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SPECIAL ISSUE

It's Not About Technology

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Abstract It is argued that the question "Can we trust technology?" is unanswerable because it is open-ended. Only questions about specific issues that can have specific answers should be entertained. It is further argued that the reason the question cannot be answered is that there is no such thing as Technology *simpliciter*. Fundamentally, the question comes down to trusting people and even then, the question has to be specific about trusting a person to do this or that.

Keywords Technology · Trust · Animal rights · Promising

1 Introduction

It is about people. When I was first asked to contribute to this special issue of *Knowledge*, *Technology*, *and Policy*, I thought I knew what I was going to say. But things got muddled quickly once I actually thought about what it meant to trust technology. Part of my problem is that I have been working with a definition of "technology" for some time now that makes my *entré* into the topic awkward at best. In *Thinking About Technology* (Pitt 1999), I introduced a definition of "technology" which was specifically designed to draw our attention away from talking about a reified thing called Technology and move us towards a consideration of individual technologies and the questions they raise. According to this definition, technology is *humanity at work*.

If we now turn to the question at hand, "can we trust technology?" and plug in my definition, it translates into the silly question "can we trust people?" It is silly because we must trust people, at least some of the time, or we will live in a permanent state of fear or paranoia. Having said that, it occurs to me, however, that the question "can we trust people" is a little like the question "do you really think

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you are going to die?" Cathcart and Klein (2009) in their marvelous trip through the philosophical landscape on death, *Heidegger and a Hippopotamus Go Up to the Pearly Gates*, open their examination of how philosophers have addressed the question of death by pursuing this issue with vigor. They ask, "Do you *really, really* think you are going to die" with the implication that while we believe, nay, know that everyone around us will die, we really *really* do not believe we are going to. So when we ask the question "Do you trust people?" we should be asking "Do you really *really* trust other people?" with the implied anticipation of "No" as the answer. For anyone who answers with an unqualified "Yes" will, should, be viewed with suspicion, for they are either incredibly naïve, idealistic, or ignorant of the ways of the world. Mothers warn their children "Don't trust strangers." Fathers warn their daughters "Don't trust men." In the late 1960s, we loudly asserted that no one over 40 was to be trusted. And the list goes on.

So where does this leave us? Well, we have not clearly arrived at the point where we cannot trust anyone *carte blanche*. There are a few, special people we trust, spouses, parents, children, but we do so at our peril, for we are inevitably disappointed. Trust is a funny concept. From where I sit, it applies primarily to people. That is, we trust people, or not, based on our experience. So to ask "Can we trust technology?" either turns a technology into a person, as we treat corporations in the law, or widens the application of the concept, or involves us in a category mistake. I am going to proceed by first looking at what it means to trust another person. I am then going to look again at my definition of technology and see what it means to trust people at work. I will ask what it means to trust things, and I will look at things in the broadest sense, including social systems. Finally, I will conclude that the question makes no sense, i.e., that in phrasing the question that way commits a category mistake; phrased that way, the question succeeds in anthropomorphizing and reifying technology. Now, this is somewhat paradoxical since it appears that that is exactly what I have done by saying that technology is humanity at work. So, let us look again. But first, trust.

2 Trust

If you want to find a justification for the rights and obligations humans have without appeal to the supernatural, you need to find a conceptual foundation for civil society that establishes a bond between people that makes social intercourse possible without resort to violence. The search for such a foundation has a long history. The issue bedeviled, for example, Hobbes, Locke, Hume, and Rousseau. For Hume, that foundation finds itself in the first of his three principles necessary for the creation of justice: a general sense of common interest;

> which sense all the members of the society express to one another, and which induces them to regulate their conduct by certain rules. I observe that it will be for my interest to leave another in possession of his goods *provided* he will act in the same manner with regard to me. He is sensible of a like interest in the regulation of his conduct. When this common sense of interest is mutually expressed, and is known to both, it produces a suitable resolution and behavior. And this may properly enough be called a convention or agreement betwixt us,

> though without the interposition of a promise; since the actions of each of us have a reference to those of the other, and are performed upon the supposition, that something is to be performed on the other part (Hume 1888, p. 490).

The interesting feature of Hume's formulation, as Annette Baier has noted (Baier 1991) is that the convention he articulates is not expressed verbally. Somehow, you and I come to understand that I will perform certain actions if you perform certain actions. This is accomplished "without the interposition of a promise." This is where I part company with Hume, for the mutual understanding required, for me, must be expressed verbally, however primitive that expression is. Otherwise, it is not clear how the required understanding is to be achieved. This may be a fundamental parting of the ways, but I cannot conceive of coming to such agreements without articulating what is expected in some fashion or other.

Thus, instead of Hume's convention, my candidate is the concept of a vow, a promise. If you truly understand what it is to make a promise, then you understand the most fundamental cognitive relation between people. And clearly, Hume thinks this is a cognitive relation since there is a "supposition" that certain actions will take place, but what is a supposition other than a thought of some kind, and thoughts are formulated in language. This is not the place to develop an extended discourse on language and thought. However, it is hard to understand how a common reliance on the good faith of another to hold up his part of the bargain can be made non-cognitively.

When you make a promise to me, you place yourself under an obligation to follow through on that promise. If you break your promise, then I have no reason to believe you will do what you say you will do. I cannot assume you will do as you promised, which, had you kept the promise, would have allowed me the freedom to go off and do something else. That is the heart of it. Your promising and my taking you at your word allows me the freedom to do something else, not worrying if the thing you promised to do will get done, for if it does not get done, then I would have had to do that instead of the other thing I was going to do. I understand the making of a promise to me by another as relieving me of the chore. If you promise to take care of me, while it does not relieve me of the responsibility to do what I can to take care of myself, it means I can rest assured that I will not be left alone and destitute.[1] And the rights we allocate to fellow human beings rests on the understanding of this reciprocal relation. For you to make a promise means you take on an obligation to me and I understand that you understand that you have this obligation and that you will keep your word—likewise when I make you a promise. Since we both know what it means to make a promise, I can build on that understanding and develop more complicated relations, such as rights. When we accord you the right to X, it is under the assumption that you will abide by the fundamental assumptions of the society, such as keeping a promise. The right to bear arms is not the right to shoot at will.

Interestingly, we have no such relation of trust with animals. When I "promise" my dog I will be home to let him out, he has no understanding of the commitment I am making. Further, I cannot expect a dog to make a promise to me. When we say to the dog as we leave the house, "Be a good boy and don't chew anything up" and

[1] And the sad fact is that the divorce rate suggests that 50% of Americans don't understand what it is to take a vow or make a promise.

return to find the curtains in tatters, we do not accuse the dog of having broken a promise. That I may figuratively put promise words in my dog's mouth does not mean that the dog made a promise. We think he did, but in so thinking, we are just confused, or if not confused, at least indulging in a little bit of anthropomorphism. If, as I suggested above, the fundamental social relation is promising and if promising involves cognition, then pushing for animal rights involves taking a stance on animal cognition. Most would agree that cognition works on a sliding scale. While we may credit a 6-year-old human child with knowing how to tie her shoes, we probably would not say of her that her cognitive powers are those of an adult. With dogs, we may be justified in saying that they know how to do certain things or to respond to certain vocal commands, but from that, it does not follow that the kind of knowing they exhibit is on the same level of even our 6-year-old. The evidence of some sort of deliberate behavior in certain animals maybe evidence for some form of cognition, but it does not follow that it is of the same kind that is needed to understand what maintaining a promise entails. Thus, I would argue that whatever level of cognition animals may exhibit, it is not the same as human cognition and as such removes them from the logical space of promising. Thus, since animals cannot make promises or enter into the promising relation, they cannot have rights.

The fact that we cannot enter into the promising relation with animals punctuates the point that Carolyn McLeod makes when she claims that "the dominant paradigm of trust is interpersonal" (McLeod 2006). Trust is fundamentally interpersonal because it builds on promising.

Since both you and I understand what it means to make a promise, it follows that I am in a position to trust you to keep your promise, for that is what it means when I say I take you at your word. Trust is predicated upon promising. To say "I trust you" is saying nothing more that I expect you to keep your promise.

It is also the case that even though we trust a person, we may not act on what they tell us. The Challenger accident is a good example. The line engineers warned senior management that the O-rings would not function properly below certain temperatures. It was not the case that the senior management did not trust the engineers to tell the truth. Rather, senior management also had to contend with the political pressures to keep the shuttle program moving along. It is not that they did not trust the engineers to tell the truth, it is rather, that political factors overrode the issue of trust.[2]

If no promise has been made, then there is no reason to trust a person, which raises the question of whether the promise can be implicit. I have not read the entire legal code of the USA; yet, you have the right to expect me to abide by it; in other words, all things being equal, you trust me to be a law-abiding person. On what is that expectation based? It must be on something like the implicit oath Socrates says he took to live by the laws of Athens. We do assume that our fellow citizens will be law-abiding citizens, but is that a rational assumption? I think not, witness the assault rate, the thievery of bankers, and the corruption that abounds. Others assume that we assume they will not break the law or bend the rules and knowing that they take advantage of our gullibility. But even if we say we trust our fellow human

[2] See my discussion of the Challenger incident in *Thinking About Technology*; see also Diane Vaughan's excellent *The Challenger Launch Decision*.

beings to do the right thing, deep down inside, we know better. Push comes to shove, we also know that we will look out for number one.

So, in the end, knowing that trust means expecting one to keep his or her promise, it does not follow that we truly expect them to do so, although we hope they will, and the more intense the hope, the greater the pain when they fail.

3 Reexamining Technology as Humanity at Work

At the risk of appearing immodest, I want to rename our species. T.H. White played this game in *The Book of Merlin* 1977. He had several candidates: *Homo Ferox*, *Homo Stultus*, and *Homo Impoliticus*. Others, especially anthropologists, have played with my favorite: *Homo Faber*—for we are certainly not *Homo Sapiens*. We are not wise, witness the carnage we indulge in and our ineffective social programs. We are not knowing, although we have mighty pretentions. Nor are we sensible, judicious, or discreet, these being the run of the mill translations of the Latin term "*sapiens*." But we are makers, builders. And we build many kinds of things: tools, buildings, walls, social systems, legal systems, funding agencies, universities, etc. More than anything, we make things and what is most important about what we do is the process we engage in before, during, and after we do what we do. We plan, evaluate, and readjust. We are involved in a continuous feedback loop, learning from our mistakes, and building bigger, more complicated, and, hopefully, better things. If I am correct that the most important part of what we do are the decision processes we engage in as we design, build, and evaluate these things, then it is not the things so much as thinking about the things that captures what we mean by "technology." The things are only part of a process whereby we come to reshape the world in our image. We can argue about whether this is a good thing, but it is what we do.

In characterizing humanity as *Homo faber* and focusing on what we do as an incomplete process, the emphasis shifts from things to us. This is not anthropomorphizing technology; it is correcting a conceptual mistake. There would be no technology without *Homo faber*, and we would not be *Homo faber* without doing what we do.[3] Having briefly examined the appropriateness of defining technology as humanity at work, we can now turn to the question of what it means to trust technology or people at work. The first question then becomes "trust them to do what?" The obvious answer is "to do their work." But that is not an adequate answer since the implied question in the question "Can we trust technology?" is either "Can we trust our technologies to perform as promised?" or "Can we trust technology to not cause harm?", for the original question makes no sense unless there is a presumption that technology is not trustworthy. If that is indeed what is behind the question, then we need to know what the grounds are for such suspicion. There seem to be three assumptions that might explain the phrasing of the question.

[3] Ashley Shew has argued in her MS thesis (Shew 2007) and continues to argue in her doctoral dissertation that certain members of the natural world other than humans also create technologies. Clearly, we disagree—but as a passing shot, I would note that were there no humans, whatever it is that animals and insects do could not be classified as technology.

1. It might be the case that behind the question is something like Langdon Winner's ideological stance in which it is claimed that we are being disenfranchised by large corporations.
2. It might be that lurking in the conceptual underground is something like the Law of Unintended Consequences (LUC). LUC states that no matter how hard we try, we cannot predict all the consequences of introducing a new or improved technology, some of which may be terrible for some reason or another.
3. The question might be motivated by something like the suspicion that those who design and build new technologies are not doing so for the betterment of humanity, but rather for their own personal gain.

Thus, behind the question is the negative assumption that technology is not be trusted and that in turn is based on one of three assumptions, that technologies are tools of those interested in controlling humanity, LUC, or they are in for the money.

Let's look at #1 first. Here, the concern is that large-scale technologies upon which we come to be dependent, such as the electric grid, have the effect of removing democratic rights from the people and that we should wary of these sorts of enterprises.[4] Such claims are a form of conspiracy theory and suffer from the inability to actually prove that the danger is real. Yes, we have become dependent on the electric grid. But, as the technology improves, it becomes increasing possible and affordable to get off the grid using geothermal techniques or solar or wind technologies. Further, the benefits of contemporary civilization that come from economies of scale found in large-scale technological systems may outweigh the fears of disenfranchisement—notice, I do not say the fact, but only the fears.

#2 is a genuine problem. LUC says that *in principle* we cannot predict all the possible consequences of a developing and implementing a given technology. Yes, that is true. But there is absolutely nothing with which we are involved that allows us to predict with certain all the outcomes of any particular decision or action. That is not new, so what is the problem? We live with uncertainty, which is the nature of things. Yes, we try to reduce uncertainty as much as possible, but that does not mean we will succeed, nor that it is even possible. The human condition requires that in order to live with uncertainty we develop the best means to handle uncertainty—a certain flexibility and readiness to act. It requires that we be willing to go back and reexamine our assumptions, background knowledge, goals, and values and readjust them in the light of what we have come to know. LUC captures a state of affairs that we must learn how to respond to, not merely to lament. Further, it is not a law that applies only to technologies. It applies to everything we do. We never know what set of events we set in motion when we do something.

As #3 suggests, it is just about the money. We do not do what we do to better the human condition; we do what we do to make money. Well, if that is the case, does it lead to a lack of trust in the products we end up buying? We know that goods are produced so that manufacturers and their stockholders can make money. Knowing that by itself is not a legitimate source of mistrust. In fact, if they really do want to make money, they will produce products that do what they are advertised to do because then we will buy them. Untrustworthy products, meaning by that products that do not perform as promised, that

[4] See Langdon Winner's "Do Artifacts have Politics?" (1989).

break easily, etc. will fade because the word will get out and no one will buy them. In short, the companies have a fundamental interest in making products that do the job they are advertised to do. #3 seems to be a red-herring.

In the end, it appears that the real culprit is LUC. While things may malfunction or break, or the legal system may be manipulated by really smart people, or weather forecasting models miss the hurricane, it is probably safe to say that no one intentionally set out to build a thing that will break or that the legal system was designed to let bad things happen or that weather forecasters do not want to be make accurate forecasts. It is safe to say that generally when people make things, they intend for them to work the way they envision them working. Having said that, I come face to face with the concept of built-in obsolescence. I do not have the evidence to prove that automakers design automobiles to break down after a certain period of time. But the mythology has it that since if they built the very best cars they could, once you bought a car, you would probably not need to buy another one, and the automakers would probably go out of business or the business would be a lot smaller. Therefore, automakers design and build cars that have a finite lifespan. Is that what we mean by saying that we cannot trust technology? Are we really just saying that we cannot rely on the things we buy to function well forever because they are constructed with inherent design flaws that guarantee they will fail after a certain period of time? If that assumption applies to everything we build, and if people actually believed that, then the market would be in chaos. It also does not follow that since we know nothing we build will last unchanged forever, we cannot and do not trust something to perform as we expect it to for the most part. When it fails, as it must, we may be disappointed that it does not work anymore and that we need to get a new one, but that does not mean we will mistrust it from the start or that we will mistrust its successor. This is primarily the case because we do not place our trust in artifacts; we trust people, or not.

Rather than not trusting artifacts, it seems more likely that (1) we do not know yet how to build the best of everything and that, consequently, after a while our whatsits will break, (2) we also get bored with things and want a new whatsit—and given peer pressure and the American fetish for keeping up with the Joneses, the newest one on the market, and (3) some things, like social systems, are inherently experimental and evolve over time as problems are detected and corrected for. Social systems, systems that emerge to assist the ebb and flow of humanity as it goes about its daily routines, need also to account for the fact that crucial ideas change in meaning and those changes have ramifications for other parts of that system and for other systems. Within the legal system of the USA, we have watched the system as it continuously adapts to the ever-changing concept of "equality." The original notion that all men are equal was actually fairly limited in scope to white males who owned property. It took some time and a major civil war to open that concept to black males and then another 60 years or so to admit that women are equal to men. But the concept of equality was and remains vague and slippery. It is not at all clear what was meant by "All men and women, black, white or of any other origin, are equal." It surely does not mean equal in their personal endowments. People vary in size, intelligence, athletic ability, etc. No law can change that. It might mean "have equal access to the opportunities existing in that society"—but surely that does not apply to children, convicts, or the mentally disabled. There are other efforts to make sense

of what seems to be a pretty good idea, but this is not the place to explore them. The important thing to see here is that correcting the system to actualize its fundamental premise is an ongoing process, subject to many contingencies. And as we adapt the system to those contingencies, there are further impacts outside that system. Thus, giving women the right to vote leads, by a torturous route I will not trace out here, to major changes in the way families function as more and more women enter the work force. Knowing that does not entail that you cannot trust the system, only that the system is and most probably will continue to be flawed. If this only translates out into "we live in an imperfect world" that would be enough. But it is not enough because we know we live in an imperfect world, and we are constantly trying to eliminate the imperfections. But that is not the real issue.

4 The Real Issue

The real issue is that no matter how we try to understand what the question means, it is not about technology. It is about people. And it is about people in a very particular way. We have briefly explored some of the ways people act. They do what they do sometimes to make money and sometimes to improve the system. We also know that sometimes, we cannot trust people to do the best for us; the recent banking and mortgage crises are proofs of that. We also have examples of those who sacrifice themselves for the benefit of others, and those examples inspire us to believe that there is good in people. But we also now know that if we are going to make sense of the question "Can you trust technology?" that we are going to have to make sense of the question "Can you trust people?" Providing examples of good and noble people is not an answer since they are too few and varied in their actions to really solve our problem. The problem here is how to configure that question so that it can have a reasonable answer. Here are some attempts:

1. Can we trust people to always keep their promises? No.
2. Can we trust people to always do the right thing? No.
3. Can we trust people to always try to do the right thing? No.
4. Can we trust people to be reliable? No.
5. Can we trust people to be honest or truthful in advertising? No.
6. Can we trust people to always do their very best? No.
7. Can you trust people to look out for one another? No.

And list goes on. And maybe that is the way to go—not to ask the general question "Can you trust people?" but to ask specific questions. If that is the lesson learned, then if we go back to the original question, "Can we trust technology?" we can see why it is incoherent. Let us begin by asking specific questions.

1. Can we trust technology to work properly? No.
2. Can we trust technology to always improve? No.
3. Can we trust technology to always benefit humanity? No.
4. Can we trust technology to always fail? No.

And that list is harder to run out and the reason for that is because there is no such thing as technology *simpliciter* about which to ask questions or have expectations. This is not

a question about a specific technology like a nuclear power plant. It is a question about Technology, something that does not exist. There are automobiles, nuclear power plants, watches, computers, stoves, houses, legal systems, funding agencies, universities, but there is no such thing as Technology. It is a category mistake to ask questions about Technology. Remember Gilbert Ryle's classic example: two students are pen pals (Ryle 1949). Here is a modified retelling. One student lives in a third-world country. He comes to visit his friend in the USA and asks him to show him this university he has been hearing so much about. So the friend takes his pen pal on a tour, pointing out the administration building, students, faculty members, the library, classroom buildings where departments are housed, the football stadium, etc. Having completed the tour, the visitor is perplexed. You have shown me people, buildings, athletic facilities, etc., but where is the university? The point being that there is no one physical thing called a university. What a university is will remain a topic for another paper. But the point should be clear, just as there are examples of particular technologies, there is no one thing called Technology. So, if there is no such thing, then the question cannot be answered as phrased. But if we make the question "Can we trust people?" and we follow that up with specific instances in which it is appropriate to ask specific question like "Can we trust people to always do the right thing?" and of course the answer to that is "No." And, again, the reason for that is that there is no such thing as People. You have to ask the question about a particular person in specific circumstances. For example, "Can I trust my wife not to overdraw the checkbook?" is an answerable question, sort of—as in "yes, most of the time, when she is paying attention to the balance, when she is not is a hurry at the grocery store……" This suggests that the kind of question we ought to be interested in is highly contextualized.

Consider the following discussion arising from asking the question "can I trust my car?" It is unanswerable as stated. Surely you need to be more specific. Can you trust your car to do what? Can I trust my car to start when I turn the starter to "on"? Well, that depends. It is a 5-year-old car and you have never changed the battery, and it is −10°C this morning. My guess is that you should not be surprised if the car does not start this morning.

Or pick another example: can I trust my computer? Can you trust your computer to do what? It is unreasonable to ask that original question because it is open-ended. Our questions about our technologies need to be phrased in such a way as to be answerable. In this respect, the kinds of questions are no different than questions like "Can I trust God?" Until you specify what it is that you want to trust God to do, the question makes no sense. You must contextualize the question to get an answer.

That means that this business of trying to find out what our relations with our technologies are becomes a very complicated business, which it should be. Life is complicated and looking for simple answers to very broad questions usually leads us astray. This is not to argue for unnecessarily complicating things, but sometimes the complicated questions can be genuinely revealing.

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