

Introduction: Technology and Ethics

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Abstract

The authors in this special issue present case studies of socio-cultural responses to technologies in terms of their relationships with 'ethics' and 'politics,' to ecologies, and to the ways in which those technological processes are framed as empowering, alienating, dispossessing, transformative or destructive. This introduction elaborates some connections between the papers, focusing on the ways that technology both creates, and becomes part of, ethical and political struggles over visions of the future. Technology is frequently used to increase the extent and range of control, and to impose a politicised order upon others in villages, towns, environments and landscapes, although this control cannot be guaranteed. Technology can also become part of the rhetoric used to persuade people of the inevitability, validity and desirability of imagined futures, while leaving other factors to be ignored. Technology, ethics and politics are not always separable, and the results of their interaction may not always be predictable.

Introduction

The basic theme of these papers is that ethical decision making and ethical process is revealed in 'political' struggles over imagined futures including ecological futures. The struggles described in this issue involve the established power relations of the economy or state. Hence, while victory may usually reside with the "bigger" powers, there is always the possibility (however unlikely) that the struggle might destabilize those relations and start something new. Technology, as a material way of influencing what is possible in, and what can be imagined of, the future (desired or otherwise by different groups), can become part of these wider struggles. Although technology often seems expected to function as a mode of control

of both people and ecologies, that control cannot always be guaranteed, and its use may have complex, beneficial or deleterious, effects on humans and ecologies. While people cannot live without a working ecology, in 'modern' life, ecology is often subsumed by the economy, which makes struggles and difficulties even more likely. While our authors clearly have ethical sympathies, they primarily provide a description of these ethical, political, technical and ecological struggles between groups in action, and do not make any prescriptions for a hopeful new technical-ecological ethics, as per Stengers (2005, 2017), or Pols (2023). In that sense the papers are more anthropological than philosophical. However, while this collec-



tion crosses a number of disciplinary boundaries within the humanities and social sciences, it is centred in both science and technology studies and the anthropology of technology.

The papers use case studies from sites in Australia (Askland, Bowden, this issue) and Indonesia (Bräuchler, this issue), and are based in ethnographic and qualitative social research carried out in villages, regional municipalities, and the media respectively. The authors seek to provide concrete examples of ethical struggles in action primarily around technologies, and their relations to ecologies. They demonstrate how technologies simultaneously become ethical, political and instrumental actors in both events and different imaginings of futures. Ethical processes are treated as politically based disputes between different groups aiming at different imagined, and cosmologically plausible, futures which they think of as being beneficial, although in Bowden's paper the ethical struggle is implied by the social ignoring of problems and the implicit possibility of opposition.

In order to give the reader a better idea of the theoretical connections between the events described in the papers, the introduction begins with a short account of those papers and then shows how they work together to contribute to our understandings of relations between technology, ethics and ecology. We then move onto discussions of the importance of 'imagining' for this discussion, and the connection between technology, ethics and politics.

The papers

Each article describes conflictual configurations of technology, people, ethics, ecologies, and group goals for the future. This is the authors' way of paying more attention to the "noncanonical means of ethical will formation" (Bennett, 2010: xii), and in showing how these processes play out in everyday life, and the way 'spaces' for ethical actions arise, rather than reducing technology and futures to matters for experts, or ethics to good intentions (Silvast et al., 2013; Schick and Winthereik, 2013). This allows our authors to explore how the technology becomes constructed "as a public problem in specific imaginative spaces of oppor-

tunity and closure" (Schick and Winthereik, 2013: 82), or indeed how the problems can become private or largely ignored. The case studies begin with stories about coal (Askland, Bowden), as coal and its extraction is still a central technology for imagining a future of development and material prosperity in the contemporary world. Ideas of 'development' are recurring parts of the struggles described.

Hedda Askland shows how the ethical imperatives of both coal-based energy and development can dismantle communities like Wollar in NSW Australia, as open-cut coal mining advances, destroying local ecologies, dispossessing people or leaving them in misery with no communally imaginable 'good' future. Looking at both social and environmental ecologies, she analyses how corporately and nationally imagined coal-centred futures and progress are phrased (or not phrased to 'avoid' dispute) as an accepted and enforced ethical and political position, and the psychological devastation that arises to match with the slowly destroyed landscape for those being displaced from an imaginable good future. These processes are tied to the technological advancement of open-cut mining which has enabled the rapid and destructive spread of coal mines within rural spaces, significantly increasing disruption to local modes of being, while defending the technological background of development which has so-far demanded coal for its futures. The destruction means that a place that once carried an ambience of 'home,' for locals, has become a non-place of transience, anonymity, insignificance for others, and harmful (but officially ignored), change. It is no longer a place which supports residential identity, relationship or psychological, imaginal and social development (Augé, 1995). Askland argues that the idea of 'home' is related to an imagined future over which a person has influence, ethical and practical, but with the destruction of the ecology, and the breakdown of local trust in, and useful interaction with, the companies and the governments, there is no longer a sense of imaginable influence: it is no longer a 'home,' but as stated before a non-place. Within this struggle, technological 'objectivity,' and concerns for developmentalist ideas of human welfare and security have been used

as ethical tools to dismiss the experience and presence of those being sacrificed. Their existence, their emotional rootedness, suffering and possibility are not accepted as being ethically relevant when compared to imagined development elsewhere. They are effectively kept out of public discourse, in an unequal struggle with the might of coal corporations and their political confluence with the State. Askland concludes her paper by distinguishing three useful ways of thinking about psychological senses of loss of place in general: *nostalgia* (a longing or melancholy towards an imagined past which is no longer accessible), *solastalgia* (a sense of homesickness a person feels while still at their home) and *eritalgia* (distress in response to experiences of environmental change that distorts, disrupts or displaces an individual's sense of an imaginable future self in place).

Vanessa Bowden adds to our understanding of the processes described by Askland, by describing the wider context and showing how the ethics underlying economic and developmental politics and profit have disrupted the possibilities of any discussion of climate change, local suffering or a move away from coal in the nearby Hunter Valley region. Discussing debates over carbon-pricing and the uncertainty of low-carbon futures, in the mid 2010s, Bowden details the ethical arguments put forward by regionally-based businesses advocating for continued and largely uninterrupted coal mining in the region. Business people reinforced this position by tending to imagine a future without coal as uncertain and economically ambiguous for them and hence "bad." On the other hand, coal is imagined as part of the fixed "nature" of the Hunter Valley and therefore it is only right to take advantage of it to continue the region's economy. Local business leaders also positioned themselves as part of a broader business community, largely part of coal-based industry, and hence reinforced commitment to a coal based developmentalist future, helping the world and supposedly providing certain economic growth. As Bowden quotes a local person in her title "Coal exists and therefore it must be dug up," while the corporate slogan "Life, Brought to you by coal" implies that life itself can be taken away if coal's dominance is challenged. Hence, the arguments for continuing and even expanding

mining in the area. This imagining of coal-based prosperity (encouraged by the coal industry), comes with an almost compulsory ignoring of the continuing and expanding damage being done to the region's ecology, and to agriculture, by that mining. The over-riding 'good' of development again distracts from consideration of those who have suffered through coal. This cosmological logic, based on understandings of how the world works and how benefit is allocated, denies the more confused debates on the potential risk, versus the potential gain, of climate policy discussions. The choice for coal, and incidental suppression of discussion, might also eventually lead to uncertainty for business as it encourages them to become vulnerable to a decline in the use of coal and changes in the economy.

We then move into a related, but perhaps wider conflict between development and more traditional ways of relating to an ecology in a dispute over both the development and preservation of Benoa Bay in Bali. Focusing on different imaginings of developmental futures, Birgit Bräuchler details a conflict between residents and corporate based development in Bali, all based in ideas of protecting a degrading environment. In this dispute, there are a plurality of ecologies and actors and different relationships between humans, nature, ethics and technology. This multiplicity expresses potential social orders but also challenges them. Bräuchler shows how these struggles play out through different media technologies and in political, and religious struggles over ways of relating to the ecology that makes the Bay. The regional government and the investors appear to take the view that the environment can be 'managed' (through technology, and the technological 'objectivity' similar to that described earlier), and saved by the 'universal moralities' of development – with their power-based allocation of profit and sacrifice and hoped for futures. Other participants point to more traditional ways of relating to land via the ritual experience of spirits and gods, while simultaneously noting that scientific idea that the proposed development adds to the waste-strain already despoiling the bay. Youth resistance comes through social media, and an apparently new more hybrid approach to culture. Bräuchler notes that ethical and political actions

are connected to imagined cosmological orders, partly because cosmology informs people of how the world works, and what the likely consequences of actions are likely to be, just as the coal company cosmology of development tells people coal is essentially necessary and beneficial for world progress and prosperity. However, Bräuchler also implies that technologies are highly ambivalent, as they contain contradictory forces and can be simultaneously 'good' and 'evil' in their use, and hard to check ethically because of their unknown consequences in the complexity of ecologies.

Since the paper was written Benoa Bay has been 'saved' from development, and then opened for sand mining, and an expanded airport and harbour. This 'opening' seems to have been protected from open consultation with people. There is a sense in which development morality does not give up its disruption of ecologies, even if the forms may perish.

Imagining the future and imagining in ethics

The verb 'imagining' plays an important part in this introduction, especially in terms of the importance to ethics, politics and technologies of imagining futures and consequences. Acting on the future involves imagining that future socially (Castoriadis, 1987). The future cannot be observed until it occurs, and comes into being in the inter-linkage between complex social, technological and ecological systems. Even if futures are determined, humans seem bad at predicting them or agreeing on them, so the futures people imagine and discuss in the present are fictions with relative degrees of plausibility to their audiences. Present versions of possible futures are always *imaginary* visions of possible, preferable, feared, potential, desired or undesired outcomes. These imaginings, can have considerable material effects, as they orient peoples' behaviours in different ways (cf Bryant and Knight, 2019). Ethics and politics involve arguments over the 'best' futures that can be generated whether individual or collective (Candy as described in Dunne and Raby, 2013; Connor and Marshall, 2016). Technology becomes part of these ethical and political disputes when it is salient for some group's imagining of their future,

and that will vary with the challenges recognised, the situation and the different groups involved. In Wollar because of the existing suffering connected to coal mining and its ignoring, in the Hunter Valley as part of maintaining business stability and camaraderie, and in Benoa Bay over the likely impact of development, building and sewage on the Bay, in terms of eco, spiritual and cultural disruption. This ethical imagining of possible results also requires some common cosmologies amongst each side's participants which informs those participants of how the world works, so that the imagining has a degree of plausibility and lays out a course of action or resignation. Not every imagining can work as a persuasive rhetoric about the future. Futures imagined by one group can appear undesirable or destructive to another, and become classified as unethical or destructive. In this sense, imaginings of the future may be thought of as being akin to dystopias and utopias; either political warnings or encouragements of action, or both. In this kind of framework, ethics, rhetoric and technology become a form of 'magic' attempting to create, or avoid, a new world by changing, diminishing or intensifying, struggles. The imagining may be disrupted by the real actions of technology, as when the home of a place is removed by coal mining technology, and not dealt with. Imagining may also be important in most forms of ethics as it helps people to empathise with others, and to perceive (or ignore) other interests than one's own. Humans may even have evolved imagination as part of their social, symbolic and anticipatory equipment that helps cultural adaptation (Fuentes, 2020). In these contexts, technologies (apart from their real effects) can act as "wishful enactments of a desired [or feared] future" (Borup et al., 2006: 286). Due to the limited predictability present in complex systems, futures rarely eventuate precisely as imagined, which then may propel further ethical/political/technological struggles.

As shown in the papers these imaginings of futures involve arguments, and counter-positions, so that social imaginings of the future are co-productive, if disputed (Jasanoff, 2015). As already stated, Askland suggests that the lack of villagers being able to imagine a resolution, in their place of residence, or to imagine being able

to leave that place, makes part of their 'eritagic' suffering. Due to established power relations and 'technological objectivity', coal companies (in effect) do not have to imagine the consequences for villagers or feel empathy towards them, and this breaks possibilities of resolution. It would for example, probably cost the companies very little of their profit to help to move people and provide them with new homes in a similar area. Imaginaries of universal development seem to be able to overwhelm empathy for those being displaced by that development, or of different ways of relating to developed and disrupted ecologies. In the Hunter Valley it appears that imagining coal as the only and natural way of development and prosperity, strips many businesses of any potential capacity for quick adaptation to changing circumstances, or to perceive cumulative harm. In Bali, again, developmental imaginaries, seem to dilute regard for relationships to both people and place, and to non-developmental ways of interacting with environments. However, while development appears to have 'won' in the long term, it was temporarily turned back by another imagining of the bay. In Bali the conflict may not yet be resolved completely in favour of the ecological passivity of the Bay to development. Ethics and politics, as socially aiming for the best result (however that is defined, even improving one's own virtue) as some collective imagines it, necessarily involve imagining of consequences and futures, in interaction with others (conflictual or otherwise).

Imagining, also, often uses technologies as models for cosmologies, or for the way the world works. For example, after Newtonian physics, it was common to imagine, or model, the cosmos as a machine. This implied: the world could be controlled and used; fortified possibilities of comprehending human and animal functioning as mechanical and relatively non-complicated; and supported ideas that worlds (ecologies) could be controlled, destroyed, reconstructed and improved, like clocks or other machines. This kind of cosmology likely reinforced imaginings of the ethical and technological 'rightness' of developmentalist extraction as actions and events would proceed mechanically with little surprise. Both Askland and Bowden further

suggest that coal gains some of its cultural 'pull' because it has become symbolic of modernity, progress, prosperity, comfort and improvement. Such a dominant symbolic and imaginative role for coal may both direct attention to coal's virtues and help suppress awareness of coal's drawbacks; helping to render the pain of Wollar's people less noticeable, or render thinking about climate change 'impractical' or even unnatural. Likewise, tourist development in Bali, may serve a similar symbolic role for developers, as tourism is the primary source of the island's imagining of extracting material prosperity, profit and jobs from overseas visitors.

Many theorists such as Feenberg (2002), Pfaffenberger (1988), Castells (1996, 1997), Ingold (2000), Jasanoff and Kim (2013), and Latour (2005) have described the ways power relations can be inscribed into technology, or technology becomes a part of processes of organization, structuring and governance (who does the work, how users can use it, what information it gives them etc). However, imaginings of technology can also play a role in power relations, when they are used as a rhetorical 'magic,' or model, to persuade people how the world works, and how to create, or avoid, a new world. Imagined technologies, can be used to persuade people to aim at particular imagined futures in which this technology exists and works as posited. For example, it is often implied that when carbon capture and storage technology is used, as it 'inevitably' will be, emissions problems will be solved, so there is little need to cut emissions now, and fossil fuels can continue to be sold and burnt. The apparent fact that Carbon Capture is expensive and does not work very well is irrelevant when compared to its imaginary futures (Marshall, 2016). The rhetoric of a technology can also be used to hide its real effects, as when the real pollution and destruction involved in coal mining and burning, is sidelined by assertions that coal is essential for prosperity, modernity, and even life itself (Askland; Bowden).

Imagining seems central to the use and effects of technology, but its processes also seem undertheorised in both anthropology and STS (McNeil et al., 2017).

Technologies and ethics

Our authors accept and illustrate how the agency that emerges from, around, and in technology, is embedded in socio-cultural systems of power relations, economic dominance, cosmology, rhetoric, exclusion and politics. The papers further show how technology's ethical positionality within existing and changing social relations plays an integral role in the creation of recognized and unrecognized ethical subjects. The papers demonstrate links between technology and governmental schemes, innovation, political conflicts, developmental projects, everyday lives, and struggles over imaginings of the future. The papers also assume and demonstrate that the politics of existing social groupings, conflicts and victories are important to both the trajectory of ethics and technology, as has also been done elsewhere (Shweder and Menon, 2014; Lederman, 2008).

Our authors agree from the outset that ethics is a form of action and that it, at the least, involves conflict, potential conflict, decision-making or persuasion, aiming at a preferred imagined future which can be defined as 'good' by those involved, in a complex not entirely predictable world. The authors do not assume ethics are unchanging, but processual; part of an arising social practice and embedded in the politics, economics and conflicts of everyday life, and concerns over possible futures and how people should live in them. Central to this view of ethics, as Ingold suggests, is the question of "[h]ow should we live?" (Ingold, 2018:1).

[H]uman ways of life... are not handed down on a plate; they are not pre-ordained, nor are they ever finally settled. Living is a matter of deciding how to live, and harbours at every moment the potential to branch in different directions (Ingold, 2018: 1).

While Ingold does not explicitly mention ethics (perhaps to avoid arguments over definitions and universality), the passage strongly implies decision-making processes about how to live, and its underlying ethics, are ongoing and vital for social life. Thus, everyday life can be assumed to involve an inherent ethical dynamic that becomes most visible in conflict and fraught power relations.

Clearly each arising situation has unique features which affects the struggle. While groups may present ethical practices as codified to allocate themselves or others a certain authority (as in Bräuchler's Balinese example), even codified laws generate different interpretations as to their appropriate applications and meanings (Bowden), given the uncertainties, differences and similarities between situations, and the different people and struggles involved (Askland). Ethics and politics are related as they both struggle over imaginings of the future and the manifestation of 'good' consequences, which can involve technologies. Variation is vital to the course of the processes, and as Fredrik Barth (1993: 4) argues, "[v]ariation should emerge as a necessity from our analysis". A focus on ethical struggles, as in these papers, rather than on 'correct' ethical behavior, can make this clear.

Bräuchler usefully notes that Pfaffenberger defines technology as "a set of social behaviours and a system of meanings" and as "a total social phenomenon" (Pfaffenberger, 1988: 236), as it is social, ethical, political and symbolic all at the same time. The 'social behaviours' part of this definition is important. Forms of social organisation, say for military action, building pyramids, or making money, are often forms of technology which apply and coordinate human energy. 'Physical' technology can then add to the technology of organisation, both transforming the social organisation and being transformed by it, and adding to the ethical/political struggles. Or as Bowden and Askland imply, organisation of resistance may be disrupted by the organisation of dominance, thus making the what is ethical question for some people appear to disappear. In any case technology is part of an existing organisational system, which will aim to continue, or improve its reach or power, but which risks being disrupted. Few now will probably argue for the radical, freeing, open information, aspect of the Internet, as it has been disciplined by established groups and has led to informational disorder as fundamental to 'information society' (Marshall et al., 2015), however Bräuchler shows that social media was still useful in Bali to build new alliances and propagate information which disrupted the tourist development.

All of these papers illustrate that technologies do not exist alone. In all the cases presented in this special issue, the boundaries of technology seem unclear in productive or disruptive ways, as they interact with other participants human or ecological. As Dear and Jasanoff mention it can be important to ask “[w]hen are they [people] drawing boundaries around science or technology, and thereby making or reinforcing them?” (Dear and Jasanoff, 2010: 762). Hughes (2004) makes a similar point, technology is “messy and complex. It is difficult to define and to understand. In its variety, it is full of contradictions, laden with human folly, saved by occasional benign deeds, and rich with unintended consequences” (Hughes, 2004: 1). Technologies are, at least embedded in, and affecting of: economic actions; the circumstances of manufacture, results arising from connection to previous technologies; political actions and political reach; the kind of social orders being sought, as with the organization of work or informal use; design; energy supply; distribution of information and misinformation; extraction and consumption of materials; pollution and other disruptive or reparative effects on ecologies. Technologies, while perhaps intended to simplify events and add control, add links and unexpected consequences to the systems they are being installed within. This uncertainty compounds moral and imaginal problems, and uncertainty is something that actors can be aware of. For example, Bräuchler describes how imagined unintended effects (such as waste pollution, and disharmony with gods and spirits) become a focus for organised resistance. Villagers in Wollar did not expect mining processes to change so drastically and harmfully for them. Similarly, industrialisation promoted the growth of unions and the power of ordinary workers, while post-industrialisation seems partly designed to weaken the unities amongst working people and further the ‘upwards’ flow of capital, and this itself may then threaten the organisation of that distribution in different ways. More dynamically, autonomist theorists have suggested that there is a constant struggle over the use of technology between workers and bosses, as each ‘side’ seeks to gain advantage (Tronti, 1965).

[I]t is often the failure of a given technology to serve its intended purpose of social control which gives rise on the part of capitalist managers to the demand for the development of new technologies and the funnelling of resources into the appropriate fields (Cleaver, 1981: 263).

It seems especially important, nowadays to be aware of technology’s relationship with ecologies both natural and the human. The use, and protection, of polluting fossil fuel, and agricultural technologies, seem to be the main causes of climate change. As seen, technology can enable people to be dispossessed, rendered homeless within their homes and without voice (Askland), help them to fight back (Bräuchler) or possibly limit decisions via existing infrastructures of action, decision-making and power (Bowden).

As suggested previously, ethical processes around technology can come into play when the technology is salient to peoples’ imagining of their futures, or presents, and when a future proposed by one group appears unwanted, or destructive, to another group’s imagined future, as with: coal mining companies vs residents; traditionalists with religious views of ecology vs developers with profit driven views; people recognising psychological and climate complexity vs those attached to developmentalism; and so on. In some cases one ‘side’ may appear to refuse to recognise the other and its claims, so they may struggle to shut down ethical process. We also see from the papers that rendering an ethical process ‘technical’ (Bräuchler), ‘innovative,’ ‘future-oriented’ (Askland), or ‘institutional’ (Bowden) can express some of these attempts at suppressing disputed ethical, political and disruptive aspects of technology, while supporting a particular political and economic order in the process.

However, it is not only in the varied imaginings of the future and potential differential advantage, that the ethics of technology can upset relations. Groups may be distributed within, or by, the techno-political-economic system, and thus have different relationships to specific technologies. For example, the relationship of managers to workers in the use of industrial machines involves not only the use of specific and often deskilling machines, but an organisation of labour, danger, remuneration and ethical conflict which justifies both these

organisations and disruptions. Likewise, 'development' can powerfully alter or destroy a population's way of life, often in unintended ways, or ways which can be ignored because of power relations. Likewise, unforeseen consequences can affect the course of both events and ethical arguments.

Ethical disputes, involving technology, are perhaps inevitable, as even in the best of circumstances, disputes over technologies are likely to arise, as technologies can be framed by different groups in different ways, partly because it may affect them in different ways, as can the ethics of events, showing what Pinch and Bijker (1984) have called 'interpretative flexibility'. Various technology can be perceived by these groups as empowering, alienating, transformative or destructive and so on. By providing new links, feedbacks, and actions in complex systems, technologies can have unintended consequences beneficial or otherwise. For example, as Pols (2012) suggests, medical telecare can be aimed at helping people self-manage sickness independently (and save medical practices money), but it also threatens to increase the discomfort of separation from others, or it can lead to lead unexpectedly to increased contact with staff and less fatal independence. The situation is complexified as it is not always clear cut what good and ethical health care might involve. Likewise, coal mining technologies can be perceived and experienced as necessary or devastating, depending on a person's position in the 'coal chain' or in the production of harm and benefit. Similarly, tourist development can be seen as a way of reclamation and prosperity or destruction. As Bräuchler argues in her case study, all the actors involved claim to be aiming "towards a prosperous Bali" and at "protecting a degrading environment" but the notions of good results, prosperity, environmental protection and the appropriate technologies for these aims differ. The same is true of the Wollar villagers deprived of 'home' and prosperity, or the business people of Newcastle who were being discouraged from economic experimentation by their own political and economic accommodation with the coal establishment and other businesses. Ambiguity is not surprising as 'development' can powerfully alter or destroy a population's way

of life. However as Russell (1986) notes, realising that different groups frame different technologies differently, and bring different ethical positions to it, does not have to leave analysts always unable to make judgements as to the plausibility of ethical arguments in the situation.

These papers, along with other STS researchers show the presence of ethical bias in the organization and use of technology, the social organization in and around it, its relations to power hierarchies (supporting or undermining), its mobilisation in disputes, and the struggles to modify it beneficially for some (Friedman and Nissenbaum, 1996; boyd and Crawford, 2012; Benjamin, 2019; Costanza-Chock, 2018; Cupitt, 2017). Other studies show this bias can originate at the point of origin (the human ethical codes and moral views inscribed in them by their designers or owners), from cultural ways of thinking, social conflicts, and the design processes of technologies (Winner, 1986; Bijker, Hughes and Pinch, 1987; Feenberg, 2002; Amrute, 2016; Benjamin, 2019). Amrute (2019: 174) points out that formal technological ethics can be framed by the owners and controllers "as a series of mandates from the top" and can be considered an instance of bias against those being affected by technology. However, sometimes technologies can also become unintended manifestations of disruptive or 'anti-ethical positions,' as with the aggressive and apparently racist responses learnt by Microsoft's Twitter Bot 'Tay', as described by Neff & Nagy (2016).

These essential conflicts coming from different social positions with different framings, different experiences and different intentions, suggest that it is unlikely that there exist external or general 'Archimedean ethical points' which can be used to resolve all ethical and political disputes. The interests of the ruler and ruled, boss and worker, rich and poor, or between different departments in the same university, are often dissimilar, and the impacts of the technology can also differ. There seems no possibility of managing the problems to the moral satisfaction of all (Zuiderent-Jerak, 2016), so that, again, struggles over technology are largely inevitable.

Conclusion

Through a reading of this special issue's contributions, ethical processes can be said to be revealed in dispute, as ethical positions congeal or disperse in debate and disagreement and exercises of power. As part of political and power relations, ethical processes do not always produce harmony between groups, and may drive further conflicts as the subjective (socially positioned, 'flexible') nature of ethical interpretation and the consequences of the technology's use come into play. These papers show how ethical disputes over technology play out in everyday life, rather than reduce technology and futures to matters for experts (Silvast et al., 2013; Schick and Winthereik, 2013). This allows them to explore how the tech-

nology becomes constructed "as a public problem in specific imaginative spaces of opportunity and closure" (Schick and Winthereik, 2013: 82). They suggest that technology's use will often involve ethical dispute, because of the functions of that use, and the unintended consequences that are likely to result.

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