Let's call it altruism!

A psychological perspective and hierarchical framework of altruism and prosocial behavior

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Abstract

“Altruism” is a term used by many disciplines such as biology, economics, sociology, and psychology; it varies in its definition, even among researchers in the same field. This lack of common ground concerning the definition has often led to misunderstandings. In this work, we try to provide a “lay of the land” examination of prosocial behavior and propose a hierarchical model of prosocial behavior that provides an overview of the hierarchical structure and position of several definitions of altruism. Additionally, we implement the dimensions of tolerance for harm done to oneself or others as well as the motivation through benefits to others or oneself to systematize the different prosocial categories and definitory approaches on each hierarchical level. The hierarchical levels of our model include firstly helping behavior, comprising both voluntary and involuntary conduct benefitting others; secondly the general category of prosocial behavior, which is voluntary helping, independent from one's reasons for helping; moreover and most importantly we debate different kinds of prosocial behavior according to the source of general motivation; concepts from evolutionary perspectives; social exchange theory; situation-specific motivational aspects of prosocial behavior and social interaction rules. We propose this model to offer common ground for communication, and to spread awareness of the hierarchical differences in the various definitions of “altruism” in diverse fields of research.

Keywords: altruism, hierarchical model of altruism, categorization of definitions of altruism, prosocial behavior, helping behavior

What is altruism? This seemingly easy question is not easy to answer. Altruism is defined by many disciplines, and the perspectives on this term are indeed quite different (c.f. Bykov, 2017; Clavien & Chapuisat, 2013; Pfattheicher et al., 2022; Schroeder & Graziano, 2015). Hence, there is no single conceptual perspective linked to the term “altruism” but rather many perspectives from different disciplines and

within them. For example, in psychology, a relatively narrow version would be ‘vernacular altruism’ (see Sober, 1994) implying a selfless, prosocial behavior that is performed to help, support, or do good for another person. In contrast, a broader definition would be ‘altruistic behavior’ in economics, entailing any costly behavior that benefits another person (Fehr et al., 2002; Fehr & Fischbacher, 2003;

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Fehr & Gächter, 2002). Another connotation is ‘evolutionary altruism’, which denotes conduct that has a direct fitness cost for the individual, and an indirect fitness benefit through relatives (Hamilton, 1964a, 1964b; West & Gardner, 2010). Each definition serves an important function in its respective field. In the present article, we aim to present a hierarchical, structural model of altruism in psychology by providing delineating statements to show the necessary, valid differences and relations between the definitions of altruism in diverse fields of research, as well as clarifying definitions of altruism in psychology. Further, we implement the dimensions of tolerance for harm done to others or oneself, as well as the motivation through benefit to others or oneself, in order to systematize each hierarchical level of the model. Our analytical strategy concerning the identification of different concepts of altruism and ultimately proposing the hierarchical structure is hereby based on latent constructs that are operationalized in empirical research, including both behavioral experiments as well as trait and state-based approaches using questionnaires. In this attempt, a deeper perspective on topics that are not directly linked to the psychological standpoint can only be shallow and somewhat superficial due to our scientific background. However, we try to provide a basic framework to identify different aspects and points of view on the concept of altruism that may well be extended by other researchers, having more detailed information on the respective subject matter in their fields, which we only partially address in this work.

In the following, we first explain the importance of intentionality as a differentiation between helping behavior and its subcategory of prosocial behavior. After this, we take a brief look at the historical concept of altruism by August Comte. Thereafter, we shed light on why

different definitions may have arisen for altruism and prosocial behavior. After presenting two structural and two dimensional concepts to systematize prosocial behavior, we introduce our hierarchical model of prosocial behavior based on these concepts. We explain each hierarchical level and identify different examples for categories concerning their positions on the respective dimensional and structural concepts. Thereafter, to illustrate the application of a hierarchical model of prosocial behavior, we outline the definitions of “altruism” given by different researchers from various fields, as seen in the framework. We briefly introduce each definition and clarify differences in the concepts using the hierarchical framework. Finally, we consider three examples of concrete behavior in economic decision games, third party dictator game punishment, third party dictator game compensation, and the dictator game offer using the hierarchical framework to disentangle difficulties in communication due to different uses of “altruism”. Yet, firstly, we want to introduce you to our guiding example person leading us through the different concepts: Our example will be “Henry Helper”. Henry is working at an online helpdesk for computer users. He will help us to understand different concepts of altruism and prosocial behavior.

Intention and motivation in prosocial actions and helping behavior

As our analytical strategy primarily focused on definitions and latent concepts that were used in behavioral experiments as well as state- and trait-based approaches to prosocial behavior, the intention and intended action are of great importance to understand the roots of many definitions of prosocial behavior (c.f. Bar-Tal, 1986; Wispé, 1972). The description and definition of which action a person truly performed has been debated intensively in

philosophy and the psychology of action; saying that a person performed a prosocial action necessitates a prosocial intention (for a discussion of action and intention, see (Greve, 2001). Prosocial intention comprises two elements: cognitive content (what to do) and a feeling state linked to the underlying motivation (truly intending it, and not only thinking of it, c.f. Hewig, 2018). This definition applies to the psychological domain of intentional action, whereas behaviors may generally appear without conscious intentions, and a wide range of motivations or reasons might lead to what we might provisionally call “helping behavior” to separate this from prosocial action (see also Bierhoff, 2002, 2010). For helping behavior, it might become more difficult to assess the motivational nature of the behavior if the person performing it cannot give a reason for it. Most importantly, a prosocial motive is not necessary for helping behavior. For example, Bierhoff (2010) mentions a helpdesk worker (see in our case Henry) for this kind of helping behavior; the helpdesk worker is obliged, based on his/her job, to assist with computer problems. However, he/she is not inspired to do so in addition to his/her duties. As stated earlier, this helping behavior would not necessarily be prosocial, but may become a prosocial behavior if the motivation to perform it is not only due to the person’s obligations (e.g., the work contract, which is not a prosocial norm), but if an intrinsic motivation to help is present as well. So, if Henry does only help because his working contract tells him to, then it is “only” helping behavior. Yet, if he indeed has the personal intention to help his customers, the prosocial behavior category is adequate for Henry’s helping with computer problems (see Figure 1). The final third category provided by Bierhoff (2002, 2010) is altruism, where Henry is driven by deep caring about his customers and consciously and willingly “goes the extra mile”

(that is way beyond the working contract and even may include personal costs, for example laying away all night thinking about a computer problem) for his customers looking for solutions to their problems. “Altruism” is hereby defined as a selfless caring about the wellbeing of others (Bierhoff, 2002, 2010).

In Bierhoff’s model (2002, 2010), helping behavior, prosocial behavior, and the subcategory of prosocial behavior, “altruism,” are hierarchically nested (Bierhoff, 2002, 2010 see also Figure 1). Yet it is also mentioned that a distinction between the different categories may be difficult, as intention and motivation must be known to correctly categorize observed behavior. We adapt this position by considering altruistic behavior to be the smallest category of these three including all behaviors that entail a dominant motivation to benefit the target of the behavior. Prosocial behavior would be broader comprising all behaviors that entail any intention to benefit another person including any kind of motivation behind this intention. Finally, helping behavior would be broadest comprising all behaviors that may knowingly implicate a benefit for any other person independent of whether there is any intention or motivation to achieve such an effect for others.

However, this hierarchical perspective on helping and prosocial behavior is not the only definition established for the construct of “altruism.” To create a “lay of the land” perspective about prosocial behavior in experiment and trait as well as state-based context, we first introduce the roots of the term and perspective of “altruism”. Whenever suitable we will add supplementary terms like vernacular, evolutionary or economical to the term altruism to clarify the meaning.

Figure 1

Model of nested altruistic behavior in prosocial behavior, nested in helping behavior. Adapted from Bierhoff (2010, p. 14)

The original term “altruism” by August Comte: A philosophical idea

Taking a step back and looking at the term “altruism” and its origin (*pour autrui*, meaning “for others”), we find that August Comte (a co-founder of sociology) created the term “altruism” in his publication *System of positive polity* in 1851. Comte states that “the individual must subordinate himself to an Existence outside himself to find in it the source of his stability. In addition, this condition cannot be effectually realized except under the impulse of propensities prompting him to live for others” (Comte & Bridges, 2001). Adding his perspective to the mere description of what he thinks to be altruism, he writes: “It follows that, from every point of view, the ultimate systematization of human life must consist above all in the development of altruism” (Comte & Bridges, 2001). Comte not only provides a definition of the behavior linked to his new term, “altruism,” but also the perspective of society’s developmental goal for this behavior. Some key elements of his definition are still present in many definitions of altruism today regarding the idea to “live for others” and therefore helping others. To obtain more details about this first

definition, it takes the perspective of an individual rather than a population, although Comte mentions this broader perspective in his conclusion about altruism being the ultimate goal for humankind. Here, we see a problem arising that is still present today in discussions about the term “altruism”, as different concepts and definitions may arise from an initial philosophical glance. The view of the individual versus the perspective of the population is a central element that differs in later approaches to define altruism, which leads to entirely different conclusions about, and notions of, altruism. Another interesting point in the original definition of altruism is the lack of discrimination of the motivation, as well as the lack of a method to show that a behavior is altruistic. This lack of specification has led to a range of narrower, more detailed definitions of “altruism”, which we mostly based our analytical approach to create a model about prosocial behavior on. Nevertheless, we tried to include this theoretical concept of altruism in our work, as it is the very starting point of the term and to put our framework into perspective towards other views. The broad societal view on altruism is also reflected in some definitions of prosocial behavior in psychology (e.g., “Prosocial behavior means no more, and no less, than behavior that is valued by the individual's society” (Dovidio, 1984, p. 364) or “Prosocial behavior represents a broad category of acts that are defined by some significant segment of society and/or one's social group as generally beneficial to other people” (Penner et al., 2005, p. 366). However, our own main strategy to define behavioral categories and to systematize the field will be based on kinds of intentions and motivations in an individual rather than a third person perspective of societal agreement on values.

Definitory problems concerning prosocial behavior and altruism

As mentioned above many different definitory problems arose in the fields that measured behavioral outcomes and latent constructs leading to prosocial behavior due to the rather “vague” nature of the initial definition of altruism. To exemplify the definitory problem, we start with our own field, personality psychology, and argue that each discipline has its own definitions for good reasons. The psychological perspective on the construct of altruism is rather complex, and numerous psychologists have used different hierarchical levels to define and approach the term “altruism”. As (Bilsky, 1989) points out, there is a confusing heterogeneity of the term “altruism” on different levels of the construct of prosocial behavior. Some authors use “altruism” to describe the entire class of prosocial behavior, while other authors perceive altruism as a subcategory of prosocial behavior (Bilsky, 1989). In early definitory approaches in personality psychology, Krebs (Krebs, 1970) employs “altruism” in the rather broad context of prosocial behavior, but mentions that different researchers use different (partly laymen’s) definitions, and that new research needs to provide a meaningful, precise definition of altruism. Moreover, concerning prosocial behavior, we need to establish meaningful differentiations between trait and state variables (i.e., a stable persistent property of an individual’s personality versus a single behavioral act), as well as between the influence of social roles and norms. Additionally, the different experimental approaches and methodologies to measure altruism have led to quite different results for various aspects of “altruism” (Krebs, 1970). In an instructive overview, de Waal (de Waal, 2008) adds the idea that intentions are a crucial aspect in the

psychological perspective on altruism, especially when considering the experimental approaches, as stated above. These differences in the term’s use have created confusion and frustrating discussions, as common ground is not provided for debate. Hence, it is vital to be aware of this problem, and to examine the hierarchical structure of the definitions to form a consensus in communication and provide a “lay of the land” examination of altruism, independent of the subjective research perspective, and perhaps even independent of the vocabulary used. This solution to the definitory problem not only applies to the field of psychology; other definitions from other disciplines can be added to the hierarchical framework.

Four ideas to systemize prosocial behavior

We use two basic ideas—the hierarchical structure and general perspective on the research field and their topics (i.e., biology, economics, psychology and personality, motivation, social interactions)—as the main structures to systemize definitions from different fields. To characterize the manifestations of prosocial behavior in these two systematizations, we use the critical components of social norms, motivations, situational aspects, and intentions, as well as measurement approaches that we and other scholars (mentioned above) have employed as vital parts of meaningful categorization (see, e.g., Krebs, 1970). Additionally, we have added independent of each hierarchical level (1) the dimension of the acceptance of harm done to others; and (2) the actor’s primary goal of personal gain or gain for others. The reason to introduce these two concepts are based on the observation that types of laboratory behavior in research paradigms that are deemed prosocial or altruistic by different researchers are implicitly using these concepts to distinguish different aspects of prosocial behavior already.

For example, Henry Helper may participate in an experiment, an ultimatum game (Güth, 1995; Güth et al., 1982), where he will play with another player, that provides a distribution of money from an endowment to himself and Henry. Henry thinks, that the other player has done an unfair decision and rejects the money given to him, as he is able to do in this paradigm. The rejection of his share leads also to no money for the other player. In some definitions, this behavior would be seen as “altruistic”, possibly leading to a more fair offer by the other player to a future player (Fehr & Fischbacher, 2003), see details below). Yet, Henry has harmed both himself and the other player that had made the unfair offer. In other paradigms measuring prosocial behavior like the dictator game (Eckel & Grossman, 1996), Henry will be in charge of sharing money to another player, yet the other player might not react to the distribution and it is automatically accepted. In this case, Henry may perform a prosocial behavior if he offers money, which may only harm himself, but no other players. Hence, the tolerance of harm to other players arises as a difference in the definitions about prosocial behavior in paradigms and scientific concepts of prosocial behavior. Similarly, the primary goal of personal gain vs. the gain of others can be justified using the different experimental and conceptual approaches taken on measuring prosocial behavior. As one example, Carlo et al. (Carlo et al., 2003, 2010; Carlo & Randall, 2002) propose a number of different prosocial behavior tendencies (see also below). Among those tendencies, there are public prosocial behavior and altruism (in a narrow sense). To illustrate these two concepts, we imagine Henry Helper to be in a situation where he is accompanied by a group of people waiting for the bus, including a possible future crush (Sweet Susie) while they watch an old lady falling to the ground a few meters away. Unfortunately, at

the same moment, the bus arrives and wants to carry on immediately. Now, Henry runs to help the old lady, missing his bus. This prosocial action can have different types of motivation. If Henry is thinking “they will see me helping and therefore I might get a chance on Sweet Susie”, he is acting in order to get personal gains and therefore expressing public prosocial behavior (Carlo et al., 2003, 2010; Carlo & Randall, 2002). If however, he is concerned about the wellbeing of the old lady, not caring about whether the others would actually see him helping, the behavior would be categorized as altruism by Carlo et al., (Carlo et al., 2003, 2010; Carlo & Randall, 2002). Hence the benefit towards others vs. the benefit for oneself is also an important aspect that differs among concepts of prosocial behavior. Note, however, that the tolerance of harm done to oneself is not inversely linked to harm done to others, but instead is more closely tied to benefitting others (Crockett et al., 2014). Hence, people that do not accept self-harm might not automatically perform actions that harm others if they wish to help others. Notwithstanding, it is not necessary to harm oneself in the helping process, as explained below. These two elements—tolerance for harm and the motivational benefit for oneself or others—bring order to the different prosocial behavior categories at each hierarchical level.

As explained above, the aspect of harm done to oneself, or others can vary across the behavioral categories of prosocial behavior. While one prosocial behavior category on the same hierarchical level might only include tolerance for harm done to oneself (e.g., by making an altruistic compensation with one’s own good for someone who has experienced unjust treatment or providing money to others without the need to do so), another behavior might instead punish the person who has committed the

unfair act. In the latter, the punishment might lead to more future prosocial behavior on the part of the unfair person, and therefore have a prosocial consequence (Fehr & Gächter, 2002), yet one has to accept the harm done to this person (and possibly to oneself) in order to obtain this future prosocial effect for others.

Concerning the motivation to benefit oneself or others, prosocial behavioral categories can vary as well. As explained, one could be Machiavellian and only perform a helping behavior if it is observed by others to obtain the reputation of being a helping person if one's primary goal is to benefit oneself (Bereczkei et al., 2010). Alternatively, one could act prosocially with the intent to help another person, independent of being observed and having a personal gain (Carlo & Randall, 2002). However, we do not wish to deny the psychological benefit of either acting benevolently (and in extreme cases even like a martyr) or punishing someone for an unfair act. Hence, we do not assert that there is a complete or binary distinction of having no benefit at all; the primary goal is not to derive a personal benefit, but rather to benefit another person or group.

At this point, we want to quickly address the issue of different "naming" by different disciplines or sections of disciplines. We encourage the reader not to stick with our specific "naming," definitions, and classifications of the specific levels of prosocial behavior in the hierarchical framework. Instead, we encourage scholars to recognize the differences in the hierarchical levels of definitions and concepts in prosocial behavior, and that there may be problems in communication; for example, different researchers refer to different constructs as "altruism". Again, the work is more to see as a "lay of the land" of prosocial

behavior, sadly with a very restricted perspective, but hopefully it may be extended by other researchers adding more details from their fields.

A hierarchical framework of prosocial behavior

Starting from Bierhoff's (2002, 2010) perspective, we stress the hierarchical structure present in the concept of prosocial behavior and the caveats that have to be kept in mind given the levels of hierarchy where "altruism" is used by different researchers, disciplines, and research approaches. However, his approach does not include such fine-grained hierarchical level distinctions as applied to the constructs and lacks the dimensional structure that we apply to the respective levels. Another hierarchical approach to the concept of prosocial behavior has been made by Penner et al. (2005). They organize the definitions created by different disciplines on three levels of analysis. The micro level addresses the etiology of individual differences and the origins of prosocial tendencies. The meso level is concerned with dyadic interactions in a prosocial context, and hence the classical focus of psychological models. The macro level comprises prosocial acts with their focus on large groups (beyond the individual), such as society or organizations (Penner et al., 2005). These differentiations are discussed even in more detail by Schroeder and Graziano (2015), stressing in addition the important question of the type of prosocial behavior also the personality aspects and the occurrence factors. The differentiation of the prosocial behavior type due to the focus of the research perspective is also integrated into our model. However, in addition to the hierarchical structure given by the micro and meso levels found at Level 3 (see below), we refrain from explicitly including the macro level, as the

Figure 2:

Hierarchical model of prosocial behavior. On the highest (relevant) level is prosocial behavior; on the next lower level, a differentiation of general motivation is presented at the macro/meso level, while on the micro level, evolutionary mechanisms are separated. The next lower level distinguishes interaction rules, and on the lower levels, there are distinct behavioral categories linked to different motivations, followed by behavioral examples. The color of each category indicates the dimension of tolerance for harm done to others, while the background color refers to the primary goal of benefitting oneself or others within the prosocial domain. The green color denotes where different researchers and disciplines tend to set their definition of altruism. Norm motivated means motivated by prosocial norms here.

differences in our framework arise only from the difference in the application of the respective motivational concept related to dyadic interactions (the meso level) or the respective group level (the macro level).

One focus of our framework (besides the systematization of definitions of prosocial behavior) is to visualize the various definitions of “altruism” in the complex structure of

prosocial behavior. Accordingly, we present a graphic illustration of the hierarchical levels and the two-dimensional systematizations of prosocial behavior classification approaches. Figure 2 shows a sketch of the hierarchical structure for the definition of prosocial behavior.

We introduce the model going from the highest level with the most general terms, including all

kinds of behaviors, to narrow definitions at lower levels. At the highest level, we find helping behavior (see e.g., Bierhoff, 2002, 2010; Bierhoff et al., 1991; Bierhoff & Montada, 1988), which includes prosocial behavior, as well as behavior that lacks the intent to help and is a mere execution of a job duty (see the section above). This type of behavior does not even have to be in interpersonal exchange and is more to be seen as a supercategory above prosocial behavior to set our approach to differentiate prosocial behavior into perspective. However, since the model's purpose is to broadly explain prosocial behavior, this supercategory is mentioned for completeness, as at least one definition of altruism in the literature may debatably be on this level (see Figure 3 below). For a further example of helping behavior, we could think about Henry Helper, which, if he is a real person, may help us to understand the present model, even he may not have the intention to do so.

Level 4: Prosocial behavior

The first term targeting the constructs of prosocial behavior we would like to introduce is "prosocial behavior" in agreement with Bierhoff (2002, 2010); it refers to acts that one performs to benefit another person. This "act" might not only be an active behavior linked to the direct and indirect rewards of other people, but also implies refraining from direct and indirect acts of punishment, harm or resource restriction, which are not intended to benefit another person (e.g., Fehr & Gächter, 2002). Prosocial behavior can be measured via behavioral observation and sampling. This construct of prosocial behavior is at Level 4 of our framework (see Figure 2, while helping behavior is still mentioned here at Level 5 to keep in mind the nested structure of prosocial behavior in helping behavior, e.g., Bierhoff 2002, 2010). As

an example, if Henry the helper would have willingly agreed to be the model example of this manuscript, his act in helping us to understand the differences in concepts could be seen as prosocial behavior or action.

Level 3: Differentiation via general motivation or evolutionary mechanisms

Prosocial behavior can be divided into several general motivations that propel specific aspects of prosocial behavior, which are separated at Level 3 (see Figure 2). For example, benevolence-driven prosocial behavior (e.g., Hubbard et al., 2016), empathy-motivated prosocial behavior (e.g., Batson et al., 1991), reward-motivated prosocial behavior (see e.g., Bénabou & Tirole, 2003, 2006; Carlo & Randall, 2002; Savary & Goldsmith, 2020), norm-driven prosocial behavior (Batson & Powell, 2003; Chen et al., 2020; Fehr et al., 2002; Fehr & Fischbacher, 2004), or even anger-motivated prosocial behavior (Fehr & Gächter, 2002; Pillutla & Murnighan, 1996) can occur. These examples are not exhaustive, and other motivational aspects can be identified, such as the helpfulness factor (Penner et al., 1995); however, for each motivational aspect, there is vast empirical evidence, which we partially and selectively report below. To obtain details, we briefly define the concepts of these examples in the following paragraphs.

Motivations as causes

Benevolence-motivated prosocial behavior means that everyone's well-being is the driving motivation behind prosocial behavior. Moreover, this concept not only refers to the long-term intention of a better final outcome, but also well-being in the process itself. Hence, no one is meant to get hurt due to the prosocial action, even if someone who exhibited unfavorable conduct is involved. For instance, this means if Henry Helper sees someone being

pushed to the ground by an aggressor, it implies helping victims instead of punishing the offender (Rodrigues et al., 2018, 2020). As such, the target of benevolence is not a single target, but is more globally oriented toward all parties involved (in this example, even the aggressor). The core element of this motivation is an idealistic view propelled by convictions and attitudes. Accordingly, such prosocial behavior has a more cognitive origin than motivations like anger and empathy.

Empathy-motivated means that prosocial behavior is related to empathy and the representation of feelings, as well as the perspective of the other respective individuals who are the targets of prosocial behavior (Batson et al., 1981, 1991; Batson & Powell, 2003; Fultz et al., 1986). Although quite similar to benevolence motivation, there is a difference where empathically driven prosocial behavior can lead to punishment and harm to others. For example, Henry the helper could now also safeguard the victim that was pushed to the ground and hinder the aggressor to push it down again. The vital aspect of empathy motivation is feeling for a target and identifying with it, for example, others in crisis situations or persons in need.

Reward motivation means that prosocial behavior is propelled by reward expectations or external and internal rewards (Bénabou & Tirole, 2003, 2006), which are provided to the person who performs the prosocial behavior (not the person receiving the prosocial action). This also links prosocial behavior to the theory of reinforcement, which Krebs (1970) has addressed. This may include numerous compensatory rewards for helping behavior, such as direct monetary compensation, an enhanced reputation, various forms of reciprocity, or later success finding a mate. In

the latter case, prosocial acts would be costly, signaling sexual selection. In the context of Henry witnessing the pushing, it might be that the person pushed down was Sweet Susie and Henry helps in anticipation of the benefits he might enjoy due to the helping. This example stresses the importance of the expectation of reward, as only in seldom cases, the reward is preemptively given.

Norm-motivated actions follow internalized norms (Batson & Powell, 2003), religious convictions (Bennett & Einolf, 2017; Piff et al., 2015), or even public laws concerning what one “ought to do” or even “has to do”. This kind of motivation not only encompasses actions in accordance with a norm but may also include reinforcing norms and principles such as fairness and sharing through one’s own actions (Fehr et al., 2002; Gintis et al., 2003). Here, Henry Helper would help the victim of the pushing because it is his duty as a good Christian to help persons in need.

One other, rather counterintuitive aspect of prosocial behavior is anger-motivated prosocial behavior (particularly including for example feelings like indignation or moral outrage), where the individual is motivated to act against an unfair action or the offender that caused it. So-called ‘altruistic punishment’ (Fehr & Gächter, 2002) may be a case of prosocial behavior driven by anger or by upholding a fairness norm (Rodrigues et al., 2018, 2020). Accordingly, we would prefer to describe this behavior as costly punishment (and not altruistic punishment) because of our own psychological definition of altruism. We debate costly punishment behavior in more detail in a subsequent chapter on the lowest hierarchical level of specific conduct. One example for a prosocial behavior made by Henry Helper would in this case to aggressively go between the

offender and the victim, hitting the person that pushed the victim down to prevent further injury to the victim. Note, that as mentioned above, this type of prosocial behavior will have harming consequences for the offender.

Every mentioned category of general motivation can be placed in the dimensional framework of the tolerance for harm done to others and the motivation to benefit oneself or others. For example, reward-driven behavior is rather high on the scale of self-benefit motivation, while anger and benevolence may have a primary benefit with others in mind, but in the first case directly and in the second case indirectly. The tolerance for harm also increases from benevolence (where no harm is tolerated for others) to anger (where harm is tolerated and potentially expressed in open aggression).

Evolutionary mechanisms as causes

As seen in Figure 2, there are two main ideas about the content of Level 3, one provided by psychology with the meso and macro perspectives (Penner et al., 2005; Schroeder et al., 2015), and the other provided by biology using the micro perspective (Penner et al., 2005; Schroeder et al., 2015). While (psychological) Level 3 is clearly based on motivation, Level 3, as suggested by biologists, is rooted in behavioral categories that can be observed in different species grounded in driving evolutionary forces. Both approaches explain the differentiation of prosocial behaviors. In biology and, more precisely, evolutionary biology, basic approaches use four categories to describe mechanisms behind helping and harming behavior (West & Gardner, 2010). Although evolutionary mechanisms may seem to be distal in terms of a psychological explanation of behavior, we would argue that these mechanisms contribute to the development of motivational systems linked to

these mechanisms in a species. As these concepts have also been utilized in experimental contexts, we include and explain these categories shortly:

First, (kin-)altruism is used for behavior that benefits a related individual, while the actor has direct fitness costs. This concept has also been defined as the “egoism of the gene” (Dawkins, 1976) because the genetic variant present in relatives benefits from the action. Here, the definitory differences from the psychological, more individually centered definitions become clear, with biology having a more multispecies and population focused point of view. One critical aspect of evolutionary altruism in this context is that the cost-to-benefit ratio is higher than the threshold, which can be altered through policing, punishment, or coercion (Lehmann & Keller, 2006). In addition, an individual’s economic or other costs need to be large enough to be evolutionarily relevant as fitness costs. This genetic mechanism of altruism has most often been associated with motivational mechanisms, such as benevolence and empathy since its core feature is the benefit for someone else. In our example, it would be (kin-) altruism, if Henry Helper helps his nephew by giving him lessons in programming for free. This enhances the chances of Henry’s nephew in the job market and may therefore increase his overall “fitness”.

Second, reciprocity is used to explain prosocial behavior if one can expect prosocial behavior in return (Trivers, 1971). Hence, there is a direct exchange of fitness costs and fitness benefits for both parties. For this kind of behavior, it is vital for individuals to interact repeatedly with each other to form a stable relationship and exclude cheating behavior, making a sufficient amount of information necessary (Lehmann & Keller, 2006; Trivers, 1971). Further, the cost-to-benefit

ratio of this behavior must be greater than the threshold value (Lehmann & Keller, 2006). Under these premises, this tit-for-tat prosocial strategy is evolutionarily stable and thus also explains helping behavior from an evolutionary, biological angle (West & Gardner, 2010). Moreover, this mechanism is conceptually related to motivational mechanisms of external rewards since it expects a returned benefit for oneself. For Henry Helper this would mean that he helps Ralf Reproducer (a gardener) with his computer problems, and Ralf is sprucing up the garden of Henry in return.

This reciprocal altruism can even extend to not only being a tit-for-tat helping strategy, but may also include punishment for non-cooperation (Fehr et al., 2002; Penner et al., 2005). This extreme form that may lead not only to benefit of the cooperator but also to harm of others is called “strong reciprocity” and in some cases also “altruistic punishment” (Penner et al., 2005). In case of this strong reciprocity, Henry would put a computer-virus on Lars Loather’s computer, if he did not help him with the garden in contrast to Ralf Reproducer, who did. Another extension of reciprocal altruism is “indirect reciprocity” (Nowak & Sigmund, 2005). This concept describes not dyadic tit-for-tat strategies but helping someone in the hope that someone else may help me in the future. The explanation that this behavior is evolutionary stable is based on reputation. If I am known not to help, I will not be helped by others. Hence helping others leads to a higher reputation and I may then benefit from others. In our example, Henry would help Ralf with his computer, while Ralf helps Carl Cooker with his garden. In the end, Carl supports Henry by cooking for him while he is fixing Ralf’s computer issues. Hence all three, Henry, Ralf and Carl profit from their helping, but no direct reciprocal interaction was given.

Third, another yet somewhat similar mechanism to strong reciprocity is spite, which harms people who are non-relatives—might drive prosocial behavior, as suggested by evolutionary biology; this may seem counterintuitive at first glance. The action has direct fitness costs for the actor and incurs larger fitness costs for non-relatives while it benefits relatives, and therefore again offers support for the individual’s genetic variants (West & Gardner, 2010). From our psychological perspective we would argue that the evolutionary mechanism of spite contributed to the development of motivational mechanisms that fuels for example indignation or outrage in humans. It may be argued that such anger-related affective-motivational conditions like indignation and outrage are the basis of prosocial behaviors supporting victims and prosecuting offenders in a society. Accordingly, it may be interesting to ponder whether and how spite could be conceptually linked to costly or altruistic punishment and anger-driven behavior. The direct target of behavior—as in spite—has a disadvantage, while others will have a potential future advantage based on the norm enforcing punishment, and hence might experience an indirect positive side effect, which would be prosocial. However, the direct behavioral effect is in the harming and anti-social category. So, Henry could delay the fixing of a computer problem of an academic competitor of his nephew working on the same topic, until his nephew has published his paper, providing him with the advantage of being the first to publish in this sector.

Fourth, green-beardedness behavior encompasses helping behavior for individuals who have identical features to those of oneself, and therefore have similar genetic variants, as well as harming individuals who do not share these features. As such, in addition to direct

support, there is an indirect benefit for individuals with similar genetic variants (West & Gardner, 2010). Importantly, this mechanism is not specific for any trait or behavior; for this reason, it is called green-beardedness, indicating an arbitrary property. Accordingly, this mechanism is likewise suited to support any behavioral or motivational trait, and works for both prosocial and anti-social (harming) behavior. Here the link to the motivational concepts from psychology may be weakest. However, green-beardedness as a mechanism may be one aspect that contributes to the stability of norms and rules within social groups that are formed based on – at least biologically – arbitrary features. The affiliation to a group typically includes compliance and conformity to its traditions and may thus itself be an in-group feature. So, in our example, Henry, being a big metal music fan, favors customers who are also metal fans and delays solving the problems of other customers on purpose. Another concept that was used to explain prosocial behavior or altruism in evolutionary context was group selection (West et al., 2007). This concept originally proposed that groups consisting of selfish individuals would over-exploit the resources and ultimately go extinct (West et al., 2007; Wynne-Edwards, 1962). Later approaches stressed the advantage of cooperation in small groups for the individual concerning fitness (West et al., 2007), bringing the concept from the comparison of groups to intra-group fitness. In our example, Henry, Ralf Carl and Susie are refraining from drinking as much as each of them can, while they are wandering through the desert, as if anyone would not restrain oneself, they might all die because they don't have any water left. Additionally, if they share the load of the water bottles that no-one carries more than he or she is comfortable (in this case with Henry carrying more than anyone else), they drink less as they are not all that exhausted and can

survive longer in the desert. In this scenario, Henry may additionally “impress” Susie by carrying that much more than others.

One last often discussed and very similar term as the second variant of group selection is costly signaling. Here, cooperation or prosocial behavior is shown as a fitness signal communicating the wealth and status of the donor (Gintis, 2004; Gintis et al., 2001). However, the donor is not sure to be repaid for the efforts, but the reproductive success is the goal to be achieved by this investment in costly signals. In our example, Henry shows by carrying more water than any other man that he has the best fitness. This might attract Susie, but it is not guaranteed to work. Also, Henry is not likely to get any favors back from the other guys for carrying more than they do.

As has been shown for the macro and meso levels previously, for the micro level, the dimensions of tolerance for harm done to others and the primary goal to benefit oneself or others can be applied. However, since this microlevel perspective often concerns populations in the long run, the association is comparably vague. Nevertheless, from the individual's point of view, concerning tolerance for harm done to others, (kin-)altruism does not harm others, but spite actively harms other individuals. Additionally, while reciprocity might be performed with a personal benefit in mind, spite and (kin-)altruism will not lead to a direct benefit for the individual who executes this behavior.

Taken together, these two Level 3 approaches—general motivation and the categorization of helping and harming behavior due to evolutionary mechanisms—originate from the different focuses on the topic (Dovidio et al., 2006; Penner et al., 2005). While psychology concentrates more on human individuals and

their interaction patterns, evolutionary biology is more interested in multispecies approaches, as well as a population-based explanation concerning evolutionarily stable or optimal behavior (e.g., (Silk & House, 2016). Admittedly, within biology, many differentiations of altruism and prosocial behavior categories exist (e.g., kin-altruism, costly signaling/competitive altruism, reciprocal altruism), and at least some of the discussions in the field might profit from our hierarchical perspective. However, a full treatment of the field of biology is beyond the scope of the current article and we cannot go into detail here. Taken together, in our view each of these evolutionary concepts shows a certain proximity to different kinds of motivations as argued for each of these concepts and as illustrated in Figure 2 (indicated by the color).

Level 2: Interaction rules

On Level 2 (see Figure 2), we find social rules from the interactive perspective of social exchange theory within social psychology (Cropanzano & Mitchell, 2005; Kelley et al., 2003; Kelley & Thibaut, 1978; Meeker, 1971). This approach leads to rather similar categories or patterns as at the non-human, specific third level. The behavior explained by this approach is mostly (but not exclusively) norm-driven (e.g., by prosocial norms). However, the angle used here is explicitly based on interaction rules that may be partially verbalized, for example, in negotiations. Hence, this approach is an extension of the general motivational approach. The first example category is social responsibility and is equated with altruism by some scholars of social exchange theory (Meeker, 1971) and it shows highest conceptual overlap to benevolence and empathy motivated behavior. This rule leads a person to seek to benefit another, even at an absolute cost to oneself (Cropanzano & Mitchell, 2005). This

comprises the element of benefit for another and the cost aspects provided by other disciplines and definitions, such as economics (Fehr & Fischbacher, 2003). In this example, Henry Helper thinks it is his social responsibility to make the best of his knowledge and provide society with his wisdom. So, he selflessly spends hours in his free time to solve computer problems for other persons and he will not even get paid for it. Group gain is another interaction rule that could result in prosocial interaction. In group gain, the benefits are placed in a single common pool while individuals take what they need from it, regardless of their particular contribution. Likewise, they contribute to this cache when they are able. In this case, the exchange is not directly transacted from individual to individual, but all things are held in common (Cropanzano & Mitchell, 2005). In our example, Henry moves to a student dormitory. There (in his group), he offers to help anyone with computer problems, while he enjoys only small favors from the other students, like the beer in the living room that is offered for everyone to drink by Dirk (the drinker), another student. Reciprocity is the most well-known interaction rule that produces prosocial behavior and implies the feature of getting something back (see evolutionary reciprocity and reward based prosocial acts). As in the more general approach from the evolutionary perspective, prosocial acts are performed and received via a tit-for-tat strategy. However, from this psychological angle, reciprocity is not limited to the transactional pattern of interdependent exchanges, but also manifests as a folk belief and moral norm as an expression of a common value system (Cropanzano & Mitchell, 2005). For example, if Henry receives help by Ralf Reproducer with his garden, he feels obliged to help Ralf with his computer to repay him the favor as he has learned to do so by his mom. As a last example on this level,

negotiated rules could also generate prosocial behavior. In comparison to the reciprocity in this interaction perspective, negotiated agreements tend to be more explicit than reciprocal exchanges, and there will be fairly detailed, well understood norms, duties, and obligations and the concept is thus linked to a certain degree to norm-motivated behavior. Additionally, the negotiated elements of exchange may extend beyond short-term agreements and even be bound by legal or contractual sanctions (Cropanzano & Mitchell, 2005). So, Henry and Ralf might act in helping each other with the garden and computer problems because of their “room-mate agreement” (a rather formal contract they agreed to follow as they settled in together in a small flat).

Taken together, the different aspects provided on this level (especially the human interaction rules) are considered, and prosocial behavior is categorized accordingly, not explicitly accounting for the relevant motivational components, although they are implicitly allowed for their integration in some cases. Different motivational forces in each individual may drive each social norm. For instance, some may follow these social rules out of a desire to comply with norms, and others because they expect to be rewarded for following the rules; finally, some people may follow the rules out of empathy. Yet, taken together, the dimensions of tolerance for harm done to others and the primary goal to benefit oneself or others also disentangle the different types of prosocial behavior at this level. In our view and as argued above each of these interaction rules also show at least a certain proximity to different kinds of motivations as illustrated in Figure 2 and indicated by the color.

Level 1: Specific motivational and situational behavioral categories

At the first level, we can find examples of different prosocial behavior categories that can be linked to the prosocial behavioral motivation at the third level, and on the second level above in specific situational contexts. Typically, a certain combination of a class of situations with a type of motivation forms these categories. Of course, the prosocial behavioral categories at this level do not have to be uniquely driven by one motivational aspect, but can contain different motivational elements, as well as different interpersonal interaction rules. This leads to a complex differentiation of prosocial behavior at this level, with different categories stressing different motivational components/combinations, yet producing different categorical labels that sometimes emerge from the scientific and experimental domain where they were first observed. For example, Carlo and Randall identify the following categories of prosocial behaviors. First, emotional prosocial behavior is a prosocial behavioral response triggered by the emotional reaction of a person in need (Carlo & Randall, 2002). As an example, Henry Helper is moved by the tears of a computer user about the frequent system crashes and data losses. Hence, he helps this user so avoid the crashes in the future. Second, dire prosocial behavior is exhibited toward victims of crises and people in urgent situations (Carlo & Randall, 2002). Here, Henry helps victims of a Tsunami to reestablish the digital infrastructure. Third, compliant prosocial behavior is displayed if one is asked for help (Carlo & Randall, 2002). So, Henry helps Aron Askalot with his computer problems because he has been asked for help. Fourth, public prosocial behavior depicts helping behavior propelled by others seeing the act of helping (Carlo & Randall, 2002). As mentioned above, one example would be if Henry helps an old lady to

impress his future crush Sweet Susie. Fifth, law/norm-driven behavior is presented following a norm that proposes acting in a prosocial way; law/norm-reinforcing behavior is defined as establishing a norm that is violated by another person. Here, Henry may choose to help with computer problem out of following a religious conviction. Additionally, altruism, as defined by Rodrigues et al. (Rodrigues et al., 2018, 2020), is a prosocial behavioral category, meaning prosocial behavior that is benevolently inspired and intends to benefit others. In this case, Henry may want to help others, but not inflict any harm on them or others, even if they are harmful to other persons, as provided in the showing example above. These examples are not exhaustive, and future research will identify other categories of prosocial behavior linked to the motivational aspects described above, as well as motivational elements not yet mentioned.

The two dimensions of tolerance for harm done to, and the primary goal to benefit, oneself or others can be very clearly structured on this level. While benevolent altruism does not tolerate harm toward others, law/norm-reinforcing behavior clearly tolerates harm to achieve a prosocial outcome for society. Additionally, while the primary goal in benevolent altruism and in norm-reinforcing behavior is to benefit others, public prosocial behavior has its own benefit in mind. Accordingly, each of these more specific categories is predominantly linked to a specific kind of motivation as illustrated in Figure 2 and again indicated by the color.

Level 0: Examples of behavior

On the lowest level of this hierarchical model of prosocial behavior, Level 0 (see Figure 2), we can find instances of simple single behavior that can be directly observed in interactions with

people, such as in an experiment or real-life contexts. For the previous level, there are many other concrete behavioral options, and the cases referred to in Figure 2 are given to illustrate the model. However, other prosocial acts—such as donations, charity, the sharing of money or goods, and their experimental counterparts (e.g., for dictator game offers, see (Rodrigues et al., 2015, 2017)—can also be placed at this level. Since Level 0 is only a concrete manifestation of the level above, the two dimensions of tolerance for harm done to others, as well as the primary goal to benefit oneself or others, can be assigned clearly, with altruistic compensation having no tolerance for harming others, while costly punishment tolerates the harm of the defector to ensure future prosocial behavior or rule compliance. Thus, the mentioned examples of behavior are thought to be quite prototypical for the dimensions of harm tolerance and benefit generation and are more proximal to some motivations than to others (see colors in Figure 2).

Categories from the dimensions of harm and benefit in prosocial behavior

This section briefly exemplifies the idea of categorizing levels 0 through 3 using the dimensions of harm and benefit. On all these levels, the gradual shift—first between tolerance versus intolerance for harm done to others and, second, between benefits for oneself or others—is apt to order and structure causes of prosocial behavior. We find three domains present most consistently across the levels. First, several concepts in explaining prosocial behavior involve the benefit of another individual as their focus, while excluding a harmful influence (see the green and yellow ovals with the green–blue background in Figure 2). This comprises the motivational aspect of benevolence and

empathy, the evolutionary mechanism of (kin-)altruism, the interaction rule of social responsibility, and benevolent altruism. Second, at all levels, prosocial behavior is also driven by benefits for oneself as an expected return for one's own helping behavior (see the orange ovals with the purple background in Figure 2). This is present in reward-driven behavior at the level of general motivation, in the term "reciprocity" (both in evolutionary concepts and in terms of social interaction rules), and is also present in public prosocial behavior, which is supposed to benefit oneself. Third, all levels entail constructs that comprise a strong tolerance (or even a direct motivation) for harm done to others, while having a benefit for specific others (see the dark red ovals in Figure 2). This comprises anger-driven forms of prosocial behavior, the evolutionary concept of spite, and law/norm-reinforcing behavior. Finally, on all levels behaviors based on (prosocial) norms are comprised, which may entail aspects of harm to others (e.g., punish offenders) and are supposed to benefit both the actor and other members of the social group (potential victims).

Examples of researchers and disciplines that define altruism on different levels

As we have briefly described the theoretical hierarchical model of prosocial behavior, we now exemplify how authors use the term "altruism" on different levels of this hierarchical model to provide insight into the hierarchical classification of the respective definitions of "altruism". A brief overview concerning selected definitions are given in Table 1. These definitions are to be seen as examples and are not exhaustive. The reason to include them in this manuscript was either the historical contribution (e.g., Comte) or being an example for the respective research about altruism in the context of experiments and questionnaires used

to assess altruism. The examples have a strong bias towards the field of personality psychology.

At the highest, most general level (i.e., helping behavior), August Comte arguably uses his definition of the philosophical term "altruism" (see Table 1). Yet, his perspective is not limited to behavioral aspects but rather exceeds the mere interactional perspective given by our measurement and experiment-based approaches. He mentions altruism being the ultimate goal of society and therefore takes a somewhat non-individual centered perspective on altruism. However, in modern definitions in the context of measuring altruism with experiments and questionnaires, prosocial behavior is often used as a definition of altruism.

Fehr, Gächter, and Fischbacher are significant researchers from other disciplines in terms of being linked to psychological research with great impact. They approach the topic from an economic angle (Fehr et al., 2002; Fehr & Fischbacher, 2003; Fehr & Gächter, 2002), and explicitly state that they do not wish to examine the apparent motivational aspects that may drive the behavior (Fehr & Fischbacher, 2003)(see also Table 1), yet they are aware of possible differentiations. Accordingly, in our view they use "altruism" to refer to the highest level of prosocial behavior or even helping behavior, as their approach is rather outcome oriented and ignores the intention that drives the behavior. Hence, one could argue, that their approach of definition is on the highest level.

Henrich et al. (Henrich et al., 2006) uses a similarly broad definition of "altruism," comprising all prosocial behavior and providing a sociological and anthropological point of view (see Table 1, for other sociological definitions, c.f. Bykov, 2017). In his research, he also uses "altruism" for the highest level, yet is aware

Table 1: *Examples of definitions in historical as well as experimental and empirical altruism research.*

researcher	Definition	level in our integration of prosocial behavior
August Comte (1852)	[The] social point of view cannot tolerate the notion of rights, for such notion rests on individualism. We are born under a load of obligations of every kind, to our predecessors, to our successors, to our contemporaries. After our birth these obligations increase or accumulate, for it is some time before we can return any service.... This ["to live for others"], the definitive formula of human morality, gives a direct sanction exclusively to our instincts of benevolence, the common source of happiness and duty. [Man must serve] Humanity, whose we are entirely.	level 5 and well beyond: society and humanity
August Comte (1852)	"vivre pour autrui", living for other, serve humanity	level 5 helping behavior
Fehr & Fischbacher 2003	Throughout the paper we rely on a behavioural—in contrast to a psychological—definition of altruism as being costly acts that confer economic benefits on other individuals.	level 5 helping behavior
Henrich, 2006	Reputation can support altruism in large groups; however, some other mechanism is needed to explain why reciprocity should be linked to prosociality rather than selfish or neutral behavior	level 5 helping behavior level 4 prosocial behavior
Ashton et al. 2014	The Altruism (versus Antagonism) scale assesses a tendency to be sympathetic and soft-hearted toward others. High scorers avoid causing harm and react with generosity toward those who are weak or in need of help, whereas low scorers are not upset by the prospect of hurting others and may be seen as hard-hearted.	level 4 prosocial behavior
Costa & McCrae 1992	The label Agreeableness has been almost universally used for Norman's Factor II, but as Digman (1990) noted, "Agreeableness . . . seems tepid for a dimension that appears to involve the more humane aspects of humanity—characteristics such as altruism, nurturance, caring, and emotional support at the one end of the dimension, and hostility, indifference to others, self-centeredness, spitefulness, and jealousy at the other"	level 4 prosocial behavior

Krebs (1970)	<p>The question of the definition of altruism, and the related question of whether altruism exists, have posed difficult problems. Behavioral researchers have generally avoided the definitional issue, which involves establishing the intention behind apparently self-sacrificial other-oriented acts, by employing operational definitions. Investigators concerned with altruism as a personality characteristic have generally dealt with the definitional issue by attempting to determine the principles which underlie the attribution of altruism. They have not, though, attempted to determine whether the altruism that was attributed actually met the criteria of attribution. Finally, research has been conducted and theoretical positions amended in order to accommodate altruistic behavior. Positions which seemed to pose challenges to the existence of altruism have come to accept the fact that altruistic behavior occurs (within the definitional constraints of the theory in question), and have set out to explain it.</p> <p>On my definition of altruism, behaviors directed toward the enhancement of the welfare of another increase in altruism in proportion to the anticipated costs to self: Risking your life to save a drowning person is more altruistic than throwing him or her a lifesaver. Similarly, in response to Batson and Shaw's second point, I would reduce the amount of altruism in high-cost acts of helping in proportion to the extent to which self-benefits are anticipated (but not, with Batson and Shaw, necessarily obtained).</p>	level 4 prosocial behavior
Krebs (1991)	<p>The foregoing review indicates there is a trait of altruism. That is, some people are consistently more generous, helping and kind than others.</p> <p>The present paper deals with the broad definition of altruism, understood as the dispositional willingness to respond with positive emotions to others and to treat others, including strangers, sympathetically. Such sympathy not always translates to behavioral acts (this is the difference between the concept of "altruism" and that of "prosocial behavior").</p>	level 4 prosocial behavior
Rushton (1981)	<p>Regarding the facets of Agreeableness: We expect the trust, altruism, straightforwardness, and tendermindedness facets to correlate most strongly with benevolence values.</p>	level 4 prosocial behavior
Szuster 2016	<p>The empathy-altruism hypothesis, which claims that the prosocial motivation evoked by empathy is directed toward the ultimate goal of increasing the welfare of the person in need, has received considerable empirical support.</p>	level 4 prosocial behavior
Roccas et al. 2002		level 4 prosocial behavior to level 3 (macro / meso) general motivation
Batson et al. 1991		level 3 (macro / meso) general motivation

Bierhoff, 2002	<p>What does it mean to act altruistically, and what is the difference between prosocial behaviour and altruistic behaviour ? The terms "helping behaviour", "prosocial behaviour", and "altruism" are frequently used interchangeably. However, they may be distinguished for analytic purposes. Such distinctions refer to the motives "behind" the overt behaviour. - "Helping" is the broadest term, including all forms of interpersonal support. - The meaning of "prosocial behaviour" is narrower, in that the action is intended to improve the situation, of the help-recipient, the actor is not motivated by the fulfilment of professional obligations, and the recipient is a person and not an organisation. - The term "altruism" refers to the prosocial behaviour that has an additional constraint, namely that the helper's motivation is characterised by perspective taking and empathy.</p>	<p>level 3 (macro / meso) general motivation</p>
Cialdini et al. 1997	<p>The question of whether we are ever genuinely selfless--that is, motivated solely or principally to enhance the welfare of another--has been advanced significantly by theorists who have introduced the concept of empathy to the debate.</p> <p>Altruism (biological definition): behavior that increases the recipient's fitness at a cost to the performers;</p>	<p>level 3 (macro / meso) general motivation</p>
De Waal, 2008	<p>Directed altruism: helping or comforting behavior directed at an individual in need, pain, or distress;</p> <p>Intentional altruism: the altruist deliberately seeks to benefit either the other (intentionally altruistic altruism) or itself (intentionally selfish altruism);</p> <p>Empathy-based altruism: help and care born from empathy with another</p> <p>It is also necessary to differentiate between prosocial and altruistic behavior. Prosocial behavior generally has been denned as voluntary, intentionalbehavior that results in benefits for another; the motive is unspecified and may be positive, negative, or both (Eisenberg, 1982; Staub, 1978). In contrast, altruistic behavior is defined as a subtype of prosocial behavior—as voluntary behavior intended to benefit another, which is not performed with the expectation of receiving external rewards or avoiding externally produced aversive stimuli or punishments. In most theoretical discussions, prosocial behavior motivated by altruistic motives has been linked conceptually to empathy or sympathy.</p>	<p>level 3 (macro / meso) general motivation</p>
Eisenberg & Miller, 1987	<p>Several researchers (...) have suggested that empathic emotion leads to motivation directed toward the altruistic goal of increasing the other's welfare.</p>	<p>level 3 (macro / meso) general motivation</p>

Klimecki et al. 2016	Although altruism is defined as a costly act performed for the benefit of another, humans and other animals do indeed exhibit and act upon this genuine concern for another's welfare. Decades of research in the fields of economics and psychology have been dedicated to elucidating the determinants of altruistic behavior. However, previous work on altruistic behavior in these two disciplines has largely been carried out in isolation. (...) However, the psychological factors that drive this kind of altruistic behavior have been poorly understood. This is surprising considering that psychological research has established a close link between altruism and emotional empathy, the capacity to share the feelings of another.	level 3 (macro / meso) general motivation
Dawkins, 1976	An entity, such as a baboon, is said to be altruistic if it behaves in such a way as to increase another such entity's welfare at the expense of its own. Selfish behaviour has exactly the opposite effect. 'Welfare' is defined as 'chances of survival', even if the effect on actual life and death prospects is so small as to seem negligible.	level 3 (micro) evolutionary mechanisms
West & Gardner, 2010	In the 1960s, Hamilton (...) realized that maximization of individual fitness could not explain altruistic or spiteful traits, which are costly to the individuals that perform them. (...) The problem is that such altruism reduces the reproductive success of the altruist—so why is it not weeded out by natural selection? Hamilton (...) showed that genes can spread not only through their direct impact on their own transmission but also through their indirect impact on the transmission of copies present in other individuals. Consequently, altruistic behaviors can be favored if the benefits are directed toward other individuals who share genes for altruism.	level 3 (micro) evolutionary mechanisms
Cropanzano & Mitchell, 2005	Altruism is a rule whereby we seek to benefit another person even at an absolute cost to ourselves. Over the years, much debate has been held in social psychology as to whether such a phenomenon is even possible (e.g., Batson, 1991). However, contemporary research seems to support Meeker's (1971) contention that altruistic motives share a place beside other exchange rules (for reviews, see Batson, 1995).	level 2 interaction rules
Thielmann et al., 2020	Specifically, interdependent situations often provide a possibility to maximize others' outcomes (i.e., max(others)), which affords the motive of altruism to guide prosocial behavior and which applies to all games considered here.	level 2 interaction rules
Carlo et al., 2002	Altruism refers to helping others when there is little or no perceived potential for a direct, explicit reward to the self	level 1 situational specific motivational compounds
Carlo et al., 2010	Altruistic prosocial behavior refers to voluntary helping behavior motivated primarily by concern for the needs and welfare of another, often induced by sympathy responding and internalized norms/ principles consistent with helping others (Carlo, 2006; Eisenberg and Fabes, 1998; Staub, 2005). These behaviors often incur a cost to the helper and the helper usually does not anticipate self-reward.	level 1 situational specific motivational compounds

Rodrigues et al. 2018	<p>Following this example, we even suggest to explicitly include this “benevolence” in a narrow definition of altruism. Altruism and altruistic acts following our view and extending the work of Carlo and colleagues (2010), would be an action that is voluntary, intended to benefit another person, driven by this motivation to help the other person to at least 50% (in order to avoid the domination of other motives like public reputation, see e.g. Carlo and Randall, 2002; Rodrigues et al., 2017) and is benevolent, meaning that there is no intention of harming other persons during the process of helping.</p> <p>They propagated the definition of altruistic acts for “an action that is voluntary, intended to benefit another person, driven by this motivation to help the other person to at least 50% (in order to avoid the domination of other motives like public reputation, see e.g., Carlo & Randall, 2002; Rodrigues et al., 2017) and is benevolent, meaning that there is no intention of harming other persons during the process of helping” (Rodrigues, Nagowski, et al., 2018).</p>	<p>level 1</p> <p>situational specific motivational compounds</p>
Rodrigues et al. 2020		<p>level 1</p> <p>situational specific motivational compounds</p>

that there must be “certain forms of altruism” (Henrich et al., 2006).

As the intention to help is not spoken of explicitly, helping behavior could be the relevant category here. Yet, like the philosophical standpoint and the original formulation by Comte, one could argue that these definitions may also be seen at the level of prosocial behavior, especially as Henrich mentions prosocial behavior explicitly. The helping behavior category would be more fitting for Comte’s non-specific living for others (Comte & Bridges, 2001), not excluding things one might have to do as part of his/her job or other obligations (Bierhoff, 2010).

“Altruism” defined at the level of prosocial behavior (Level 4)

Starting with the term “prosocial behavior”, some perspectives and researchers in psychology use “altruism” at this level. Scholars investigating prosocial behavior in the early days of prosocial research may have coined the term “altruism” in the case of the Big Five or Six personality models, as they proposed a rather broad definition of “altruism” as a trait (Krebs, 1970; Rushton et al., 1981 see Table 1).

However, first and foremost, the definition of “altruism”—established by the huge and influential personality trait classification of the Big Five (McCrae & John, 1992 see Table 1), as well as the HEXACO model (Ashton et al., 2014; Ashton & Lee, 2007; Lee & Ashton, 2006)—tends to be found at this broad level of prosocial behavior. Notwithstanding, the HEXACO model differentiates prosocial behavior categories and defines a cross-loading concept of altruism, indicating a complex construct. That said, this perspective is still on Level 4, aiming for a definition where “altruism” is meant to be equal to prosocial behavior. The model of the Big Five breaks down a grouping of personality traits based on personality survey data and lexical descriptions into five independent factors (Costa & McCrae, 1992; McCrae & John, 1992; Roccas et al., 2002 see Table 1): (1) extraversion (outgoing/energetic vs. solitary/reserved); (2) agreeableness (friendly/compassionate vs. critical/rational); (3) openness to experience (inventive/curious vs. consistent/cautious); (4) conscientiousness (efficient/organized vs. extravagant/careless); and (5) neuroticism (sensitive/nervous vs. resilient/confident). In

this model, the concept of prosocial behavior is exclusively linked to agreeableness.

In contrast, the HEXACO model proposes six dimensions: (1) honesty-humility (honest/sincere vs. greedy/opportunistic); (2) emotionality (vulnerable/sensitive/anxious/sentimental vs. fearless/tough/independent/unemotional); (3) extraversion (see the Big Five); (4) agreeableness (tolerant/forgiving vs. angry/quick-tempered); (5) conscientiousness (see the Big Five); and (6) openness (see the Big Five) to experience (Ashton & Lee, 2007). Since different concepts, such as honesty-humility and emotionality, are partially linked to prosocial behavior, the HEXACO model indicates that further differentiation may be necessary (Ashton et al., 2014). In particular, the HEXACO model provides a theoretical explanation about the correspondence of different personality traits to the various types of “altruism,” insinuating possible motivational differences (Ashton et al., 2014). Nevertheless, the HEXACO model uses “altruism” for the construct of prosocial behavior (see Table 1); and thus is an example of using the term “altruism” for the level of prosocial behavior.

Szuster’s approach (2016) is at the same level (see Table 1). With her classification of altruism, she tries to integrate different perspectives from numerous fields and disciplines into one non-hierarchical structure, still using “altruism” almost as a synonym for “prosocial behavior,” with the differences of these two concepts with altruism being the intentional and motivational aspect of prosocial behavior (Szuster, 2016). Specifically, she identifies automatic interrelations with others such as mimicry and empathy, socialization, and normative prosocial behavior, as well as moral values (as reasons for prosocial behavior in general). Although this

generates the conclusion that there are many aspects of “altruism” and therefore many aspects of prosocial behavior, the definition of altruism is still at the level of prosocial behavior, and the contradictions are not analyzed or discussed in depth.

“Altruism” defined at Level 3

Level 3 (macro/meso): General motivation

Having mentioned some examples using the term “altruism” on the highest level of the prosocial behavioral category, we now refer to researchers who apply the term at the lower level of general motivation. Many of them directly and exclusively link a specific motivation to the term “altruism” (mostly empathy, e.g., de Waal, 2008; Eisenberg et al., 2006, 2014; Fultz et al., 1986; Klimecki et al., 2016; Page & Nowak, 2002; Preston & de Waal, 2002, see Table 1). In a literature review, Krebs (Krebs, 1970) underlines the importance of distinguishing the motivation behind an altruistic or prosocial act. Batson and colleagues, popular scholars from the field of psychology, employ such a definition of “altruism” (Batson, 1987; Batson et al., 1991; Fultz et al., 1986, see Table 1). In their work, the path from the concept of altruism as prosocial behavior evolves into the idea that only a certain motivational aspect (i.e., empathy) drives altruism, while other motivations might propel other elements of prosocial behavior. As such, the empathy-altruism hypothesis arose (Batson et al., 1991; Fultz et al., 1986). Eisenberg and colleagues (Eisenberg et al., 2006, 2014; Eisenberg & Miller, 1987, see Table 1) share this perspective on altruism and explicitly define it as “a subtype of prosocial behavior—as voluntary behavior intended to benefit another, which is not performed with the expectation of receiving external rewards or avoiding externally produced aversive stimuli or punishments” (Eisenberg & Miller, 1987). They

also affirm that altruism is related to empathy; they stress that other motives (such as sympathy) could have an impact on prosocial behavior, yet they are probably different prosocial behavior types than altruism (Eisenberg et al., 2014; Eisenberg & Miller, 1987). It is still debated whether empathy is the sole potential driving force for altruism, or whether sympathy and other rule-based cognitive mechanisms could propel this kind of voluntary prosocial behavior intended to benefit someone else, even if the latter does not cover the majority of empirical cases of altruism. Whether in an individual single case, a person helps another because he/she feels for, and empathizes with, the other person, or alternatively whether a person helps because she/he feels sympathy or simply likes the other person, is a single case empirical question. In addition, we may ask how a situation has to be characterized in which an observer empathically feels a victim's rage. Differential and personality psychology is particularly interested in the latter questions in terms of individual differences.

Other researchers have a similar perspective on the same hierarchical level as the aforementioned authors. Bierhoff (2010, 2002, see Table 1), for example, not only provides a very good integration of the different ideas of various disciplines about prosocial behavior, but also conceptualizes altruism as a construct driven by empathy and separates other prosocial behaviors divided by motivational aspects. Similar perspectives are found in the work of de Waal, who integrates this perspective into a learning model of prosocial behavior and altruism driven by imitation and empathy (de Waal, 2008). In contrast, Cialdini et al. (Cialdini et al., 1997, see Table 1) explain altruism from a different angle using the motivational level of oneness as the experience of shared, merged, or interconnected personal

identities. They perceive this concept as being directly linked to benevolence, and therefore provide an alternative to the empathy-altruism hypothesis, yet still define their concept of altruism at the level of general motivation.

Level 3 (micro): Evolutionary mechanisms

The field of biology has a very distinct point of view regarding which kind of prosocial behavior is to be labelled "altruism" (Dawkins, 1976; West & Gardner, 2010, see Table 1), which is based on a formalized perspective in evolutionary biology. However, various connotations of altruism have been suggested in biology, such as (kin-)altruism, competitive altruism, or reciprocal altruism. Our impression from outside the field is that often, these alternative uses of altruism refer to it as prosocial behavior in general, and then specify mechanisms at lower levels of the hierarchy with an additional adjective. As mentioned earlier, West and Gardner (2010) present four categories or mechanisms by which evolution forms social behavior: altruism, reciprocity, spite and green-beardedness. Interestingly, their distinction is not easily matched with the level of motivation. As this perspective centers more on species and whole populations, it concentrates on effects within and between different species, rather than on differences between individuals, and the evolutionary perspective omits the macro and meso levels. Accordingly, there is no way to further disentangle the proclaimed behavioral categories in the case of more available data such as self-reports, cognition, and intentions for one particular species: humans. Hence, the level of their categorization may be quite broad in relation to psychological views and more comparable to a factorization of behavior, leading to only a few behavioral categories, but being a very valuable classification, especially since it is relevant for the multispecies

perspective. Considering the human individual behavior perspective, however, it may be a rather broad view on the subject matter, leaving out some nuances of human behavior. However, the categories given—for example, in West and Gardner (2010)—may still provide hints to explain behavior in psychological situations.

Biological theories have been extended beyond the four basic genetic mechanisms. Several other intermediate concepts have been proposed to explain what is called “altruism” in this literature, and what would be “prosocial behavior” in the present nomenclature. However, we are not able to cover them in detail. Instead, we focus on the evolutionary approach and its interplay with psychological perspectives.

Psychological and biological perspectives: The macro/meso vs. micro level

The differences between the macro/meso and micro levels are manifold, yet each has their own biases: For example, in looking at individuals at the macro/meso level in personality psychology, we describe not only a population average. Personality psychology particularly aims to describe individuals with a wide range of dispositions. Accordingly, some individuals in the distribution may be inclined, given their neural systems, to exhibit exaggerated or suboptimal (at least in evolutionary fitness terms) altruistic behavior to unrelated individuals; this might not be evolutionarily stable, but still requires a psychological explanation. As a second example, in targeting the micro mechanism of heritage, the complexity of causes and interactions from the genome, through realizations in the neural system, may well lead to systems-ordering behavior in a neuroscientific, psychological sense that could be everything but evolutionarily clean. That is, one mechanism

that is clearly distinguishable in evolutionary terms may be intertwined with other mechanisms that promote fitness. Accordingly, all the processes described in evolutionary biology as ‘altruism,’ ‘reciprocity,’ or ‘green-beardedness’ (see Figure 2, Gardner and West, 2010) could, in an evolutionary sense, support psychological trait altruism and psychological altruistic action. The evolutionary approach suggests that overt behavior needs to be of a summary fitness value (or at least not have a negative fitness value). However, it does not specify the psychological or neurofunctional mechanisms resulting in that behavior.

Nevertheless, the two concepts of Level 3 (meso/macro and micro) are not that different overall, as they may produce similar conclusions from distinct perspectives. In some cases, however, they will come to different conclusions. For example, the helping behavior of a greedy person (Mussel et al., 2015, 2018) toward an older rich person in his/her own family could be seen as (kin-)altruism at the micro level, while it could be viewed as reward-driven behavior at the macro/meso level due to the intent to inherit a large sum of money. That said, these definitions by no means imply that any of them are more or less important or accurate in general. These definitions are simply more or less suitable for the scientific context in which they are used and debated.

These evolutionary distinctions and mechanisms may hint at differences in personality traits, as the unique motivations also do. Accordingly, at the micro level, a complex interplay (which has already been indicated by the HEXACO model in Level 4) can be found here, where (kin-)altruism is linked to emotional stability, in particular indicating low neuroticism as well as high agreeableness (Ashton et al., 1998). In addition to its link to agreeableness, evolutionary

reciprocity is connected to emotional stability (Ashton et al., 1998). At the macro/meso level, the concept of empathy may also be used to further describe the trait motivational component of prosocial behavior (Eisenberg et al., 2014; Eisenberg & Miller, 1987). These two approaches—the macro/meso and micro levels—come to similar conclusions and can relate to the same higher-order traits. The categories developed at the micro level (in terms of social behavior) suggest supercategories to search for the subcategories thereof in the personality domain at the macro/meso level. It thus becomes interesting and fruitful for different fields to debate the areas where the different conceptualizations relate to each other. This especially applies to the psychological trait term altruism because for personality traits, a certain genetic basis can be expected (Ashton et al., 1998).

“Altruism” defined at Level 2: Categories of human interaction and social exchange rules

Interpersonal interdependence theory (Kelley & Thibaut, 1978) has a partially similar approach to the entire notion of prosocial behavior as the previously mentioned biological concepts, both sharing a category labelled “reciprocity” (Cropanzano & Mitchell, 2005; West & Gardner, 2010). The prior, rather narrow framework of dyadic interactions (Kelley & Thibaut, 1978) was later altered to account for a broader range of phenomena in human interactions where not only a narrow dyadic interaction is given (Cropanzano & Mitchell, 2005). However, the concept of altruism is vastly different from the kinship-driven approach to interactions. In social exchange theory, altruism seeks to benefit another person, even if costs are incurred (Cropanzano & Mitchell, 2005, see Table 1). This comprises the aspect of costs, established by the economic perspective (Fehr & Fischbacher, 2003), and the motivational aspect of caring for

others, which is especially studied by Eisenberg et al. (Eisenberg et al., 2014; Eisenberg & Fabes, 1998; Eisenberg & Miller, 1987). The basic idea for how altruism is propagated is that in decisions and exchanges, there is a rule set that may be implicitly or explicitly followed, which forms the foundation of human social interaction (Cropanzano & Mitchell, 2005; Meeker, 1971). One of these rules to follow is the rule of altruism or social responsibility, in which the objective is to help another person; other rules also account for prosocial behavior and fall into a cooperative rule structure, such as the group-gain exchange rule or reciprocity (Meeker, 1971). Hence, different prosocial interactions can be distinguished and may be linked to certain motivations and rule sets.

In a meta-analysis, Thielmann et al. (Thielmann et al., 2020, see Table 1 for altruism definition) propose their framework of prosocial behavior and trait relations, which is partially based on social exchange theory and its predecessor, interdependence theory (Kelley et al., 2003; Kelley & Thibaut, 1978). They suggest that prosocial behavior has four broad situational affordances (exploitation, reciprocity, temporal conflict, and dependence), and that every trait concept used may be activated specifically by these broad affordances and further sub affordances, stressing even more the situational, interactional character of their approach. With this division of prosocial behavior and its connection to broad traits—such as the five-factor model personality traits or the HEXACO model, as well as narrow traits (e.g., altruism, concern for others, social value orientation, and empathy)—it is a highly impressive integration of the relations of personality traits in the social exchange rule context. However, they do not use the concept of altruism given by some interpretations of interpersonal dependence theory (Cropanzano

& Mitchell, 2005; Meeker, 1971) and choose to only account for the rather broad definition established by Batson et al. (Batson et al., 1986). Thus, their concept of altruism is, strictly speaking, still at one level above; it is within the empathy motivation concept at Level 3 (macro/meso), since they do not include narrower definitions of altruism used by previous researchers. Accordingly, they find links to higher propositions and trust in various economic games, as would be expected for prosocial behavior tendencies in general (Thielmann et al., 2020). Summarizing the evidence provided, the differentiation of the trait concept at this level is mostly similar to the level above; however, the distinction of different interaction rules offers the possibility to identify situational affordances and categorize traits of the prosocial behavior domain according to these affordances.

“Altruism” defined at Level 1: Situation-specific motivation compounds

Many researchers who approach the topic of altruism from the psychological perspective came up with the importance of the motivational aspect for human prosocial behavior (Bierhoff, 2010; Bilsky, 1989; Carlo et al., 2010; Eisenberg et al., 2006). Having recognized the various levels of definitions of altruism from long ago, Eisenberg (Eisenberg & Miller, 1987) lays the foundation for the first level, yet mostly stays at the level of general motivation in her work. Starting from acknowledging the significance of motivational aspects for the different kinds of prosocial behavior, Carlo and colleagues try to further define some of the prosocial behavioral categories according to their motivational source and the situations they are prone to reveal (Carlo et al., 2003; Carlo & Randall, 2002, see Table 1). These prosocial behavioral categories, although not exhaustive, have been

replicated in other countries (Azimpour et al., 2012; Rodrigues et al., 2017), indicating that they might not be a society-dependent phenomenon only. Following this line of research, we try to define altruism as a narrow concept in our work, specifically as a voluntary behavior driven by the intent to benefit another person, but also by the concept of benevolence: that no other person will be intentionally harmed (Rodrigues et al., 2018, 2020, see Table 1). Moreover, helping behavior may come at a cost. Thus, we integrate the perspectives of Eisenberg (e.g., Eisenberg & Miller, 1987) and Batson (e.g., Batson et al., 1991; Fultz et al., 1986), where a voluntary but empathy-based prosocial act is seen as altruistic; and Cialdini et al. (1997), where oneness and benevolence are crucial motivational factors of altruism. Additionally, we integrate the cost aspect, which has already been established by economics (see, e.g., Fehr & Fischbacher, 2003), and by the notion of altruism in social exchange theory (Cropanzano & Mitchell, 2005; Meeker, 1971). Our concept of altruism therefore highlights the importance of benevolence as well as voluntary action and inherent costs. One reason to include benevolence in the definition of altruism is the idea of contrasting benevolence- and empathy-motivated prosocial behavior with law/norm-reinforcement and anger-driven prosocial behavior. This debate—over whether “altruistic punishment” is propelled by altruism, or whether other motivational elements may be more suitable to explain this behavior—has been around for a while (for an intermediate summary see Rodrigues et al. 2018). Within this debate, the differences in the levels of definitions of different fields are particularly evident to us, as well as the difference in motivations driving distinct prosocial behavioral categories, as has been exemplified by good old Henry throughout the manuscript. So, we have seen, that an aggressive act against an offender

(see example someone pushing someone down above) which is anger-motivated and law/norm-reinforcing prosocial behavior might be called “altruistic punishment” in an economic definition of altruism (see, e.g., Fehr & Fischbacher, 2003). However, we would not associate it with altruism in a narrow sense or with “benevolent” altruism (Rodrigues et al., 2018, 2020) in particular. If one helps the victim up, this would be an altruistic and benevolent act, as even the offender is not harmed; therefore, the action would represent “altruistic compensation” (see, e.g., Leliveld et al. 2012). Specific motivational and situational aspects accordingly further distinguish the general motivational elements referred to in the third level of our model. Hence, the costly action that occurs with this benevolence aspect in the example leads to a very narrow concept of altruism at this first level (Rodrigues et al., 2018, 2020). By including specific situational aspects and combining them with certain motivational components, a more fine-grained description and categorization of human prosocial behavior is possible at this first level.

To illustrate the different levels of altruism and related research disciplines and approaches, exemplary researchers from various disciplines and the hierarchical position of their concepts of altruism are shown in Figure 3.

Examples of empirical applications of the model using Level 0: Examples of human behavior modelled in experimental design

To demonstrate the model’s empirical application, especially in the context of empirical research about human behavior, we compare definitory differences of altruism by examining the term “altruistic punishment” (Fehr & Gächter, 2002) or “costly punishment” (Rodrigues et al., 2018, 2020; Seip et al., 2014). First, we need to define what

“costly” or “altruistic” punishment is. This type of behavior includes costs for the acting person and punishes another person, which affects established norms (such as fairness or other society-based consensuses). Examples for this type of behavior are provided in economic decision games such as the ultimatum game (Güth, 1995; Haselhuhn & Mellers, 2005; Kahneman et al., 1986). In the ultimatum game, a proposer distributes a monetary endowment between oneself and a receiver. The receiver reacts to the distribution by accepting it or rejecting it. If the distribution is accepted, the receiver and proposer obtain their respective distributed shares of the money. If the distribution is rejected, neither the receiver nor proposer obtains any money. This leads to punishment for the proposer where he/she gets no money, while the receiver experiences the cost of getting no money. However, it is not necessary for the punishment to be executed by a person who is integrated into the primary interaction, which has the advantage that some confounding reasons for rejecting an offer may be eliminated. For instance, third-party dictator games may be used, where a third person watches a dictator game and is able to interfere with his/her own money in this dictator game distribution, e.g., by punishing the observed proposer. The dictator game is a further extension of the ultimatum game, where the receiver is short of a reaction opportunity and passively gets what the dictator has decided in any case. In the third-party setup, where a person watches this distribution, the punishment action affects the dictators by reducing their amount of money, while the costs are covered by the money of the third person. However, this third person, who executes the punishment, is not affected directly by the distribution (Leliveld et al., 2008, 2012; Mothes et al., 2016; Rodrigues et al., 2018, 2020). If we analyze this type of behavior, from the

Figure 3: Hierarchical model of prosocial behavior: Examples of hierarchical levels of altruism. On the highest (relevant) level is prosocial behavior. On the next lower level (the macro/meso level) is a differentiation of motivation. On the next lower level are differences in interaction rules, and on the levels below that, there are different behavioral categories linked to various motivations, followed by behavioral examples. For the micro level, the third level is the final one and is not motivational, but evolutionary mechanisms are considered. The color of each distinct category indicates the dimension of tolerance for harm done to others, while the background color signals the primary goal of benefitting oneself or others. The green color refers to where different researchers and disciplines tend to set their definition of altruism.

Note. This model is not exhaustive. These classifications are meant to facilitate communication, not to judge the respective view.

perspective of Fehr et al. (e.g., Fehr & Fischbacher, 2003; Fehr & Gächter, 2002), we conclude that a very fitting term for such behavior is “altruistic punishment,” as their definition of altruism is given at Level 5: helping behavior. Hence, it is not a conflicting finding from their perspective that constructs (such as anger) from lower levels (here Level 3 [macro/meso]: General motivation) play an important, driving role in this kind of punishment (e.g., Fehr & Fischbacher, 2004; Pillutla & Murnighan, 1996; Rodrigues et al., 2018, 2020; Seip et al., 2009, 2014). However,

from the psychological view of Rodrigues et al. (2015, 2018, 2020), the term “altruistic punishment” is not appropriate because their rather narrow definition of benevolent altruism is provided at Level 1. Having their definition at this lower level, Rodrigues et al. (2018, 2020) identify anger as a critical motivational aspect of punishment. Interestingly, in specific situational contexts, their narrow definition of altruism still plays a vital role in punishment (Rodrigues et al., 2018). Since no motivational concept can be tied to the punishment actions in an exclusive manner, some researchers prefer to label it

“costly punishment,” as the costs are given independently from the motivational root of the behavior (Rodrigues et al., 2018, 2020; Seip et al., 2014).

Concerning a rather similar example of behavior, “altruistic compensation,” there is no such discrepancy concerning the different levels of the definition. The compensation can, for instance, be operationalized in the third-party dictator game if the third party can give money to the receiver. As for the previously explained punishment action, costs are incurred for the third party through their investment in the compensation, but the third party is not directly affected by the outcome distribution. Here, the definition of Level 5: Helping behavior—for example, by Fehr et al. (e.g., Fehr & Fischbacher, 2003; Fehr & Gächter, 2002)—and the narrower definition of Level 1 come to the same hypothesis and conclusion (Rodrigues et al., 2018). However, it is crucial to realize that the reason for the respective overlap in the definitions of altruism is not to be taken for granted, as the previous examples illustrate.

A third example of the model’s application can be seen in the donation behavior observed in the dictator game. The dictator’s offers are commonly used to indicate “altruistic behavior” (Eckel & Grossman, 1996; Rodrigues et al., 2015). In general, based on our hierarchical framework, any offer greater than zero would be regarded as helping and therefore suffice for the Level 5 definition of altruism. If this non-zero offer is the lowest possible offer, it is not more than that: helping. We would regard any offer higher than the lowest possible one as prosocial behavior, satisfying the Level 4 definition of altruism. Typically, the higher the offer, the stronger the prosocial behavior. Alternatively, dictator game offers are a direct benchmark of altruism per se. However, as the

level of altruism has not been further specified, this is again a matter of nomenclature. Let us now consider dictator game offers only as an indicator of prosocial behavior, while we can aim to distinguish various causes and mechanisms at the next level of explanation. In other words, each individual offer of a participant cannot be traced back to any motivational or evolutionary mechanisms without further evidence. For example, dictator game offers are higher under observation (e.g., Hoffman et al., 1994; Johannesson & Persson, 2000), signaling that proposers are offering less money if receivers are unable to determine how much money has been spent on them by every single dictator (cf. Franzen & Pointner, 2012). When using a broad definition of altruism (e.g., on Level 4: Prosocial behavior), more altruistic behavior is exhibited under observation and more altruism is noted. Notwithstanding, participants with a high score on a questionnaire measure of altruism, based on the definition at Level 1, displayed reduced dictator offers under observation and increased dictator offers under anonymity (Rodrigues et al., 2015). As shown by this instance, the differences in definitions concerning the levels lead to seemingly contradictory findings; however, they may be integrated and are less contradictory than one might assume if we consider the level of the definition. That said, due to the rather fine-grained, narrow approach concerning motivational and situational differentiation, we would rather keep the term “altruism” more narrowly focused. We prefer to use the proposed label of Level 4: Prosocial behavior to explain the increase in dictator game offers under observation conditions. In addition, we again argue that dictator game offers should be considered more broadly as an indicator of prosocial behavior, and not necessarily as a direct indicator of narrow or benevolent altruism. Another claim stressing

our point is provided by the influence of attractiveness for dictator game offers. For example, Hancock and DeBruine (Hancock & DeBruine, 2003) investigate the dictator game and report a correlation between rated attractiveness and offer levels of 0.91. Such effects suggest that prosocial behavior in the dictator game may be due to reward-based motivation (Level 3 [macro/meso]: General motivation) or sexual motivation and reciprocity (Level 3 [the micro level] or Level 2: Interaction rules). Following this evidence, individuals would likely invest in a cost such as a dictator game offer to receive fitness benefits by increasing their probability of mating success. This mechanism would be instrumental in sexual selection and sexual competition (see also costly signaling above). In line with this idea, perceived prosocial traits are relevant to one's choice of mate (Bhagal et al., 2020; Phillips et al., 2008, 2010). Taken together, under these circumstances, increased dictator offers may be under the control of external reward motivation (Level 3 [meso/macro]: General motivation) and reciprocity (Level 3 [micro] or Level 2: Interaction rules), rather than under the control of benevolence of empathy motivation (Level 3 [meso/macro]: General motivation) and (kin-)altruism (Level 3 [micro]). Therefore, we suggest that dictator game offers only be considered an indicator for prosocial behavior instead of altruism under specific conditions and definitions that are lower than Level 4: Prosocial behavior. Taken together, these examples exemplarily show that our hierarchical model may well resolve some contradictions in the realm of altruism research.

Conclusion

This theoretical, hierarchical model of prosocial behavior relates and partly integrates several perspectives from different researchers and disciplines to provide a framework for

easier communication among scientists and even among different disciplines assessing altruism and prosocial behavior in experimental and empirical context. It is vital that one is aware of the hierarchical levels of the construct of prosocial behavior, as well as the differences in the definitions of specific terms such as altruism. Hence, seemingly contradictory findings may be perfectly compatible if originally seen from the angle of the hierarchical model of prosocial behavior, such as "altruistic punishment" (Fehr & Gächter, 2002) versus "costly punishment" (Rodrigues et al., 2018, 2020).

To clarify these hierarchical and dimensional differences concerning the tolerance for harm and intended benefit for oneself or others, we have given examples at different levels. This hierarchical framework of prosocial behavior may be used to communicate in this interdisciplinary field more easily and to avoid misunderstandings due to mere differences in the hierarchical level of definition. We hope this framework will help bridge gaps between distinct disciplines investigating different aspects of prosocial behavior and that it provides a novel, integrative view on the concept of altruism that may be extended by other researchers, who can add their specific concept of altruism and prosocial behavior types on the respective levels.

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