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An Interpretation of Value Change

A Philosophical Disquisition of Climate Change and Energy Transition Debate

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An Interpretation of Value Change: A Philosophical Disquisition of Climate Change and Energy Transition Debate

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journals.sagepub.com/home/sth**Anna Melnyk**¹ 

Abstract

Changing values may give rise to intergenerational conflicts, like in the ongoing climate change and energy transition debate. This essay focuses on the interpretative question of how this value change can best be understood. To elucidate the interpretation of value change, two philosophical perspectives on value are introduced: Berlin's value pluralism and Dworkin's interpretivism. While both authors do not explicitly discuss value change, I argue that their perspectives can be used for interpreting value change in the case of climate change and the energy transition. I claim that Berlin's pluralistic account of value would understand the value change as an intergenerational conflict and therefore provide a too narrow and static

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ground for understanding ongoing value change. Instead, by exploring Dworkin's standpoint in moral epistemology, this essay distills a more encompassing perspective on how values may relate, converge, overlap, and change, fulfilling their functions in the course of climate change and energy transition. This perspective is further detailed by taking inspiration from Shue's work on the (re)interpretation of equity in the climate change debate. I argue that the resulting perspective allows us to see value change as a gradual process rather than as a clash between generations and their values.

Keywords

value change, value conflict, climate ethics, energy transition, selective attention, interpretivism

1. Introduction

When we look at history, we see changes in values over time (e.g., attitudes toward slavery). We also witness such changes in debates about climate change and the energy transition. One way to interpret this phenomenon is that value change often rises due to conflicts between the values of older and newer generations (e.g., Klein 2014, 61; Inglehart 2018). Think of, for example, the sharp contrast between the types of environmental attitudes that Greta Thunberg and Donald Trump represent.

In this essay, I will explore how value change can be understood. Consider the increasing relevance of environmental values and contemporary societal responses to the challenge of climate change. People are increasingly becoming aware of and concerned with the apparent implications of climate change and are joining clean energy and climate resilience movements. On September 20, 2019, roughly four million people attended climate strikes around the world, thus making these events resonating in the media (Barclay and Reznick 2019). Younger generations are particularly active; they object to the current governmental perspectives on mitigation and adaptation strategies while calling for climate justice and skipping school to join events like "Fridays for Future" (Thunberg et al. 2019). These and other movements manifest that values have changed, and they demand subsequent alterations of guiding values in contemporary policies, institutions, and infrastructures.

Such a take on value change is reminiscent of Isaiah Berlin's philosophical perspective on values. In his book *The Hedgehog and the Fox* (1953), Berlin defends the idea that moral values—an agent's moral concerns regarding states of affairs and the agent's attributes or actions—are plural and substantive. As a proponent of value pluralism, he claims that the moral landscape is populated by distinct values that are not necessarily related and are reducible to each other (Berlin 1953, 2002). This results in tensions and irreconcilable conflicts, where "tragic" choices are unavoidable (Berlin 2013, 2002).

A competing perspective is that of Ronald Dworkin, who stresses that despite the conceptual differences between values, focusing on their interconnectedness and functions reveal their relevance throughout cultures, societies, and generations. In his book *Justice for Hedgehogs* (2011), Dworkin defends the idea that genuine values mutually support each other and therefore cannot be in conflict. According to Dworkin, values do not exist (and therefore cannot be accessed) in isolation but are compatible and constitute networks. Despite acknowledging that there are many values (Dworkin 2011, 93), he claims that they are inextricably connected to each other, which is the basis of his "unity of the values" thesis. He claims that understanding a value is only possible in the context of other values; the fulfillment of one value depends on the inclusion of other values (Dworkin 2011). As a response to Berlin's view on values, Dworkin (2011) proposes an "interpretivist account" to resolve value conflicts by interpreting them in light of each other.

Although the Hedgehog and the Fox discourse is already somewhat older, it still represents the debate between two conflicting ways of understanding and dealing with value conflict that is still very much relevant today. Through examining these respective positions, I aim to explicate and bring to the fore important insights about values that, as I claim here, are relevant to understanding value change. One may argue, following Berlin's claim, that value change originates in value conflicts that arise due to a clash between equally important values. I suggest that such a perspective is unproductive not only because it does not help to understand and solve value conflicts but also because it is not helpful in exploring the nature of value change. I claim that a value pluralist perspective on intergenerational value conflicts provides a too narrow understanding of value change and, in the context of the climate debate, may potentially lead to the problem of selective attention (i.e., selective attention that results in tunnel vision on some considerations that make the situation difficult, while excluding others) and make one vulnerable to moral corruption. The

Berlin-inspired position lacks an important emphasis on the joint role that values play in societies, where values fulfill vital functions in structuring and guiding social practices and triggering the emergence of social structures and institutions. Instead, one should try to understand how values relate, converge, and overlap to sufficiently fulfill their social functions in each specific context. Dworkin-inspired view, on the other hand, does not deny the possibility of changing values but sees change more as a gradual process than as a clash between generations. In other words, in this essay, I argue that values do not merely change from A to B; instead, their social function encompasses new dimensions of people's lives, such as the environment, and this lays out a moral ground for the emergence of new social structures and institutions.

In the climate and energy context, value change has been discussed by several authors. Dale Jamieson was (in 1992) one of the first to offer an understanding of value change, which he later developed into a philosophical position on moral progress in the context of environmental degradation. Jamieson's (2002) position is built on a normative assumption of what an ethically desirable value change (i.e., moral progress) would look like. In the context of the philosophy of technology, value change has been related to the notion of soft impacts—that is, technological risks that have wide-range impacts on morality, values, emotions, and identities (Swierstra and Te Molder 2012). Swierstra, Stermerding, and Boenink (2009) have proposed a broad view of technologically induced moral change. This view has triggered the discourse about ethically disruptive technologies (Hopster 2021), methodologies to anticipate future technologically induced value changes (Boenink, Swierstra, and Stermerding 2010; Swierstra 2013; Danaher 2021), and design approaches accounting for value change (Van de Poel 2021). There is thus a growing literature on value change. However, this literature has mainly focused on moral progress (Jamieson) or on technomoral change (Swierstra) and—more importantly—it does not directly offer clues for how to understand the value change in the climate change and energy transition debate.

Therefore, in this essay, I draw inspiration from Dworkin "unity of value" thesis and procure an interpretivist account of value change in climate change and energy transition contexts. The interpretivist account is distinctive as it includes questioning the moral epistemology of value change; this is not part of current philosophical inquiries into value change. Importantly, my intention here is not to merely reproduce Berlin's and Dworkin's views but to use their views as inspiration to scrutinize value change. To further flesh out what an interpretivist account would look like, I

take inspiration from the works of Shue (1999, 2010) to illustrate what such an account may imply and I will distinguish the resulting interpretation of value change from those offered by Singer (1981) and Jamieson (1992, 2002).

I start by introducing the value conflicts in the climate ethics debate. Then, I explain Berlin's position on values and value conflicts in more detail. After explaining Berlin's argument about the conceptual authenticity of values as grounded in the value pluralism, I challenge his argument, referring to Dworkin's (2011) claim about the consistency of values that should be prioritized over their conceptual authenticity. I elaborate on Dworkin's perspective of value conflicts, explaining the unity of the values thesis to then argue that if two moral values are in conflict, it means that probably the wrong account of those values has been used. Here, I elaborate on Dworkin's interpretivist account of value conflicts. Finally, based on Dworkin's philosophical interpretation of value conflict, I will flesh out an account of value change in the context of climate change and energy transition debate, in particular using the work of Henry Shue as an illustration of my own argument.

2. Moral Dilemmas in Climate Change and Energy Transition Debate

Tracing back to the Industrial Revolution, rapid technological development has changed our world irrevocably for good and bad in both the technologically advanced and underdeveloped regions of the world. Technological development and infrastructural expansion make direct and serious contributions to climate change. Since at least the 1980s, scientists have known that societies were facing a significant environmental crisis. However, it was not until December 2018, during the Katowice Climate Conference (COP24), that different nations settled on the implementation of the Paris Climate Agreement (PCA) negotiated in 2015 (United Nations Climate Change Conference 2018). They agreed to keep the previously set PCA goal to limit global temperature rise to below 2°C compared to preindustrial levels. This agreement implies that nations need to be more proactive in taking responsibility for making significant changes in greenhouse gas (GHG) emissions. As the energy sector is a leading contributor to GHG emissions, various changes in energy production, distribution, use, and demand are necessary to achieve the desired transition to low-carbon energy (Hoppe and De Vries 2019; Frigo 2018).

Such a late response, however, has created serious societal, institutional, and economic challenges (Singer 2002; Jamieson 1992; Gardiner 2006). According to Gardiner (2006, 398), this is due to climate change being “a perfect moral storm” induced by “the convergence of a number of factors that threaten our ability to behave ethically.” Whereas advanced countries have benefited from their industrial development in the past, which helped them achieve a certain level of quality of life, countries that are just beginning to develop have never benefited from the development that occurred in other countries (Gardiner 2006). The distribution of benefits and burdens is geographically unequal and, therefore, is morally problematic (Gardiner 2006; Singer 2002; Baer et al. 2010). Developing countries are experiencing the challenges of energy poverty and could also benefit from technological and economic development, similar to developed countries like Europe and the United States.

However, the spatial challenge is not the only one; a perfect moral storm is far more complex than the unequal spatial distribution of technological and economic challenges. It also has an intergenerational nature because those who made and benefited from decisions about technological progress that contributed to climate change are no longer alive (Singer 2002; Shue 1999). Many still make similar decisions now when choosing cheap but unsustainable extractive energy sources. Although some people are already suffering from the implications of this progress, others in the future will experience even more severe challenges due to the global temperature rise.

In the Stern Review (2006), a document commissioned by the UK government, this complex challenge was articulated as part of an examination of the effects of global warming on the global economy. This report states that the price for climate change adaptation is continually increasing, resulting in a tension between taking actions to prevent (or slow down) climate change and expanding economic growth to less economically developed countries (Stern et al. 2006).¹ Current changes in human geography lead to scenarios in which the poorest countries and populations will suffer the most and the earliest. At the same time, people in such countries have never benefited from the economic growth that has been a significant contributor to climate change.

Economic growth and climate change mitigation relate to two different sets of values that are both committed to the vital needs of humanity but have different temporal orientations. Economic growth, as Friedman (2006, 15) claims, “more often than not fosters greater opportunity, tolerance of diversity, social mobility, commitment to fairness, and dedication to democracy.” The values represented by economic growth are democracy,

recognition, inclusion, care, and justice (Friedman 2006). These values are oriented to address current challenges of energy poverty, discrimination, and lack of education and health care that people experience daily in developing countries. The values represented by climate change mitigation are justice, equity, sustainability, nature preservation, and care about future generations and the environment (Baer et al. 2010). These values are oriented toward future challenges that are inevitable if actions are not taken today. Thus, as Jamieson (1992, 142) points out: “Science has alerted us to a problem, but the problem also concerns our values. It is about how we ought to live, and how humans should relate to one another and to the rest of nature.”

In the upcoming sections, I introduce two competing philosophical perspectives on values that inform our understanding of value conflicts in order to elaborate further on the value change in the climate change and energy transition debate.

3. Berlin’s Perspective on Values

Isaiah Berlin discusses the significant role that concepts and categories play in people’s lives, particularly emphasizing the role of ethical concepts such as “values.” For Berlin, “values” are human creations and not some “ingredients” that are “out there” in the universe (Berlin 2013, 2002). He conceived of “values” as being part of human nature while admitting that they are neither static nor fixed. Despite such a fluctuating view on human nature, Berlin importantly remarks that there is still something that makes us distinctly humans. Morality is one of the attributes that, according to Berlin, categorically constitute human beings (Berlin 2013). This view of human nature explains Berlin’s claim that although values are human creations, they are nevertheless objective (Berlin 2013). He provides two reasons to support his claim. First, values are objective because they are merely facts about people who hold them. Second, the pursuit of certain values is the result of objective realities of human nature. In other words, certain facts about human nature make certain values to be considered good and desirable. Berlin suggests that values are human creations that can be objectively known and that do not exist independently from humans.

Another important aspect of Berlin’s perspective on values is that values have a universal “core” that makes people reach agreement, at least on some moral issues. According to Winter (2016), the conceptual authenticity of each particular value plays a fundamental role for value pluralists like Berlin, for whom value is a kind of moral concern that an agent has

regarding relevant states of affairs and the agent's attributes or actions. Furthermore, Berlin suggests that values cannot be explained in terms of one another. Instead, values are important as values and for their own sake because each value is significant on its own and not in light of other values (Berlin 2013). An implication of such a vision is captured in Berlin's conclusion that more than one worthy value exists, and some of these values are irreconcilably in conflict with one another, creating situations in which, as the philosopher suggests, "tragic" choices are unavoidable (Berlin 2002, 43-44, 214). Berlin (2002) links the problem of choice to the human condition.

If I am right in this, and the human condition is such that men cannot always avoid choices, they cannot avoid them not merely for the obvious reasons, which philosophers have seldom ignored, namely that there are many possible courses of action and forms of life worth living, and therefore to choose between them is part of being rational or capable of moral judgement; they cannot avoid choice for one central reason (which is, in the ordinary sense, conceptual, not empirical), namely that ends collide; that one cannot have everything. (Berlin 2002, 43)

The conceptual authenticity of values, their universally recognized "core," and incommensurability are key premises of Berlin's value pluralism. As a proponent of value pluralism, he argues that moral values are irreducibly plural and thus are often incompatible with one another, like, for instance, equality and liberty, and justice and mercy (Berlin 2002). He claims that "the extent of a man's, or a people's, liberty to choose to live as he or they desire must be weighed against the claims of many other values, of which equality, or justice, or happiness, or security, or public order are perhaps the most obvious examples. For this reason, it cannot be unlimited" (Berlin 2002, 215). Berlin develops this account in opposition to the view defended by value monists, who often claim that all genuine moral questions have a true answer and that all values are compatible with one another, forming a single whole derived from one single overarching value.

Contrary to monists, Berlin (1953, 2002) argues that genuine values are many and none are always more important than others; values are in ineradicable conflict because the nature of this conflict is intrinsic. In Berlin's view, this ineradicable conflict exists because values may be both incompatible and incommensurable. Regarding the latter, he suggests that there is no "common currency" to compare two values and thus extensively criticizes utilitarianism for its quantitative approach (Berlin 2013). Taking a

step further and radicalizing his conclusion even more, Berlin (1953) suggests there is no governing principle that could provide a procedure for resolving value conflicts.

In the famous book *The Hedgehog and the Fox* (1953), the title of which refers to a fragment attributed to the ancient Greek poet Archilochus—"the fox knows many things, but the hedgehog knows one big thing"—Berlin divides writers and philosophers into two groups: hedgehogs and foxes. According to Berlin (1953), hedgehogs "relate everything to a single central vision," whereas foxes "pursue many ends, often unrelated and even contradictory." The philosopher's vision of the fox that knows many things was informed by the value pluralism he was defending. Berlin's take on irreconcilable value conflicts was inspired by the perspective of the fox that may have internally inconsistent moral components. This position was extensively criticized fifty years later by Dworkin.

In his response to Berlin's perspective, Dworkin (2011, 1) claims that the hedgehog knows one big thing and that big thing is value, as "ethical and moral values depend on one another." This discussion became an intermezzo for the argument that Dworkin proposes in his book, in which he develops a completely different perspective on moral epistemology of value conflicts by reexamining meta-ethical questions. Before elaborating why Dworkin considered Berlin's account of value conflicts implausible, I first introduce his perspective on morality, ethics, and values.

4. Dworkin and the "Unity of Values"

Questions concerning morality and ethics are essential in Dworkin's work and underline his views on institutions and law. He insists on a significant difference between what he calls moral standards and ethical standards and distinguishes moral standards as ones that "prescribe how we ought to treat others," whereas ethical standards are about "how we ought to live ourselves." Commonly linked with dignity, the notion of personal responsibility is a bridge between the two types of standards. This reciprocity originates from the Kantian thesis that "we cannot adequately respect our own humanity unless we respect humanity in others" (Dworkin 2011, 14). Such analytical distinction between moral and ethical standards lays the foundation of Dworkin's division between different branches of morality such as personal and political.

Another fundamental idea that Dworkin (1996, 2011) drew from Kant is the argument in favor of the objectivity of moral truth. He suggests that the question should be framed not as "whether moral or ethical judgements can

be true, but which are true” (Dworkin 2011, 25). But Dworkin (2011, 26) also takes a different ontological path and acknowledges that there is a “kind of entity or property in the world—perhaps morally charged particles or morons—whose existence and configuration can make a moral judgment true.” He promotes such an attitude toward moral truth, suggesting that some institutions and actions are wrong regardless of whether many people think the opposite (Dworkin 2011, 8). This constitutes an important premise for Dworkin (2011) about objective morality, one that he calls the ordinary view (see also Guest 2011). The ordinary view is built on Dworkin’s (1996, 92-93) earlier idea of “face value” that defends normative realism position claiming that people agree about moral wrongness of, for instance, phenomena like genocide, terrorism, and clitoridectomy. In other words, Dworkin (2011, 27) claims that “some moral opinions are objectively true”; otherwise, it would be problematic to justify institutions and legislations that protect societies from wrongdoing. This premise seems plausible to me since if there weren’t at least some genuine agreement on what is right and wrong, the idea of institutional regulation (e.g., law enforcement) would seem to make no sense at all.

Dworkin’s moral realist position further defines his perspective on values and morality, moral metaphysics, semantics, and epistemology. Although Dworkin (2011, 8) holds that there is an objective truth about some moral values that are independent of the beliefs or attitudes of people who judge them, he still refers to this as an abstract idea potentially even beyond human comprehension. Neither Dworkin considers the argument that value judgment is merely an expression of attitudes and commitments plausible. Instead, he puts forward a claim in favor of the metaphysical independence of value (Dworkin 1996, 2011, 9). Here, Dworkin does not mean that values are independent of each other (as Berlin does), but that values are part of human nature as well as moral particles that may objectively exist independently from individual expressions of attitudes and commitments, henceforth are attitude and mind-independent.

At the same time, although according to Dworkin (2011) certain moral facts are true, on the level of moral semantics and epistemology he considers morality to be an interpretative enterprise. While Dworkin is open to the idea of pluralism of moral semantics, he distinctively situates his position from that of a value pluralist such as Berlin (Raz 2014) in moral epistemology. Dworkin’s critique of value pluralism is thus mainly about the way value pluralism provides access to moral knowledge of what is at stake in value conflict. Reflecting on Berlin’s account of value pluralism, Dworkin finds Berlin’s approach to be undermining the integrity of values.

Integrity is essential for epistemological access to these values in each particular context. Thus, in contrast to Berlin's value pluralist account, Dworkin argues that values are relational and indivisible. Although he acknowledges that there are many values (Dworkin 2011, 93), the author claims that they are inextricably interwoven. He calls this the "unity of the values" thesis. In his book *Justice for Hedgehogs*, Dworkin (2011, 120) suggests that genuine values are mutually supportive and form "an interlocking network." Thus, in Dworkin's view, values do not exist in a void; they are compatible and constitute networks. Dworkin, therefore, holds a distinctive position in moral epistemology: the understanding of a value is only possible in the context of other values, and as a consequence, the fulfillment of a value depends on the inclusion of other values.

Indeed, Dworkin does not deny pluralism (as discussed by Raz 2014), at least not on the level of moral semantics. He would find it problematic to access moral knowledge through approaching values as scrutinized in a void. Rather than merely focusing on definitions and conceptions of values, Dworkin emphasizes relationality and the intertwined nature of values and thereby signifies that these unities have social functions—they grant the emergence of practices, social structures, and institutions. Hence, according to Dworkin, access to moral knowledge can be obtained only by embracing such a unified relational take on values. A reference to the moral epistemology of Aristotelian virtue ethics² seems to be assumed in such a perspective on values and the close relations between them (Aristotle 2014). An Aristotelian holistic vision is clearly reflected in how Dworkin constructs the unity of the values thesis and is a commitment that provides a well-structured ground for position and its consistency with political morality.

5. Interpretivism and the Hedgehog and the Fox

To further flash out the difference between Dworkin's and Berlin's perspectives and better understand the nature of their disagreement, consider again the conflict between liberty and equality exemplified in simple terms. When one takes a liberty to eat two slices of a cake at a birthday party, whereas the cake was sliced for an exact number of people, there will be one slice less for others to eat. This is an abstract example of a conflict between equality (fair distribution of cakes) and liberty (freedom to eat more cake). According to Dworkin (2011), this conflict occurs due to the narrow, almost dictionary definitions of these morally and socially important concepts. He suggests that although Berlin defines equality as everyone having the same

despite what they do to get it (e.g., work or kidnap people) and liberty as people being free to do whatever they want, these are problematic conceptualizations (Dworkin 2011).

Let me further substantiate Dworkin's criticism by placing this example in the temporal spectrum of value conflict occurring between different generations. It is plausible to say that according to Berlin, the liberty that past generations took in using natural resources threatens the possibility of equal access to these resources for future generations, as such resources are limited. When approaching this value conflict from Berlin's position, the problem seems insurmountable because Berlin (1953, 2002) suggests that "tragic" choices are unavoidable and therefore his approach suggests no constructive resolution. However, the literature on collective action and common pool resources (Ostrom 2010) suggests a more critical scrutiny beyond just accepting the irreducibility of the conflict as a matter of fact. Henceforth, it is plausible to conclude that Berlin's proposal to stick to the conceptual authenticity of each value is problematic as it does not empower the search for consensus and recognition and makes the search for a potential solution in moral dilemmas seem pointless. Conversely, Dworkin's approach would strongly suggest that the potential practical implications of Berlin's moral epistemology are implausible as values are relational and cannot be conceptually assessed in a void.

Furthermore, reflecting on the two philosophical perspectives on value conflict reveals an insightful angle on the moral dilemma in climate and energy debate introduced at the beginning of this article. Suppose one draws inspiration from Berlin's view to frame the climate change problem as an ineradicable moral dilemma. In that case, one would seem to be forced to give up either one (set of) value(s) or another. As in the example about natural resources and conflict between liberty and equality. Thus, if one frames it as a moral dilemma when in fact it is not, one may sacrifice something that should not be sacrificed. Such framing might lead to the selective attention problem, which Gardiner (2006) explicitly emphasizes is an invitation to moral corruption. As Gardiner (2006, 408) says, climate change makes us vulnerable to moral corruption in which "it is easy to engage in manipulative or self-deceptive behavior by applying one's attention selectively, to only some of the considerations that make the situation difficult." Even if the framing does not lead to moral corruption, it may be problematic if it is unproductive in finding a potential approach to the consensus in the dilemma. Hence, an alternative view is necessary.

Dworkin's interpretivist account seems to provide a more insightful vision of the moral challenge captured in the Stern Review (Stern et al.

2006). The Review emphasizes that instead of accepting the tension between economic growth and mitigation of climate change as an eradicable conflict, these values can and should go hand in hand. In Stern et al.'s (2006) view, it is essential to address both of these challenges rather than one or the other. A possible understanding of the message that report delivers is that such moral dilemmas only exist because the wrong interpretations of these challenges and associated values were chosen. In those interpretations, partial and selective attention is paid to either one or the other moral concern, a choice that seems morally problematic in this conflict. On the basis of a Dworkin-inspired view, one could revise what is meant by value notions by bridging economic growth and climate change mitigation. Following Dworkin's line of reasoning, such a message can be understood to mean that one needs to reinterpret the values (in this case, value sets) in a relevant situation and using suitable moral theory in order to achieve a cooperative view that sees the values as relational and interlinked in networks. Values such as care, justice, equity, recognition, and inclusion can be associated with both challenges—economic growth and climate change mitigation.

Notably, Dworkin (2011) further supports his claim suggesting that while people may be sharing concepts, they interpret and conceptualize their meaning differently. Thus, phenomenology and interpretation are very important when one thinks of value conflict. As people often appeal to personal interpretations of values which may be subjected to self-interest rather than moral concern that recognize others, these individual conceptualizations of values may not reflect what is morally valuable and is at stake in value conflict. Moreover, people tend to obtain meanings and interpretations of values through personal experience and therefore do not appeal to dictionary definitions of values, the nuance which Berlin seems to leave unaddressed. Instead of referring to dictionary or personal definitions of these concepts, according to Dworkin (2011), one needs to refer to theory to capture the ideals of such concepts so that consensus can be reached and the genuine social function of values can be fulfilled.

Dworkin (2011) suggests that it is important to pursue the idea of framing working ideals in terms of one's political values, identifying values as such only when they name things one should pursue. In a way, this claim shares certain similarities with Rawls' "interpretive search for overlapping consensus." However, for Dworkin (2011, 66), this means there should be a background moral theory that determines the right choice for the ideal theory, and therefore Rawls' constructivist project cannot be considered "morally-neutral." Following Dworkin (2011, 12), moral judgements are

interpretations of basic moral concepts that are tested within a larger framework of value to examine their conformity with ideal concepts—"what we take to be the best conceptions of other concepts." In expressing such a position, he frames his distinctive point of view that "morality as a whole, and not just political morality, is an interpretive enterprise" (Dworkin 2011, 12).

One may object here by saying that societies across cultures may identify different values. Carter (2019) suggests that the challenge of moral disagreements rests on cultural diversity that always presuppose different moral semantics—interpretations of things that societies find meaningful and define as values. On the conceptual level, values appear to be very context dependent and interpreted on the basis of cultural, religious, and historical backgrounds (Carter 2019). Dworkin (2011) suggests that instead of focusing on disagreements between cultures, one should pay close attention to what those cultures agree upon.

We must therefore recognize that we share some of our concepts, including the political concepts, in a different way: they function for us as interpretive concepts. *We share them because we share social practices and experiences in which these concepts figure.* We take the concepts to describe values, but we disagree, sometimes to a marked degree, about what these values are and how they should be expressed. We disagree because we interpret the practices we share rather differently: we hold somewhat different theories about which values best justify what we accept as central or paradigm features of that practice. That structure makes our conceptual disagreements about liberty, equality, and the rest genuine. It also makes them *value* disagreements rather than disagreements of fact or disagreements about dictionary or standard meanings. That means that a defense of some particular conception of a political value like equality or liberty must draw on values beyond itself: it would be flaccidly circular to appeal to liberty to defend a conception of liberty. So political concepts must be integrated with one another. We cannot defend a conception of any of them without showing how our conception fits with and into appealing conceptions of the others. That fact provides an important part of the case for the unity of value. (Dworkin 2011, 6-7, emphasis added)

Furthermore, Dworkin (2011) discusses how different people can have conflicting interpretations of the same value(s). And one could imagine that this also applies to a person at different times of life, that is, one's younger self might interpret the value of justice in a way that conflicts with how

one's older self interprets that value. Such understanding informed Dworkin's vision on moral disagreement. Thus, according to Dworkin (2011), the compatibility of values revealed through the ideal theories (e.g., theory of justice) should be prioritized over their conceptual authenticity,³ which may vary across cultures and be embedded with moralities.

But how exactly does Dworkin propose to approach an actual value conflict? Winter (2016, 486) structures Dworkin's interpretivist approach to value conflicts as follows:

- i. Values do not conflict.
- ii. Given (i), if apparent value conflicts arise, then we inquire whether there is a possible reinterpretation of one or more values that would relieve the conflict.
- iii. If yes to (ii), then we consider whether this interpretation is also consistent with our prior commitments regarding that value.
- iv. If yes to (iii), then we adopt the reinterpreted conception of the value identified in (ii) and thus dissolve the apparent value conflict.

It is important to point out that Dworkin's interpretivist approach to understanding values and value conflicts may provide a fruitful contribution to the debate in the ethics of technologies. In particular, it may expand a dominant in ethicists of technology "conflict" view (Van de Poel 2009; Van den Hoven, Lokhorst, and Van de Poel 2012; Friedman and Hendry 2019) and equip existing perspectives with some thought-provoking alternatives in how one may approach value conflicts in technological design. Although intriguing, an exploration of this alternative line of reasoning in the context of ethics of technology, however, falls beyond the scope of this essay and would require further investigation in a separate paper.

Finally, yet importantly, there are some objections to the interpretivist account. Notwithstanding Dworkin's interpretivist approach to value conflict is philosophically sound and potentially promising on the application level, there are still some issues that, although not covered in this essay, might turn out to be problematic. One potential problem with Dworkin's account that should at least be acknowledged is that the link between concepts and practices is not straightforward. If he claims that our concepts are shared because "we share social practices and experiences in which these concepts figure," then what about cases in which there is no shared practice or no practice yet, as we often see with new technologies? Or what if maybe our practices need to change, as would seem the case in the climate

change example? Dworkin remains silent on these objections that may potentially problematize his account.

6. Elucidating an Interpretation of Value Change

Whereas a perspective on value conflicts is settled, yet the question of how the Hedgehog and the Fox debate can equip one's understanding of value change is still open. Before delving into elucidating my interpretation of value change, let me briefly elaborate on the existing literature on the topic.

In the context of climate change and energy transition debate, the discussion of value change only recently started to obtain its relevance. In popular literature, the idea of value change in climate and energy contexts came across in works of Klein (2014) and Morris (2015), but mostly in a descriptive manner. Within ethics of technology, which often deals with questions about design and governance of new and emerging technologies, more normative and prescriptive approaches were taken. Some scholars understand value change as a subset of moral change induced by technologies (Swierstra, Stemerding, and Boenink 2009) and develop various approaches and methodologies to deal with it (Boenink, Swierstra, and Stemerding 2010; Swierstra 2013; Van de Poel 2021; Danaher 2021). Van de Poel (2021), for instance, claims sustainability to be an example of a newly emerged value that became relevant for technological design, in particular for design of energy systems, but was previously not considered when existing energy systems were built. Along with others (Boenink, Swierstra, and Stemerding 2010; Swierstra 2013; Danaher 2021), Van de Poel (2021) suggests advancing anticipatory capacities of existing design approaches to address potential value changes through technological design.

Interestingly, the idea that technologies hold an important role in how value change can be understood was pointed out already back in 1992 by philosopher Dale Jamieson. He claimed that our current value system was inherited from a low-tech past and is partly historically constructed, whereas there can be a vital need for values "to reflect the interconnectedness of life on a dense, high-technology planet" (Jamieson 1992, 150). In this way, fundamental questions about values and their potential to change are often evaded in contemporary academic and nonacademic discussions.

Social scientists tend to eschew explicit talk about values, and this is part of the reason we have so little understanding of how value change occurs in individuals and societies. Policy professionals are also often reluctant to talk

about values. Many think that rational reflection on values and value change is impossible, unnecessary, or dangerous. Others see it as a professional, political, or bureaucratic threat. (Jamieson 1992, 147)

In his later work, Jamieson (2002, 318) develops a normative stand on value change, linking it with the Naive Conception of moral progress, which, according to him, “occurs when a subsequent state of affairs is better than a preceding one, or when right acts become increasingly prevalent.” Although I am sympathetic to Jamieson’s view on value change as moral progress, in this essay, my aim is to build an interpretation of value change that would not contain a normative assumption of what an ethically justifiable value change should look like. Rather, my goal is to disentangle essential questions that in my view are relevant to understand value change. Thus, the account that I try to flesh out in this essay is different from Jamieson’s work and the work that was done in ethics of technology (which mainly focuses on the design and governance of technologies).

To elucidate an interpretation of value change, let me further elaborate on the Dworkin-inspired view on moral dilemmas in regard to the climate change and energy transition debate while committing to three core premises: (i) although interpreted differently, values have an objective universally recognized component, (ii) values are related to each other and thus should be scrutinized inseparably from one another (the “unity” thesis), and (iii) values are meaningful due to their social functions revealed in human practices and not due to their abstract conceptualizations and therefore should be studied within those practices. In my view, these three premises are essential for a philosophically plausible account of value change.

In order to further fill out these three premises for the climate change and energy debate, I will take inspiration from the work of Henry Shue. In his article “Global Environment and International Inequality,” Shue (1999, 2010) explores a philosophical component of the complex challenge of the moral trade-offs in the climate change context. His analysis resembles Dworkin’s take on resolving moral dilemmas through reinterpretation. Shue (2010, 101) emphasizes that “[developed states] would like the poor states to avoid adopting the same form of industrialization by which they themselves became rich.” He frames such a value conflict as a conflict between efficiency and fairness (what he refers to as equity; Shue 1999). To address this conflict, Shue (1999) suggests exploring the meaning of equity by outlining three commonsense principles of equity:

1. Greater contribution to the problem—in the past, X took unfair advantage of Y by imposing costs on Y without Y's consent; therefore, Y is entitled to make future demands on X, at least to the extent of the unfair advantage previously taken by X, to restore equality (Shue 1999, 533).
2. Greater ability to pay—among multiple parties, all of whom are bound to contribute to some common endeavor, the parties who have the most resources should normally contribute the most to the endeavor (Shue 1999, 537).
3. Guaranteed minimum—when Y has less than enough for a decent existence and X and Z have more than enough and the total available resources can provide everyone with enough, it is unfair not to guarantee Y at least an adequate minimum (Shue 1999, 540).

Shue (1999) suggests that of these three principles, two are essentially the same as they forbid making situations worse for those who are already in the least advantageous position. In contrast, the first principle considers inequalities to be ultimately unjustified due to their origins' intergenerational nature. Interestingly, Shue's argument implies that these fundamental principles representing his account of equity accommodate an aspect of ordinary fairness, similar to the accounts of equity held by lawyers and diplomats. Ordinary fairness is commonsense among people, and therefore, according to Shue (1999), it can be considered objective and universal. In other words, Shue (1999) suggests that the importance of equity is omnipresent because equity has an objective component that is relevant across nations—fairness. This aligns with the first core premise of the Dworkin-inspired view.

It is also possible to trace the second premise in Shue's argumentation. According to Shue (1999), to derive a proper definition of equity, one needs to consider values that support the economic development of poor states, on the one hand, and environmental values and vital values related to potential implications of climate change, on the other. He claims that "we need to define equity not as a vague abstraction but concretely and specifically in the context of both development of the economy in poor states and preservation of the environment everywhere" (Shue 1999, 531). This claim reflects the relational logic suggested by Dworkin's interpretivist account as opposed to Berlin's emphasis on conceptual authenticity that sticks to an abstract definition disentangled from a contextual underpinnings and unrelated to other values.

Finally, a condition set by the third premise, although implicitly, is also met. Shue (2010, 101) pinpoints the meaningfulness of the social functions of values when he suggests that the three commonsense principles of fairness “give rise to the same conclusion about the allocation of the costs of protecting the environment.” Meaning that in practice, what is important is not which conceptualization one sticks to but instead that institutions fulfill the social function of relevant values with the actual allocation of environmental protection costs. Shue (1999) calls for action through social practices instead of merely engaging in philosophical discussions.

Whereas Shue’s approach to a particular value conflict is a good illustration of the Dworkin-inspired view, in his deliberations, he neither systematically constructs a genuine approach to value conflicts nor does he reflect on the idea of value change. Nevertheless, considering the underlying message in both Stern et al.’s (2006) and Shue’s (1999) perspectives, it is possible to reveal a significant insight about value change. Instead of seeing the current climate and energy debate as a conflict between the values of different generations triggered by a value change from value A to value B, a gradual inclusive perspective is more discerning. Otherwise stated, the Dworkin-inspired view allows depicting value change as a process of degree rather than an ontological conflict of value classes, which the Berlin-inspired view would suggest. Although at first glance, it may appear that newer generations’ values that include the environment as a moral concern are different from older generations’ values that disrespect the environment or at least do not prioritize it, knowledge about how this transition can be understood is missing. Often induced by technological developments, environmental challenges changed the understanding of what should be included in moral concerns. The concept of justice, for instance, contains both equal distributions of social and economic benefits and burdens and concerns about environmental impacts, preservation of nature, and other environmental values. Meeting the value of justice furthermore depends on the inclusion of other values like recognition and care.

To put it differently, previously irrelevant (or dismissed) objects of moral concern trigger the need for redefining the fundamental values (e.g., justice, care, equality) with respect to other values in order to fulfill a social function in guiding social order and encompassing new morally problematic situations raised by anthropogenic climate change. Thus, one can learn about value change from such a value conflict. The reinterpretation of values due to new realities such as climate change needs to be retrieved in each particular context of apparent value conflict. Only then

can a proper response to challenges be developed. More precisely, climate change responses should incorporate current and future generations' concerns in the world's high- and low-tech regions. To consolidate new interpretations, one needs to consider integrating both reasonings and associated values from all parties involved in the dilemma with equal recognition and respect. It would then be possible to find a common ground for the emergence of new interpretations of those values in light of new realities and morally challenging situations without slipping into the dangerous path of moral corruption and selective tunnel vision in decision making.

Value change is, therefore, better interpreted as not being a change from value A to value B, between conflicting values of older and newer generations, but rather as an expansion of one's moral concern to other moral domains—such as the environment. I should make an important note here. In the book “Expanding Circle: Ethics and Sociobiology” (1981), Singer put forward an influential argument about expanding the circle of moral concern. He links it to sociobiology, which, as he argues, is an important factor in moral change. Singer (1981) indicates altruism as a key trait for moral change, which occurs due to expanding moral concern from individuals to humanity and the animal world. This essay does not object to Singer's account. Still, it is not concerned with the biological basis of changing responses to an impersonal justification of societal behavior but rather aims to scrutinize value change without any commitment to (non) evolutionary account of morality. The expansion of moral concern to the environment is conceived here in terms of moral ontology and epistemology of value change in climate change and energy transition debate.

To be specific, I suggest that technological implications induce the essential to humanity and nature concerns about the environment, making it a progressively relevant dimension for moral inquiry that may reveal new meanings that underpin value notions. Such technological implications generate moral change and trigger a subsequent need to reinterpret (or at least to question) our core value notions and how these notions relate to one another. Building on the Hedgehog and the Fox debate, in this essay, I claim that conflicts between the values of older and newer generations can be better understood as resulting from different speeds of “moral expansion” instead of differences in fundamental values. Hence, rather than focusing on intergenerational value conflict, one may consider focusing on the need to reinterpret existing values in relation to one another due to new often technologically disrupted realities, which urge us to broaden the scope of moral concerns and subsequently relevant value notions.

7. Conclusion

This essay presented a perspective on understanding values and the way they may change in the course of climate change and energy transition. Reflecting on the ongoing debate, I challenged the claim that changing values often give rise to intergenerational conflicts. I introduced two diverging philosophical perspectives on value conflicts to investigate the moral epistemology of value change. A critical examination of Berlin's philosophical perspective on value conflict concluded that intergenerational value conflicts cannot be conceived and resolved when each specific conceptualization of values is substantive; such a perspective may lead to the problem of selective attention and make us vulnerable to moral corruption. Following Dworkin's critique of Berlin's pluralist account of values, I stressed that focusing on the meaningful social function of values and their relational and interconnected nature provides a more productive take on value change. More specifically, the Dworkin-inspired perspective does not deny the possibility of changing values but sees it more as a gradual process rather than as a clash between generations and their fundamental values. Therefore, instead of embracing Berlin's argument and focusing on specific conceptualizations of values, one should aim to understand how these values relate, converge, and overlap and what the subsequent implications are for the fulfillment of their social functions in each specific context. I have taken inspiration from the Stern Report and Henry Shue's work to flesh out a more interpretative account of value change in line with Dworkin's assumptions. The result is a new perspective on value change as a gradual process that expands the social functions of values to new dimensions of moral concern, in this case, the environment. This new systematic understanding of value change is not limited to the debate on climate and energy ethics but can be applied to discussions in other branches of ethics and philosophy as well.

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Notes

1. Stern et al. (2006) deploy cost-benefit analysis by suggesting that as an 80 percent reduction of CO2 emissions worldwide is needed to stabilize the climate, if “Developed Nations” cut 60–80 percent, they would create value that enables reductions even in “Less Developed Nations” by 2050. However, this is possible only if “Developed Nations” pay for the necessary changes.
2. Aristotle (2014) discusses different virtues as a disposition of voluntary and deliberate choices, the excellences of character that subsequently lead to the ways of seeing circumstances and actions. Such dispositions of choices plait the path leading to human flourishing, which he calls *eudaimonia*. According to Aristotle (2014), to develop and practice virtues, an individual should engage in the interconnected and interdependent continuity of different virtues in the context of achieving *eudaimonia*, as it cannot be achieved partially but only by mastering a number of virtues together. For instance, among many other examples, Aristotle (2014) pointed out that virtues such as empathy and sympathy often go together and are interrelated and are commonly attributed as key virtues to friendship. He argues that *eudaimonia* is not merely of ethical importance but of political importance as individuals together construct a community or *polis*.
3. Importantly, although Dworkin (2011) criticizes Berlin's emphasis on conceptual authenticity, this does not mean that concepts are irrelevant for him. Rather the opposite. Important values such as freedom, for example, may be subjects for conceptual reinterpretation, but they still cannot be anything other than they are (Dworkin 2011).

References

- Aristotle. 2014. *Nicomachean Ethics*. Translated and Edited by Roger Crisp. Cambridge, MA: Cambridge University Press.
- Baer, Paul, Tom Athanasiou, Sivan Kartha, and Eric Kemp-Benedict. 2010. "Greenhouse Development Rights." In *Climate Ethics, Essential Readings*, edited by Stephen Gardiner, Simon Caney, Dale Jamieson, and Henry Shue, 215-30. Oxford, UK: Oxford University Press.
- Barclay, Eliza, and Brian Resnick. 2019. "How Big Was the Global Climate Strike? 4 Million People, Activists Estimate." *Vox. Environment & Energy*, September 22. Accessed August 31, 2020. <https://www.vox.com/energy-and-environment/2019/9/20/20876143/climate-strike-2019-september-20-crowd-estimate>
- Berlin, Isaiah. 1953. *The Hedgehog and the Fox: An Essay on Tolstoy's View of History* (1st ed.). London, UK: Weidenfeld & Nicolson.
- Berlin, Isaiah. 2002. *Liberty: Incorporating Four Essays on Liberty*. Edited by Henry Hardy and Ian Harris. Oxford, UK: Oxford University Press.
- Berlin, Isaiah. 2013. *The Crooked Timber of Humanity: Chapters in the History of Ideas*. Princeton, NJ: Princeton University Press.
- Boenink, Marianne, Tsjalling Swierstra, and Dirk Stemerding. 2010. "Anticipating the Interaction between Technology and Morality: A Scenario Study of Experimenting with Humans in Bionanotechnology." *Studies in Ethics, Law, and Technology* 4 (2): 1-38.
- Carter, J. Adam. 2019. "Epistemic Disagreement, Diversity and Relativism." In *The Routledge Handbook of Social Epistemology*, edited by Miranda Fricker, Peter J. Graham, David Henderson, and Nikolaj J. L. L. Pedersen, 147-57. New York: Routledge.
- Danaher, John. 2021. "Axiological Futurism: The Systematic Study of the Future of Values." *Futures* 132 (2021): 102780.
- Dworkin, Ronald. 1996. "Objectivity and Truth: You'd Better Believe It." *Philosophy & Public Affairs* 25 (2): 87-139.
- Dworkin, Ronald. 2011. *Justice for Hedgehogs*. Cambridge, MA: Harvard University Press.
- Friedman, Batya, and David G. Hendry. 2019. *Value Sensitive Design: Shaping Technology with Moral Imagination*. Cambridge: MIT Press.
- Friedman, Benjamin M. 2006. "The Moral Consequences of Economic Growth." *Society* 43 (2): 15-22.
- Frigo, Giovanni. 2018. "Energy Ethics: Emerging Perspectives in a Time of Transition." *Relations. Beyond Anthropocentrism* 6 (1): 7-29.

- Gardiner, Stephen M. 2006. "A Perfect Moral Storm: Climate Change, Intergenerational Ethics and the Problem of Moral Corruption." *Environmental Values* 15 (3): 397-413.
- Guest, Stephen. 2011. "The Unity and Objectivity of Value." *Ethics & International Affairs* 25 (4): 463-74.
- Hoppe, Thomas, and Gerdien De Vries. 2019. "Social Innovation and the Energy Transition." *Sustainability* 11 (1): 1-13.
- Hopster, Jeroen. 2021. "What Are Socially Disruptive Technologies?" *Technology in Society* 67 (2021): 101750.
- Inglehart, Ronald. 2018. *Cultural Evolution: People's Motivations Are Changing, and Reshaping the World*. Cambridge, UK: Cambridge University Press.
- Jamieson, Dale. 1992. "Ethics, Public Policy, and Global Warming." *Science, Technology, & Human Values* 17 (2): 139-53.
- Jamieson, Dale. 2002. "Is There Progress in Morality?" *Utilitas* 14 (3): 318-38.
- Klein, Naomi. 2014. *This Changes Everything: Capitalism vs. The Climate*. New York: Simon and Schuster.
- Morris, Ian. 2015. *Foragers, Farmers, and Fossil Fuels*. Princeton, NJ: Princeton University Press.
- Ostrom, Elinor. 2010. "Polycentric Systems for Coping with Collective Action and Global Environmental Change." *Global Environmental Change* 20 (4): 550-57.
- Raz, Joseph. 2014. "A Hedgehog's Unity of Value." In *The Legacy of Ronald Dworkin*, edited by W. Waluchow and S. Sciriffa, 3-24. New York: Oxford University Press.
- Shue, Henry. 1999. "Global Environment and International Inequality." *International Affairs* 75 (3): 531-45.
- Shue, Henry. 2010. "Global Environment and International Inequality." In *Climate Ethics, Essential Readings*, edited by Stephen Gardiner, Simon Caney, Dale Jamieson, and Henry Shue, 101-11. Oxford, UK: Oxford University Press.
- Singer, Peter. 1981. *The Expanding Circle: Ethics and Sociobiology*. New York: Farrar, Straus and Giroux.
- Singer, Peter. 2002. *One World: The Ethics of Globalization*. New Haven, CT: Yale University Press.
- Stern, Nicholas, Siobhan Peters, Vicki Bakhshi, Alex Bowen, Catherine Cameron, Sebastian Catovsky, Diane Crane, Sophie Cruickshank, Simon Dietz, Nicola Edmonson, Su-Lin Garbett, Lorraine Hamid, Gideon Hoffman, Daniel Ingram, Ben Jones, Nicola Patmore, Helene Radcliffe, Raj Sathiyarajah, Michelle Stock, Chris Taylor, Tamsin Vernon, Hannah Wanjie, and Dimitri Zenghelis. 2006. *Stern Review: The Economics of Climate Change*. London, UK: HM Treasury.
- Swierstra, Tsjalling. 2013. "Nanotechnology and Technomoral Change." *Etica & Politica* 15 (1): 200-19.

- Swierstra, Tsjalling, and Hedwig Te Molder. 2012. "Risk and Soft Impacts." In *Handbook of Risk Theory: Epistemology, Decision Theory, Ethics, and Social Implications of Risk*, edited by Sabine Roeser, Rafaela Hillerbrand, Martin Petersen, and Per Sandin, 1050-66. Dordrecht, Netherlands: Springer.
- Swierstra, Tsjalling, Dirk Stemerding, and Marianne Boenink. 2009. "Exploring Techno-moral Change: The Case of the Obesity Pill." In *Evaluating New Technologies*, edited by Marcus Düwell and Paul Sollie, 119-38. Netherlands: Springer.
- Thunberg, Greta, A. Taylor, L. Neubauer, K. Gantois, A. De Wever, A. Charlier, H. Gillibrand, and A. Villasenor. 2019. "Think We Should Be at School? Today's Climate Strike Is the Biggest Lesson of All." *The Guardian*, March 15. Accessed October 01, 2020. https://www.theguardian.com/commentisfree/2019/mar/15/school-climate-strike-greta-thunberg?CMP=Share_iOSApp_Other
- United Nations Climate Change Conference. 2018. *COP24 Katowice United Nations Climate Change Conference*, Edited by United Nations. Bonn, Germany: Framework Convention on Climate Change (FCCC).
- Van de Poel, Ibo. 2009. "Values in Engineering Design." In *Philosophy of Technology and Engineering Sciences*, edited by Anthonie Meijers, 973-1006. Amsterdam, Netherlands: Elsevier.
- Van de Poel, Ibo. 2021. "Design for Value Change." *Ethics and Information Technology* 23 (1): 27-31.
- Van den, Hoven, Jeroen Gert-Jan Lokhorst, and Ibo Van de Poel. 2012. "Engineering and the Problem of Moral Overload." *Science and Engineering Ethics* 18 (1): 143-55.
- Winter, Jack. 2016. "Justice for Hedgehogs, Conceptual Authenticity for Foxes: Ronald Dworkin on Value Conflicts." *Res Publica* 22 (4): 463-79.

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