



Michael Arnold



Christopher Pearce

### The story so far...

**I**n Part One of the series it was suggested that technologies are not innocent, and should be held to moral account. In most interpretations of Western moral philosophy, moral judgement does not extend to non-humans, and for non-humans to be included, a number of objections need to be overcome. The objections include: the arguments that morality is the exclusivity domain of humans (considered in Part Two), the argument that non-humans don't really act (considered in Part Three), the argument that technologies are just dumb instrument (considered in Part Four), the free will argument (considered in Part Five) and the dilution of responsibility argument (considered here in Part Six).

### The Dilution of Responsibility Argument

The fifth problem to overcome is establishing the identity of the being that is to be held to moral account. Where the being is human, the problem of allocating responsibility to an individual may be difficult, but the difficulty of establishing which individual is accountable does not extend to determining what an individual is. A human can be identified and held to account in ways that are well established, and where more than one human is involved, culpability can be distributed among a finite number of those involved in ways that are also

Digital Object Identifier 10.1109/MTS.2017.2670226  
Date of publication: 6 March 2017

# Are Technologies Innocent?

## Part Six: The Dilution of Responsibility Argument

well established. Much more difficult is establishing the identity of a technology, particularly in the contemporary era of distributed technologies, though the problem also applies in the case of discrete technologies like the stone axe.

If a technology is to be held to account on any grounds – instrumental, legal, moral, or otherwise – we must consider what the technology is, that is, where it begins and ends, what is part of the technology and what is not. This problem is a real one and not just semantic, for all technologies are extensive in time and space. The stone axe and the computer system are artefacts that “fold up” millions of years of geological activity and thousands of years of human practice, pulled together from places as diverse as Korean factories, Californian software houses, flint mines, and forests. So for example, one might reasonably argue that the medical Doctor’s system comprises not just the Doctor and all the particular hardware and software that resides in the Doctor’s consulting room, but also the global communications hardware and software it depends

upon, and all the people and companies and organizations responsible for its construction, operation, and maintenance, now, and back through time; the specific-purpose applications-software that the Doctor uses, and the system software and data-bases that the application software uses, and all of the people, companies, organizations, tools, code libraries, and testing regimes responsible for their construction, operation, and maintenance, now, and back through time; the educational systems responsible for training all of the above people; the manufacturing systems responsible for designing, constructing, testing, and using all of the technologies that are part of the system, now, and back through time, and so on. Similar chains may be drawn through time and space in the case of the manufacture of a stone axe. If we are to say that accountability is distributed among all humans and all technologies whose actions are implicated in a causal chain that has led to a bad outcome, the cast is so huge, the guilt spread so thin, that there is scarcely any point in attributing

accountability or responsibility at all. If everyone and everything is responsible, nothing is.

This is clearly a problem, but it is clearly a problem that can and has been overcome in many jurisdictions by many inquiries, inquests, and tribunals that have been charged with the task of distributing responsibility for events in circumstances where many elements participated in the causal web that culminated in some accident or disaster. Accountability, in instrumental terms and in legal terms if not in moral terms, can and has been distributed through extensive and complex systems of ramified interaction. The question here is whether any inquiry or investigation of moral culpability, or any assessment couched in moral or ethical terms, should regard the actions of technologies as relevant, and whether the distribution of normative moral accountability should include those technologies.

It seems to us that the pragmatic problems raised by the fifth objection are real, but are not sufficient to exclude non humans, given that there is good reason in principle to include them. If the axe or the Doctor's computer system has acted

in a way that is implicated in a bad outcome; if the outcome might have been other than bad were not for the actions of the axe or the computer system; if the axe or computer system materialized an "in order to" that is manifest in that bad outcome; if the relationship between the "in order to" and the bad outcome is foreseeable; if the "in order to" might have been different, given a different will, and given a different course in negotiations, then the non-human axe or computer system bears some responsibility for the badness of that outcome. Whether others are also responsible (say, the maker of the axe, the programmer of the computer, the educator of the programmer...), is a matter for determination. To decline to attribute a responsibility that in principle might be attributed, simply because responsibility is distributed rather than concentrated, may be a pragmatic response, but is not justified in principle, and the fifth objection may therefore be dismissed.

We are now nearing the end of an argument that has suggested that moral accountability is not in principle restricted to humans (Part Two), that non-humans do act in the world

(Part Three), that technologies are not just tools or "dumb instruments" (Part Four), that they materialize will and forethought of consequences (Part Five), and that the "dilution of responsibility" poses no barrier to moral accountability. In the next and last episode we conclude by considering whether this argument is just an abstract mind game, or whether it has a real-world application.

### Author Information

*Michael Arnold* is with the School of Historical and Philosophical Studies, University of Melbourne, Australia.

*Christopher Pearce* is with the School of Medicine, Dentistry and Health Sciences, the University of Melbourne, Australia.

### Acknowledgment

This series of short papers is a heavily revised version of an earlier publication (1).

### Reference

[1] M. Arnold and C. Pearce, "Is technology innocent? Holding technologies to moral account," *IEEE Technology and Society Mag.*, vol. 27, no. 2, pp. 44-50, 2008.

