# Chapter 9
# Exploring Techno-Moral Change: The Case of the ObesityPill

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**Abstract** Technology is a major force in modern societies, co-shaping most of its aspects, including established moral norms and values. Technology Assessment aims to explore the consequences of New and Emerging Science and Technology [NEST] in advance, to help create better technology. This article develops a method for enhancing our moral imagination with regard to future techno-moral change. At the core of this method lies so-called NEST-ethics, the argumentative patterns and tropes that constitute the 'grammar' of ethical discussions about emerging technologies. This grammar can be applied to explore at forehand the moral controversies and even the moral changes that are provoked by these technologies. In the form of alternative techno-moral scenarios these explorations can be used to inform and enhance public deliberation on the desirability of the NEST in question. This results in a type of ethical TA that is self-reflective regarding its own moral standards. To illustrate our method, we offer 'fragments' of a techno-moral scenario on the moral consequences of the introduction of a future ObesityPill.

**Keywords** Techno-moral scenarios · Ethical technology assessment

Technology has developed into a major force in modern societies, now co-shaping most aspects of it. In the words of the American pragmatist John Dewey: 'Steam and electricity have done more to alter the conditions under which men associate together than all the agencies which affected human relationships before our time.' (Dewey, 1954) (p.323) Sometimes technology leads to happy results, sometimes to less happy ones, most often to an ambiguous mix of both. From the standpoint of modern democracy, it is important that those living with the consequences of technology, the citizens, have at least some say in the direction of its further development (Bijker, 2001; Feenberg, 1999; Sclove, 1995). This citizen participation can both be argued for as being of intrinsic value – people have a right to exert democratic influence over the powers that bind them – or in more instrumental terms: mobilizing different points of view leads to better knowledge and thus to

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better technology. Although some argue that the technological issues and (parts of) the assessment of risks to our safety or to the environment are best left to the experts (Ferretti, 2007), few would argue that we should leave assessing the broader social and cultural impacts of new and emerging science and technology [NEST] in expert hands too. With regard to such 'soft' impacts, the input of all stakeholders is needed.

Unfortunately, we cannot foretell the future impacts of technology. Humbled by many failed attempts in the past, we have by now learned that the future is impossible to predict. Not only do we lack the necessary knowledge, but the future is essentially open and contingent on our choices, as is clear from phenomena like *self-denying* or *self-fulfilling prophecies*. Still, we cannot help preparing for it. Purposeful action assumes some degree of speculation about future impacts. A popular method of preparing for the future while at the same time acknowledging its essential uncertainty and openness, is by creating diverse scenarios: narratives evoking alternative future worlds. These scenarios are then used – among other things – to spark discussion amongst stakeholders about the (un)desirability of the NEST in question, and may help us to devise strategies that are robust in as many of the possible worlds as possible (Notten et al., 2003). Many consider the interactive *exercise* of devising such scenarios with relevant stakeholders to be even more important than its eventual *outcome*. What matters is creating a proactive and sensitive attitude amongst relevant actors.

Scenarios pertaining to NEST cover a broad range of consequences, for instance impacts on health, safety, environment, quality of labour, legal and social consequences, political and even cultural consequences. One particular type of consequence, however, has as yet received little systematic attention: the fact that *NEST regularly leads to moral change*. Technologies help change the societies in which they are introduced. This is true, even when the opposite also holds: technologies also change due to social pressures. But this so-called *co-evolution of technology and society* (Rip and Kemp, 1998) does not halt at the door of morality. Of course, if one believes that morality is fixed, universal and unchanging, technological change cannot be accompanied by moral change. But that belief is hard to sustain in the light of the historical experience. We constantly see NEST uprooting established moral routines. These disturbances manifest themselves as controversies about how to re-establish a 'fit' between NEST, our moral world and us. This can be done by adapting the technology to the relevant moral norms and values; by adapting relevant morality to the NEST in question; and by a negotiation resulting in mutual adaptation. In this way NEST can lead to moral change, although it never *determines* whether such a change will occur or the direction of that change. Given a specific moral environment, NEST can make some moral options easier to argue for and others less easy. For example: a birth control technique like the pill allows technical control of female fertility. It is clear that this has made it easier for Western women to claim their sexual autonomy, and less easy for others to argue against it. Because in this moral environment autonomy was already available as a moral value, the pill could uproot traditional sexual morals by providing women with the technological means to actually practice their sexual autonomy. This is context dependent,

of course, for in a patriarchal society, the same technology could easily worsen women's sexual subjection by making their bodies permanently available.

Please note that such *moral* consequences differ from *morally relevant* consequences. The latter do receive attention insofar many scenario exercises are im- or explicitly *normative*, aiming at some common good. When we focus on the *moral* consequences, by contradistinction, we are not primarily interested in applying moral standards to NEST, but in the opposite, *descriptive*, question: how might the NEST affect current moral standards and practices? Of course, these moral consequences will be of interest from a normative, ethical point of view too, but it is important to distinguish *describing* possible moral change from *evaluating* it.

Why is it important to explore techno-moral change in advance? What is the practical-normative relevance of techno-moral scenarios? We can see at least three reasons. It is important to explore the emotions and controversies some technologies are bound to stir up. Instead of being taken by surprise, as in the case of the unexpected European distrust of Monsanto's GM crops, policy makers can set themselves to create conditions and procedures for these ethical controversies to unfold in a fruitful way so that they will benefit collective deliberation. Furthermore, techno-moral scenarios deepen discussions about the desirability of a NEST by stimulating us not to deliberate on a NEST in isolation from society, but instead on NEST in its socially – and thus morally – embedded form. Only by looking at technology in this broad, embedded, form, we can truly evaluate its desirability. Techno-ethical scenarios can thus contribute to societal learning in relation to the introduction of new technologies. Finally, techno-moral change is a defining feature of modernity, as nineteenth century visionaries like Marx, Baudelaire and Nietzsche already stressed. Modernity is characterized by its *dynamism*, by the acute sense of everything being in a flux. In the famous words from the *Communist Manifesto*: 'All that is solid melts into air.' (Berman, 1983) Moderns are left without solid foundations or Archimedean points. Techno-moral scenarios provide citizens with valuable training to accept, and learn to deal with, this important feature of their existence.

This article then aims to answer two questions. The first one is descriptive: *how* best to explore future techno-moral change? We consider our effort to be part of what Don Ihde has dubbed a 'material hermeneutics': the exploration of future worlds co-shaped by NEST to assess whether present-day morals would still fit the new socio-technological reality (Ihde, 1998). Exploring techno-moral change turns out to be an extra-ordinarily difficult undertaking. We are so immersed in current morals, our identities are so deeply entwined with them, that most people find it hard, and distasteful or even frightening, to imagine them to change. The issue, then, is how to stimulate our *moral imagination* so as to be able to jump our 'moral shadows' as far as we can.[1] Moral imagination commonly refers to the mental faculty that allows us to empathize with other people's feelings and to assess the possible consequences of our actions (Coeckelberg, 2007; Fesmire, 2003; Johnson, 1993). We use the term in a more radical sense: the evocation of moral worlds differing

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[1] Which, with the benefit of hindsight, proves to be never very far.

from ours. *Science (or technology) fiction* is well established. We are aiming for *morality fiction*.[2]

Of course, here we lack the space to develop a full techno-moral scenario, let alone several alternative ones. Instead we focus on introducing a method for, as dutch technology researcher Arie Rip calls it, 'controlled speculation' about techno-moral change. We aim for a proof of principle, rather than for full scenarios. We investigate this question in Sections 9.1, 9.2, and 9.3. In Sections 9.1 and 9.3 we introduce theoretical reflections on the relations between technology and morality to get our moral imagination going. In Sections 9.2 and 9.4 we illustrate our approach by applying these reflections to a specific case: the ObesityPill.

Even if one succeeds in developing plausible ideas about the moral consequences of a particular emerging technology, how will this then help to establish its (un)desirability? This second question is normative rather than descriptive and is dealt with in Section 9.5. We argue that imagining techno-moral change can in fact help to improve our moral deliberations about technological development. We defend a type of ethical TA that is self-reflective regarding its own moral standards.

## 9.1 Exploring Techno-Ethical Controversies

### 9.1.1 Morality and Ethics

To investigate how NEST affects morality, we first need to define 'moral' and 'ethical'. We follow John Dewey, according to whom humans are first and foremost active beings. Theoretical reflection only comes in second, when provoked by practical problems that cannot be dealt with by sticking to the established practical routines. Reflection is an instance of the typically human capacity to adapt to changing environments (Dewey, 1922; Logister, 2004).

Morals pertain to either the relations we entertain with other (usually human) beings, or to conceptions of what constitutes a good life. In everyday situations, morals exist as practical routines that are considered to be so self-evident as to hardly deserve reflection or even only articulation. As a consequence people are largely unaware of their existence and influence. These moral routines once started their existence as conscious solutions for conflicting stakeholder interests/rights or as answers to the question: what would be a good life to lead, as an individual and/or as a community? But afterwards, we obey these tacit norms and pursue these tacit values unthinkingly. For example, as Bernard Williams (1985, p.185) once pointed out, 'normal' people do not consciously decide that it is immoral to kill an obnoxious colleague. The thought does not even cross their minds. If it does, this indicates abnormality. We only become aware of moral routines when people disobey them, when conflicts between routines emerge and a moral dilemma arises,

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[2] Of course, this is exactly what good SF also is.

or when they are no longer able to provide satisfactory responses to new problems. At this moment morality turns into ethics, the latter being the critical reflection on (and discussion about) the former. Whereas morality is characterized by unproblematic acceptance, ethics is marked by explicitness and controversy. Ethics is 'hot' morality; morality is 'cold' ethics. We *do* ethics when we put up moral routines for reflection, discussion and reassessment. For example: in discussions about emerging technologies, values like health, safety, sustainability and economic growth are usually 'cold'; the medical use of embryonic stem cells or the possibility of human enhancement are typically 'hot.'

### 9.1.2 NEST-Ethics

To avoid empty speculation, our moral imagining of the techno-moral future has to be grounded in the present. We therefore start by assuming that in future controversies the same argumentative patterns can be discerned that mark previous and current discussions about NEST. Swierstra and Rip (2007) have produced an overview of this so-called NEST-ethics. They distinguish a (synchronic) taxonomy (or grammar) of arguments and argumentative patterns, and a (diachronic) account of how NEST-controversies typically – but by no means always – unfold. In this section we first summarize part of their findings (adding some minor refinements of the original scheme along the way). We then use these patterns to imagine a future ethical controversy over an as yet non-existent medical technology: a genomics based obesity pill. To facilitate this exercise in moral imagination, we attached a code-number to each argument or trope so it can be used as a heuristic device to stimulate our imagination.

   Ethical reflection on our mutual relations is usually done by looking at the consequences of actions or policies, at basic rights, duties and responsibilities and/or at the different criteria to distribute costs and benefits justly. The good life ethics is about the values that are important in life and the qualities or character dispositions one needs, to have a fair chance of realizing these values (Swierstra and Rip, 2007).[3] The argumentative patterns of NEST-ethics can thus be summarized under the headings of consequences, rights and principles, justice, and the good life.

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[3] This distinction between four types serves the analytical purpose of identifying ethical arguments as used by real life actors, when discussing the pros and cons of a NEST. It is not meant to take a side in the debate amongst professional ethicists, since – at least – Kant, whether one monolithic ethical theory can do justice to all these types of ethical argument (for example consequentialism, or deontology) or that we need to accept moral heterogeneity in the sense that different ethical theories highlight irreconcilable dimensions of moral experience. For the latter position, which we adhere to, by the way, see: (Larmore, 1987). Because NEST-ethics serves a descriptive goal primarily, and first of all seeks to stimulate our moral imagination, the question whether different positions taken by (future, imagined) parties are rationally justified, need not concern us.

The birth of a NEST is typically heralded by [**1.a.1**] arguments that point to hoped for consequences, in the form of visions about how the NEST will increase our control over the world and thus our well-being. These promises reflect the enthusiasm of the technology developers and are functional in mobilizing financial, political and public support. Sceptics then typically question these promises along four axes [**1.b.1**]. Is the promise plausible, or are we dealing with hype and over-promising? [**1.b.2**] Even if the promise will be fulfilled, won't there be so many adverse side effects that in the final count the costs more than neutralize the benefits? These side effects are to be expected, amongst other things because we know from history that technologies are often put to quite unforeseen uses (Mackenzie and Wajcman, 1999). (The opponent will typically counter with adding a new promise: the unforeseen problems will be solved with the help of unforeseen technical solutions.) [**1.b.3**] Is there not an alternative, better, way to realize the envisioned good? [**1.b.4**] Is the envisioned good really to be considered as a good?

The second category of arguments stress fundamental principles, rights and obligations – typically siding with the individual who is in danger of being sacrificed to the collective good. Of course, rights can and are be mobilized in favour of a NEST. Some will argue [**2.a.1**] that people (or other stakeholders, like animals) possess a positive (claim)right to the new technology; others will claim more modestly [**2.a.2**] that people possess a negative right to it: they should be allowed to purchase/apply the new technology because it does not harm others. But a more typical pattern is that opponents of the NEST mobilize rights and duties to counterbalance the promises of the proponents. When rights and principles become the subject of a ethical controversy, they are typically contested along four axes. [**2.b.1**] In the first place sceptics can point out that the principle is wrong. This is very rare, but sometimes occurs in debates where multiculturalism is an issue (e.g. gender specific types of 'honour' that are crucial in one culture, null and void in the other) [**2.b.2**]. Secondly, the principle can be acknowledged in abstract, but then denied to be applicable to the NEST in question [**2.b.3**]. Thirdly, the principle can be acknowledged, but then turned around to *oppose* the conclusion of the other party [**2.b.4**]. Fourthly, the principle can be acknowledged, but deemed less pressing than another, conflicting, principle.

NEST also often raises justice issues: how to distribute the consequences – costs and benefits? Of course, this justice issue typically comes up after accepting – albeit in general terms – the NEST under discussion. The discussion focuses on the question what criterion should be accepted for this distribution: [**3.1**] equality, [**3.2**] merit, [**3.3**] need, or [**3.4**] chance. However, the promises accompanying the introduction of a NEST are as a rule couched in either (implicitly) egalitarian terms ('This is a benefit to humankind!' 'Human progress!') or in terms of need ('It is immoral to stop this technological development because it will benefit the sick and the starving.'). The discussion usually concentrates on the question how to ensure that the NEST will indeed benefit [**3.1**] all or [**3.3**] those in dire need, instead of [**3.4**] those who are simply lucky enough to afford it. Two conflicting positions can be discerned: those arguing [**3.1.a & 3.3.a**] that – after a while – the trickle down effect will ensure that the benefits will reach all/the needy, versus those arguing

[**3.1.b and 3.3.b**] that this trickle down effect does not occur without political help, at least not in such a degree that it enhances the relative position of the majority/the needy in relation to those reaping the benefits first.

Finally, NEST often also touches on issues pertaining to the good life. These are hard to categorize, because the issue of the good life is so very complex, involving core-values, virtues, expectations, ideas about fate, religion, and so on. (Dohmen, 2002) However, there is a general issue in good life ethics, and in NEST-controversies in particular, that generates recurring images and tropes. This is the issue of how to value (technical) mastery over our fate, over the external forces currently outside our grasp. As we saw above, the introduction of a new NEST is accompanied by a general promise of increased control. This is supposedly a good thing, improving the quality of our lives. Although this claim may seem commonsensical at first glance, it is hotly contested. Of course no one goes so far as to denounce all technical control. But ideas do conflict over the right degree or form of control, or over what topics one should (not) want to control.

The promoters of the NEST often draw in general terms on [**4.a.1**] a Promethean imagery, stressing that humankind should always strive forward and upward. In this vision there is little or no patience with fixed *limits*; all that is acknowledged are *frontiers* that should be *transgressed*. Part and parcel of this attitude is that one should not try to avoid all risk; some uncertainty has to be accepted. Opposing this forward-pressing spirit are sceptics and conservatives who stress the importance of knowing when and where to stop. A theme shared by these critical voices is obeisance to pre-given limits, in opposition to the ideal of technical mastery and perfection. (Kass, 1997, 2002; McGee, 2002; Sandel, 2004) This obeisance, this plea to accept as being fundamental at least some of the limits placed upon us, is argued for in various ways. Some stress the *religious* character of these limits, urging us not to play God [**4.b.1**]. Closely related are the warnings that we should stick to *natural* limits, lest we create monsters [**4.b.2**]. Others point to what one could call *anthropological* limits, stressing that complete mastery over our environment would in the end dehumanize us, draining our lives of meaning, because human beings can only flourish when reality puts up some resistance to our desires and aims [**4.b.3**]. A fourth set of limits has to do with a different type of order: the split between the social and the technical. Referring to this *ontological* difference, critics argue that it is wrong to give a technical solution to what is essentially a social problem [**4.b.4**]. Finally, *cognitive* limitations are foregrounded in the metaphor of the sorcerer's apprentice, who unleashes powers that he then is unable to control [**4.b.5**].

These are all typical and recurring ethical arguments pertaining to NEST. However, there is another cluster of NEST-arguments that does not deal directly with the new technology, but deals in more general terms with the relation between technological and moral development. First, in NEST-discussions, technological *determinists* face technological voluntarists. The first group maintains that morals cannot influence the course of technological progress, either because [**5.a.1**] its course is preordained by an internal logic, or [**5.a.2**] because of the restrictions

international competition forces upon societal actors. *Voluntarists* counter by argu-
ing that [**5.b**] technology is influenced constantly by societal forces, and can thus be
steered in morally desirable directions. Second [**6.a**], technology *optimists* confront
[**6.b**] technology *pessimists*. The first see technology as the solution, the second
see it as the cause of our problems. Thirdly, technologically induced moral change
is differently perceived and appreciated by the proponents and opponents of the
NEST under discussion. The first will stress that [**7.a.2**] the NEST in fact does
not raise novel ethical issues, because it is essentially similar to technologies that
have already been accepted by society. This is the argument by *precedent*. If such
a precedent cannot be found, however, proponents will argue that indeed the NEST
does cause moral unease, but that society will *habituate* itself quickly to the now
novel, and sometimes unnerving, NEST. The opponents will argue, by contrast, that
[**7.b.1**] the NEST is already *immoral as it is*, or that [**7.b.2**] it will manoeuvre us
upon a *slippery slope* to moral decay.

## 9.2 The Obesitypill, Part I: Ethical Controversy

We realize that this quick summary of NEST-ethics is awfully abstract. We will
therefore now add flesh and blood to it by imagining the ethical controversy that
could plausibly accompany the birth of the *obesity* pill, a genomics based drug that
would allow people to consume all they want without gaining body weight.[4] How
this pill would work need not concern us here. Suffice it to say that pharmaceutical
industries around the globe are frantically researching such a drug, because it would
generate billions in income given the growing obesity epidemic worldwide. Again,
the limited space of this article allows us only a brief sketch, as a kind of 'proof of
principle' of our method. In an actual scenario study one would develop plural sce-
narios by modifying some key uncertainties. Furthermore, it is only to be expected
that applying the NEST-ethical patterns will invide different imaginations in differ-
ent people. Because the aim is to stimulate the moral imagination, not to produce
truth (which is impossible anyway where the future is concerned), this diversity is
to be considered an asset of our method rather than as a weakness.

The unfolding of an ethical controversy concerning a NEST can be most fruit-
fully constructed as a narrative with four stages: status quo, novelty, conflict (action-
reaction dialectics), and closure. In this section we explore the first three stages. We
discuss the fourth stage in Section 9.2.

### 9.2.1 The Moral Routines Before the NEST is Introduced

A NEST like the ObesityPill can be expected to uproot established moral routines
pertaining to our bodyweight. So, our first step should be to map existing moral

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[4] To avoid making the narrative illegible, we have deleted the codes for each argument.

routines in the relevant area.[5] In the Netherlands, two discourses currently compete for hegemony.

The first discourse stresses the responsibility of the individual, highlighting duties and the good life. Obesity is presented as an indication of a weak will as a lack of virtue and as proof that one values the wrong things in life. Each individual is considered to be under a moral obligation to maintain a healthy body weight. Other people are not required to help you. Consequentialist arguments play a subordinate role in this discourse. If justice is an issue at all, it is only raised to deny the obligation of the community to pay for diseases of weak willed individuals.

The alternative discourse shuns moralizing and is popular in policy and science circles. Now 'structure' is highlighted instead of 'agency'. The discourse is predominantly consequentialist: how to best protect people against obesity? The answer: modify the (social, economic, material) environment into one that facilitates and stimulates a healthy lifestyle. This consequentialist orientation is backed-up by considerations pertaining to social justice: the state should provide everyone with a health enhancing socio-economic-cultural-material environment. Individual duties and virtues play a subordinate role in this discourse.

From an ethical perspective both discourses mirror each other. The discourse of individual responsibility stresses duties and virtues; the rivalling discourse stresses consequences and justice. Policy makers argue against the moralizing stress on individual autonomy, as people's lifestyles are largely determined by their environment. Or, alternatively, they argue that autonomy and free choice are indeed important, but that in this case the right to lead healthy lives overrules them. Or, finally, they argue that their 'environmental' policies will in the end create the conditions necessary for individuals to act autonomously. Vice versa, proponents of the moralizing discourse argue that whatever the socio-etcetera circumstances, some people will always act wrongly because of their weak will. Or that the policymakers' cure, restricting people's autonomy by manipulating their environment, is worse than the disease because freedom outweighs physical health. Or they challenge the claim that the results of their opponents' policies are indeed valuable, e.g. by arguing that 'undeserved' leanness is not a worthy goal.

### 9.2.2  The Introduction of the NEST, Accompanied by Enthusing Arguments from the Technology Promoters

Now consider the introduction of the ObesityPill. How might the proponents and opponents of this particular technical device fill in the argumentative patterns characteristic of ethical debates about NEST? Let's put our moral imagination to work!

The introduction of a NEST usually rests on an implicit, but remarkable, asymmetry. Whereas many applaud scientific and technical revolutions, with moral

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[5] This part of the analysis is based on Swierstra (submitted): 'From Gluttony to Obesity: Three constellations'.

revolutions the reverse is true. As pointed out above, people commonly perceive moral change as a threat to their identity. Therefore, if we may believe most participants in NEST-ethical discussions, nothing or little ever happens or should happen in the moral world. Thus, techno-scientific discontinuity is asymmetrically paired to moral continuity. This helps to explain why the instrumentalist vision of technology as a neutral means to our goals is still dominant, notwithstanding the philosophical critiques – from Heidegger to Latour – of this vision.

A new technology is typically heralded by (consequentialist) visions, expectations and promises. Plausibly then, the ObesityPill will be presented to the general public as the solution to their problems. Its proponents will stress the pill's beneficial consequences, e.g. that it will cure the obese and prevent others from becoming obese, so that society no longer will be burdened by costs generated by obesity. They might then also add some arguments pertaining to rights and obligations: whatever one's personal stance, there is no ground to deny others their right to use the pill. Some might go on by arguing that justice requires enabling everyone to purchase the pill. Of course, they will say, in the short run the pill will be costly and probably only available to the rich. However, if more and more people will start using it, prices will drop and in the end almost everybody will be in the position to purchase the ObesityPill – which will finally put an end to the obesity-gap between rich and poor. Finally some arguments from good life ethics will be appealed to. It is a common motif that humanity gradually emancipates itself from nature's shackles. By freeing us from the whims of our bodies, so they say, the pill simply adds another chapter to this long and glorious history of human emancipation.

By thus mobilizing current moral convictions and routines in favour of the new medical device, proponents help create the impression that the pill is only a neutral instrument to help realize pre-given goals. But this is not really the case, in so far as the introduction of the ObesityPill does displace the two earlier discourses about obesity. In that sense, the pill is not morally neutral at all. It mediates, if introduced on a large scale, the relation between humans and their world in a novel way.

### 9.2.3 Conflict

The moralizing and individualizing discourse relies heavily on arguments pertaining to duties and to the good life. So, it is easily imaginable that its defenders will be outraged by the possibility created by the ObesityPill to control our body weight through medical technology, making willpower superfluous. According to them, the pill turns a healthy (and aesthetically pleasing) body into a consumer-good, to be purchased rather than laboured for and earned. The pill provides us with technological mastery over nature, but they consider this to be the wrong type of mastery.

Adherents of this discourse might experience more difficulty with countering the argument that consumers should have the (negative) right to purchase the pill. After all, they themselves stress individual autonomy and free choice. A possible argumentative strategy for them would then be to deduct opposing conclusions

from the general principle of autonomy, e.g. by arguing that taking the ObesityPill contradicts one's autonomy rather than being justified by it. Autonomy manifests itself in our reason and free will, not in substituting one's dependence on the body for a new dependence on (medical) technology.

They might also point to some undesirable consequences. Even if the pill will probably reduce body weight for many, it will inevitably have nasty side effects, for example an increase in empty hedonism. People will no longer need to exert self-control now they have delegated this to the ObesityPill. The NEST will leave them morally weakened. Or they might devalue the goal of being lean. Before the introduction of the pill, they might argue, having a healthy body weight was honourable because it designated self-control. Now that it can be purchased and consumed, it loses meaning and value.

It is less likely that justice arguments will figure prominently in this critique of the ObesityPill, because the focus of this discourse is on individuals and because this discourse despises the pill and so couldn't care less about its 'fair' distribution.

This is different for the policy discourse, with its focus on consequences and justice. Its adherents might start by questioning the claim that the ObesityPill will result in fighting obesity. They might point out that the lower classes, who are most affected by obesity, cannot afford the pill, or that they lack the self-discipline to take the pill. Furthermore, they might argue, the pill is likely to have unwanted side-effects. For example, because the rich can now safeguard themselves from the negative effects of over-consumption the pill might detract policies to change people's environments. In this way the pill will indirectly contribute to the prolonging of perfidious socio-economic inequalities. Or they might argue that the kind of health generated by the ObesityPill is not really a valuable consequence at all, because in fact it is not health, but a form of disease dependent on permanent medication. According to this party, the pill leads to a further medicalisation of society.

As stated before, rights and principles do not figure prominently in this discourse. Of course, its adherents will have trouble denying that in modern societies people should be allowed their own autonomous choices. However, they can object that autonomy as yet hardly pertains to the victims of socio-economic-material injustices, who lack the necessary cultural competences to really make autonomous lifestyle choices. Or they might mobilize the principle of autonomy against the ObesityPill by arguing that people first of all have a right to an environment that 'enhances' their autonomy. In so far as the pill draws away resources from policies directed to creating such an environment, it conflicts with the principle of autonomy. Some hardliners might even go further and argue that autonomy is of course important, but the right to live a healthy life is more important. From this they might conclude that the pill has to be outlawed, at least until people live in healthy environments. Or they might argue for the moral duty to show solidarity with those worse off than yourself, a duty that then conflicts with the right to choose autonomously for using the ObesityPill.

Finally, like rights and principles, the good life plays a subordinate role in this discourse. But it will probably make its presence felt in the form of a critique of the attempt to solve, what adherents of this discourse perceive as, a social problem

by technical means. This attempt could then denounced as contributing to a 'false consciousness' about the 'true causes' of obesity.

We now turn to the plausible replies of the pill's proponents. They are faced with a two-faced enemy and therefore have to develop two lines of defence. They will probably attack the adversaries adhering to the individualizing discourse with their own weapons. This discourse puts a lot of weight on the principle of autonomy. Of course, the defenders of the ObesityPill see little cause to fight this venerable moral principle. However, they do interpret it quite differently The pill is not incompatible with autonomy, but people should be granted their autonomy, now interpreted as the right to make their own (consumer) choices. Even if one frowns upon the pill, it is bad taste to paternalistically pressure this private conviction on one's fellow-citizens, whose ability to make autonomous choices should both be assumed and respected. Furthermore, on the level of good life ethics, the pill promoters argue that the whole idea of mental self-control is out-dated by the new medical technology. Indeed, the Greek, Roman and Christian moralists stressed the necessity of mental self-control, but this was only for lack of a more effective way of self-control through medical technology. Now the pill has been made available, this type of morality should be considered as out-dated. Mental self-control should be respected as the best solution available in pre-technological times, but now it has become superfluous – at least where our body weight is concerned.

Now they turn to their adversaries from Discourse B. What matters, and this they share with their opponents, are results. Sterile moralizing should be avoided. Why, then, not allow experimenting with the obesity pill, with those wealthy enough to afford this device as voluntary guinea pigs? If the pill then proves to be an effective measure against obesity, the rationale for paternalistic policies is undermined. Paternalism can only be justified – if at all – by its results, part of which is educating individuals into autonomous citizens. If medical technology now provides us with results without paternalism, isn't that preferable? And if it works for the wealthy, isn't it a requirement of justice to make the ObesityPill available to all? Especially when we realize that a larger market will help to make the pill cheaper anyway?

## 9.2.4 Some Intermediary Reflections

We want to conclude this section with a few reflections on our 'imagined controversy'.

First: the discussion outlined above is of course speculative, but it is not idle speculation. The combination of previously existing moral discourses with the NEST-ethical patterns generates suggestions that both stimulate our moral imagination *and* ensure that this imagination remains grounded in reality. The ethical controversies we sketch have at least some degree of plausibility.

Second: it is interesting to notice that the two initial moral discourses on obesity come up with different arguments against the pill. The core values that constitute the core of each provoke these different reactions. Both perceive the pill as a threat,

but as a threat to different values, even if the debate is of course stylized and if the application of the NEST-ethical patterns might lead others to imagine other arguments that we have not mentioned.

Third: neither of the two 'threatened' discourses perceives the novelty of the ObesityPill to be a morally neutral means to an uncontroversial goal. The relation between means and goal embodied by the pill (healthy weight through medical technology) contrasts sharply with the means/goal relation characteristic of the individualizing discourse (healthy weight through a strong will) and with the means/goal relation characteristic of the policy discourse (healthy weight through a healthy environment). Goal and means are entwined. A major, although often overlooked element of moral change, is that a NEST can break up existing connections between goal and means.

## 9.3 The Closure of Techno-Ethical Controversies

The argumentative patterns of NEST-ethics can help us to imagine future controversies and how these might unfold. But the story has as yet no end. We have not yet attempted to imagine any closure of the (imagined) techno-ethical controversies. After the NEST disturbs moral routines, stakeholders will attempt to forge closure by creating a new fit between technology and morality, adapting the technology, the morals, of both. By speculating about possible closures, we find ourselves on very thin ice indeed, and in any real scenario exercise one would offer different scenarios, e.g. one where the technology is adapted to conform to current moral standards, one where the morals are adapted to the NEST, and one where the two strategies are combined. Because scenarios can be developed with different aims in mind, the *plausibility* of such an outcome need not be the first concern. It is perfectly legitimate, and common, to develop a scenario for highly implausible developments – like nuclear reactors exploding – when such developments are important (e.g. disastrous) enough. However, *all* scenarios have to be plausible to a certain degree, because they only work if the readers are seduced to momentarily suspend their disbelief. How to achieve such a minimum level of plausibility, when imagining closures to techno-ethical controversies? Here one can draw some guidance from the following two observations.

In the first place, some norms, values or principles can be plausibly expected to determine the outcome because they are more *robust* and thus resistant to (technologically induced) change than others. For example, it was not an unexpected coincidence that it was the no-harm principle that blocked experiments in human reproductive cloning. This principle is very robust and will weigh heavily in the coming years. How to determine which moral elements are robust? For an answer, we can draw on Dewey's pragmatist ethics.

According to Dewey, norms and values enter the world as solutions to practical *problems*. Because those problems are situated in time and space, the same holds for morality: it is deeply entwined with that world of everyday practice, because it

is meant to guide our action. If practical requirements change, so do morals. History is full of examples of norms, values and principles being moved, transported, reinterpreted and translated to help solve other and novel practical problems (Keulartz et al., 2002, 2004). Take for example the principle of autonomy. This principle was first coined to elucidate the precarious political status of the fifteenth century Italian city-states within the Holy Roman Empire; then played an important role in religious controversies; resurfaced in Rousseau's political philosophy; was elevated by Kant to take centre stage in his moral philosophy; and has in the last decades finally reached public prominence in the field of medical ethics[6] (Schneewind, 1998; Skinner, 1990). Other examples are the principles of non-maleficence and benevolence, or the Golden Rule. Such norms, values and principles have proven their worth over and over again, in many different contexts. Let us locate such abstract elements on a *macro* level, together with similarly fundamental processes like secularization, individualization and democratization (Trappenburg, 2003). These principles and processes may be trusted to remain relevant in tomorrow's ethical controversies. On the *meso* level we then locate the concretizations of these abstract principles and processes, adapted for specific practices. For example, the idea that the autonomy of patients requires their informed consent. On the *micro* level we then locate concrete ethical questions and answers like: should we ask ten year old patients for their informed consent or not?

We contend that the solutions on the macro level are the most robust and thus the least subject to change, the solutions on the micro level the least robust and the most subject to change, with the solutions on the meso level somewhere in the middle. Macro-elements are robust in the sense that they have proven to remain recognizable in many different practical contexts. The 'successes' of principles on the macro level don't make them immune to the pull of change, but they can be expected to change only slowly.[7] Similarly, although there is no guarantee that processes on this level will continue to unfold, it seems a reasonable bet that they will keep doing so in the foreseeable future. Decisions on the micro level, by contrast, depend heavily on contextual factors and are thus prone to change. On the meso level, rivalling theories argue for different interpretations of 'autonomy' (Schermer, 2001) and in different practices the same principle is often differently interpreted and enacted. These different interpretations keep the principle, as it were, constantly slightly destabilized. We can sum up our approach using the image of looking at a landscape from a

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[6] One of the primary tasks for a pragmatist ethics is to study these transports, and evaluate them. In particular, such an ethics should pay attention to the problem that we cannot but meet new problems with old instruments, even if these instruments are poorly equipped for the new tasks ahead, never being designed therefore in the first place. The pragmatist ethicist excavates the original problem context in which a vocabulary came into existence, to show its particularity and situated character After that, the question can be put on the agenda and assessed, whether or to what extent this vocabulary can or should be fruitfully transported to other problem areas. (T. Swierstra, 2002)

[7] There are exceptions to this rule-of-thumb. For example: ideas about the perversity of homosexuality or the 'natural' hierarchy between men and women have at least such a venerable past, and they have considerable force in the past few decades – not the least thanks to the influence of the pill, an example of a NEST.

speeding train: the micro level in the foreground speeds by, the middle plan of the meso level changes considerably slower, whereas the macro level at the horizon moves almost imperceptibly[8] (Swierstra, 2004b).

These differences in robustness can guide us in our speculations on the plausible outcomes of ethical controversies. For outcomes that embody robust norms and values, are more plausible than outcomes that lack this type of moral backing. There is another way to differentiate plausible from less plausible outcomes. Although norms and values are almost by definition counterfactual, it is equally true that they must possess some degree of realism to gain practical relevance. '*Ought implies can*' as David Hume put it succinctly. In practice, whether we 'can' do something, is more often than not a matter of degree and of reasonableness. If it is very difficult to comply to a norm, it will dismissed by most as over-demanding, utopian and/or moralistic, only fit for the few moral heroes in our midst. Norms and values thus gain motivational force and influence to the extent that more people are convinced that these norms can indeed be put into practice without too much costs, and when the values are deemed to be realizable at least to some degree.

At exactly this point technology regularly interferes with morality. By opening up new practical avenues, technology can make some norms and values more realizable, and thus help them gain popular support. Thus, technology does not simply provide us with more practical opportunities, they at the same time kiss to life dormant obligations and responsibilities by supplying new 'cans' which result in new 'oughts'. Vice versa, technology often also closes off certain avenues, making actions more difficult or even impossible to perform. (Try doing without a cell phone for a while). This results in a weakening of values and norms that correspond with these marginalized actions. One could compare these mechanisms to that of a genome. Like genes, the 'expression' of norms and values is influenced by other norms and values, but also by external – in our case: technological – factors. Pursuing these technology/morality interactions, is the second way we can speculate in a controlled fashion on what are more and less plausible outcomes of future controversies.

## 9.4 The Obesity Pill, Part II: The Liberation of Fun

To summarize: speculations on techno-moral change can and should be guided by the identification of (a) robust moral elements that have proven themselves in a variety of times and locations, and (b) the influence of the NEST strengthening or weakening of the 'expression levels' of the various norms and values in play. Now let us return to our example of the ObesityPill controversy. What kind of closures are plausible? What kind of techno-moral change might plausibly result from the introduction of this biotechnological artifact? We will sketch one scenario,

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[8] Note: of course there are no sharp, uncontroversial borders between the different levels.

even though alternative outcomes can be plausibly imagined, that highlights moral change instead of technological change or a combination of both.

The drug is initially marketed to the small group of patients who are pathologically obese, and for who no other therapies have proven successful. The principle of benevolence requires this, as does the no-harm principle: withholding available medication to patients is considered as harming them. So, a niche for the ObesityPill is quickly established, as soon as the pill has become available.

In a second stage, conflicts occur at the fringes of these patient-groups. No sharp medical boundaries can be drawn between those with a real disease and those with simply bad habits. This opens a space for constant negotiations and for shifting boundaries. The availability of this biotechnological artifact alone shifts the balance between diseased and weak-willed. Especially because moral condemnation of obese people is a social reality, it is rational for them to apply for the qualification 'diseased'. Some pressure their general practitioners into proscribing them this medication, even though their medical condition does not unequivocally qualify them for a prescription. In doing so, they mobilize an egalitarian conception of justice to get their way, arguing that their condition is essentially the same as that of the accepted in-group.

Furthermore, because the distribution of the pill is hard to control in practical terms, thanks to the Internet, the ObesityPill will quickly transform from a cure for the really diseased into a life style drug. But what is diseased anyway, especially now being weak willed is also partly determined by one's genetic make-up? Those taking the pill as enhancement argue that they don't harm anyone else, and thus they should be free to exercise their autonomy.

The availability of a cure for obesity thus profoundly challenges the established moral outlooks on obesity. The first victim is the moralizing discourse on obesity that stressed strong will and abstention. Because medication is now available, obesity further transforms from a sin into a disease. The result is a rapid a-moralisation of obesity, which further paves the way for allowing everybody to freely purchase the pill. Physical exercise is increasingly seen as a waste of valuable time, better spent in productive or fun areas. Many even go further and claim enthusiastically that for the first time in human history hedonism itself is liberated. At last having fun is separated from the punishment of disease. Nor is their any reason for guilt: the individual is not burdening the collective with the costs of her medication. Finally life style has really become a matter of free, autonomous choice, they cheer.

Opposing the (consequentialist) policy discourse on obesity, people start questioning the previous attempts to hold corporations accountable and to remove environmental causes of obesity. Thanks to this pill, they argue, the rationale behind the blunt, undiscriminating policy of environment-change ceases to exist. There is no longer need for state interventionism, now people can effectively control their body weight with the help of medication. The human organism, they say, is programmed to save energy. No one *likes* to climb a stairs when they can avoid it. According to them, the new medication offers us a way to obey our natural impulse to laziness, instead of being forced into doing unnatural exercises.

Due to the obesity pill, consequences change, rights and obligations are redirected, justice requires new things, and conceptions of the good life – i.e. pertaining to what is ill, what is weak, and what is fun – change. The new technology shapes its own, conducive, moral environment. That it is able to pull this off, is due to the fact that some very robust (macro)elements of morality – the principles of no harm, benevolence, justice, autonomy, the dividing line between natural and unnatural – are smoothly reinterpreted on the meso-level to endorse the new technology. On the other hand, the rivalling discourses and practices regarding obesity are weakened by the availability of a technical short-cut to a goal that everybody endorses: healthy bodies. Of course, many adherents of these discourses will stick to their positions, deploring what they perceive as moral and political decay. Of course, they will be branded as conservatives. Due to the availability of a technical alternative, the importance of self-control turns into a quaint form of masochism. Those adhering to their social solutions, are accused of a 'social fix'.

So, this particular scenario makes it easy to imagine how the ObesityPill might result in a moral change that can be christened *the liberation of fun*. Of course, a complete victory resulting in total closure is unlikely. Some adherents of the two rival discourses will stick to their basic contentions, and seek to further develop their moral positions, for instance by attaching more importance to having a 'natural' weight, or by stressing that weight problems are only symptoms of underlying socio-economic injustices. The controversy will continue, in all likelihood. Be that as it may: the scenario does provide us with a glimpse of techno-moral change. To what use?

## 9.5  How Techno-Moral Scenarios Can Enhance Our Moral Judgement

If we want to guide technological development in beneficial directions, we have to take into account that moral change will in all likelihood accompany it. Scenarios are a good way to explore such techno-moral change. If such a scenario convinces us that certain moral consequences might very well occur, we seem condemned to a choice between two options.

From what standpoint can one judge future morals? Here we have to avoid two extremes: relativism and transcendentalism. Moralities change when their environments change, although admittedly some moral elements are fairly robust. But this very general acceptance of moral change does not amount to moral relativism. Such relativism typically comes in two forms, either favouring the present or the future. Moral *presentism* simply favours current morals over the future ones we imagined as part of the scenario exercise. This precludes the possibility that our future selves, or our children, might have learned something worth knowing and applying in the present.

Neither should we passively *accept* the moral changes we imagined. There is no need to follow Baudelaire who hailed the 'extraordinary delight of celebrating

the advent of the *new!*' (Berman, 1983) (quoted on p.143) or the Italian futurists: 'Comrades, we tell you now that the triumphant progress of science makes changes in humanity inevitable, changes that are hacking an abyss between those docile slaves of tradition and us free moderns who are confident in the radiant splendor of our future.' (Berman, 1983) (quoted on p.24–5) This moral *futurism* rests on the opposite mistake of precluding the possibility that we presently possess a sharper insight in rights and wrongs than our future selves. The moral vision of our future selves will be bound with countless ties to the then existing practices and techno-logical artefacts. Once a technological opportunity exists, it is hard to pause and reflect on – for example – the desirability of the novel rights and duties that this opportunity calls into existence. The reason is that when technology and morality co-evolve, they both start out fluid and flexible – hot technology as it were, and hot ethics – but in the course of their progressive realization they both solidify and become reified. They tend to become self-evident. Furthermore, the new technology will have created new interests and new (claim)rights which make the newly evolved and solidified techno-moral constellation difficult to change in practical terms. So, if we manage to imagine this new techno-moral constellation before it has become socially embedded, our reflection is less restricted by those facts and practicalities. Because in the present we still possess alternatives that in the future will be closed off, our current ethical reflection is more open and free compared to the cold moral-ity of the future. Here exists an important parallel with Rawls' construction of the original position: it is easier to deliberate in an open and rational way about a (future) just society when one has still a degree of distance to it and does not identify yet with its biases. This is why our present selves might have a sharper vision than our future selves, and thus have something to teach.

One might object that our current moral deliberation is as determined by current technologies and practicalities as the moral deliberation in the future will be. True. Our present moral imagination is situated in ways that can only be clearly perceived with the benefit of hindsight. Ultimately, we are unable to jump our moral shadows. *But it is still worthwhile to try*. By using our moral imagination, by developing narratives about the future co-evolution of technology and morality, we broaden our mind. We seek out new experiences and travel to different – even if only imagined – moral cultures. For example: when our imagination evokes the possibility of self-mastery through a medical device like the ObesityPill, we are invited to reflect upon the pro's and con's of traditional and technical self-mastery. If the ObesityPill is likely to undermine policies that are (rather indiscriminately) directed to groups instead of individuals, we can now ponder the costs and benefits of both approaches. Discussions like these will enormously enhance our ethical technology assessment, because they deal with the ObesityPill and all its ramifications, instead of with a pill that is stripped of its moral context.

That we reject relativism, does not necessitate us to embrace the idea of transcen-dent, eternal and universal, moral standards. Like relativism, transcendentalism is in danger of deflating our openness, curiosity, reflexivity, creativity and willingness to learn. These are our core values, because they reflect the dynamism that defines our technological culture. We do not need an Archimedean point to decide on 'the'

best morality. In our search for (moral) truth it suffices, as Hans Georg Gadamer pointed out decades ago in his book on philosophical hermeneutics, to seek out conflicting perspectives that invite us to question our prejudices (Bernstein, 1983; Gadamer, 1986). Moral learning can occur where and when people are confronted with 'strange', new, conflicting morals. Even when, as in art, we have to devise these conflicting perspectives in our imagination. Moral plurality invites reflection, (self)criticism, dialogue and the open exchange of ideas.

By developing techno-moral scenarios, we travel to future worlds where different technologies and morals prevail. It is by seeking this confrontation between present and imagined morality, that we learn to guide technological change in a manner both reflective and flexible, without reifying either the present or the possible future.

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