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REVIEW ARTICLE **OPEN**

Practices of climate responsibility

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In the context of climate protection, the notion of responsibility is regularly invoked to address individuals and collectives as liable to urgent climate action. The article argues for an understanding of responsibility not only as a normative (and counterfactual) concept but also as a social practice. As an analytical tool to examine the complex social reality of responsibility, the concept of responsibility practices is introduced. Following four constitutive dimensions of responsibility, this approach allows for studying how responsibility is negotiated between individual and collective subjects, how the scope of responsibility is adjusted between local and global foci, what values (e.g., economical, political, and moral norms) are invoked, and towards which internal, external or virtual authorities responsibility is addressed. As an example, carbon offsetting programs are analyzed as bundles of practices of attributing, negotiating, and refusing responsibility. This praxeological account is useful to complement psychological and behavioral economy approaches to the knowledge-action gap. Especially, it facilitates the empirical consideration of denying, avoiding, and delegating responsibility. It can be expected that research on responsibility practices will contribute to a more realistic concept of climate responsibility.

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INTRODUCTION

It is a common topos in climate discourses that the overall goal of climate protection is shared by many—but actions are few. Climate activists, as well as scientists, insist on the urgency to take quick and extensive action. In the past decades, knowledge about anthropogenic climate change, its factors, and its threat to human life as we know it has become quite robust[1]. Political goals have been formulated, and measures to prevent or moderate disastrous consequences are well known. Nonetheless, a lack of adequate individual and collective action has repeatedly been diagnosed[2,3]. This lack of action has a spatial dimension. Political goals are usually formulated on a global scale (e.g., the two degree target). At the same time, all subjects that could take relevant action operate in spatially limited areas. This constellation is specifically likely to detach normative goals and factual behavior, thus minimizing the individual or collective willingness to act.

There are different strategies to react to this perceived lack of climate action. Perhaps the most prominent strategy is to heighten the normative pressure on individual as well as collective actors by addressing them as responsible subjects. This strategy is followed, for example, in practices of political campaigning, where policymakers, business executives as well as individuals are accused of not showing themselves accountable for climate protection. But this strategy is also pursued on the theoretical level of environmental ethics. Here, the concept of responsibility has explicitly been proposed to address the problem of actions in modern societies that have temporally and spatially long-ranging, potentially disastrous consequences[4]. If identified as responsible, subjects are accountable for the consequences of their actions ex ante and ex post[5]. By pointing at liable subjects, the concept of responsibility is expected to bridge the gap between normative duties and factual actions.

Nonetheless, the idea of responsibility is in itself a normative concept that is at risk to be the next norm without impact on action. The gap reappears. One element to tackle this problem might be to approach the conceptualization of responsibility not from the side of normative ideas but from the side of social practices. So, the opening question shifts from "In how far should subjects take responsibility?" to "In how far is responsibility taken?" The focus is then on performances and habits of responsibility in concrete situations and social contexts that can be observed and analyzed. This shift of focus can lead to a more realistic concept of responsibility. In this article, we follow this track and develop an analytical scheme for the study of responsibility as a social practice. Concentrating on climate protection and especially on greenhouse gas (GHG) mitigation, we propose the empirical study of responsibility practices in order to develop an empirically grounded concept of local climate responsibility. To this aim, the paper is organized as follows: at first, the current state of research on responsibility in environmental ethics is sketched (section "The concept of responsibility in environmental ethics"), before the concept of practices of responsibility is introduced (section "Practices of responsibility") and exemplified with respect to the field of GHG mitigation (section "An example: carbon offsetting as responsibility practice"). A brief discussion concludes the article (section "Outlook") (Fig. 1).

THE CONCEPT OF RESPONSIBILITY IN ENVIRONMENTAL ETHICS

Due to the growing public awareness of the ecological crisis that is linked to the report of the Club of Rome in 1972, the notion of responsibility has become important in environmental ethics and even developed into a key category of ethics in general[6,7]. Since then, various concepts of responsibility have been proposed. Beyond all differences, they show certain common elements.

First, responsibility implies a subject[8]. Traditionally, it is the human individual that is considered responsible[4]. In most concepts, individual responsibility is at least one element, even if related concepts of rationality or personhood differ. Some approaches, acknowledging that the goods under concern transcend the realm of immediate personal influence, introduce subjects beyond the individual level. Groups, states, or corporations are regarded as subjects of collective responsibility,

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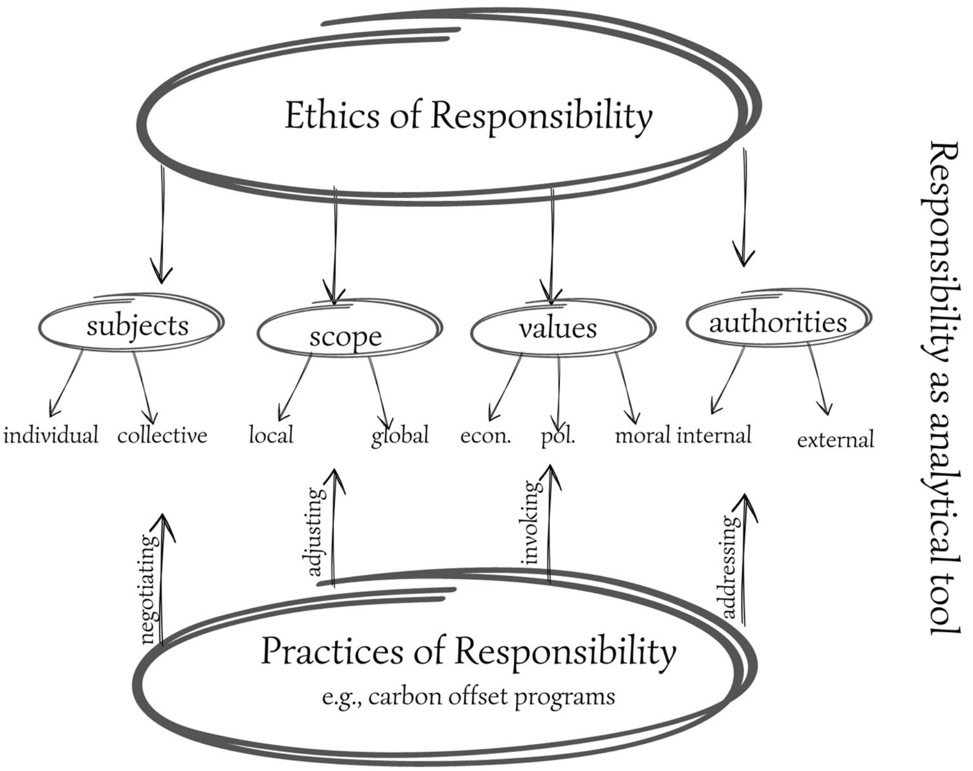

Fig. 1 Setup of an Ethics of responsibility, consisting of four central elements of the responsibility relation and their operationalization for an analysis of responsibility practices.

challenged to justify their actions. E.g., the concept of Corporate Social Responsibility (CSR) has become prominent in business ethics[9]. In the context of international negotiations on climate protection, the nation-state appears as a collective subject with its own responsibility. But at the same time, it is conceived of as an individual member of the collective of parties that shares a common responsibility (as was set up in the principle of common but differentiated responsibilities [CBDR], established in the Rio Declaration 1992, see, e.g., ref. [10]). Thus, the concepts of individual and collective responsibility can be considered as recursive, since a collective possibly constitutes an individual within a higher level collective (for ontological implications see ref. [11]). But even if an irreducible moment of collective responsibility is identified, it is still related to the responsibility of individual actors being part of the collective[12]. In this perspective, individual and collective responsibility are seen as complements. Relational concepts of individual responsibility[13,14] show the interrelations of responsibility between individual subjects, whereas the demands of regulations by national states and by international cooperations emphasize the interlocking of private and public actors, of individual and collective responsibility[15,16]. The question of who is considered a subject of responsibility and how responsibility is distributed between interacting subjects proves to be a core problem in environmental ethics.

This directly relates to a second element: the scope of responsibility. Already Max Weber's introduction of "responsibility ethics" is closely connected to the problem of how far moral liability extends. The politician is held responsible not only for his intentions but also for the foreseeable consequences of his actions[17]. Others determine the scope of responsibility with regard to a subject's causal impact (causation principle) or ability to act (ability principle)[18,19]. Between nation-states, the ascription of climate responsibility according to the CBDR principle is highly negotiated, addressing questions of causality as well as further criteria like financial capabilities, population size, vulnerability to climate change, etc.[20,21]. The implementation of dynamic elements in the Paris Agreement 2015 accounts for the fact that the scope of a subject's responsibility can change in time[22]. Generally, the idea of responsibility is confronted with the problem that, under modern conditions, local and temporal limitations of liability are hard to justify because of the far-reaching consequences and the complex global interconnection of human actions: So, the scope of climate responsibility is considered to transcend national borders, to include demands of future generations, and even to stretch into the past. The unequal exchange theory points at injustices and asymmetric structures that are founded in colonialism and have persisted to this day, calling for "reparations for ecological debt" (ref. [23]; for the responsibility of "carbon majors" see also ref. [24]). The scope of responsibility is explicitly unlimited in ideas like environmental or ecological citizenship[25,26] and (post)cosmopolitan responsibility[15]. Mechanisms of globally shared responsibility are discussed for the areas that do not belong to anyone[27] as well as for (upcoming) catastrophes and people in need of support[28], e.g., with respect to "sinking islands"[29]. In sum, the normative idea of responsibility tends to be "infinite"[30, (p. 34)] or "unlimited"[31,32,(p. 526)] in scope. This is confronted with the empirically robust result that the readiness of individuals to take (financial) responsibility for public goods such as GHG reductions is quite limited[33–35], even if the willingness to pay for climate policy varies depending on various factors[36].

Third, if not used as a mere translation of "causality", responsibility is always measured with respect to a certain scale or standard. Different modes of responsibility come along with inherent scales. E.g., juridic responsibility is measured by legal norms, whereas moral responsibility is usually related to questions of norms that impose duties on subjects or values to evaluate outcomes[7, (p. 161.162),37, (p. 409)]. The reference to political, economic, or organizational responsibility invokes further standards. In practice, usually, different modes of responsibility are involved in one problem. Since the idea of moral responsibility can be applied to virtually every issue, the need for a plausible rationale for moral norms and values arises. For example, the extension of environmental responsibility beyond the human sphere to animate beings or ecosystems has been justified differently. Holistic[38] and biocentric concepts[39] operate with the idea of an inherent value of non-human entities, whereas anthropocentric concepts refer to human's dependence on nature[40, (p. 328.329)]. Any concept of responsibility must come with a justification of the scales implied.

Finally, the notion of responsibility implies the idea of an authority towards which the subject is accountable. While one has to justify oneself legally before certain instances, e.g., refs. [41,42], the "inner court" of conscience is recognized as the supreme moral authority[31, (p. 57)]. But also, peer groups might function as arenas of moral responsibility. At large, one can differentiate between virtual (e.g., future generations), internal (e.g., conscience), and external (e.g., parliaments, peer groups) authorities. In environmental ethics, the question of appropriate authorities is another key question. Especially, no strong legal authority beyond national boundaries exists that would match the global scale of environmental problems. This becomes particularly obvious in issues like the arctic[43] or the High Seas[27]. One suggested solution is to emphasize environmental responsibility in local contexts like cities[44,45].

In sum, different concepts of responsibility share at least four constitutive elements. Further aspects such as time (prospective and retrospective responsibility, see ref. [46, (p. 543)]) or the state of knowledge[47, (p. 276)] can be added. Turning now to practices of responsibility, these elements will have to be reformulated in the framework of practice theory.

PRACTICES OF RESPONSIBILITY

Recently, practice theory/praxeology has been proposed as an analytical tool to study societal issues beyond the gap between action-related and structure-related accounts in sociology[48,49]. Social practices are customary procedures in space and time that include human and non-human entities. Practices are not actions executed by primarily given subjects to achieve goals. Instead, they are social habits that include specific subject positions and specific forms of "knowing how" inscribed to them. Social practices might be discursive or non-discursive, but they always involve bodies and material entities. If responsibility is considered an essentially social phenomenon[50], practice theory regards it as embodied in social practices[51].

In this approach, the responsibility relation—certain subjects are held liable for a certain scope in front of certain authorities and in consideration of certain values (norms, goods, or virtues)—shifts its status from a logical scheme to a web of social practices[52, (p. 11ff)]. Responsibility, then, is socially practiced whenever the liability of someone in front of someone for a past or upcoming issue by invocation of certain norms or values is performed in concrete, identifiable routines. In this perspective, the elements of the responsibility relation are not conceived of as stable or given but rather as constituted and sustained by the respective practices[51]. For example, responsible subjects do not "exist" by themselves; instead, the position of the responsible subject has to be performed in a web of social practices of holding each other accountable. Especially, the "mentalist" perspective of responsibility is abandoned. The praxeological account does look neither for inner considerations and decisions nor for psychological mechanisms "within" an individual subject nor for metaphysical (in)determinism, but for observable performances of deliberating, showing one's own actions as guided by normative reasoning, praising, blaming and the like.

As observable procedures, social practices can be addressed by empirical research[53]. This conceptual perspective allows for asking research questions that are particularly relevant with regard to the link between knowledge and action.

- Subjects: Which subjects are performed as responsible, and which are not? How is responsibility distributed (especially between individual and collective subjects)? Do negotiations take place? Here, the strength of the practice-theoretical approach lies in its ability to take individual as well as collective subjects into account, since responsibility may be redirected from individuals (consumers, citizens, family members, etc.) to collectives (state, corporations, etc.) and vice versa.
- Scope: How is responsibility limited or extended? Which knowledge is referred to in order to adjust its scope? Specific attention should be paid to practices of limiting, refusing, and avoiding responsibility. In this perspective, well-known strategies like moral self-licensing (using past good deeds to justify immoral behavior[54]) appear not as internal psychological mechanisms of a subject but as social routines, performed on a stage with several actors.
- Values: Which dominant values and corresponding modes of responsibility (political, economic, juridical, and moral) are embodied in responsibility practices? Values can either be explicitly invoked or belong to the tacit knowledge of practice. Again, the borders of responsibility deserve special consideration. How, for example, is freeriding conceptualized, practiced, and/or prevented?
- Authorities: Towards whom are subjects held liable? Which authorities are involved in practices of responsibility? Do they appear as virtual, internal, or external authorities? In how far are they addressed as authorized by knowledge (experts), power (political bodies), moral authority, or personal authenticity? Do old authorities fade, and new ones appear?

In all respects, responsibility practices cannot be expected to form a harmonious whole but a web full of tensions and possible conflicts. Conflicts should be analyzed as specific forms of responsibility practices, as well as explicit discourses on responsibility and other reflective (meta-level) practices.

Considering operationalization[53], the study of responsibility practices requests a mixed-method approach with three columns. First, participant observation allows for accessing to practices in the field. Second, interviews with individuals and focus groups help to address the social meaning of practices; moreover, they can be used to indicate practices beyond the interview situation, on the other hand. Third, documents and other media can be analyzed as parts of discursive practices. Moreover, they relate to other practices, for example, if parliamentary rules of procedure are read as legal definitions of specific responsibility practices. The results will be triangulated and thus contribute to the robustness of the analysis. The methods have to be specifically adopted to the field under consideration. In the following, the example of GHG mitigation will be examined in more detail.

AN EXAMPLE: CARBON OFFSETTING AS A RESPONSIBILITY PRACTICE

Questions of responsibility in relation to climate change become urgent as to whether and under what conditions individual and collective actors take responsibility for GHG mitigation[18]. Since the problem is global but concrete action has to be taken locally, the local arenas of responsibility are promising objects of research[55]. The analytical framework presented above allows for the analysis of local climate responsibility practices.

One exemplary responsibility practice is carbon offsetting. Consumers pay a certain amount of money to compensate for goods (e.g., petrol) or services (e.g., flights) whose provision or use produces a lot of CO_2[56]. Companies implement offset programs by offering the individuals to pay an extra amount for compensation or by compensating the CO_2 themselves without any designated costs for the consumer. Economic studies explicitly associate these programs with questions of responsibility and norms[57–59]. The willingness to implement or pay for compensations is closely related to the ascription of responsibility[60, (p. 3.4)]: in various studies, correlations were detected between the ascribed responsibility of individuals for damages from pollution and the willingness to pay for offsetting[57,58].

From the perspective of practice theory, carbon offset programs are investigated as bundles of social practices of selling and buying, advertising and advocating, accepting or rejecting, etc., many of which can be understood as practices of responsibility. By explicitly offering the possibility to pay for CO_2 compensation, practices of consuming are turned into (or get a second layer as) responsibility practices. The consumer, while online booking a flight or refueling her car at the petrol station, is asked if she wants to pay for offset. This enacts her as a subject that is responsible for a certain scope, here: for the GHG emissions resulting from her mobility behavior. By having to say yes or no, the consumer is forced to explicitly relate to this ascribed responsibility: accepting and denying are elementary practices of negotiating responsibility.

Moreover, her responsibility is measured in terms of money. This ascription of a value by monetarization has a twofold logic: On the one hand, it is constitutive for the enactment of responsibility in the case of offsetting. On the other hand, it limits responsibility. This is connected with the well-known effect that offset programs can lead to increased consumption. In psychological terms, this effect is explained by the fact that "the participation in carbon offset programs may alleviate feelings of guilt and reduce one's sense of responsibility"[59]. From the perspective of responsibility practices, this is again to be understood as an example of negotiating responsibility: Subjects are offered to turn their diffuse responsibility for the negative climate effects of their conduct of life into a concrete but limited climate responsibility that can be satisfied by a certain payment.

According to psychological studies, the adverse effects can be avoided by implementing real-time feedback interventions that show consumers their CO_2 consumption. As an example, a device is installed in a hotel shower that—additionally to the announcement that the hotel participates in a carbon offset program—immediately displays the use of water and energy to the guest[59]. Here, the ongoing responsibility of the individual is made visible—the individual is re-enacted as a responsible subject. This is an example for a broad range of calculative practices (such as footprinting, offsetting, dieting, rationing, and trading) that lead to the "problematization of individuals' emissions"[61]. The issue of visibility also points to the question of the authority of responsibility. In the fuel station, the cashier to whom the decision has to be declared potentially steps into the subject position of authority. Under his eyes, responsibility becomes visible, even (and perhaps especially) if compensation is rejected.

On a higher level, the implementation of the carbon offset program by the flight carrier or oil company is in itself a practice of responsibility. The company shows itself accountable for issues of climate protection and, at the same time, passes this responsibility over to its customers. So, establishing an offset program sets a link between the responsibility of the consumer as an individual subject in the context of her conduct of life and the responsibility of the enterprise as a collective subject. The latter is also performed, for example, by campaigning NGOs that hold a company accountable for CO_2 production or by smaller companies that ascribe the responsibility to implement compensations to bigger ones[58, (p. 22)].

In many respects, carbon offsetting practices have specific references to the local context. Enterprises are often addressed by local NGOs. By paying for offset in a petrol station, responsibility for a global issue is enacted locally. Moreover, it was shown that the preferred projects to be supported through offset programs are local projects[58, (p. 24)].

It is important to note that these considerations do not aim at a legitimization of carbon offset programs. They have fundamentally been criticized as "psycho-social device" to stabilize capitalism[62], as stabilizers of the commodity culture[63], or as fantasies with "unrealizable promises"[64]. Others have pointed out that the perception of financial responsibility in carbon offset programs might contribute to a decrease in financial measures like repair and capital switching[65]. This critique cannot be discussed here. We only intend to show that our account can contribute to understand practices of carbon offsetting in the context of the whole web of responsibility practices in a certain context, thereby potentially contributing to further substantiation of critique.

In sum, the analytical framework of responsibility practices allows for the interpretation of existing results, but above all, for the generation of further research questions. Among those are: To whom and in how far do individuals see themselves accountable for "their" CO_2 emissions? Does the implementation of offset programs function as a discursive reference to limit or extend climate responsibility? Do local responsibility practices refer to localized knowledge about GHG emissions or the consequences of climate change? These and more issues can be investigated by the study of responsibility practices.

OUTLOOK

Practice-theoretical responsibility analysis shifts the ethical focus from normativity explicated in concepts towards normativity embodied in practices. Of course, a gap remains. Social practices of showing oneself responsible and of holding each other liable do not by themselves guarantee that subjects really act according to their (even: self-ascribed) liability. Responsibility practices are situated in-between pure counterfactual normative knowledge and factual climate action. As such, their study provides insights into how the gap between norm and action is dealt within concrete social contexts derived from a real-world study.

What is the benefit of this approach? As an empirical tool, the praxeological account complements psychological approaches that ask for internal mechanisms of accepting and defying liability, as well as the behavioral economy approaches that study responsibility under laboratory conditions. Real-life responsibility practices have their own embodied logic that cannot be reduced to psychological mechanisms on the one hand and economic calculations on the other. This logic is basically hermeneutical since it connects to (but is not identical with) the individuals' own perspectives on the meaning of their practice. This logic is not presupposed to be guiding in concrete situations; but at least it might contribute to the constitution and alteration of social practices.

On the practical side, the results of the analysis might provide local policymakers with indications of the possible impacts of political measures. Of course, the analysis of responsibility practices is not a prognostic tool since webs of social practices do not react mechanically to external irritations. But the analysis might provide a deeper understanding of the social meanings of responsibility.

This leads to a possible benefit on the theoretical side. A close look at practices might lay the groundwork for an adequate ethical theory of responsibility. How can the normative concept of responsibility be modified and deepened in light of empirical observations and their interpretations? Of course, this endeavor requires a step from the description and analysis of empirical observations to normative judgements. As a prototype for this step, the concept of normative reconstruction may be used[66]. In this post-metaphysical Hegelian approach, practices of lived morality embodied in particular communities and contexts (Sittlichkeit) might show patterns of development that can carefully be interpreted as reasonable and valuable. Thus, without naively shortcutting is and ought, practices of climate responsibility might inform ethics of responsibility that is appropriate to today's challenges of climate protection.

This especially holds if one considers the fact that from a normative perspective, responsibility implies the ubiquity of failure. Especially in the field of climate protection, responsibility is never adequate for the size of the problem to be addressed. It is the insight of skeptical virtue ethics that failure has to be taken into account in the reflection of virtues itself[67, (p. 164)]. Correspondingly, an ethical theory of responsibility has to account for the practices of avoiding, refusing, delegating, or minimizing responsibility, as well as for the practices of despair and cynicism in the confrontation with a responsibility too hard to bear. For that reason, the analysis of responsibility practices is essential for a non-naïve ethics of responsibility.

Reporting summary

Further information on research design is available in the Nature Research Reporting Summary linked to this article.

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