there. Do I need there to be other human beings playing in the virtual world? Does that matter or not? All kinds of bots and avatars populate the virtual world. Does it matter whether there are real others and whether the virtual world is shared? We are here exploring how 'being-with' – something completely bound up with how we usually think of 'virtue' – is or can be declined.

R: Well, the film *Ready Player One* engages with all of this because it sets up the reversal of the relationship between the virtual and the real. It draws on the premise that after a dystopian collapse of the world into slum conditions, the most significant economic activity is play in a virtual world. The largest company has become one that makes the games for this world. Everyone is connected virtually to these games and plays almost continuously. When people enter the world they can play in, what's at stake is the commercial control over the actual entities that sell them the virtual world. You can imagine how the film might structure this: a kind of back and forth between the virtual and the real, between entering into the game and leaving it to try to control it and then re-entering it to do the same. There's a kind of seamless movement back and forth. At one point, though, the people who are playing and have met only as avatars meet in the real world and turn out to be very different from their personae. Thus, for example, a great warrior almost inevitably turns out to be an eleven-year-old. What drives the drama of it is that it is very difficult for people to tell whether they are in the material or virtual world and in the end the two become indissociable.

M: What is the relationship between what you are doing with your app and this virtual world? I suppose you were believing – or hoping to discover – that there can be a so-called healthy relationship between the virtual and the real. Perhaps my avatar can teach me to re-connect with the world. Perhaps there is a promise in virtuality just like Lynn Hunt (2008) has argued that epistolary novels taught people about human rights and empathy. When there is a new medium or technology, whether it be the epistolary novel or something else, it becomes a pedagogical tool. Is the question one of its deployment and of its tendency towards worldliness or worldlessness? That seems to

be the connection. Your task or challenge would be: 'how do I get the app to align well so that it and the score relate you back to reality?' It's not a score about how many people I've killed or how many treasures I've collected. It's meant to be a total reflection of my situatedness in the world, so it should throw me back into the world. It's a virtual that cannot absorb the real but rather can become absorbed by the real. Is that possible and is it in the very nature of virtuality to hold out such a promise?

R: Yes, that's exactly where the connection is. We haven't touched upon this so far but to the extent that it was gamified, it was designed to get people involved and engaged with it.

M: If you are still Richard on the app, is it gamified? Facebook is not gamified, is it? You're still who you are. There's no avatar, is there? If you have a fake name and your appearance is dissembled, that seems like a different thing than if it's Facebook and you have real pictures and you are sharing your life. Or is it identical? What is the difference?

R: It's a little bit of a tangent but I think that Facebook still gives people the occasion to curate themselves and so what they present about themselves and how they seek to appear is different perhaps from who they are and more about how they could be or want to appear. It works in both directions, though, because circumstances arise in which people are confronted in their real workplaces with the representations of themselves that they are making online. So, they get themselves in trouble for trying to appear to be exotic creatures on Facebook, which then seems to be out of line with the way they are trying to appear in the workplace.

M: This makes me think of Goffman's (1959) presentation of self in everyday life and its adaption into an online or networked world. It also makes me wonder about how 'personality' or 'legal personality' might need to be re-thought. ...

R: Where the project was trying to exploit this, and I use the term advisedly, was how we thought that there could be a kind of virtuous back and forth between the virtual and real worlds. It is odd now to confront the etymology of 'world'; I hadn't seen that it has already an

anthropocentric quality to it, coming from the Old English *wer* which is a Germanised version of *vir* and so it already has that sense of 'man' in it. The simple idea for our project was that we wanted everyone to have their own world, and to be able to see how their behaviour changed their world.

M: And so … 'world' brings us back to 'virtue' as well!

## Notes

Mark Antaki is an Associate Professor within the Faculty of Law at McGill University. Mark acknowledges the financial support he has received from the Social Science and Humanities Research Council of Canada.

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*Thumos* is part of the tri-partite division of the soul found in the *Republic*, the other parts being *epithumia* and *logos*. *Thumos* is etymologically related to *epithumia*.

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## Mark Antaki and Richard Janda

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