

Manuscript version. The official version is forthcoming in *Jahrbuch Technikphilosophie*.

A Pluralistic Model of Technology-Driven Value Change

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I. Introduction

More than five decades ago, Rescher set out a pluralistic account of how value schemes change within society, with specific attention to technology's role in producing this change. He makes a case for multiple factors within value change: acquisition and abandonment of values; redistribution of particular values within society; rescaling of some values in relation to others; redeployment of values by expanding them to include new things; and 'restandardization' of values, meaning changes to the scale we use to assess achievement of the value.¹ The resulting pluralism allows for a dynamic account of value change, providing conceptual categories that help explain differential change, disagreement and controversy. Although Rescher's paper did not have much direct impact on ethics scholarship, in recent decades several related areas of research have emerged, such as anthropology of ethics, theories of norms, and theories of moral progress. In the present paper I will highlight two dynamic aspects of technology and value change that can be discerned within Rescher's view, but which are less visible in these other lines of research: emergent and differential value change. I also make a case for the importance of individual experiences of ethical uncertainty and disruption in response to technology, as part of the explanation of value change.

As I define it, the pluralistic account of value change and technology holds that technology induces value change in multiple ways and patterns in society, crucially involving different individual experiences of the new contexts of judgment and action to which innovative technologies give rise. It contrasts with what I will call the *Simple Change Model*, the idea that values normally change within a whole society and its individuals from one dominant value scheme to another. Consider the transition from a value scheme (VS1) including chastity and fidelity to another (VS2) including values of sexual freedom and expression. Within a simple process of value change, both internal forces (the need for practical consistency, rejection of oppressive systems) and external forces (the role of women in wartime production, the birth control pill, religion's loss of authority) cause the dominant values in a given society to shift from VS1 to VS2. The Simple Change Model understands this in terms of *value replacement in individuals across society*: the vast majority of individuals give up old values and adopt new ones. Let us call this *simple value change*. Although I do not follow the Simple Change Model, I do share with both that model and with Rescher the assumption that values tend to group together, and change, in more or less coherent value schemes, rather than *à la carte*. However, I also observe that coherence is a weak requirement, since we seem to be able to live with quite a bit of incoherence in our

¹ N. Rescher: "The Study of Value Change," *Journal of Value Inquiry* 1 (1967), pp. 12-23.

values across contexts and times, and since people living together need not cohere very strictly with one another.

My central argument is that by adding *emergent* and *differential* value change alongside simple change, we stand to gain explanatory power over existing accounts in two ways: first, individual-level change is worth explaining in its own right because individual-level value disruptions are impactful; and second, the heterogeneity of value change at the individual level helps to differentiate distinctive impacts involving stalemate, collective uncertainty, controversy, and resolution over time at the social level. *Emergent* value change is defined as a situation where a substantial group of individuals within society adopts values specific to a new activity or context. These values do not displace values that these very individuals possessed earlier within a comparable context, because the context itself is highly novel, and the participants are often young. Examples include the values that emerged alongside the Industrial Revolution (efficiency, individualism) or the early use of the Internet (accessibility, informational privacy). It is typical for these examples to involve emerging technologies and emerging generations. *Differential* value change is where two or more groups of individuals within society undergo value change in ways that differ substantially from one another, due to factors affecting subgroups differentially. This can be a matter of either emergent value change or value replacement within the subgroup. An example is the sexual revolution in the United States, in which significant groups (many African Americans and evangelicals) did not transition from VS1 to VS2, but instead underwent different value shifts, e.g., from VS3 to VS4. In the case of African Americans, for example, the transition was from a situation in which reproduction and procreation had recently, and tenuously, been “taken back” by Black Americans after the end of legalized enslavement, to a situation in which a battery of birth-limiting technologies such as forced sterilization and the Pill played a role in stigmatizing Black fertility and reproduction. Although it may be difficult to place precise labels on the value schemes (VS3 and VS4) involved, they clearly involve a different transition than the one discussed in the dominant narrative of the birth control revolution.²

In section II, I sketch some recent lines of research on value change and show that the Simple Change Model is at least weakly assumed by some of these lines of research, and is occasionally affirmed explicitly by scholars. In section III, I introduce differential and emergent value change and give empirical and theoretical reasons for distinguishing them from Simple Change. In section IV, I take on what I call the *Bypass Model* of value change, which posits that technology and other external forces bring about value change, and which downplays the role of individual experience. I argue that experiences of value change in response to technology are interesting and important, not merely for their own sake, but also for being associated with distinctive patterns of disruption, controversy and uncertainty.

The argumentation in what follows concerns what interpretive or “descriptive” configurations of value change are helpful in providing explanations of social phenomena such as conflict, controversy, collective choice, and the settling of value questions over time in response to new technologies. I adopt a pragmatic view of philosophical questions about what it is to hold, or change, a value, such that we adjust our interpretive concepts in order to provide differentiated, individualized building blocks for explanation of social-level phenomena. The

² M. Parry. *Broadcasting Birth Control: Mass Media and Family Planning*. Rutgers University Press, 2013. P. 7.- A. Y. Davis. *Women, Race & Class*. Random House, Inc., 1981. Pp. 182-199.

account is not meant to imply that normative values change metaphysically in response to technology.³

Throughout the paper, I discuss historical and current examples. My account of these examples relies on my reading of historical scholarship. I mean to offer only enough detail and background sources to make the examples plausible and highlight their distinctive features. If readers contest my historical reading but can construct plausible examples of their own, in turn — whatever they might be — my aim in presenting the examples will have been achieved. In any case, the topic suggests a new alliance between ethics and history of technology.

II. Recent scholarship on value change

Several recent lines of scholarship have highlighted the importance of value change. Here I briefly summarize each of them and indicate how it would view the Simple Change Model. The purpose is to highlight the possibilities for incorporating a more explicitly pluralistic view of value change like Rescher's. Although the account of each field will be sketchy, the main lines should be sufficient to provide background for a pluralistic view.

First, a vibrant field of *anthropology of ethics* has explored the ways that humans experience value uncertainty, conflict, and transition as part of cultural change and adaptation. For example, Robbins examines how the introduction of Christianity created conflict between high-level values of individualism and relationality in the Urapmin people of Papua New Guinea, a society of about 400 individuals.⁴ He relates this to individual experiences of perplexity of Urapmin people making decisions about how to share communal tasks. In general, literature in this field is grounded in ethnographic observations of how particular individuals and small groups negotiate value deliberation and choice: how those observed “are not only *embedded* in social practices [but also] respond to them” ethically.⁵ When the community of people belonging to the culture and adhering to its norms and values is well-defined, as is the case with the Urapmin, we can make generalizations to value change in society as a whole. However, the anthropology of ethics, because of its methodology in detailed, embedded observations, does not focus much on the dynamics of values in large, complex societies, as Rescher does. For that reason, its case studies can give the impression of Simple Change, even though the field as a whole does not take a clear stand on the Simple Change Model.

Second, research on *moral progress* has explored how societies gradually broaden the scope of moral sensitivity and consideration to accord moral status to more humans as well as to animals and the environment. For example, Kitcher considers moral progress as the creation

³ I. van de Poel: “Understanding Value Change” *Prometheus* 38, 2022. Pp. 7-24. I provide a defense of the pragmatic approach to social concepts in Redacted for Blind Review.

⁴ J. Robbins. *Becoming Sinners: Christianity and Moral Torment in a Papua New Guinea Society*. Berkeley: University of California Press. 2004.

⁵ C. Mattingley. Ordinary Possibility: Transcendent Immanence and Responsive Ethics. In C. Eriksen & N. Hämäläinen, eds., *New Perspectives on Moral Change: Anthropologists and Philosophers Engage with Transformations of Life Worlds*. WYSE Series in Social Anthropology 13. 2022. P. 104. For an overview of this research from a philosophical point of view, see M. Klenk. Moral Philosophy and the ‘Ethical Turn’ in Anthropology. *ZEMO* 2, 331–353 (2019). <https://doi.org/10.1007/s42048-019-00040-9>

of increasingly stable and societally acceptable moral arrangements over time. His “democratic contractualism” implies that as a value scheme becomes more widely acceptable to dissidents in an “ideal conversation” or discourse, this constitutes moral progress. Because of the conceptual connection of moral progress to acceptance and stability, Kitcher views the persistence of serious moral differences as a lack of progress. This implies that morally ideal change is essentially a matter of convergence. Other theories of moral progress have taken a realist rather than a pragmatist approach, claiming that humans throughout history have gradually come to approximate universal moral truths in their value schemes. In these theories, there is sometimes an implicit suggestion of a Simple Change Model in thinking about particular examples such as the increasing acceptance of women’s rights, the moral status of animals, and same-gender relationships. As Jamieson writes, “moral progress involves moving from a tribal morality, for example, to a more universal one, and this can be seen as a move towards greater objectivity, impersonality, and so forth.”⁶ Pluralism and disagreement about values are actually assumed by theories of moral progress, but they are seen as a backdrop out of which stable value schemes emerge.⁷

Third, a related body of literature explores moral revolutions, by analogy to Kuhn’s conception of scientific revolutions. Some of this work appears to weakly assume the Simple Change Model. It emphasizes factors that “catalyze” the attitudes of individuals, fomenting a “paradigm shift” in which most individuals replace old values with new ones. Baker describes how the use of human cadavers for scientific research and medical training brought about a critical conflict in the status quo of Nineteenth Century England. The status quo of avoidance of desecration came into increasing conflict with new values of modernity and scientific knowledge, resulting in an anomalous market for human cadavers that was both profitable and illegal. According to Baker, this crisis led to a paradigm shift in which England’s Anatomy Acts catalyzed value change at the individual level. According to Baker, “Paradigm shifts ... alter the way we perceive our world—in this case, the way opinion leaders and cultural power brokers perceived the human corpse”.⁸ Baker uses an expression from Kuhn to describe what happened next: “after the implementation of the anatomy acts, the treatment of the dead was transformed ‘as if people were responding to a different world’”.⁹ The implication is that this quasi-perceptual change affected individuals more broadly: “communal acceptance” is one of the characteristics of moral revolutions highlighted by Baker.¹⁰ Individual value change, in which the “old paradigm and associated terminology” goes out of existence, must happen broadly in order to constitute a moral revolution.¹¹

A fourth area of research relevant to value change is the application of theories of social norms to account for changes in values. In their book *Explaining Norms*, Brennan and

⁶ D. Jamieson. *Morality’s Progress*. Oxford: Clarendon Press 2002. P. 10.

⁷ P. Kitcher. *Moral Progress*. New York: Oxford University Press. 2021.

⁸ R. Baker: *The Structure of Moral Revolutions: Studies of Changes in the Morality of Abortion, Death, and the Bioethics Revolution*. MIT Press 2019, p. 75. See also A. Appiah. *The Honor Code: How Moral Revolutions Happen*. New York: W. Norton & Co, 2010.

⁹ Baker: *Structure*, p. 77. Baker quotes T. Kuhn: *The Structure of Scientific Revolutions*, 50th anniv. ed. Chicago: University of Chicago Press, 2012, p. 111.

¹⁰ Baker: *Structure*, p. 152.

¹¹ Baker: *Structure*. Pleasants contests the view that moral revolutions involve changing individual minds. See N.J. Pleasants. *The Structure of Moral Revolutions*. *Social Theory and Practice* 44 (2018): 567-592.

colleagues affirm the Simple Change Model regarding norm change.¹² They say that explaining norm change is more important than explaining norm emergence: “A new norm does not emerge out of a vacuum. There were behaviours there before, behaviours that the new norm may change. It therefore often makes more sense to speak of norm change than norm emergence: how and why the old norm changed into the new one”.¹³ Moreover, norm change means *changing individual minds*: in cases where there is no institutional or legislative authority, “the only way rule change can happen is by some people beginning to accept different primary rules of conduct, and enough other people eventually coming to do likewise”.¹⁴ What tends to interest researchers of norm change is the way that the existence of a norm, although in itself conventional, changes the incentives for individuals in such a way that they tend to become compliant.¹⁵ In this way, norm change propagates itself across society.

Brennan et al.’s central example is useful for seeing the relationship between norm change and value change. According to the authors, in Norway in the 1970s, people shifted from using the formal second person pronoun ‘Ni’ to the informal ‘Du’ in most contexts. In such a case, a value change is likely to correlate roughly with the norm change: a movement from a value scheme of formality and hierarchy to one of informality and equality. It could be that some people adopt the new way of speaking even though they personally value formality and hierarchy, simply because they can no longer communicate naturally without conforming to the new norm. There may be significant subgroups that do not adopt the new values, yet must at least partially abide by the changed norms, for example by not correcting others for using ‘Du’. As Marmor writes in *Social Conventions*, “we should not assume that participation in a conventional social practice [including norms] is necessarily voluntary”.¹⁶ Even so, it is likely that over time, a nearly universal change in norms will reflect a corresponding change in values.

Finally, work on technomoral change has focused on the specific role of technology in disrupting values and causing value change. This work affirms a widespread individual shift from one value scheme to another, brought about by technology. For example, Swierstra et al.’s NEST theory explains this in terms of how technology disturbs ‘moral routines’. “We constantly see NEST [new and emerging science and technology] uprooting established moral routines. These disturbances manifest themselves as controversies about how to re-establish a fit between NEST, our moral world, and us. [For example,] the pill could uproot traditional sexual morals by providing women with the technological means to actually practice their sexual autonomy”.¹⁷ The controversies in question end when society establishes a new set of

¹² Geoffrey Brennan, Lina Eriksson, Robert E. Goodin & Nicholas Southwood: *Explaining Norms*, Oxford UP 2013.

¹³ Brennan et al.: *Explaining Norms*, p. 107.

¹⁴ Brennan et al.: *Explaining Norms*, p. 108.

¹⁵ C. Bicchieri: *Norms in the Wild: How to Diagnose, Measure, and Change Social Norms*. Oxford: Oxford University Press, 2017; A. Marmor: *Social Conventions: From Language to Law*, Princeton University Press 2009.

¹⁶ Marmor: *Social*, p. 55.

¹⁷ Tsjalling Swierstra & Dirk Stemerding & Marianne Boenink: “Exploring Techno-Moral Change: The Case of the Obesity Pill,” in Paul Sollie & Marcus Düwell, eds., *Evaluating New Technologies: Methodological Problems for the Ethical Assessment of Technology Developments*, Dordrecht, Netherlands: Springer 2009. P. 120. For a recent elaboration, see J. Danaher & H. Sætra: “Mechanisms of Techno-Moral Change: A Taxonomy and Overview,” *Ethical Theory and Moral Practice* 26 (2023), pp. 763–784. <https://doi.org/10.1007/s10677-023-10397-x>

routines. The implicit assumption is that this is a widespread, if not universal, process within society.

In multiple fields, then, theoretical explanations of value change sometimes assume or suggest a Simple Change Model of how societies change their values in response to external changes such as technology, climate, etc., although this is only occasionally an explicit commitment of the theory. Although this scholarship often mentions specific technologies and technological innovation more generally as important ingredients in bringing about value change, only a few scholars give technology a special status in accounting for value change. For these select few, what is distinctive about technology as an explanatory factor in value change is personal experience with technologies that forces moral questions and decisions that did not occur previously. In the case of the birth control pill, women gained access to relatively private, direct control over their reproductive choices to a degree that was not previously possible.¹⁸ In the case of mechanical ventilation, moral questions about terminating life support of living individuals, and organ transplantation, arose for clinicians and families of patients in ways that they had never experienced before.¹⁹ It is precisely because of the distinctive way that technological innovation can bring up such new moral issues for its “users” that it is worth focusing specifically on its role in bringing about value change. In the next section I introduce cases that help uncover some of the dynamics of emergent value change related to novel technology. I leave it open that other factors such as novel religions, political movements, and economic developments could also lead to value change in a comparable way, but I hold that there is something distinctive about the newness of possibilities introduced through technological innovation in fomenting change.

III. Emergent and differential value change

In this section, I argue that there are examples and mechanisms of individual value change that do not fit the Simple Change Model. *If* we are interested in the dynamics over time of values within complex societies, then we must accept multiple ways by which individual and group values come to be different from what they were. The spread and widespread use of novel technologies brings about emergent and differential change, because their novelty partly consists of confronting users with new options and decisions, and of opening up new horizons of value.

It is useful to start with a picture of the Simple Change Model. For simplicity of exposition, suppose there are just five people in society, and some stimulus such as the introduction of a technology causes them to abandon an old value scheme VS1 and adopt a new one VS2. In Figure 1, this is depicted in terms of a uniform change at the point when the technology is introduced. Of course, in reality it may take more time for the value change to catch on, and there may be a period of uncertainty in which people are reacting to the situation and feeling their way toward a new scheme.

¹⁸ Van de Poel: “Understanding”, p. 17.

¹⁹ R. Baker. *Before Bioethics: A History of American Medical Ethics from the Colonial Period to the Bioethics Revolution*. Oxford: Oxford University Press. 2013.

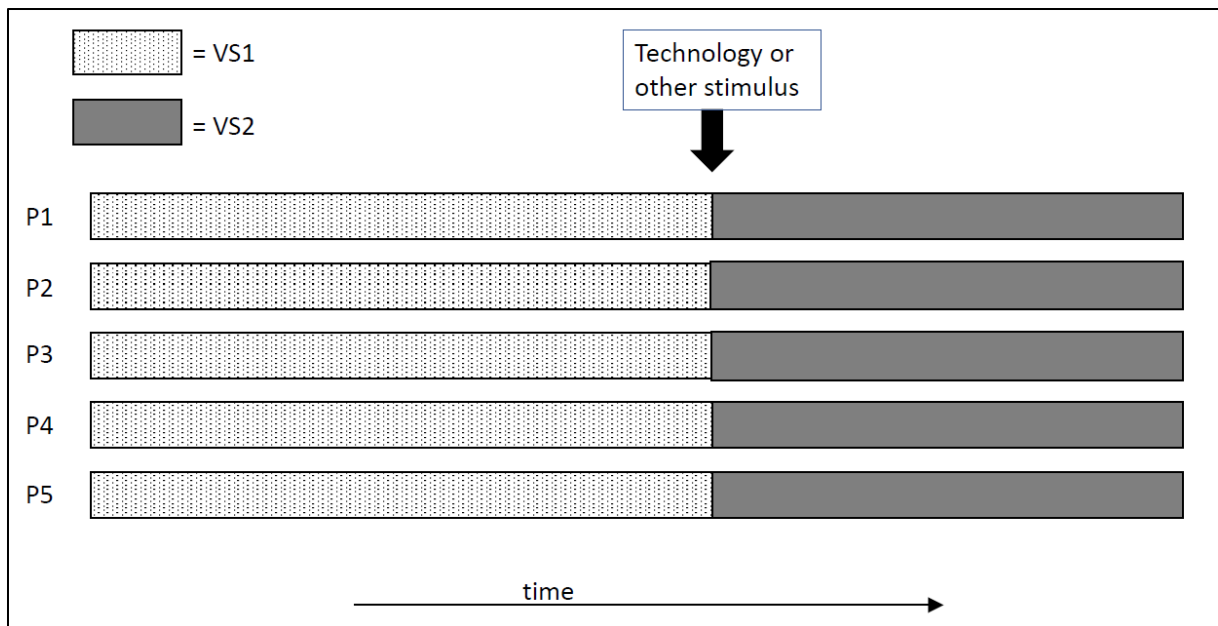


Figure 1. The standard variety of value change

Emergent value change is a situation where a substantial group of people within society adopts values, sometimes specific to a new activity or context, that do not displace or conflict with old values at the individual level. There is no value replacement among a broad group of individuals and institutions. Here is an example to motivate the idea.

[*INTERNET*] Jones, a teenager in Sacramento, California, in the 1990s, has been saving up money to buy computer equipment and games and recently discovered ways of communicating with other people all over the world on the Internet. Jones’ parents do not understand computers. The anonymity and freedom of online exchange are attractive, and Jones, along with many others like him, develops a second life online with its own ethos and values, such as playful affiliation and the importance of open access.

This example contains two mechanisms of emergent value change that are significant and distinct enough to warrant our attention. The first is generational experience. “People born in the same time-period experience events that occur in the same historical phase in the same specific biographical phase; they experience earlier or later historical events in a different specific biographical phase. For example, people who were born in Germany in 1940 experienced the Second World War in early childhood, whereas the early childhood experience of people born 10 years later was the period of reconstruction and returning prosperity”.²⁰ In [*INTERNET*], we expect people of Jones’ generation to share early experiences of the Internet. Generational experience with computing gave rise to a worldwide cyberpunk and hacker culture with distinctive values that continued to influence the development of technology at least through the 2000s.²¹ Crucially, these values do not replace different values that the individuals had previously, because they were either not born yet, or had not developed to the point that their values were already established. The values emerged as part

²⁰ M. Corsten: “The Time of Generations,” *Time & Society* 8 (1999), pp. 249–272.

²¹ J. Ryan: *A History of the Internet and the Digital Future*, London: Reaktion Books 2010; C. Dunbar-Hester: *Hacking Diversity: The Politics of Inclusion in Open Technology Cultures*, Princeton University Press 2019.

of the user's own development and acculturation to the technology. The technology itself produces a novel context of action, opening up horizons of value and choice that are not clearly comparable to what came before (e.g., virtual entities, cyberspace, avatars) even for older users.

A second mechanism in [INTERNET] is *niches* of rapid technological change, especially new contexts on a mass scale that influence the values of those who engage with them, but are somewhat insulated from the value schemes of other contexts.²² The experience of (generational) communities of users of a mass scale technology, such as workers participating in the Industrial Revolution, or early communities using social media, can create a niche in which a new value scheme is rapidly incubated in individuals on a mass scale. [INTERNET] suggests that new value schemes can be compartmentalized within individuals, and emerge relative to a new activity, community, and/or technology, without necessarily displacing the values the person holds outside that context. Such niches can be related to work, recreation, or social interaction.

Emergent change is interesting in that it does not initially involve moral disruption *within* individuals. Individuals adopt the relevant value schemes *without displacing their existing valuing attitudes*. This means that emergent value change is not initially disruptive within individuals in the sense that they react to the loss of an old moral routine.²³ The disruptive aspects of emergent change, if they occur, happen between individuals, between contexts, or over time when individuals interpret, discuss and reflect on patterns of experience.

In Figure 2, this is modeled in a simple way, similarly to how standard value change is modeled in Figure 1. The figure is simplified in that it assumes that there is no period of consolidation of values, nor does it depict any later interaction between P1-3 and P4-5, which one would eventually expect when the emergent values are brought into dialogue with other contexts and values.

²² D. Cocking: "Plural Selves and Relational Identity," in J. van den Hoven and J. Weckert, eds., *Information Technology and Moral Philosophy*, Cambridge University Press 2008, pp. 123–141; J.W. Schot & F.W. Geels, "Niches in evolutionary theories of technical change: a critical survey of the literature," *Journal of Evolutionary Economics* 17, 5 (2007), pp. 605–22.

²³ Swierstra et al.: "Exploring."

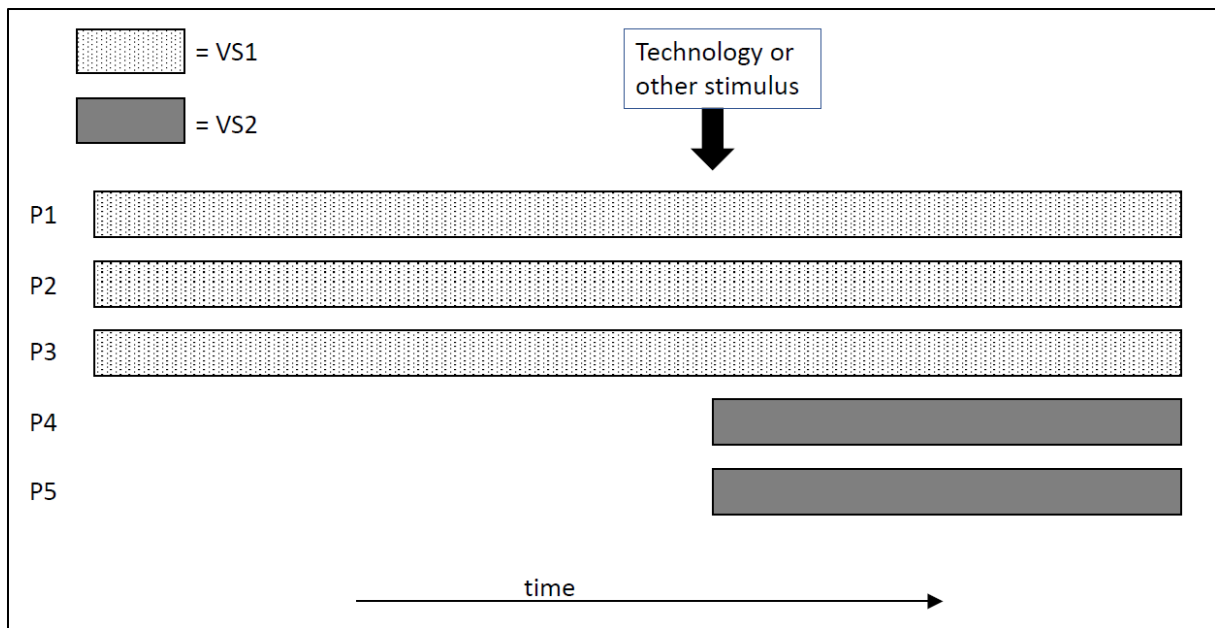


Figure 2: Emergent value change

Van de Poel & Kudina recall a useful distinction from Dewey that helps give structure to this point.²⁴ *Valuing* and *values* distinguish two layers of emergent evaluative phenomena: initial value experiences, on the one hand, and what happens downstream from those experiences when they conceptually crystallize, on the other. *Valuing* is a matter of having first-order positive or negative attitudes in response to a situation or stimulus, whereas *values* are artifacts of a different order, with their own interpretive and inferential roles in social discourse about what to do and think. Van de Poel & Kudina give the example of the right to be forgotten as an emergent value born out of negative attitudes toward recorded photos, videos, and texts held indefinitely in the unlimited “memory” of the Internet. Once this value and its associated terminology are articulated explicitly, it serves as a focal point of categorization, discourse, and argumentation. The generational experience of a technology niche can lead to emergent forms of valuing; for example, positive or negative attitudes toward the unlimited storage of people’s timeline or feed on social media. With additional social inquiry and reflection, these attitudes of valuing can crystallize into a new value. In emergent value change, the initial experience of valuing leads to the adoption of a distinctive value perspective that does not displace other schemes. When this value scheme is made explicit and discussed, and when the technology niche is brought into contact with the broader culture, conflict and confusion can result (toward the right side of Figure 2) if there is an inability to find concepts that reconcile emergent values with those of other contexts and people.

I now turn to another variety of individual value change in society. *Differential* value change in its simplest form is the process by which one part of a population (P1) undergoes a value change from VS1 to VS2, and a second part of the population (P2) undergoes a different change, from VS3 to VS4. Consider as an example the process of *network polarization*, by which personalization of the Internet and the self-selection of affiliations on social media platforms lead to the formation of echo chambers and filter bubbles in which people mainly

²⁴ I. van de Poel & O. Kudina: “Understanding technology-induced value change: a pragmatist proposal,” *Philosophy & Technology* 35 (2022).

encounter points of view similar to their own, ultimately leading to the polarization of groups. People who started out as adhering to moderately different value schemes gradually become more extremely different from one another.²⁵ Although the exact mechanisms are the subject of scholarly discussion,²⁶ network polarization seems a plausible case where technology has the effect of differentially affecting the values of different individuals.

Moreover, unlike in the case of value change brought about by the birth control pill,²⁷ in network polarization individuals do not seem initially to notice that their values have changed relative to what they were, or feel much conflict about the change. Their new “moral routines” are adopted without much initial disruption or fuss. The disruptive effects, when they occur, happen at an interpersonal level when individuals with more extreme values confront each other in less civil ways. Depending on the numbers and sociopolitical positions of the people involved, this can result in widespread marginalization of and discrimination against minority groups; or in political splintering, stalemate, and dysfunction.

Figure 3 depicts differential value change in a way similar to Figures 1 and 2. As with Figure 1, the figure does not include the expected period of gradual adjustment, uncertainty, and recalibration that one would expect during the transition between value schemes. Moreover, it does not include the expected development of new interactions between P1-3 and P4-5 as time goes on, such as the development of retrenched conflict or controversy, or the eventual conversion of some people to a different value scheme.

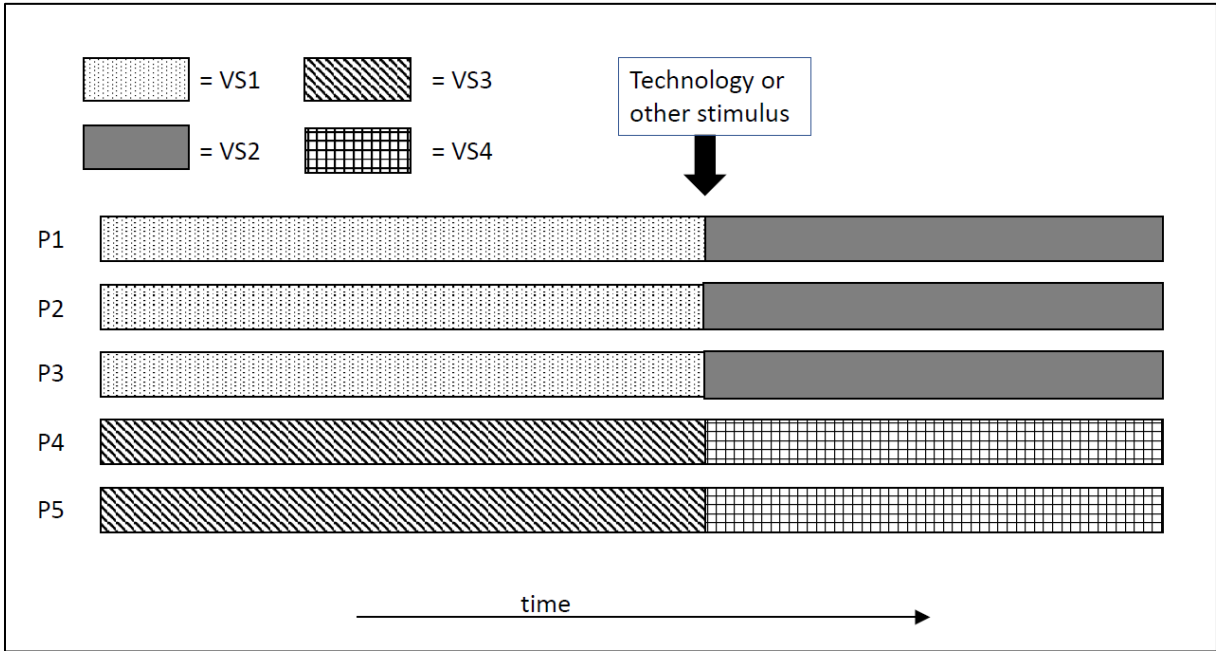


Figure 3. Differential value change

Cases of emergent and differential value change should give us pause before presupposing the Simple Change Model discussed in the previous section. Value change is diverse. In some cases, a number of individuals who adhered to one value scheme switch to a new one.

²⁵ C. Sunstein: “The Law of Group Polarization,” *Journal of Political Philosophy* 10 (2002), pp. 175–195.
²⁶ R. Karlsen, K. Steen-Johnsen, D. Wollebaek, & B. Enjolras: “Echo Chamber and Trench Warfare Dynamics in Online Debates,” *European Journal of Communication* 32 (2017), pp. 257–273.
²⁷ Redacted for blind review

Sometimes this causes a distinctive type of disruption as individuals experience perplexity or uncertainty in the gap between the two schemes,²⁸ or difficulty in adjusting to the new scheme. This can lead to mass readjustment of values along the lines of the Simple Change Model. However, in other cases, there is either no displacement of an earlier scheme, or there are differential effects on how different groups' value schemes are changed. In such cases, we expect distinctive effects at the individual and social level.

In emergent value change, the usual kinds of disruption accompanying value change are absent. We expect that conflicts with the new value scheme will be delayed, and that these conflicts will start to occur when the niche of emergent values is no longer insulated from other contexts. In differential value change, in addition to the usual kinds of disruption accompanying value change, we expect social conflict when political discourse between groups takes on new combinations of values. The complexity of the pluralistic model helps illuminate these distinctive effects at different levels over time. The temporal dimensions of value change are not uniform. In cases where conflicting, differential value changes happen in different subgroups in society, there can be a powerful unfolding of crystallization of values, materialization of stalemate or controversy, and eventual compromise or resolution, none of which are evident from the Simple Change Model.

IV. The importance of individual value change

The pluralistic model of value change put forward here contrasts not just with the Simple Change Model, but also with a *Bypass Model* that focuses on external forces and takes no particular view of what happens in individuals when societal values change. Some accounts of value change, especially “technological determinism” and Marxist views, bypass individuals almost entirely in their explanations of societal-level value change. For example, one might explain value change in terms of affordances, utility, or political power, without mentioning individuals' responses to those factors. This explanatory point could be further grounded in an ontological point: social ontology theorists often maintain that properties of social groups and properties of individuals are only loosely related to one another.²⁹ In the study of value change at a societal level, then, one might be led to assume that individual value change does not help explain societal value change. According to Winner, for example, some technologies such as nuclear power have inherent political properties that “require... particular kinds of political relationships” such as hierarchical power structures.³⁰ The Bypass Model holds that value change occurs at the level of value schemes of society, and that it is explained not by individual experience, but rather by external forces. The Bypass Model is logically independent of the Simple Change Model, at least *prima facie*, because it can accommodate some of the pluralism that we discussed in the previous section. However, knock-on external forces seem to support the likelihood of simple change rather than differential value change.

Pleasants provides an explicit argument against the sufficiency of individual-level experiences of change in accounting for revolutionary value change, based on the observation that people rarely can pinpoint a specific experience of their own value change. Having grown up in

²⁸ Redacted for blind review

²⁹ Christian List and Philip Pettit: *Group Agency: The Possibility, Design, and Status of Corporate Agents*, Oxford UP 2011, pp. 76–77.

³⁰ L. Winner. Do Artifacts Have Politics? *Daedalus* 109 (1980): 121-136.

Britain in the 1960s and 1970s, Pleasants says he had internalized many racist and homophobic attitudes but cannot remember a specific moment or experience in which these attitudes disappeared and he gave them up. Although he concedes that such experiences with the explicit content of change are possible, he argues that they cannot be what *explains* value change, given that they are so sporadic and unmemorable. Instead, he locates the explanation mainly at the level of “social structure in which individual moral psychology is planted.”³¹ This structure is what makes individual change possible, hence it is the primary focus of explanation of radical value change.

In this section, I give two arguments against a Bypass Model of value change. First, individual experiences of value change may have more explanatory salience than Pleasants’ argument suggests. Second, when new technologies create the circumstances of moral ambiguity, individual experiences of and responses to that moral ambiguity are crucial to the explanation of stalemate and arbitrary outcomes.

In many cases, the individual experience of value change is distress, perplexity, or breakdown as evidenced by case studies from the anthropology of ethics. When one value scheme replaces another suddenly and noticeably, people often experience epistemic and/or affective uncertainty about what moral norms apply or what values have the most weight in a given situation. For example, MacDougall documents women in Jordan making “accommodations” to their changing world in the context of massive economic modernization and technological change, responding with moral perplexity about the appropriate norms of courtship and marriage. In contrast to the first-person, memory-based evidence from Pleasants’ argument, her observations are ethnographic. She writes that “[d]uring the period that I spent time there, from 2009 to 2015, this accommodation was most evident in conversations about ordinary domestic affairs, such as housekeeping, child-rearing and marriage...”³² The fact that Pleasants cannot pinpoint a change in his own attitudes could reflect the “ordinariness” of the accommodations he was making when he dropped his racist and homophobic attitudes or it could be that he simply did not need to make such accommodations. There are certainly more dramatic accounts of moral breakdown as a response to change, such as Lear’s account of the destruction of the moral world of the Native American Crow leader Plenty Coups.³³ But we need not make the case that all experience of value change is dramatic and memorable, in order to ascribe it explanatory importance.

One of the reasons that moral uncertainty is salient is because it is a source of hazard in a person’s own decisions about what to do and in her moral judgments and attitudes toward others. There is a serious risk that a person experiencing moral uncertainty will make the wrong moral decisions, form the wrong moral attitudes of blame, guilt, trust, and esteem, or fail to experience apt moral emotions. Because of this hazard, the transitions involved in value change, insofar as they bring uncertainty and perplexity, are internally disruptive for moral agents. The Bypass Model does not register these internal, epistemic and affective effects of value change; in fact, they are what is bypassed.

³¹ Pleasants: Structure P. 569.

³² S. MacDougall. Moral Change through the Lens of Marriage. In Eriksen & Hämäläinen: *New Perspectives*. P. 41.

³³ J. Lear. *Radical Hope: Ethics in the Face of Cultural Devastation*. Cambridge, MA: Harvard University Press. 2008.

My second argument is that the Bypass Model cannot fulfill the aim of predicting and explaining value change and its social effects when these effects themselves are arbitrary or tentative. When an external stimulus such as a new technology destabilizes a value scheme, the particular experience of uncertainty and perplexity that sometimes results can help explain how new value schemes are *not* adopted, or how adoption proceeds in a tentative or arbitrary way. For example, although users of social media platforms might not notice the effects of network polarization initially as their own value commitments become more extreme, over time with reflection and experience, the macro effects of polarization lead to uncertainty about the appropriate response. There is perplexity about whether the algorithms that drive network polarization should be regulated in some way, and about whether the current business model of social media, in which user engagement is the fundamental currency, can and should be tinkered with. At the personal level, some users have reluctantly abandoned social media platforms or treated them ambivalently because of concerns about their societal effects (e.g., Twitter in the wake of the Musk takeover). Stalemate, inaction, and arbitrary responses — with some individuals' jurisdictions going one way, some another — are expected so long as this perplexity extends into the future unresolved. The Bypass Model has no easy way to explain cases where the outcome is arbitrary, conflicted, or tentative.

The experience of value change at the individual-level value change also plays a role in explaining how individual leadership can catalyze the adoption of new value schemes. On Baker's view of moral reform and moral revolutions, for example, individual "dissidents" play a key role. In cases of moral revolutions, dissidents do more than merely respond to a perceived moral injustice; they are creative, helping to find a new interpretive paradigm for understanding moral experience. In Baker's case of decriminalizing the acquisition of cadavers for science, for example, Jeremy Bentham and Thomas Southwood Smith found a way to make legislators and the public see this treatment of dead bodies in a completely new way. According to Baker, they "decided on an act of moral theater. The aging Bentham modified his will with a special request" of a public dissection of his corpse after his death.³⁴ In such a case, the dissident helps "alter the way we perceive our world".³⁵ This creative leadership is not a simple knock-on conclusion of external forces, but has its origin partly in the conceptual, moral, or political imagination of individuals who experience the displacement of an older value system and are positioned to guide others toward a new model.

Because of the individual-level phenomena discussed here — the individual experience of moral change, the individual origins of societal outcomes of stalemate and indecision, and the potential role of leadership in moral revolutions — we should not be content with the Bypass Model. By remaining true to the complexity of value change, an experientially-focused pluralistic model adds to our understanding view of the causal interplay of technology and individual-level factors in value change. One consequence of this is an avoidance of strong technological determinism. Technological determinism, in its most plausible form, is the two-fold view that technological development is somewhat independent of control by social forces, and that technology shapes society, including societal values.³⁶ We might call the first claim *autonomy* and the second claim *determinacy*. The pluralistic model constrains the second part of the thesis: it leaves room for diverse cases in which determinacy does not

³⁴ Baker: *Structure*, p. 73.

³⁵ Baker: *Structure*, p. 75.

³⁶ A. Dafoe: "On Technological Determinism: A Typology, Scope, Conditions, and a Mechanism," *Science, Technology, & Human Values* 40 (2015), pp. 1047–1076.

obtain because of the individual experience of uncertainty resulting from technological change.³⁷

V. Conclusion

I conclude by summarizing and highlighting some features of the argumentation above. In previous philosophical literature on value change, moral progress, moral revolutions, norm change, and technomoral change, there has been little attention to the multiple processes by which value changes come about, which Rescher usefully distinguished in his article more than a half century ago. Assumptions about how value change occurs have not been made explicit, and to the extent that they have, they have tended to suggest the Simple Change Model and/or the Bypass Model of value change. In this article I have defended an alternative, pluralistic model of value change at the individual level. This model is meant to explain the differences in individual and social cases of value change in terms of differences in how change comes about: whether it displaces earlier value schemes; whether it is noticed and experienced as perplexing, stressful, or hazardous by individuals; and whether it is specific to one group within society, leading to societal controversy and stalemate.

Some limitations of the model developed here are that it stylizes and groups examples into a few categories. Although this is potentially useful for developing a typology of kinds of change, the empirical validity of these categories needs to be proven. The varieties of change are useful for the development of hypotheses about technomoral change, for example, but these hypotheses need to be tested against historical and future cases. What factors are truly explanatory at an individual level, and to what extent the individual level is really needed, are questions subject to empirical confirmation.

Another limitation of the model is that it is left unclear whether value change — in particular emergent change — is something that happens within *persons*, or within *contexts*. For example, in the case of [*INTERNET*], we can imagine a relationship with either two or three variables. We can imagine that Jones adopts an emergent value scheme *tout court*, or we can imagine, alternatively, that Jones adopts a value scheme in a context, but can hold a different (even a conflicting) value scheme in a different context. The first option gives the variables {person, value scheme} and the second {person, value scheme, context}. The second option allows us to explain how even within a person, the convergence of contexts creates internal value conflicts and raises issues of consistency. For example, in work contexts it is increasingly common to accept a level of intensive (automated) technological surveillance of employees. Yet this type of surveillance is not well accepted in a home setting. When work and home contexts converge (as in working from home), these values-at-a-context seem to become incompatible. In future philosophical research, it would be worth spelling out the

³⁷ Technological determinism is also challenged by differential value change. In differential value change involving technology, a given technology such as the birth control pill has differential effects on the value systems of different groups within society. Although we can defend a version of *determinacy* that allows for differential effects, it must be a version that explicitly takes into account existing value systems and historical facts about different groups. This waters down the determinacy.

two-variable and three-variable versions of the pluralistic theory of value change in more detail.