Environmental values and identities at the personal and group level
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Environmental values and identities, at the personal and group level, motivate individuals’ climate actions. Many individuals report having strong environmental values and self-identities, and thus appear personally motivated to support and take climate action. To achieve society-wide climate action, we argue that it is critical to fully use this personal motivational base for climate action by, for instance, emphasizing the environmental benefits of climate actions and reminding people of their past pro-environmental actions. Individuals’ perceptions of others’ endorsement of environmental values are, however, more negative, which may inhibit consistent climate action. Making people aware that others also strongly value the environment could be a critical strategy to motivate climate action, particularly for individuals that are not strongly personally motivated.

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There is a strong scientific consensus that anthropogenic climate change is having severe negative consequences for ecosystems and societies worldwide [1]. Although most people acknowledge anthropogenic climate change is happening [2,3] and worry about it [4,5], climate actions are still insufficient to reach the set climate targets [1]. Accordingly, more climate action is urgently needed at all levels of society. To achieve this, it is important to understand what general factors motivate individuals to take and support a wide range of climate actions.

Research indicates that values and identities are key motivational factors that underlie individuals’ climate actions [5–8]. The influence of values and identities is typically studied at the personal level. Personal values reflect an individual’s general lifegoals [9,10] and self-identities reflect how individuals describe themselves [11,12]. More recently, research started to examine the influence of group values and identities. Group values reflect general and desirable lifegoals that individuals perceive their groups to endorse [13**,14**,15,16] and group identities reflect how individuals describe their groups [17**,18,19**].

In this paper, we discuss recent research on which values and identities drive individuals’ climate actions and how. In addition, we present new theorizing on how the values and identities of individuals and groups may work together. More specifically, we discuss how individuals’ perceptions of their own and others’ values differ, how this may influence self identities and group identities, and—in turn—individuals’ climate actions. Thereby, we extend the current understanding on values and identities, which typically focuses on the motivational influence of either personal or—since recently—group values and identities. On the basis of this, we propose strategies to promote climate action and highlight directions for future research.

Personal values and identities
Personal values represent universal desirable life goals which transcend situations and are relatively stable over time. All individuals endorse the same basic values but differ in how strongly they endorse and prioritize each value. Individuals positively evaluate objects and actions that they think support their strongly endorsed values, while they negatively evaluate objects and actions they think threaten their strongly endorsed values [6,9].

Four types of values are most relevant to understanding individuals’ climate actions: biospheric (caring about the environment), altruistic (caring about others), egoistic (caring about personal resources) and hedonic (caring about pleasure and comfort) [6,20]. Since climate actions aim to mitigate environmental and societal problems, these actions inherently support biospheric values and often support altruistic values. Hence, stronger altruistic and particularly biospheric values encourage climate action [20,21,22**]. Stronger egoistic and hedonic values often inhibit climate action, as such actions tend to be associated with egoistic and hedonic costs (e.g. financially
costly, bothersome) [23,24]. Yet, some climate actions (e.g. house insulation) also have egoistic or hedonic benefits (e.g. savings on energy bills, increase in comfort). In such cases, stronger hedonic and egoistic values can promote individuals’ engagement in this action [23,25,26]. Since biospheric values form the most robust and stable motivational basis for climate action, the current paper focuses on biospheric values.

Values are general and abstract in nature so they typically guide climate action through other variables [27,28]. One such variable is self-identity, which is the label individuals use to describe themselves [11,12]. Individuals act upon their self-identity because they are motivated to be consistent and act in line with how they see themselves [24,29], and because doing so feels meaningful and significant [30]. People who strongly endorse biospheric values typically have a stronger environmental self-identity, which motivates them to consistently support and take climate action [24,29,31]. Whilst biospheric values form the stable core for individuals’ environmental self-identity, environmental self-identity may also be influenced by individuals’ past actions [24]. Accordingly, pointing people to their past pro-environmental behaviour may be an effective way to strengthen environmental self-identity and to promote climate action, while making people realise they acted environmentally unfriendly may weaken environmental self-identity and inhibit climate action [11,24].

Group values and identities
Next to personal values and self-identity, initial research suggests that individuals’ climate actions are motivated by the values and identities of the groups they belong to. Such group memberships form an integral part of individuals’ self-concept: their social identity, which reflects the definition of the self in terms of social group memberships [32]. When a social identity is salient and activated, for instance when a group membership is relevant in a given context and diagnostic for the actions to take, individuals’ attitudes, beliefs and actions align with the content of this social identity [33,34]. This content is likely reflected in the general goals individuals think this group strives for (i.e. perceived group values) and the label they use to describe the group (i.e. group identity) [35]. Accordingly, in situations where a certain group membership is activated, individuals are likely influenced by the perceived values and identity of this group.

Indeed, the more individuals perceive their group to endorse biospheric values [35,36**] and to have an environmental identity [17**,18,19**,36**], the more likely they are to support and take climate action. This influence is more likely to occur when individuals more strongly identify with a group [35]. Moreover, environmental group values and identities seem to particularly motivate individuals who do not already strongly endorse biospheric values themselves [35,37]. This suggests that strengthening perceptions of biospheric group values and identities may provide a compelling way to promote climate actions among those individuals personally less motivated.

Importantly, perceived group values and identities differ from the more frequently studied group norms. Group norms indicate what others are perceived to do (i.e. descriptive norms) or (dis)approve (i.e. injunctive norm) in a given situation, providing guidelines on which actions are effective and how individuals are ought to feel, think or act, respectively [38]. Group norms have typically been conceptualised as more situation specific than group values and identities, and focus, for instance, on specific actions such as household energy use [39] or recycling [40]. Although specific norms may have a stronger influence on specific actions, the more general values and identities may influence a larger range of actions, which is critically needed to combat climate change [13**,35]. Further, group values and identities appear to influence individuals’ actions because individuals find it personally important to act, whereas group norms typically influence actions because others expect or do so, and thus for extrinsic reasons [41]. This implies that group values and identities intrinsically motivate behaviour and are therefore less dependent on the presence and evaluations of others [13**,35].

The values and identities people report
Self-reports suggest that there is a strong personal motivational basis for climate action. Many individuals across the world report to strongly endorsing biospheric and altruistic values [13**,42] and having a strong environmental self-identity [11,43]. For example, data from the European Social Survey shows that biospheric and altruistic values are among the most strongly endorsed values across 28 European countries (see Figure 1) and this prioritization appears consistent across countries worldwide [35,44]. Similarly, interventions that target individuals’ biospheric values and environmental self-identities (e.g. by referring to such values and identities on product labels and in advertisements) appear effective in promoting climate action, and can be more effective than interventions targeting egoistic values [45*,46–48]. Hence, many people appear intrinsically motivated to support and take climate action [13**,42], and addressing individuals’ biospheric values and environmental self-identities may effectively promote climate action [24*,45*].

Many individuals, however, believe that most others care considerably less about the environment than they do themselves. Specifically, individuals report that others, in general, endorse biospheric and altruistic values less strongly [35,49,50] and are less pro-environmental
Value endorsement across Europe.
Self-reported endorsement of the four values that typically relate to climate action: biospheric values (green squares), altruistic values (blue diamonds), hedonic values (yellow circles) and egoistic values (orange triangles). Presented statistics are based on unweighted data from the European Social Survey Round 9 (https://www.europeansocialsurvey.org/), with listwise deletion of missing data, resulting in a sample of $n = 45,342$. Scores were reverse coded so that higher ratings reflect stronger endorsement of a value. Of the total number of 21 gender-matched value items, the following items were used for biospheric values ‘She/he strongly believes that people should care for nature. Looking after the environment is important to her/him’; altruistic values ‘She/he thinks it is important that everyone in the world should be treated equally; She/he believes everyone should have equal opportunities in life’; ‘It’s very important to her/him to help the people around her/him; She/he wants to care for their well-being’; hedonic values ‘Having a good time is important to her/him; She/he likes to ‘spoil’ herself’; and egoistic values ‘It is important to her to be rich. She wants to have a lot of money and expensive things.’. The black stars indicate the mean of all 21 value items.
identities than others may particularly have positive effects on climate action when an individual’s ‘personal identity’ is activated; that is, when individuals define themselves by differentiating themselves from other persons [56].

On the other hand, the bias that one cares more about the environment than others may inhibit climate action, particularly when individuals act upon a social identity [56]. In such occasions, people are likely motivated by the perceived values and identity of an activated group. Since individuals generally believe that groups have weaker environmental values and identities than themselves, the activation of a social identity will often make individuals less likely to support and take climate action than when their personal identity is activated. Importantly, by reducing individuals’ climate actions, this bias may reinforce the general perception that environmental values and identities are not strongly endorsed within a group and thus strengthen itself [13**,54].

Lastly, underestimating others’ biospheric values and environmental identities may demotivate climate action through reducing feelings of outcome efficacy and responsibility. Since climate change will not be mitigated if others do not act, individuals believing that others are not strongly motivated to take climate action may regard their individual actions inefficacious, which may demotivate them to take climate action [13**,51]. Moreover, the bias may give people the impression that they are already taking more climate action than others, and that first others should act before they themselves intensify their efforts to reduce climate change [51].

Using values and identities to move climate action forward
When promoting climate action, it seems critical to optimally use the personal motivational basis for climate action, as reflected in the relatively strongly endorsed biospheric values and environmental self-identities. For example, one could focus on emphasizing the environmental benefits of climate action [57]. Furthermore, highlighting individuals’ biospheric values and actions may (further) strengthen their environmental self-identity, which likely increases their climate actions [24*].

When people act upon their social identities, the perception individuals have of others’ values and identities may be problematic. To promote climate action in such situations, it seems critical to clearly communicate that others strongly value the environment and to strengthen environmental group identities. Strategies could include encouraging groups and group members (e.g. leaders) to openly express their environmental values and identity [13**,58]. To achieve this, it is important that supportive group norms and policies are in place [59], and that environmental actions are also taken at the group level.

How perceived group values and identities influence climate action
If people (mistakenly) perceive that they care more about the environment than others, this may affect how much they support and take climate action. On the one hand, this bias may promote climate action through enhancing individuals’ environmental self-identity. Specifically, it may give people the impression that their caring for the environment differentiates them from others and characterizes them personally, making them likely to label themselves as the type of person who acts pro-environmentally. This strengthened environmental self-identity may, in turn, motivate climate action [11,29,55] and, thereby, potentially further strengthen itself. Perceiving oneself as having stronger environmental values and

Alternatively, the bias can be explained by underestimations of others’ endorsement of biospheric values and environmental identities [13**,14**,54]. Such underestimations may be due to two reasons. First, people may underestimate groups’ biospheric values and environmental identities because these are often not publicly shared, nor visible. People may incorrectly conclude from this that the environment is not important to others, assuming others would otherwise have shown these values and identities more clearly [13**,14**,54]. Second, public and political discourse often discuss people as relatively egocentric and highlights that people do not care that much about the environment. Thus, people may infer that most others have weaker biospheric and altruistic, and stronger egoistic, values than is actually the case [13**,14**,53].

One explanation for this bias could be the better-than-average-effect, which states that people generally overstate how strongly they possess desirable attributes in order to maintain a positive self-image [49,53]. Indeed, it has been argued that people see themselves as overly pro-environmental and altruistic because they see these attributes as desirable and positive [51,52]. This suggests that personal biospheric values and environmental self-identities are generally weaker than self-reports suggest, implying a weaker motivational base for climate action. At the same time, it suggests that many individuals do like to see themselves as pro-environmental and as strongly endorsing biospheric values.

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[14**,51,52] than themselves. Hence, there seems to be a mismatch between how individuals perceive themselves and how they perceive—and are thus perceived by—others. This suggests that either individuals’ perceptions about themselves or others are biased (or both).

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4 Only when a group is perceived as stereotypically very pro-environmental (e.g. climate activists, liberals), individuals seem likely to perceive the group as valuing the environment more strongly than themselves, in which case the bias may thus reverse [35].
Interventions that emphasize environmental group values and identities may be particularly powerful in promoting climate action when focusing on groups with whom individuals generally strongly identify, and which have members with weaker biospheric values. Previous research indicated that the influence of group values and identities may grow larger the more individuals identify with a group [35], and the weaker individuals endorse biospheric values themselves [35,37]. Accordingly, interventions that strengthen the perceived environmental values and identities of such groups may have a relatively large impact on climate action. In addition, interventions may be particularly effective when focusing on social identities that are often salient and activated, such as school classes for children or work-related groups for employees, in which individuals spend a lot of time. Because such social identities are often salient and activated, and are likely important to individuals for a longer period of time, they may have a relative frequent and continuous influence on individuals’ climate actions. Moreover, environmental values and identities of such groups may, over time, internalize into an individuals’ personal identity, thereby strengthening individuals’ personal biospheric values and environmental self-identity [60,62–66].

Conclusion
In order to better understand and promote climate action, it is important to consider motivational factors at both the individual level, such as personal values and self-identity, and the group level, such as perceived group values and identities. Our paper highlights that climate actions could be promoted by harnessing individuals’ personal biospheric values and environmental self-identity, as well as by strengthening perceived environmental group values and identities. Research on the motivational influence of personal and group factors is rather separated, and research on the influence of group values and identities on climate action is still new. It seems therefore important to investigate when and how personal values and self-identities, and perceived group values and identities, interact to influence climate action. Moreover, it seems critical to better understand why people generally believe they have stronger environmental values and identities than others, and how such perceptions could be changed. Such understanding may critically advance the promotion of a society-wide response to climate change.

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