Moral Imagination in Climate Communication

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There is an urgent need for climate action by people in the richer parts of the world, for example, politicians and producers, but also ordinary citizens. Many people are concerned about climate change but remain mainly inactive, many are disengaged and some continue to dismiss climate change. The present study investigates how moral imagination can be used in communication at various societal levels to overcome obstacles to climate action. Communication is not sufficient to solve the problem of inaction. Binding political agreements at a global level are of key importance. However, communication improved by moral imagination is necessary in undertaking such coercive measures by democratic means. A three-step model for attaining this goal is proposed. The first step is to use moral imagination to discern what is morally relevant in the specific communicative situation. The second step is to use moral imagination to put oneself as communicator empathetically in the place of the recipient to understand the recipient's specific obstacles to climate action. The third step is to use moral imagination to envision the full range of possible responses to the specific obstacles and to determine which response could be the most effective. It is explored how moral imagination in a concrete way can be used in responding to obstacles by applying the imaginative tools of framing, narrative, metaphor and prototype structure.

Keywords: climate change; cognitive science; communication; ethics; moral imagination

Introduction

Global warming continues and its adverse effects are becoming increasingly visible (IPCC 2023; UNEP 2025; Copernicus 2025). Despite these facts, many people in the richer parts of the world are still largely inactive when it comes to mitigation and adaptation. This holds for politicians at various levels and producers of goods and services but also ordinary citizens and consumers. There is a gap between knowledge about climate change and what is done to fight it. This knowledge-action gap (or motivational gap) has received much attention by philosophers (see, for example, Jamieson 2010; Gardiner 2010; 2011; Coeckelbergh 2015; Peeters et al. 2019; Christion 2023) as well as psychologists (see for example, Clayton et al. 2015; Stoknes 2015; Beattie and McGuire 2019; Wong-Parodi and Feygina 2021; Steg 2023). Philosophers often focus on the global institutional problem and describe it as a collective action dilemma involving individuals as well as nations ('the tragedy

of the commons'). It is collectively rational to mitigate climate change but, due to the costs, individually rational to be a free-rider. Similarly, it is globally rational to mitigate but nationally rational to abstain and rely on the actions of other countries. Many philosophers argue that solving this dilemma requires 'mutual coercion, mutually agreed upon' (Hardin 1968), that is, binding political agreements at a global level (Gardiner 2010). Psychologists, on the other hand, follow another approach. They investigate empirically various types of psychological obstacles to climate action of individuals and groups. They also explore psychology-based methods to overcome these obstacles.

The present study takes both approaches seriously. It investigates the communicative process of bridging the knowledge-action gap and how moral imagination might be used to improve this process. Psychological findings provide valuable input. However, the philosophical focus on the collective action dilemma is also highly relevant. It reminds us of the significance of coercive political measures in fighting climate change. Improved communication is not sufficient to solve the collective action dilemma but a necessary component in the process of democratic decision-making on political measures and in implementation of these measures. Internationally binding climate agreements require support from voting citizens, producers and national politicians. Gathering this support necessitates effective communication at various societal levels and moral imagination might be an important tool in this work.

The purpose of this investigation is fourfold: first, to propose a three-step model for the use of moral imagination in climate communication based on Mark Johnson's cognitive theory of moral imagination (Johnson 1993); second, to explore a few examples of how to use this model in practice; third, to analyse these explorative examples in terms of key imaginative structures and processes identified by Johnson's theory; and fourth, to examine the empirical support for the effectiveness of the communication strategies explored in these examples.

Moral Imagination and Climate Communication

Moral Imagination: The Concept

In present-day philosophy moral imagination has been studied most thoroughly by Mark Johnson who approaches this capacity from the perspective of cognitive science, in particular cognitive semantics (Johnson 1993; for his general approach to cognitive science, see Johnson 1987; 2014). He builds explicitly on the American pragmatist John Dewey (Johnson 1993: xiv; 2014; Dewey 1960 (1932); 1988 (1922)). Dewey stressed that imagination is not merely a matter of rhetorics or a background to rational reflection but very much in the foreground of all thinking, including moral reasoning (Alexander 1993; Fesmire 1999; 2003; 2015). Other well-known philosophers who have directly or indirectly stressed the significance of moral imagination include Alistair MacIntyre (1981) and Martha Nussbaum (1986). An advantage of Johnson compared to previous philosophers is that his approach is more concrete and rigorous when it comes to the conceptual analysis of moral imagination (Alexander 1993). With an abundance of examples he shows empirically and in detail how moral imagination works in practice. This makes his cognitive approach useful in exploring the role of moral imagination in climate communication. It should be noted that it is beyond the purpose of this paper to analyse the general aspects of Johnson's cognitive theory or examine its general

empirical support. I merely apply certain aspects of his approach to climate communication. It seems possible to accept these rather limited applications without accepting Johnson's theory as a whole.

According to Johnson's cognitive approach, imagination is central in all human conceptualization and rational deliberation. Human beings are basically 'imaginative creatures'. Our concepts and reasoning are grounded in our embodied experience and moulded by various imaginative structures (Johnson 1993: ix, 1–2; 1987; 2014; Lakoff and Johnson 1980). This also holds for morality. However, Johnson stresses that moral imagination is not a special psychological 'faculty' (Johnson 2014: 137–162). It can rather be understood as a form of what cognitive scientists call 'mental simulation' (Lakoff 2008: 241). Dewey describes it as a kind of 'dramatic rehearsal' before action (Fesmire 2015: 133).

Moral reasoning uses many different imaginative structures (Johnson 1993: 189–198). In my investigation of the use of moral imagination in climate communication, I use four of these imaginative structures as analytic tools. Three of them–framing, narrative and metaphor–are widely recognized in research on climate communication (see, for example, Badullovich et al. 2020; Stoknes 2015: 132–150; Flusberg et al 2017; New Zero World 2024: 142–149). However, I will focus also on the prototype structure of concepts, a neglected imaginative structure that will play a central role in the investigation.

Let us take a brief look at these four imaginative structures. In presenting them I add a few examples to indicate their relevance to climate communication.

Framing is highly significant. A frame specifies a certain perspective on a situation (Johnson 1993: 9–10, 192). Climate change may be framed in many different ways, for example as a scientific issue, a political issue, an economic issue or a public health issue, but also as an ethical issue (Badullovich et al. 2020).

Narratives play a central role in framing (Johnson 1993: 150–153, 196–198). Examples from climate communication are the common narratives of green growth and degrowth (Hinkel et al. 2020). The narrative of green growth emphasizes the new positive opportunities that a green transformation of society offers. It is possible to continue with high levels of production and consumption due to increased efficiency in the use of resources ('more from less') in combination with reduced use of fossil fuels (Grubb 2018; McAfee 2019). The degrowth narrative urges people in rich countries to substantially reduce their production and consumption to be able to stay within the planetary boundaries and successfully fight climate change (Hickel and Kallis 2019; Parrique et al. 2019).

Metaphor is another important imaginative structure. A metaphor takes a concept from one domain (the source domain) and uses it to understand a concept in another domain (the target domain) (Lakoff and Johnson 1980: 5). According to Johnson, metaphors are much more fundamental to everyday life and morality than is often recognized (Lakoff and Johnson 1980; Johnson 1993: 40–47). However, in this investigation of climate communication, I focus only on their rhetorical use. Climate narratives often include metaphors that highlight their key points. In the green growth narrative mentioned above, the embedded metaphor is organic and alludes to growing plants. The metaphor is combined with the colour metaphor 'green' which signifies that the growth is environmentally friendly. In the degrowth narrative, the organic metaphor is reversed.

Finally, many moral and morally relevant concepts have prototype structure (on prototype structure in general, see Rosch and Lloyd 1978). Take, for example, the

concept of 'lie'. It is radially structured with prototypical instances making up the centre of the concept (the speaker believes a particular statement is false, intends to deceive and the statement is factually false) and non-prototypical instances radiating out at various conceptual distances (for example, white lies, social lies and oversimplifications). It is unclear and disputed where to draw the line for the extension of the concept (Johnson 1993: 91–92, 189–192). An example from climate communication is the morally relevant concept 'threat'. Prototypical instances of threat are immediate dangers such as a loaded gun pointing at us or an aggressive animal nearby. A possible non-prototypical instance is the slowly emerging danger of climate change. Some people do not consider climate change a threat. They deny that climate change exists or maintain that it is too distant in space and time to be a threat. They are not willing to extend the concept of threat to include climate change.

Johnson clarifies how imaginative structures like these are used in practical decision-making. In line with Dewey, he focuses on three key aspects of the use of moral imagination in specific situations (Johnson 1993: ix–x; for Dewey, see Fesmire 2015: 132–133, 137). As above, I elaborate on their applications to climate communication.

The first aspect concerns moral relevance (Johnson 1993: x). What is considered morally relevant in a specific situation ultimately depends on which imaginative tools we use. Discerning moral relevance involves selecting which framing, narrative, metaphor or prototype should govern moral reasoning and action in a specific case (Johnson 1993: 189–198). In climate communication communicators may take into consideration morally relevant aspects such as who should communicate with whom and what should be the message concerning climate action. In doing so, they must recognize the diverse positions of individuals in society. As Werhane points out, moral imagination needs to be combined with systems thinking. Individuals are affected by the social systems of which they are part but social systems can also be affected by individuals and groups (Werhane 2002). This is highly relevant also to climate communication.

The second aspect concerns finding out how other people experience things, for example, their needs or whether they suffer and if so why. However, what distinguishes moral imagination from the mere ability to 'read' people is moral sensitivity in terms of empathetically putting oneself in the place of others (Johnson 1993: x, 199–202). Climate communicators may try to understand specific recipients–individuals or groups–and their specific obstacles to climate action. In this case, empirical findings in psychology may offer a general understanding of common obstacles but this understanding must be applied to specific recipients in specific social positions. To achieve this, communicators need to be good listeners and use their moral imagination.

The third aspect involves envisioning the multitude of possibilities open to us in specific situations. New moral problems may require new solutions. Non-prototypical cases may require that we creatively reimagine framing, narratives, metaphors or prototypes (Johnson 1993: x, 202–203). Climate communicators may envision possible methods of communication and determine which method could be the most effective in overcoming the specific obstacles of the recipient. As in the case of obstacles, general psychological findings may make an important contribution. However, the methods must be tailored and adjusted to specific recipients and this requires moral imagination. Sometimes communicators may

highlight positive non-moral reasons such as new green business opportunities (Stoknes 2015: 60, 89–94; Markowitz and Shariff 2012), sometimes stress moral duties (Peeters et al. 2019) and sometimes use shame as a tool for motivation (Powell 2019). This last option requires an explanation. Shame has a bad reputation since it can be used in blaming and excluding other people. However, it can also be used in a positive way, by promoting a person's moral growth. By seeing our way of living from the point of view of others, we may feel ashamed and this can be a starting-point for change (Powell 2019). Climate communicators may help recipients to reflect in this way, and on not doing enough to fight climate change: 'shame on us if we don't take action'. Shame in this sense can be called inclusive shame.

Johnson's investigation of moral imagination is empirical, but he argues that his findings have practical implications. When we understand the imaginative character of morality and how we function as 'imaginative moral animals' (Johnson 1993: 1), we may find some 'very general practical guidance' on how to lead our lives (Johnson 1993: 189). The three key aspects of the use of moral imagination in practical decision-making may provide such general guidance. As embodied creatures with biological, psychological, social and cultural needs, we have certain values that we seek to realize. These values may compete or conflict in specific situations and different individuals' ambitions to realize their values may clash (Johnson 2014: 53). We must learn how to use moral imagination in solving such practical problems. To stress the significance of this, Johnson states that we have '… an obligation to cultivate moral imagination in ourselves and others' (Johnson 1993: 215). It needs to be pointed out, however, that decision-makers–including climate communicators–may use their moral imagination in many different ways depending on their diverse normative ethical commitments. The challenge for all is to be open to new ways of thinking in solving practical ethical problems.

A Three-Step Model

If we apply the concept of moral imagination to the issue of climate communication, the general practical implications can be articulated in the following three ethical imperatives:

(1) Use moral imagination to discern what is morally relevant in the specific situation of climate communication.
(2) Use moral imagination to put yourself as communicator empathetically in the place of the specific recipient of the message to understand the recipient's specific obstacles to climate action.
(3) Use moral imagination to envision the full range of possible responses to the specific obstacles of the recipient and to determine which response could be the most effective.

I propose that these ethical imperatives constitute steps in a three-step model for the use of moral imagination in climate communication. The model suggests how to proceed in trying to overcome recipients' obstacles to climate action by appealing to moral sensitivity and moral creativity.

Let us investigate in some detail how to apply this three-step model. It should be noted that all three steps need to be further specified in practical communication.

Morally Relevant Aspects of the Communicative Situation (Step One)

The task of using moral imagination in step one of the model is to discern more precisely what is morally relevant in a specific communicative situation. These aspects represent the stage or background to the communicative interaction between communicator and recipient. The morally relevant aspects of this interaction are considered in the second and third steps. In the following, I introduce some points to consider regarding the first step.

The New Communicative Situation

The present communicative situation is very different compared to 30 years ago. The climate crisis can no longer be considered distant in space and time. The global emissions of greenhouse gases continue to rise and the concentration of these gases in the atmosphere are now the highest on record. The global average temperature is also the highest measured, and in 2024, for the first time, it exceeded the 1.5 °C goal of the Paris Agreement (Copernicus 2025). According to UNEP, the global average temperature rise is likely to reach 2.8 °C by the end of this century (UNEP 2025). The adverse effects of climate change–such as extreme weather events, sea level rise, flooding, drought and wildfires–are more severe and more widely experienced than ever before (IPCC 2023). Climate change is a threat that is increasingly severe and coming closer to more and more people.

However, there are also encouraging news. A recent global survey of 130,000 people across 125 countries showed a more widespread support for climate action than previously estimated. 89% endorse increased political action and 86% support pro-climate social norms. Moreover, 69% are prepared to contribute 1% of their income. However, people in the richest parts of the world are the least willing to do so (62%) (Andre et al. 2024; see also UNDP 2024). So, the situation is somewhat darker in richer countries where many people are concerned but still mainly inactive, many remain disengaged and some continue to dismiss anthropogenic climate change (Carman et al. 2024).

Moreover, the present communicative situation is complicated by a new form of denialism. The fossil fuel companies have known about global warming since the 1950s but denied it and spread doubt about it (Franta 2021; Supran et al. 2023). Recently, however, many companies and their advocates have changed strategy. Rather than focusing on open denial they now focus on delaying various mitigation efforts. For example, they highlight disagreement among climate action advocates orargue that there are more urgent problems to resolve. With this in mind, it is useful to distinguish 'new denialists' from 'old denialists' (Mann 2022).

All these facts are related to the knowledge-action gap (motivational gap), mentioned in the Introduction.

Recipients and Their Diverse Knowledge-Action Gaps

The motivational gap is commonly described as a gap between two aspects: knowledge about climate change and action to fight climate change. Despite the findings of climate science, humanity does not do what it should to fight climate change. However, given my focus on climate communication, it seems more fruitful to talk in terms of several different gaps. It is necessary to focus on at least four different aspects: knowledge, concern (attitude, values), know-how (what to do in practice) and action. There may be a gap between know-how and action, between

concern and know-how or between knowledge and concern. There may also be a gap between competing concerns and even a gap in knowledge as such, that is, between the knowledge of climate science and the knowledge accepted by climate sceptics.

There are many different types of recipients (Stoknes 2015: 58–59; Carman et al. 2024) and they display different types of gaps. All these types of recipients can probably be found among politicians, producers as well as ordinary citizens.

First, we have recipients who accept the findings of climate science, have an attitude of concern and have some grasp of know-how. However, they still remain largely inactive. In this case, the gap is between know-how and action.

Other recipients have internalized the knowledge and are concerned but lack know-how. Here the gap is between concern and know-how.

A third category has internalized the knowledge and are concerned but the moral concern for fighting climate change for the well-being of future generations competes with the moral concern for the well-being of present generations (their children and community). There is a gap between the two. Some may prioritize present generations over future generations, while others may be unable to set a priority. In both cases they may remain largely inactive.

Another category consists of recipients who have at least partly internalized the knowledge but lack concern and therefore remain inactive. Climate change is of no practical significance to them. There is a gap between knowledge and concern.

Moreover, there are recipients who have at least partly internalized the scientific knowledge but express economic or political concerns in conflict with concerns for climate action. They have a societal agenda and actively oppose mitigation or adaptation measures. Also in this case there is a gap between knowledge and concern.

Finally, some recipients are sceptical to the findings of climate science and therefore do not act. They can be characterized as overly sceptical people in contrast to reasonably sceptical people whose attitude is the basis of all good science. They doubt that climate change is real or at least that human activities cause it and therefore they are passive regarding climate action or–in line with the previous type of recipients–actively oppose climate action. In this case it might be adequate to talk about a gap between the knowledge of established climate science and the knowledge climate sceptics accept.

Communicators and Their Diverse Positions in the Social System

Communicators face the challenge of being 'bridge builders'. Their task is to bridge the various knowledge-action gaps of specific recipients. Individual citizens have a moral obligation to fight climate change (Gardiner et al. 2010). By implication they also have a responsibility to communicate the importance of climate action to other people, at least to relatives, friends and colleagues. They should try to influence those who do not take action. However, given their key positions–and power–in the social system some people have a special responsibility to communicate this need. Examples are politicians and influential people in the industry. This holds also for people in the media as well as scientists and scholars investigating climate-related issues, due to their central role in public discourse. However, each person must use moral imagination to find out exactly when and how to communicate. This depends on the communicator's position in the social system and the specific context, which

in turn is relevant for the choice of tools for communication such as campaigns, social media or face-to-face interactions.

Message

The key message is 'act now!' But why should the recipient act? Common ethical arguments for climate action are, for example, prevention of harm to present and future generations or respect for the basic rights of present and future human beings, such as the rights to life, health and subsistence (Gardiner et al. 2010). However, to be effective the message to act must be framed in terms of narratives, rather than as a strict argument (Jones and Song 2014; Hinkel et al. 2020). Narratives provide reasons to act as well as visions about what to do.

Above, I mentioned two important narratives–green growth and degrowth–but there are many other important narratives, for example the political governance narrative, which strongly emphasizes costs to nations in mitigation and the necessity of internationally binding climate agreements. Using metaphorical language Hinkel and colleagues call it the 'doom and gloom' narrative (Hinkel et al. 2020) (see also Jones and Song 2014; Stoknes 2015: 132–150; New Zero World 2024: 142–149; EASAC 2025).

However, narratives are not enough. Communicators also need to clarify what people in different positions in the social system should do more specifically. Below I adress a few examples of mitigation measures.

As stressed in the Introduction, politicians play a key role in climate action, nationally as well as internationally. Ultimately, only coercive political measures at a global level can solve the climate crisis but the political mitigation measures need to be truly effective. Recently, the first global empirical evaluation of climate policies was published. It studied policy mixes across 41 countries from six continents using artificial intelligence (AI). The study found that of 1500 mitigation measures only 63 had real effect. It investigated various command-and-control measures such as technology mandates and emission standards as well as market-based measures such as subsidies and carbon pricing (including carbon taxes and emissions trading). The study concluded that a mitigation policy is commonly more effective if it is part of a mix rather than standing alone (Stechemesser et al. 2024).

Globally, most producers still use fossil-fuel in production and some produce goods, such as cars or airplanes, that in turn emit GHGs. These producers must develop technologies that reduce these emissions. Importantly, they must do something that truly reduces their own fossil-fuel emissions, and not merely buy emission allowances from other companies or countries.

Ordinary people in richer countries can also contribute to the fight against climate change. As citizens they can vote and join social movements demanding political action. As consumers they can start living in a more climate-friendly way, for example reduce energy consumption and use public transport. More radically, they may get involved in climate activism (O'Brian et al. 2018).

So far, I have focused on the general message in climate communication. In communication with individuals and groups in various positions in the social system, the message needs to be specified and the narrative personalized. This will be the concern in the next two steps of the three-step model.

Obstacles to Climate Action and How to Overcome Them (Steps Two and Three)

Detecting the obstacles of specific recipients represents step two of the model. Step three is to find ways to respond to these obstacles. Below specific responses will be discussed in direct connection to specific obstacles.

The main strategy is that communicators should use moral imagination in both steps. A key method in step three is to appeal to the recipients' own moral imagination. The communicator should stimulate recipients to open their minds to new ways of thinking, that is, to reimagine their concepts.

After investigating this strategy of reimagining concepts, I explore a few examples of how to respond to obstacles to climate action, analyse these responses by means of the conceptual tools described above (framing, narrative, metaphor and prototype structure) and examine the empirical support for the effectiveness of these responses.

Reimagining Concepts

Providing more information about the findings of climate science is often not sufficient for successful communication. Deeper psychological motives need to be addressed (Clayton et al. 2015; Stoknes 2015; Beattie and McGuire 2019; Wong-Parodi and Feygina 2021; Steg 2023). An effective strategy could be to work *with* these motives rather than *against* them (Santos and Feygina 2017; Clayton et al. 2015; Stoknes 2015: 34).

Johnson's theory of moral imagination can be used to understand what working *with* the recipients' motives means in conceptual terms. Johnson talks about 'reworking' concepts. Concepts are '… historically evolving functional notions that can, and ought to be, interrogated and reworked as experience requires' (Johnson 2014: 213).

I propose that reworking–or reimagining–concepts in the context of climate communication could be carried out by focusing on the prototype structure of the conceptual content of the psychological motive (propensity) behind an obstacle to climate action. In responding to a specific obstacle, a prototypical instance of the concept is taken as a starting-point and the recipient is stimulated to use moral imagination to extend it or, for example, to change the emphasis from one component of the concept to another, revise one or more components or, if necessary, replace the concept with a new concept. These ways of reworking concepts determine the direction of the change of concepts, while reframing in terms of new narratives and new embedded metaphors is the means for effectively influencing recipients in practical communication.

There are three interrelated reasons for this approach of imaginatively reworking the conceptual content of an obstacle to climate action. First, it clarifies in a concrete way the strategy of 'working with' the recipient's motive (Stoknes 2015: 34; Santos and Feygina 2017) by focusing on the four imaginative tools presented above: framing, narrative, metaphor and prototype structure. Second, it provides a theoretical underpinning of the strategy of using narratives (Stoknes 2015: 132–150; New Zero World 2024: 142–149) found in Johnson's theory of moral imagination. Third, it connects these two communicative strategies by showing the central role of moral imagination in both strategies.

Let us investigate four common examples of obstacles to climate action and possible responses to these obstacles. In this way we can explore how reimagining

the conceptual content of these obstacles might be carried out in practice. In doing so, we can also examine to what extent these possible responses can be expected to be effective. Certainly, many other kinds of obstacles and possible responses can be found in the literature (Clayton et al. 2015; Stoknes 2015; Beattie and McGuire 2019; Wong-Parodi and Feygina 2021; Steg 2023). However, these four examples provide clear illustrations of how to proceed according to the proposed model. The explored responses are merely tentative suggestions. They illustrate how communicators *might* respond to a specific kind of obstacle, not how they *should* respond in practice. The latter has to be determined on a case-by-case basis. Some possible responses elaborated on might seem already well-acknowledged. However, my contribution is to clarify them by analysing them in terms of the imaginative tools presented above, in particular the neglected prototype structure of concepts with its options of extension and other ways of reworking concepts. Moreover, some of the obstacles are more directly relevant to some of the different types of recipients presented above than to others but this will not be the focus here.

Example 1: Self-Interest

Self-interest can be an obstacle to climate action (Stern et al. 1993; Griskevicius et al. 2012; Stoknes 2015: 29; Peeters et al. 2019). The term 'self-interest' may refer to a propensity or to the conceptual content of that propensity. A prototypical instance of self-interest in the conceptual sense is 'personal well-being'. Individuals may think that by taking action against climate change the cost would be too high. They would lose too much in terms of personal well-being. Producers may think that their profits would be reduced. Politicians may believe that by introducing climate taxes they run the risk of not being re-elected or believe that ambitious national mitigation measures would be against national self-interest.

As stated in the Introduction, the situation is often described as a collective action dilemma involving individuals and nations. We have also seen that political governance at a global level is necessary to overcome this dilemma (Hardin 1968; Gardiner 2010; IPCC 2014: 1007–1008). Moreover, I have argued that improved communication is necessary in undertaking such political mitigation measures in a democratic context. The question is how self-interest should be addressed in this communicative process.

Evolutionary psychology gives some guidance. Deep ancestral propensities may affect how people respond to climate change. Three findings are directly relevant. First, human beings–as other biological organisms–are adapted to give priority to the consequences for themselves over those of others. They have a self-interest in this narrow sense. Second, human beings have a genetic disposition to care for their own children, since this ensures the replication of their genes (inclusive fitness or kin selection). Third, they have a disposition to care also for other members of their group who may reciprocate the care and thereby indirectly promote the spreading of their genes (reciprocal altruism) (Palomo-Vélez and van Vugt 2021; Griskevicius et al. 2012).

The first finding is what creates the collective dilemma in the first place. The other two findings indicate that this is not the whole story. They show that people are not only self-interested in the narrow sense. They may be prepared to care for other people at some cost to personal well-being. These findings open up the possibility of harnessing people's self-interest to motivate climate action (Palomo-Vélez and van Vugt 2021; Griskevicius et al. 2012). This is most obvious regarding

kinship-based appeals to climate action. People may be willing to fight climate change to prevent harm to their descendants (children, grandchildren and beyond). However, reciprocity-based appeals may also be effective. People may care for other members of their group and cooperate with them in fighting the adverse effects of climate change, which they themselves to some extent already experience and which their respective descendants without rapid and substantial mitigation will experience to a much higher degree. They may organise social movements demanding political action. They may support the political strategy of 'mutual coercion, mutually agreed upon' as a solution to the collective action dilemma. A problem is that today's communities are much larger and much more heterogenous than the small groups of hunter-gatherers in which reciprocity among humans first appeared. However, online social platforms like Facebook and X might help turn large, anonymous crowds into virtual communities psychologically similar to small ancestral groups (Griskevicius et al. 2012).

So, in responding to the obstacle of self-interest, recipients could be encouraged to imaginatively extend their narrow concept of self-interest to a broader instance including, for example, 'the well-being of their own children and grandchildren' but also 'the well-being of other members of their community'. In this way self-interest may not only be an obstacle to climate action but also a motive for climate action.

A way to facilitate these extensions could be to frame them in terms of concrete and personalized narratives illustrating their practical implications. If nothing else works a personalized narrative may focus on inclusive shame (Powel 2019; see above). Reputation is important from the perspective of evolutionary psychology (Griskevicius et al. 2012). How would we–communicators and recipients–respond if our children or grandchildren 30 years in the future ask why our generation did not do more? How do we want to be remembered by our community: as people to be proud of or people to feel ashamed of? As everyday heroes or simple egoists? 'Heroes' would here be understood not in the prototypical sense of brave and strong persons but in the extended and metaphorical sense of persons who have transformed their lives for the good of children and grandchildren or even the good of their community.

So far the optional responses have focused on costs to personal well-being. Sometimes, however, it might be more effective to change the emphasis from costs to opportunities. In experiments in behavioural economics Kahneman and colleagues showed that people tend to be loss-averse. The psychological pain of losing money is about twice as intense as the joy of gaining a similar amount (Kahneman et al. 1990). Given that people tend to be loss-averse, a change of emphasis from costs to opportunities could be effective in overcoming the obstacle of self-interest. It could be facilitated by framing it in terms of a green growth narrative stressing opportunities such as new green jobs and co-benefits like good health and clean air (Stoknes 2015: 51–53; Karlsson et al. 2020). Moreover, the effectiveness of this change of emphasis may hold not only for individuals but also for politicians and producers. Politicians might find that climate action can be in the national self-interest of their country. Mitigation measures might increase economic efficiency in society and improve national security (Nordgren 2016). Producers might discover new green business opportunities and thereby increase profit (Grubb 2018; McAfee 2019).

Example 2: Social Imitation

Social imitation is a basic human propensity. Human beings tend to imitate other members of their social group. A social group consists of people with shared interests, social norms and identity. It can be, for example, a family, close friends, a political party, a religious community or the board of a company. We follow the social norms of the group because we want to continue to be part of it and retain our social identity. This propensity to social imitation has deep roots in human evolution. Reproduction and survival is promoted by being part of a group (Griskevicius et al. 2012). Historically, identity was linked to stable local social groups. In present globalized and complex societies, however, we all belong to more than one group and have more than one identity. We may have different identities in different contexts and we may identify more strongly with some of our social groups than with others (Sønderlund et al. 2017).

Today the deep mimicry propensity can be an obstacle to climate action if the members of the group the recipient identifies with are disengaged or dismiss climate change (Markowitz and Shariff 2012; Griskevicius et al. 2012; Clayton et al. 2015; Wong-Parodi and Feygina 2021). In climate communication, a prototypical instance of a such a group could be 'people who share the interest x and x is believed to exclude or at least not include climate action'. The interest x can be, for example, some form of self-interest. It can also be a free-market ideal that rejects societal regulation or support of a political party that dismisses climate change. A response to members of a social group of this type could be to encourage them to imaginatively revise their concept of 'my group' by (1) removing one of its components, namely the component that the interest 'x is believed to exclude or at least not include climate action' and (2) replacing it with 'x is believed by some members of the group to exclude or at least not include climate action'. Some group members may have a more concerned attitude to climate change than others. The recipients may mistakenly believe that the other members of their group do not care about climate change, a type of mistake called 'pluralistic ignorance' (Michelsen Kjeldahl and Hendricks 2018; Andre et al. 2024). Another response could be to propose to the recipients to start identifying more strongly with another group to which they also belong but which is more open to climate action, that is, to encourage them to replace the concept of 'my group' with another concept of 'my group'.

These suggestions to recipients to revise or replace their concept of group affiliation can be supported by concrete narratives illustrating how other people act to mitigate climate change. This may inspire the recipients to act likewise. For example, if people around us start installing solar panels, eating less beef or buying electric vehicles, we may feel inclined to do the same (Stoknes 2015: 96–100). Joining the band of everyday heroes–to allude to the metaphor mentioned in Example 1 above–need not be too difficult, although it may come at some personal cost.

This method of facilitating social comparisons is possible to use not only at the individual level but also at the political and industrial levels. Its effectiveness is substantiated by a recent meta-analysis of field interventions for mitigation behaviours. The study found that social comparisons–together with financial incentives–were the most effective methods, while education was the least effective (Bergquist et al. 2023).

Example 3: Moral Intuition

People may have rather diverging views on moral duties. Certain moral intuitions can be obstacles to climate action (Markowitz and Shariff 2012; Jansson and Dorrepaal 2015; Dickinson et al. 2016). Haidt's theory of moral psychology illustrates this.

Based on empirical studies, Haidt distinguishes six different types of basic moral intuitions: care/harm, liberty/oppression, fairness/cheating, loyalty/betrayal, authority/subversion and sanctity/degradation (Haidt 2012: 140–149, 197–216). The emphasis on the various moral intuitions may differ. For example, supporters of different political ideologies may lay the emphasis differently. Liberals (in the American sense) tend to emphasize care/harm and fairness/cheating, libertarians liberty/oppression, and conservatives group loyalty/betrayal, authority/subversion and sanctity/degradation (Haidt 2012: 343–361).

Haidt's theory has implications for climate communication. To date, communication of the importance of climate action has commonly emphasized care (preventing harm to present and future generations) and fairness (those who have caused climate change have stronger responsibilities to mitigate than others)–that is, the moral intuitions traditionally hold by liberals. An explanation of the fact that many libertarians and conservatives are dismissive of climate action is that they lay the emphasis on other moral intuitions–and thereby moral duties–than those of liberals (Markowitz and Shariff 2012; Jansson and Dorrepaal 2015; Dickinson et al. 2016). However, in line with the proposal above an effective strategy to reach libertarians and conservatives could be to work *with* their moral intuitions rather than *against* them. Let me give a couple of examples, one related to the libertarian intuition about liberty/oppression and one related to the conservative intuition about authority/subversion.

An obstacle to libertarians may be that climate regulations contradict their free-market values. In terms of prototype structure, a prototypical instance of their concept of liberty is 'freedom as absence of societal regulation of industrial activities'. As a response the communicator could stimulate libertarians to imaginatively extend their concept of liberty to include also 'freedom as good opportunities for industrial activities'. In this way the focus of the recipients may change from governmental regulations to new green business opportunities. This extension of the concept of liberty could be facilitated by a narrative exemplifying the industrial opportunities a green transformation of society may offer. In this narrative a green growth metaphor is embedded. However, it is necessary to admit that the new business benefits may come at certain regulative costs. This can be illustrated by the European Union Emissions Trading System, the largest 'cap-and-trade' market in the world. Companies that need to buy emission allowances are forced to do so from companies with a surplus of such allowances (EU ETS 2025). This system is a way of coercing companies to internalize the external costs of their carbon dioxide emissions. On the other hand, this trading may also contribute to profitable green investments.

An obstacle to some conservatives may be that they consider climate change and its mitigation as a merely subversive project initiated by the political left. The project implies radical changes that undermine the established order and authority of society. A prototypical instance of the concept of respecting the established order is 'preserving social order against subversive forces'. The communicator could propose to the recipient to extend this concept to include also 'preserving social

order by making society more sustainable'. Sustainability is a concept that might fit rather well with a conservative outlook. The communicator could emphasize that making society more sustainable implies making it more resilient to climate change. This extension could be supported by a narrative exemplifying how resilience can be improved in practice. Moreover, an embedded metaphor of society as a fortress can naturally be associated with the concept of resilience, that is, resilience against the subversive attacks of the enemy of climate change.

If responses in terms of making extensions of the type indicated in these two examples do not work, another option could be to encourage recipients to change the emphasis to another moral intuition, for example care/harm. They could be stimulated to use their moral imagination and open their minds to other moral perspectives. In this way their obstacles to climate action might be overcome.

This brings us to the obstacle of competing moral concerns. People may embrace moral concerns that conflict regarding climate action. Conflicts might emerge between the six types of basic moral intuitions distinguished by Haidt. Conflicts might also emerge in the application of a single basic moral intuition. Take, for example, the moral intuition of care/harm. There may be a conflict between caring for present people and caring for future people. How should these concerns be balanced? Most people would say that we should care more for our children and present community than for future people. This view may lead to inaction regarding climate change. Others may not be able to decide on how to balance these moral concerns. They may consider this an unsolvable moral conflict and this may also lead to inaction.

One way of responding to these types of inaction could be to point out that the problem of balancing moral concerns does not entail that we should not try to do anything at all to prevent harm to future generations by mitigation of climate change. The question is not 'should we care for future people or not?' It is, rather, 'how much should we care for future people?' The tension between caring for present and future generations may to some extent be reduced by emphasizing the following two aspects. First, the future is in a sense already here in terms of newborns and young children who may live for another 80 years or more. Second, the adverse effects of climate change are also already here. Today these effects are no longer something that only belongs to the future. They are widely experienced and expected to intensify both in the near-term and the long-term. With these considerations in mind, it seems reasonable to do more for the well-being of both present generations and future generations. However, we still need to find a reasonable balance in our moral duties to present and future generations. This is a genuine moral conflict. Communicators can only encourage recipients to use their moral imagination in trying to find a provisional balance and always be open to revising their priority-setting.

Example 4: Significance

Feelings of insignificance is a common obstacle to climate action, that is, feeling that what we do as individuals, minor companies or minor countries has no real effect (Michelsen Kjeldahl and Hendricks 2018; Peeters et al. 2019). Given the extreme scale of climate change, the global economic system and the massive power of the fossil fuel industry, it feels like we, as individuals, do not have capacity to do what is needed in fighting climate change. These feelings of insignificance may

make people inactive, even if they are concerned. This is in line with the collective action dilemma (Gardiner 2010; 2011; Michelsen Kjeldahl and Hendricks 2018).

If we analyse the concept of significance in terms of prototype structure, we can say that a prototypical instance of the concept of significance is 'actions by individuals have an impact on complex social systems and processes'. When it comes to mitigating climate change many feel that their actions lack significance in this sense. In responding to this obstacle the recipient could be encouraged to imaginatively extend the concept of significance to include also 'collectively actions by individuals have an impact on complex social systems and processes'. Actions by individuals can add up to make a big difference, especially at social tipping-points. As exemplified above, the actions could be to reduce energy consumption or use public transportation. The recipient could also be asked to make an extension to 'collective actions by individuals have an impact on complex social systems and processes'. Individuals may come together in social movements demanding political action, nationally and internationally. As pointed out several times, coercive political measures at a global level are necessary to solve the collective action dilemma.

By stimulating the recipients to make these extensions of the concept of significance, their self-efficacy could be strengthened. Self-efficacy is the belief that we can achieve what we intend to do and, as Bandura has shown, this is a key psychological prerequisite for taking action (Bandura 1997; Heald 2017; Peeters et al. 2019). By reframing the narrative from 'what can I do?' to 'what can we do together?', self-efficacy might be regained. This narrative can be supported by an embedded war metaphor ('we can fight climate change together') which might increase motivation (Flusberg et al. 2017). This type of framing is of key significance. Clear and simple messages have been effective previously in history, for example for social movements like unions, civil rights and feminism (Lakoff 2010). With clear and simple framing, environmentalism and the movement for fighting climate change might also be successful. However, know-how is also essential for increasing self-efficacy. We need to get the know-how, that is, develop skills in how to live on this planet in a sustainable way (Coeckelbergh 2015). Alluding to the war metaphor, we need to learn which weapons are effective and how to use them.

The effectiveness of the extensions suggested above has empirical backing. A study by Centola and colleagues supports the assumption that collectively individual actions can have a strong impact on social systems. In advanced online experiments they investigated how minority groups reached a critical mass that was sufficient to change the established behaviour. They found that a sudden general social change occurs when 25% of the population changed their behaviour or opinion. A social tipping-point was reached (Centola et al. 2018). Similarly, 'the agency in social tipping framework' suggested by Gaupp and colleagues indicates that individual agency can promote collective agency and that collective agency can 'trigger' social tipping-points (Gaupp et al. 2023).

Conclusions

Moral imagination may play a key role in climate communication. Based on Johnson's cognitive theory of moral imagination I have proposed a model for how this can be achieved. Communicators should use their moral imagination to understand the specific obstacles of their recipients and try to overcome these

obstacles by encouraging the recipients to use their moral imagination. By using four imaginative structures–framing, narrative, metaphor and, not least, prototype structure–as analytic tools in exploring a few examples of obstacles and possible responses to these obstacles, I have clarified this process in some detail. We have seen that the general effectiveness of this approach has some support from empirical findings in cognitive science, evolutionary psychology, social psychology and moral psychology. However, as emphasized, communication is not sufficient to effectively change the behaviour of people. Therefore, the suggested approach is of only limited value. Political governance at a global level by various command-and-control measures and market-based measures is necessary to overcome the collective action dilemma. Nontheless, morally sensitive communication at various societal levels is necessary in undertaking such measures by democratic means.

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