

# **The Roots of Moral Autonomy**

How Choice Affects Children's Prosocial  
Actions and Expectations

Inaugural-Dissertation  
zur Erlangung des Doktorgrades der Philosophie  
an der Ludwig-Maximilians-Universität München

vorgelegt von  
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2019

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- Tag der mündlichen Prüfung: 09.12.2019

## **Acknowledgements**

Foremost, I would like to express my sincere gratitude to my supervisor Prof. Dr. Marco F.H. Schmidt for his continuous support of my research, his immense knowledge and for allowing me to grow as a research scientist. Furthermore, I would like to thank Prof. Dr. Beate Sodian for agreeing to supervise my thesis and for her valuable comments and suggestions on my work.

I am deeply grateful to my colleagues Veronika Eisenschmid, Emmily Fedra, Anja Kaßecker and Bianca Dietrich for our shared experiences and the excellent teamspirit of the Forscher Früchtchen. Many thanks to the students and interns who have accompanied and enriched the research process and were a vital part of our team. Special thanks go to Lena Düchs, Elena Loos, Ann-Sophie Störmann, Regine Primbs, Franziska Walden, Nicole Walter and Magdalena Wörle. I would also like to warmly thank the graduate candidates Laura Althaus, Charlotte Eppenberger, Jana Frenzel, Teresa Tänzer and Katharina Vogel for the cooperation and the great experience of seeing their progress and their success. My appreciation also goes to the caregivers, parents and children who participated in my studies and without whom it would not have been possible to conduct this research.

Furthermore, I want to thank my family: my parents, my grandma, my aunt and uncle, my brother and my boyfriend for their love and support. The confidence you have in my abilities is invaluable for me. I am also very grateful to my friends Sarah and Anni for their kindness, their encouragement and the wonderful time and friendship we share.

Finally, I would like to express my appreciation to Prof. Dr. Dr. Lieselotte Ahnert for supporting my scientific career and for her inspiring enthusiasm and interest in the development pathways of children.

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## **Abstract**

Human cooperation and group living are based on societies in which individuals not only care about their own interests but share common norms and values – such as morality and prosocial behavior. As early as the 18th century, Immanuel Kant postulated autonomy as the key to human morality. Kant explained that a rational agent with a free will would necessarily make moral – not immoral – decisions. However, the fundamental question of how moral behavior acquires normative weight remains unresolved until the present day, especially when moral behavior entails personal costs for the individual. This dissertation builds on Kant’s thesis and aims to investigate important building blocks of moral autonomy at preschool age. Therefore, children’s own prosocial decisions as well as their normative and descriptive expectations about others’ prosocial actions are assessed and linked to fundamental underlying mechanisms such as cultural learning and collective intentionality.

Study 1 assessed whether preschoolers enforce agreed-upon prosocial versus selfish sharing norms in a group dictator game. Three- and 5-year-old children and two hand puppets had the opportunity to agree on how to distribute resources between themselves and a group of passive recipients. The findings suggest that preschoolers understand prosocial, but not selfish, agreements as binding even though prosocial sharing norms are associated with personal costs. Study Set 2 assessed in two experiments whether observed choice increases the children’s own prosocial sharing behavior. In Experiment 1, children observed an adult model who was provided with costly choice (i.e., sharing instead of keeping an item), (b) non-costly choice (i.e., sharing instead of watching an item be thrown away), or (c) no choice (i.e., being instructed to share an item). As a next step, children were given the opportunity to decide how many stickers (out of three)

they would like to share with a sad animal puppet. Experiment 2 aimed to investigate possible age effects. The study design was reduced to condition (a) and (c), a second test trial was added. Taken together, the results of Study Set 2 suggest that 5-year-olds (but not 4-year olds) prosocial sharing behavior increases when previously having observed someone who intentionally acts prosocially at a personal cost. Study 3 investigated preschoolers' descriptive expectations about the causal agent of prosocial and selfish actions, based on agents' prior history of voluntary versus involuntary prosocial behavior. The results show that children at the age of 5.5 years use information about the circumstances and intentions of previous actions to generate descriptive expectations about other's future prosocial behavior. From 4 years of age, children distinguish between an agent who shares voluntarily and an agent who shares only involuntarily.

Taken together, this dissertation shows that preschool aged children infer and enforce prosocial – but not selfish – sharing norms. They engage in prosocial sharing which is affected by observed choice and they form descriptive expectations about others tendency to behave prosocial or selfish on the base of their knowledge about the agents prosocial versus selfish intentions.

## 1 General Introduction

The will is therefore not merely subject to the law but is so subject that it must be considered as also making the law for itself and precisely on this account as first of all subject to the law (of which it can regard itself as the author). – Kant

In our globalized and technological-driven world, one can obtain a flood of information in a matter of seconds – the truth and origin of which must be verified. A few clicks on the smartphone not only provide extensive informational knowledge but can also fulfill various desires: To postulate your beliefs to a global audience, find the love of your life in the internet, or appreciation for your “outfit of the day”. People invest a lot of time and money to fulfill their desires – but sometimes, individual desires may conflict with the morally “right” thing to do. That is why we have to weigh different needs against each other every day which is particularly difficult when there is no predefined norm or rule of conduct: Flexibility of an own car versus environmental protection, sustainable shopping versus cheap clothing or spending money on a newspaper from a homeless person or buying an ice-cream. As a responsible member of society, it is crucial to develop a moral compass and to decide autonomously which sources to trust and which values to obtain.

Kant's concept of *moral autonomy* (1781/1913) examines the rationale of moral action and autonomous decisions. According to Kant, moral autonomy is not only free from heteronomous constraints, but also free from the compulsion to acutely satisfy own desires, which represents a central competence in the western world of the 21st century. The current dissertation chooses an empirical approach to investigate important building blocks of moral autonomy in preschool age.

Located in the domain of developmental psychology, three studies investigate prosocial decisions of children and their normative and descriptive expectations of others prosocial actions. The human-specific ability of cultural learning and collective intentionality are introduced as important underlying mechanisms.

Chapter 1 combines philosophical and psychological theories which represent the theoretical embedding of the empirical studies. Chapter 2-4 contain the empirical part of this thesis. The dissertation concludes with a general discussion of the results in the context of the theoretical background, the consideration of limitations and the discussion of possible future research perspectives (Chapter 5).

## **1.1 Autonomy and Morality**

The following section presents two main approaches to autonomy in philosophical and psychological research. The chapter begins with an introduction to the concept of autonomy as – according to Kant's understanding – a prerequisite for all moral actions. In addition, autonomy in the sense of personal autonomy is considered from a psychological perspective. This is followed by a description of human morality – from a deontological point of view – referring to a set of norms that are prescribed as to how people should interact with each other. Further theories on human normativity are discussed, including important mechanisms of cultural learning and collective intentionality.

### 1.1.1 Philosophical Perspectives on Moral Autonomy

The noun *autonomy* is derived from the Greek words *autós* – itself and *nómos* – law and means "self-legislation" in the literal or "self-determination" in the broader sense (Goertz & Witting, 2018; Piper, 2010). In ancient Greece, Plato and Aristotle discussed autonomy as a form of self-determination (grounded in the idea of self-mastery) and stated that the rational part of the soul is the most just and truly a person's own (Dryden, 2010; Gerson, 2014; Karuzis, 2015; Plato, BC380/1961). For Aristotle (BC350/2009), happiness was achieved through *autarkeia* (self-sufficiency), which he defined as dependence on reason instead of external forces. In the modern period, the concept of autonomy was characterized by the decline of religious authority and – with emphasis on individual reason – an increase in political freedom (Dryden, 2010). As Dryden (2010) points out, philosophers distinguish between moral autonomy, personal autonomy and political autonomy. Moral autonomy is usually associated with Kant and is understood as the source of moral principles which is inherent in a rational agent (Sensen, 2013). According to Kant's (1785/1990) conception, morally autonomous action is determined by the individual's will – instead of the power of political leaders, pastors or society<sup>1</sup> (Dryden, 2010). He famously concluded that the supreme principle of morality (i.e., the *categorical imperative*, see below) is based

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<sup>1</sup> These would be defined as heteronomous principles or actions.

on practical reason and is a matter of rationality, not of passions, habits or the like. Kant's understanding of practical reason – our ability to use reasons to choose our own action – requires that we understand ourselves as free (Christman, 2018). The free will of the individual is based on rational maxims which excludes feelings or emotions, habits and other non-intellectual factors from autonomous decision making (Dryden, 2010). In the 8th section of Critique of Pure Reason (1781/1913), Kant stresses the distinction between autonomous and heteronomous principles of action. He defines moral actions which are controlled by other than rational reasons as heteronomous. While autonomy is introduced as the categorical and sole principle of moral laws and obligations that are subject to a law-giving of its own (German: eigene Gesetzgebung), heteronomous actions are grounded in conditional principles which can be freely adopted from a source other than pure reason (O'Neill, 2011).

Kant's rational maxims culminated in the categorical imperative (CI) which consists of several formulations. A maxim is a rule or principle of action, while a universal law refers to something that should always be followed in similar situations. "Act only according to that maxim by which you can at the same time will that it should become a universal law [...] without contradiction" (Kant, 1785/1990, p.38; Korsgaard, 1985). This means that only an action that is universalizable can be regarded as categorically moral. Practically speaking, to consider what would be the morally "right" thing to do in a specific situation one must choose an action that every person should perform in a comparable situation at any time – without exception. While the first formulation of the CI focusses on the universality of actions, the second formulation focusses on how to treat other people: "Act so that you treat humanity, whether in your own person or in that of another, always as an end and never as a means only" (Kant, 1785/1990, p. 47). This means that people should not be treated as mere objects, for they are, as rational and autonomous beings, their own ends with own goals and their

individual ways of working towards those goals (Korsgaard, 1996). This implies that people thus be treated as *ends-in-themselves* – an implication of fundamental importance for social interaction and the prevention of using other humans as mere means. Taken together, moral autonomy thus means that people are self-governed and able to set own ends, make decisions which are freely based on rational and therefore moral reasons. For example, stealing someone's money would be equal to using another person as a mere means (because that person is *used* to achieve one's own goal – which is to get the person's money) and therefore contradicts with Kant's concept of humanity as it violates the second formula of the CI (Bowie, 1999). This emphasizes that the CI not only focusses on a moral agent's actions but on his or her underlying intentions for action which is often contrasted with the principles of *utilitarianism*<sup>2</sup>.

One crucial aspect of Kant's moral psychology refers to the ratio of moral action and the satisfaction of personal desires: The CI – characterized as an objective, rationally binding and normative principle – must be adhered to, even if it contradicts human desires or inclinations (Johnson & Cureton, 2019).

The *hypothetical imperative* (HI), to the contrary, is conditional in nature, which is due to the fact that an agent's action is not based on a maxim of actions but on the respective goal (*If you want x than do y*). For example: If a person strives

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<sup>2</sup> The principle of utilitarianism implies that morality is determined by the consequences of an action. For example, following the principles of utilitarianism it is acceptable to harm others if this harm towards one or few people would increase the well-being of a greater number of people (Conway & Gawronski, 2013) whereas the principle of deontology (as in CI) states that morality is determined by the intrinsic nature (e.g. regardless of the consequences it is wrong to harm others).

for good grades in school, he or she should study; if a person longs to have a lot of money, he or she should choose the adequate profession. But if the person loses interest in good grades or money, they can choose to stop studying or working (Johnson & Cureton, 2019; Sensen, 2013). The CI, on the other hand, states that moral norms do not exist in relation to certain interests, but apply to everyone and unconditionally, (i.e. categorically).

### **1.1.2 Autonomy and Morality in Psychology**

While moral autonomy plays a decisive role in philosophy, psychological research focuses primarily on autonomy in the sense of *personal autonomy*. While the Kantian concept of autonomy includes an autonomous person whose will is completely free from all personal interests (Taylor, 2005), personal autonomy describes the ability to make independent decisions and pursue one's own approach to life - often independently of a moral content.

In social psychology, scholars describe autonomous action as the individual's preferred and freely *chosen* option (Deci & Ryan, 1987). The term *choice* is used as an "organismic concept anchored in the sense of a fuller, more integrated functioning. The more autonomous the behavior, the more it is endorsed by the whole self and is experienced as action for which one is responsible" (Deci & Ryan, 1987, p. 1025). The relevance of intentional choice making is also highlighted in cultural psychology. According to Tomasello and colleagues (2005), autonomy is understood as the freedom of intentional choice between possible options in order to achieve means that are relevant for the individual. An intentional agent chooses an action that leads to a specific predefined goal whereas the respective outcome might, or might not, match with this original goal.



In developmental psychology a well-known concept that deals with the psychological interrelation of autonomy and morality stems from Piaget (1932, 1954) who proposed (based on behavioral observations and clinical interviews) a prominent constructivist theory<sup>3</sup> about children's cognitive and moral development. Through the analysis of transformations in children's reasoning about moral concerns, he identified three stages of moral development which start with a first phase of relative moral unconcernedness followed by two main stages of moral thinking: *heteronomous morality* (moral realism) and *autonomous morality* (moral relativism). Heteronomous morality – in the Piagetian understanding – means that morality is imposed from outside. Children at this stage of moral development accept rules made by an authority and know that breaking the rules will lead to sanction. The next stage of moral development – which Piaget thought would develop at 9 to 10 years of age – is the stage of autonomous morality which implicates one's own moral rules and the recognition of no absolute right and wrong. Here, the autonomous content of morality refers to the freedom of moral relativism. At this stage of moral development, the child develops an understanding about the arbitrariness of rules and the mechanisms of changing them, for example through consensus with a group. This transition from heteronomous morality (i.e., that is shaped by the expectation of external sanctions and rewards) to autonomous morality (i.e., that is based on one's own intention) is mirrored in children's moral judgments. These moral judgments

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<sup>3</sup> According to Piaget's theory of constructivism, it is the experience that leads to the production of knowledge and meaning.

initially focus on the consequences of an action, but as children grow older, they begin to take underlying intentions into account (Carpendale, 2000; Piaget, 1932). Kohlberg (1976, 1981) picked up on Piagetian thoughts and postulated a related but more complex stage model of moral development. Kohlberg identified six stages of children's moral development: They evolve from an early stage of heteronomous moral understanding, which is shaped by the standards of adults and the consequences of violating (or following) their rules, to a morality of universalizable, general ethical principles. In his research, Kohlberg (1976, 1981) describes the internalization of heteronomous moral standards and group norms which lead to individual reasoning and judgments about what is right and wrong. In the final stages people are capable of an own set of moral guidelines (which not necessarily have to fit the law).

From a cultural-psychological perspective, Tomasello (2019) understands morality as a normative concept that grounds on human-specific forms of cooperation. He strongly emphasizes the role of cooperation and socio-cultural interaction in the moral and cognitive development of children (Nungesser, 2011). Since this approach is highly relevant for the further course of this dissertation, the following chapter examines morality in the context of normative social phenomena and discusses the crucial role of shared intentionality and cultural learning.

## **1.2 Normative Social Phenomena**

The present chapter contains a conceptual approach to normativity and deals with deontic and evaluative normative concepts. Different types of norms will be discussed with reference to social domain theory – which includes the distinction between conventional and moral norms.

Normative social phenomena denote the human characteristic to create own “laws” which regulate social life including human cooperation, collaboration, social institutions, and cultural knowledge (Boyd & Richerson, 2009; Chudek & Henrich, 2011; Fehr & Fischbacher, 2004; Schmidt & Rakoczy, 2016). The deontic concept of normativity (from Greek *deon*, meaning *which is binding*) refers to what one “ought” to do, including the differentiation between right or wrong as well as personal obligations or permissions: We “ought” to perform certain actions; we have normative expectations about what people ought to do in certain situations (Chudek & Henrich, 2011). *Evaluative* or *axiological* concepts of normativity (from Latin *valores* or Greek *axios*, both meaning *which has worth*) concern evaluation of an action, for instance, if something is considered good or bad (Dancy, 2000). According to Tappolet (2014), the distinction between evaluative and deontic concepts of normativity lies in a generalization of the traditional differentiation between what is *good* and what is *right*. Both concepts include certain expectations about other’s actions – which may be of descriptive or normative kind. Descriptive expectations have a mind-to-world direction of fit, e.g. a *belief* how someone is going to behave in a certain situation (Searle, 1983; Wellman & Miller, 2008). For example, based on previous information, person X thinks that person Y is going to perform action Z. Normative expectations have a world-to-mind direction of fit, e.g. a *desire* how one ought to behave in a certain situation (Searle, 1983; Wellman & Miller, 2008). For example, based on normative expectations, person x thinks that person y *ought* to perform action z.

Normative social phenomena are classified into different *types of norms*. *Instrumental norms* refer to instrumental rationality in the sense of Kant's hypothetical imperative and specify how to reach practical goals (e.g., Kant, 1785/1991). These norms gain force through the rational means used for achieving a certain goal (Copp, 2006; Lorini, 2015). *Epistemic norms* aim at a person’s beliefs, which in particular have been studied by philosophers as the subject of *epistemic*

*normativity*. Epistemic norms determine what beliefs one should hold, e.g. what we ought to say, do or think from an epistemic point of view (Fedra, 2018; Graham, 2015). Psychology basically focusses on *practical norms* which concern the evaluation of actions like human cultural practices and institutions with normative structures. They have a deontic structure and regulate human interactions by providing certain guidelines (Popitz, 2006) or reasons about how to behave in certain contexts (Kalish, 2002; Searle, 2001). Practical norms include *social norms* – labeled as the “glue” of human societies – that concern human cooperation and interaction within groups (Elster, 1989; Tomasello, 2011). As human cooperation is unique and crucially complex, social norms serve as important stabilization for daily interactions. They form standards of ‘appropriate’ behavior and are accepted by members of the group (Fritsche, 2002; Rakoczy & Schmidt, 2013; Schmidt & Tomasello, 2012; Searle, 2010). The fact that children acquire those norms from their social environment stabilizes the group in the long run (Chudek & Henrich, 2011; Fehr & Fischbacher, 2004; M. J. Rossano, 2012). People not only recognize and acknowledge social norms (Searle, 2010), but have also established strategies to enforce them, if necessary, by sanctions or rewards from agent-neutral third-party executives (Brandom, 1994). The sanctioning of norm violations may be performed by external forces or social pressure (Tomasello, 2009) or by internal sanctions such as feeling guilt or shame due to transgressions of norms (Boyd & Richerson, 2009; Tomasello, 2009).

Within social norm psychology and philosophy, a common distinction is made between *moral norms* and *conventional norms* (Tisak & Turiel, 1988; Turiel, 1983, 2006). According to *social domain theory*, morality is seen as a individual system or organized domain of social knowledge that develops distinctly from concepts of social conventions (Smetana, 2013). Moral norms concern issues such as personal welfare, justice or harm and are considered universal and nonarbitrary (Smetana, 2006; Smetana, Jambon, & Ball, 2013). They are regarded as

'prototypes' of social norms because they are in line with humans' natural aversion to harm and natural tendency to help others (Nichols, 2004; Schmidt & Tomasello, 2012; Warneken & Tomasello, 2009). One might say that the violation of moral norms carries most normative weight than conventional norm transgressions (M. J. Rossano, 2012) because their violation might be a serious issue (Turiel, 1983). Moral norms are important for the maintenance of human cooperation, because they are considered to suppress immediate self-interest (Krebs, 2008). Conventional norms, on the contrary, concern arbitrary rules of correct or appropriate behavior in a given situation or social practice (e.g., waiting in line at the supermarket checkout or wearing black to a funeral). Although conventional norms help to structure society and group living, their violation does not involve direct harm or victimization (Turiel, 1983).

Now that we explored the concept of normative social phenomena, we will focus on collective intentionality to understand how the capacity to process such complex social information evolved. The next chapter will investigate collective intentionality as the base of human normativity, including moral norms and the (descriptive or normative) expectation of other's (prosocial) behavior.

### **1.3 Collective Intentionality**

Much research has focused on how social norms and cultural practices came into existence (e.g., Gilbert, 2008; Göckeritz, Schmidt, & Tomasello, 2014; Rakoczy & Schmidt, 2013; Searle, 1983, 1995; Tomasello, 2009; Tomasello, Melis, Tennie, Wyman, & Herrmann, 2012). In order to understand the role of collective intentionality in that context, it is useful to look more closely at the evolution of human cooperation and group life, starting with an examination of human cultural practices.

While many animal species live in complex social groups, humans are the only species living in cultures (Tomasello, 1999). Normative actions, such as social practices and moral norms are an inherent part of human culture (Bruner, 1993). Specific forms of social and cultural interaction performed by early Homo Sapiens were crucial to the development and evolution of our species. According to Tomasello and colleagues (2012), human-specific social interactions – including unique forms of cooperation, cognition, communication – derive from the requirement and evolutionary advantage of collaboration. As efficient collaborative foragers, humans became *interdependent* on one another, which led to growing interest in the well-being of social partners and social selection against cheaters. This motivation for collaboration (as an evolutionary benefitting trait) initiated cooperative interactions which required to share mental states like a common goal (e.g., “we” build a hideout for the night). The mechanism underlying this motivation and capacity to share mental states and pursue a common goal is called *shared or joint intentionality*, also described as “we”-intentionality which refers to participants who share psychological states (Searle, 1995; Tomasello & Carpenter, 2007; Tuomela, 2003). Shared or joined intentionality requires powerful forms of intention reading and *cultural learning* (Tomasello et al., 2005). Cultural learning means that humans “culturally” learn through another individual and their perspectives of the world. Hereby it is important that the learner considers the individual they learn from as an *intentional agent* who pursues a certain goal and who is estimated to attend to aspects that are relevant to these goals (Boesch, 1993). The understanding of other people as intentional agents enables cultural learning as well as a shared intentionality. This descriptive understanding of the mental states of others is investigated in research on the so-called *theory of mind* (Sodian et al., 2016; Wellman & Liu, 2004) which describes the psychological concept of assigning mental states to others and to ourselves including what we know, think and feel (Perner, 1999).

The capacity to create a joint agent of “we” with others provides the opportunity to take others’ perspectives into account on a recursive *dual-level structure*. This dual-level structure facilitates second-personal relations to others as coequal partners. Thus, joint intentionality leads to human-unique capacities of sharing and aligning psychological states like emotions, goals, attention and knowledge (Tomasello, 2019). As the number of human individuals increased, so did the need to collaborate, not just with other individuals but with a group (e.g., in competition with other groups). Cultural conventions, institutions and norms derived from a group-mindedness called *collective intentionality* (Tomasello & Rakoczy, 2003). The mutual interdependence led to social and therefore evolutionary advantage of individuals who provided the required properties of collaborative motivation and prosocial attributes like altruism. The resulting sociocultural activities (i.e., involving commitments and expectations) culminated into human normativity in the sense of obligations and entitlements (Gilbert, 2008; Searle, 2001, 2010). As a result, the internalization of generalized collective conventions and norms nowadays regulate individual behavior and build a new form of social rationality, which Searle (2001) describes *as desire-independent reasons for action* – or morality. Taken together, the evolutionary advantage of skills that enable large scale cooperation between genetically unrelated individuals led to the evolution of human specific social competencies (like shared and collective intentionality and cultural learning) and to the implementation and enforcement of social norms through mechanisms of sanctions and rewards.

An important aspect is the link between collective intentionality and human morality. According to Tomasello (2018a) morality is a special form of human cooperation that emanated to enable individuals to function effectively in their cooperative activities and relationships with others. It is argued that the ability of joint intentionality carries the seeds of morality as a second-person morality with cooperative partners (Tomasello, 2018a). From an evolutionary

point of view, it makes that the individual felt sympathy and cared for his partner, so that the partner was in good shape for future activities (e.g. collaboration, hunting). Also in the regard of partner choice it was advantageous to be seen as a motivated collaborative partner – which made individuals concerned with their reputation (Tomasello, 2016a, 2018a). A reputation represents a group’s collective and public judgment of a given person in the sense of a shared evaluation that is anchored in a common ground, of how “we” think of someone (Engelmann & Rapp, 2018). A way to manage this reputation is to engage in prosocial actions, meaning actions which not only derive from personal desires, but from normatively moral reasons (Jensen, Vaish, & Schmidt, 2014). Combining Chapter 1.2 and 1.3 it becomes clear that humans have a specific interest in cooperative activities and also in morally relevant actions from a first-party as well as from a third-party stance. The next chapter will provide deeper insight on human specific prosocial actions, focusing on the development of children’s own prosocial actions (such as sharing) as well as on their descriptive and normative expectations about others’ prosocial behavior.

### **1.4 Prosociality**

Prosocial behavior is defined as proactive and reactive response to the needs of others with the aim to promote their well-being – which plays a fundamental role in social interaction and cooperation (Chudek & Henrich, 2011). Prosocial actions concern acts of helping, sharing, and comforting others, and they are closely interrelated with normativity and morality (Chudek & Henrich, 2011; Jensen et al., 2014). Prosocial behavior may – but does not necessarily – involve personal costs; but it can also benefit the actor or come with neither cost nor gain (Hastings, Utendale, & Sullivan, 2007).



An aspect that is special in the animal kingdom is the fact that humans do not just show prosocial behavior towards kin but also towards nonrelatives (Eisenberg & Fabes, 1998; Jensen et al., 2014). Seemingly trivial actions such as donating money to homeless people on the street or offering a seat to an elderly person on the bus are uniquely human and particularly unusual compared to other species (Jensen et al., 2014). As already pointed out in Chapter 1.3, the interest in cooperation, morality and prosocial behavior can be traced back to their evolutionary benefits. Consequently, the ability for peaceful, well-coordinated interactions with relatives and strangers and the exhibition of highly prosocial behavior and habits has earned humans the (self-created) label of being *ultrasocial* (Jensen et al., 2014; Richerson & Boyd, 1998). Within their ultrasocial traits, Jensen and colleagues (2014) identified three important aspects of human prosociality: First, the facility to care for others' welfare, second, the cognitive and empathetic understanding of others' feelings, and third, the ability to infer, understand and enforce social norms. These uniquely human psychological mechanisms of affective perspective taking lead to prosocial actions like helping and sharing. While helping predominantly requires the cost of energy, sharing involves personal costs – so that an intrinsic motivation to share with others might be intimidated by a selfish desire for the resources (Tomasello, 2016a). However, research shows that even preschoolers have an intrinsic motivation to help or share with others (Ulber, Hamann, & Tomasello, 2016; Warneken & Tomasello, 2008) and that – in the course of preschool years – certain aspects gain importance regarding children's prosocial actions. In the following section, an empirical overview will provide important information about children's normative understanding, their prosocial decisions and their expectations about others' prosocial behavior, with regard to the underlying mechanisms of cultural learning and collective intentionality.

## **1.5 Empirical Overview**

The general aim of this dissertation was to examine the roots of moral autonomy through the building blocks of normativity, prosociality and choice. Therefore, the following chapter provides an overview of empirical studies that examined different aspects of those building blocks. The chapter focusses on the ontogeny of children's normative understanding and will introduce relevant research on children's own prosocial behavior and their prosocial expectations about others' prosocial actions.

### **1.5.1 Children's Understanding of Social Norms**

Since social norms and human cooperation are largely based on the competence of collective intentionality (see Chapter 1.3), this chapter starts with an overview of the ontogeny of this ability in preschool years.

Children's understanding of social norms and their communicative skills are grounded in the capacity to understand others as intentional agents. At the end of the first year of life this skill enables children to understand and (linguistically) communicate with their social environment (Tomasello & Rakoczy, 2003). Moll and colleagues (2008) found that children at 12 to 14 months of age can use joint intention situations to draw inferences about a common ground. Joint attention situations describe the attention to a common object or event outside a dyad while being aware of the shared focus (Abels & Hutman, 2015; Ahnert, 2014). The authors compared two conditions in which an adult was equally familiar with an object. In one condition, the infant and the adult initially interacted with the object together, while in the other condition the adult interacted with the object alone (i.e., the child observed it from a distance). When the adult (who looked at all objects ambiguously) then pretended to recognize one

of the objects and asked for it, 14-month-old infants assumed that the inquiry was directed at the object that they had shared. This study furthermore revealed that children at 14 months of age understand that a joint goal structures joint attention (and that each partner knows that the other is focused on things which favor the joint goal), which leads to participation in uniquely human forms of social and collective intentionality.

At two years of age, children participate in more complex shared intentionality activities. Shared or collective intentionality is the ability and motivation to engage with others in collaborative, co-operative activities with joint goals and intentions. It also implies that the collaborators' psychological processes are jointly directed at something and take place within a joint attentional frame (Schmidt & Tomasello, 2012; Tomasello et al., 2005). In activities with common intentionality one can a) react to the actions of another and b) have intentions towards the intentions of others (Searle, 1995). Warneken and colleagues (2006) found that 2-year-old children were able to interact in cooperative interactions that demonstrate such a form of shared intentionality. They demonstrated that children at 24 months of age coordinated their actions with an adult partner and showed attempts to regulate the partner's action during interruptions. The participants furthermore actively communicated to the adult in an obvious attempt to request his reengagement. This means that the participants had a joint goal (to get a toy) and developed joint intentions (i.e., a plan) to achieve this goal. This illustrates that shared intentionality enables children to take different perspectives on things which is highly important to engage in numerous cultural activities (Tomasello & Rakoczy, 2003). Whereas joint intentionality enables participation in collaborative activities involving two (or a few) agents, collective intentionality enables collaborative activities with or between groups. At around the third birthday, children develop a so called "we" intentionality that is required for coordinated interactions between groups of individuals. This emerging

understanding of and adherence to social norms is labeled as the *normative turn* (Tomasello, 2018b). This normative turn is assessed through the investigation of children's expectations and reactions to the norm-conforming or norm-nonconforming behavior of a third party. Besides interviews (e.g., Nucci & Turiel, 1978) and eye-tracking studies (e.g., Hamlin, 2013; Schmidt & Sommerville, 2011), researchers created so called protest paradigms to assess children's verbal and non-verbal reactions to norm-transgressions (Rakoczy, Warneken, & Tomasello, 2008). Schmidt and colleagues (2013) furthermore invented a counter-protest paradigm that focusses on children's normative understanding of others' entitlements<sup>4</sup>. Children's normative understanding can also be measured by punishment, reward (e.g., enforcement of fairness norms) or evaluation of an agent who has performed a particular norm-conforming or non-norm-conforming action (Jordan, McAuliffe, & Warneken, 2014; Rakoczy & Schmidt, 2013).

Using the research methods presented above, it was found that children between 2 and 3 years of age do not only follow social norms, but also enforce them through protest, sanctioning, criticism and teaching (Rakoczy & Schmidt, 2013; Rakoczy et al., 2008; Schmidt & Tomasello, 2012). This protest was shown as a reaction to norm transgressions in different contexts, for instance, concerning conventional games (Rakoczy et al., 2008; Schmidt, Rakoczy, & Tomasello, 2011) and morally relevant actions (F. Rossano, Rakoczy, & Tomasello, 2011; Schmidt, Rakoczy, & Tomasello, 2012; Vaish, Missana, & Tomasello, 2011). Children infer norms after being explicitly "taught" by an adult that "this is how it's done", but they also learn generic and normative knowledge in pedagogical and also in non-pedagogical contexts (Butler & Markman, 2012; Butler, Schmidt, Bürgel, &

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<sup>4</sup> Norms create not only obligations, but also entitlements. While *obligations* refer to expectations about specific behavior in certain circumstances, *entitlements* denote the fact that persons are authorized by the group to act in certain manner in certain circumstances (Searle, 2010).

Tomasello, 2015; Schmidt et al., 2011). Children even infer norms when the action is arbitrary or without obvious purpose (Schmidt, Butler, Heinz, & Tomasello, 2016) and are therefore open to over-interpretation about how “we” do things (Schmidt & Tomasello, 2012; Searle, 1995). Preschoolers distinguish between moral and conventional norms on different dimensions (Josephs, Kushnir, Gräfenhain, & Rakoczy, 2016; Josephs & Rakoczy, 2016; Smetana et al., 2013) and refer to moral norm transgressions as being more severe as conventional norm violations (Smetana, 1981; Turiel, 1983). Three-year-old children show sensitivity to context-relativity of conventional norms (Rakoczy, Brosche, Warneken, & Tomasello, 2009) and understand that they might vary between cultures (Schmidt et al., 2012). As a conclusion, at the third year of life, social norms and normative actions begin to encompass acts that are performed because they are supposed to be the right thing to do or *ought* to be done in a certain way (Tomasello, 2018b). This *oughtness* of conventional activities (like waiting in line at the supermarket) or moral actions (like prosocial actions such as helping or sharing) emerges with the capacity of collective intentionality and is based on an obligation to do so. The following chapter will examine children’s emerging prosociality with a focus on the normative turn, which leads to a sense of obligation replacing sympathy (see Vaish, Carpenter, & Tomasello, 2009) as a reason for prosocial action.

### **1.5.2 Prosociality and Choice**

Children show remarkable prosocial tendencies from an early age. At about 14 months, children engage in prosocial helping (Warneken & Tomasello, 2006) and begin to share resources from around the age of 2 (Brownell, Svetlova, & Nichols, 2009). Roessler and Perner (2015) emphasize that prosocially helping a person is to be distinguished from helping in a merely causal sense. They refer to Svetlova and colleagues (2010) who distinguish between instrumental, action-based

helping (e.g., helping to complete an action), empathic, emotion-based helping (e.g., helping others who are in emotional distress) and altruistic, costly helping (e.g., sharing an object). They found that it was easier for children at 18 and 30 months of age to engage in instrumental helping than emotional and altruistic helping. This means that toddlers tend to engage in empathic helping somewhat later than in instrumental helping, whereas altruistic helping was most difficult (Svetlova, Nichols, & Brownell, 2010). Altruistic helping, like children's sharing behavior, is a key behavior of the human species (Knafo & Plomin, 2006) and therefore a common method of studying children's prosocial development during preschool years. Contextual features like resource value (Blake & Rand, 2010) or the individual involvement in resource earning and sharing (Warneken, Lohse, Melis, & Tomasello, 2011) influence the amount of shared resources.

An important aspect of children's prosocial actions is factor of choice (Chernyak & Kushnir, 2013; Rapp, Engelmann, Herrmann, & Tomasello, 2017), a concept that children understand relatively early in preschool years (Chernyak, Kushnir, Sullivan, & Wang, 2013). Chernyak and Kushnir (2013) investigated the role of choice in the context of preschoolers' prosocial sharing decisions. They found that children who were given costly alternatives shared more with a new individual, which suggests that children rationally infer their prosociality through the process of making difficult, autonomous choices. The authors referred their results to *self-perception theory*, suggesting that individuals are likely to act in congruence with their past actions because of a desire to stay self-consistent. Rapp and colleagues (2017) identified a similar effect of choice on helping behavior, referring to children's intentional decision to help or not to help.

With the normative turn (see Chapter 1.5.1) at around 3 years of age, the idea of fairness derives from the obligation to treat others fairly (Tomasello, 2019). Children not only begin to feel obligations to behave in a certain way, but also begin to form expectations about others' prosocial actions (Tomasello, 2018b).

However, although children expect prosocial behavior of third parties from early age, they do not necessarily follow fairness norms until the end of preschool years (LoBue, Nishida, Chiong, DeLoache, & Haidt, 2011; Takagishi, Kameshima, Schug, Koizumi, & Yamagishi, 2010), a phenomenon that is labeled as the *knowledge-behavior gap* (Blake, McAuliffe, & Warneken, 2014).

Smith and colleagues (2013) investigated the discrepancy of preschoolers' endorsement of fairness norms related to their contradicting actions when given a chance to share. They found that children from 3-8 years of age stated that they should share equally but failed to engage in those equal sharing decisions until 78 years of age. It was furthermore found that 3- to 4-year-old children correctly predicted that they would advantage themselves, which rules out the assumption of a failure of willpower, in the actual situation (Smith et al., 2013). This means that young children knew about fairness norms but accurately predicted they own self-favoring future actions. Thus, they are not only competent in making accurate predictions about themselves, but also about others' future actions, even if these behavioral expectations about others did not match evaluations about the way human social actors *should* behave (DeJesus, Rhodes, & Kinzler, 2014).

In summary, there is evidence that instrumental and personal prosocial behavior as well as the costly altruistic sharing emerges and increases in the course of preschool years. The aspect of choice and intentional action play important roles in children's prosocial decisions. Within preschool years, children begin to form normative and descriptive expectations about others' future actions. This knowledge forms the integral basis for the next chapter, which will present the focus of the dissertation and the methodological approach of the empirical studies.

## 1.6 Focus of the Dissertation and Methodological Approach

The general aim of this dissertation is to examine the roots of moral autonomy using an empirical approach that focuses on important building blocks of the topic: children's own prosocial actions (i.e., children's costly sharing decisions) and their normative and descriptive expectations about others' prosocial behavior based on mechanisms of (collective) intentionality (i.e., intentional choice versus coercion), and cultural learning in morally relevant contexts. Therefore, this dissertation will examine the following three research questions:

- (1) Do children enforce agreed-upon prosocial sharing norms in a norm-creation paradigm?
- (2) Does observed intentional choice increase preschoolers' prosocial sharing decisions?
- (3) Do preschoolers expect prosocial actions from others who had shared voluntarily (not involuntarily) before?

In Study 1, a group dictator game was used to assess if preschoolers enforce agreed-upon prosocial versus selfish sharing norms. Three- and 5-year-old children and two hand puppets had the opportunity to agree on how to distribute resources between themselves and a group of passive recipients. It was assessed (a) if children agreed on a prosocial versus selfish sharing norm, (b) if children enforced agreed-upon prosocial versus selfish sharing norms, (c) if children engaged in agreed-upon sharing norms even if group conformity was compromised, and (d) how they evaluated the proposer of a prosocial or selfish agreement. According to literature on moral norm violations (Hardecker, Schmidt, Roden, & Tomasello, 2016; Josephs & Rakoczy, 2016; Schmidt et al., 2011), it was



hypothesized that 5-year-old preschoolers would stipulate and enforce prosocial – but not selfish – sharing norms, adhere to a prosocial sharing norms and that they would assess the proposer of a prosocial distribution better than the one who had proposed the selfish distribution of resources.

Study Set 2 assessed if observed choice increases children’s own prosocial sharing decisions. In three between-subject conditions, the participants observed an agent who either (a) made a *costly choice* (i.e., sharing instead of keeping the item), (b) made a *non-costly choice* (i.e., sharing instead of watching the item be thrown away), or (c) had *no choice* (i.e., being instructed to share). Then, children were given the opportunity to decide how many stickers (out of three) they would like to share with a sad animal puppet. Chernyak and Kushnir (2013) had found that choice increases preschoolers’ sharing behavior. Due to mechanisms of cultural learning, collective intentionality and children’s promiscuous tendency to infer social norms from intentional action (Butler & Markman, 2012; Schmidt, Butler, et al., 2016), children in the current study were expected to engage in more prosocial sharing themselves after having observed an intentional prosocial agent in the costly-choice condition.

Study 3 investigated preschoolers’ descriptive expectations about the causal agent of prosocial and selfish actions, based on agents’ prior history of voluntary versus involuntary prosocial behavior. With reference to previous research on children’s evaluations and expectations on others future actions, (DeJesus et al., 2014) it was assumed that older preschoolers would use information about the circumstances and underlying intentions of agents’ prior prosocial actions to form descriptive, third-party expectations about their current morally relevant sharing behavior.

The link between the presented studies and the goal to investigate important building blocks of Kant’s moral autonomy appears as follows: The group dictator game of Study 1 included a norm creation paradigm and served to

investigate if children were willing to do "the right thing", which means to establish a prosocial norm even if this prosocial norm involved personal costs. The study furthermore intended to reveal children's normative expectations about the (costly) prosocial behavior of other members of the group. The setup of Study Set 2 aimed to investigate another aspect of moral autonomy which focusses of the importance of intentions and circumstances of morally relevant actions. It was assessed if preschoolers were sensitive to the intentionality of a prosocial action, that is, if an agent acted prosocially because of an intrinsic prosocial intention to share or if they were coerced to behave prosocial. This investigation was of decisive importance for the research question of this dissertation, since morally autonomous actors in the Kantian understanding carry out moral actions on their own initiative. Therefore, possible effects on children's own prosocial actions (Study Set 2) as well as their descriptive expectations about others' prosocial versus selfish decisions (Study 3) were assessed.

The following methodological approaches were chosen: The first study consisted of a behavioral protest paradigm, the second study was based on the examination of children's own sharing decisions, and the third study was a forced choice paradigm. In summary, the research paradigms of all three studies were based on established empirical methods. The main measures were the children's own prosocial actions and their normative and descriptive expectations of the prosocial and selfish behavior of others.

## **Chapter 2**

### **Study 1: Preschoolers Enforce Prosocial Sharing Norms in a Group Dictator Game**

## **Abstract**

Young children understand and care about moral norms, enforce them, and negatively evaluate selfish behavior and unfairness. Whereas some research has found that preschoolers tend to be rather selfish when it comes to sharing resources, other research shows that even very young children can act prosocially. However, it is not known whether children understand agreed-upon selfish versus prosocial sharing norms as binding. To address these questions, we used a group dictator game in a norm creation paradigm and investigated whether 3- and 5-year-old children would stipulate and enforce selfish versus prosocial sharing norms.

Children and two puppets had the opportunity to agree upon either a prosocial norm (i.e., each group member should share with a child from another kindergarten) or a selfish norm (i.e., no sharing with another child). To investigate if children understood the suggested norm as binding, the target puppet either followed or violated the suggested norm, and we measured children's spontaneous protest against the target puppet's sharing behavior. We found that 5-year-olds (but not younger children) enforced prosocial – but not selfish – sharing norms. These results indicate that, in a morally relevant situation, novel norms gain their normative force not only through agreement or expectations of conformity, but also through considerations of the content of the proposed norm.

## 2.1 Introduction

### 2.1.1 Human Cooperation and Group Life

When people do things, they tend to be guided by how the group does them or how things are expected to be done by others (Chudek & Henrich, 2011). This is due to the fact that modern humans are characterized by a psychology that supports large, cooperative societies (Boyd & Richerson, 2009). Within these societies, humans agree to bind themselves to social norms (Schmidt & Tomasello, 2012). In these culturally evolved cooperative social environments, moral systems enforced by sanctions and rewards led to the evolution of other-regarding motives like empathy and social emotions (Boyd & Richerson, 2009). Whereas some research has found that preschoolers tend to be rather selfish when it comes to sharing resources (Fehr, Bernhard, & Rockenbach, 2008; Smith et al., 2013), other research shows that even very young children can act in a prosocial and helpful manner (Kuhlmeier, Dunfield, & Neill, 2014; Schmidt & Sommerville, 2011; Warneken & Tomasello, 2006). From 3 years of age onwards, children have knowledge and expectations about fairness (Blake, McAuliffe, & Warneken, 2014). They care about moral norms, enforce them, and negatively evaluate selfish behavior and unfairness (Cooley & Killen, 2015; Rakoczy, Kaufmann, & Lohse, 2016; Vaish et al., 2011). Children defend game and moral norm violations by protesting against a transgressor or, for instance, by teaching the “right” way to do it (Rakoczy et al., 2008; Schmidt et al., 2012; Vaish et al., 2011).

Whereas Piaget (1932) estimated young children merely to be norm-followers, the results of Schmidt and colleagues (2016) led to the presumption that children do not just passively acquire social norms from adult behavior and instruction; rather, they have a natural and proactive tendency to infer from an "is

state" to an "ought state". Thus, children as *promiscuous normativists* (Schmidt, Butler, et al., 2016) do not only quickly acquire social norms by observing other people's actions, but also quickly and actively construct a social norm from a single action, even if it does not exist in the actor's mind or in the culture as a whole (Nichols, 2004; Schmidt & Tomasello, 2012; Warneken & Tomasello, 2009).

### 2.1.2 (Novel) Group Norms

Cooperation and group-conformity serve a crucially important function in the transmission of human culture (Boyd & Richerson, 2009; Henrich & Boyd, 1998). Human children already have a strong motivation to equalize their behavior and their opinions to those of peers or the cultural group (Haun & Tomasello, 2011; Henrich & Boyd, 1998). They show a socially motivated agreement with the consensus majority against their own first judgment (Kim, Chen, Smetana, & Greenberger, 2016) – a phenomenon that is labeled as *strong conformity* (Haun & Tomasello, 2011) and tends to be found predominantly in social-conventional and visual tasks. Engelmann and colleagues (Engelmann, Herrmann, Rapp, & Tomasello, 2016) investigated whether children would conform to an antisocial majority or do the right thing at personal cost of rewards and peer pressure. They found that if a recipient is in need, 5-year-olds' prosocial motivation prevails over conformity, and that they sacrifice material and social benefits in order to act morally. Kim and colleagues (2016) compared the conformity of children with the group consensus in moral, social-conventional and visual tasks. At preschool age, compliance was found in all three areas, but compliance was significantly higher for social-conventional stimuli than for moral and visual stimuli.

Schmidt and colleagues (2016) investigated how novel norms can be stipulated in a group context. Therefore, they investigated the role of collective agreement in a norm creation paradigm and found that children from 3 years of

age understand something about the role of agreement in establishing mutually binding social norms, but that their notion of norm formation is confined to conditions of unanimity.

### 2.1.3 The Group Dictator Game

Other popular methods for the investigation of group dynamics in relation to prosocial behavior come from experimental economic research such as the *ultimatum* (UG) or *dictator game* (DG). In the UG, one player – the proposer – is endowed with an amount of resources which have to be split with a second player. The proposer communicates a proposal which may be accepted or rejected by the responder. If the responder accepts, the money is split in the proposed way; if the responder rejects, both players receive nothing (Ockenfels & Erlei, 2018). DG's are particularly suitable methods to examine other cognitive mechanisms that underlie sharing decisions (Hoffman, McCabe, Shachat, & Smith, 1994). They have two players, one of whom, the dictator, can decide unilaterally how a certain amount of resources is distributed. The recipient thus assumes a purely passive role. In contrast to economic textbook theory, the adult dictators do not keep the entire amount of money for themselves but averagely 20% of the original endowment (Erlei, 2018). *Team or Group dictator games* (GDG) represent the transfer of DG's into a social context: Several agents decide together how to distribute resources between themselves and a group of passive recipients (Cason & Mui, 1997). While money is used as a resource in most adult studies, child research uses stickers or similar valuable resources (Benenson, Pascoe, & Radmore, 2007; Gummerum, Hanoch, Keller, Parsons, & Hummel, 2010).

Adult research reveals contrasting information about the effects of group dynamics on individual versus collective sharing patterns in dictator games. On the one hand, Luhan and colleagues (2009) found evidence that groups were more

selfish than individuals in a within-subjects design and that the most selfish group member had the greatest impact on sharing behavior within the group. These findings are in line with a meta-analysis of Engel (2011) as well as research of the ultimatum game which shows that groups are willing to transfer and accept smaller amounts of resources (Bornstein & Yaniv, 1998). Cason and Mui (1997), on the other hand, reported that teams are more altruistic than individuals in the dictator game and that team decisions tend to be driven by the more altruistic team member. The explanation of their results refers to *social comparison theory* (SCT) which states that team participants tend to present themselves in a socially desirable way. This leads to a modified behavior which appears more in line with the perceived social norms.

Literature reveals that children who play economic games prefer fair distribution, especially when it comes to the perspective of a third person (Blake et al., 2014). But when children themselves are involved, they tend to reject injustices only if they were unfavorable, but not if they were beneficial to themselves (LoBue et al., 2011; Takagishi et al., 2010). Dictator games at preschool age reveal that children favor themselves until 7 years of age (Benenson et al., 2007; Blake & Rand, 2010; Gummerum et al., 2010). Blake & McAuliffe (2011) ran a mini-ultimatum game with children from 4 to 8 years of age and assumed distinct mechanisms that underlie the development of two forms of inequity aversion: Until the age of 7, participants rejected disadvantageous offers while accepting advantageous offers. Children from 8 years of age rejected both forms of inequity.

Benozio and Diesendruck (2015) investigated 3- to 6-year-old children's sharing behavior in a dictator game and assessed the development of their reliance on resource ownership, recipients' group membership and individual-versus group-regarding preferences. They found that boys favored the in-group and did not preserve common resources different from their own resources. Children complied with in-group members' preferences and boys additionally



opposed to out-group members' preferences. In a study that examined fairness norms in relation to sharing behavior, children aged 3 to 8 years testified that both – they and others – should distribute fairly. However, they did not distribute resources equally until 7 to 8 years of age. Taken together, although children from the age of 3 years are aware of fairness norms, it is only with increasing age that they are able to comply with these norms and bear the personal costs of compliance (Smith et al., 2013).

#### **2.1.4 Current Study**

The current study investigates whether preschoolers would bind themselves on prosocial sharing norms through agreement in a norm creation paradigm. One child and two hand puppets agreed on how to distribute stickers between themselves and a group of passive recipients. The study was assessed with 3- and 5-year-old children because important conceptual and performance skills related to theory of mind, normativity and executive control develop at this age (Perner & Roessler, 2012; Schmidt, Rakoczy, et al., 2016). The child and the two hand puppets had the opportunity to agree on how many resources from an initial endowment their group would like to share with unknown individuals. Later, one player deviated from the agreement (i.e., intended to share 0% in the prosocial trial or 50% in the selfish trial), and we assessed if children protested against this party. Based on previous investigations on moral group norms at preschool age, we expected 5-year-old children to protest more against the protagonist violating a prosocial compared to a selfish agreement (Cooley & Killen, 2015).

## **2.2 Method**

### **2.2.1 Participants**

Forty-eight 3-year-old ( $n = 24$ ; 36 – 47 months;  $M = 3$  years, 7 months; 12 girls) and 5-year-old ( $n = 24$ ; 60 – 71 months,  $M = 5$  years, 5 months; 12 girls) preschoolers participated in the study. Children were of mixed socio-economic backgrounds from a large German city. They were recruited via urban daycare centers (in which testing took place as well). Every experiment was videotaped. Parents provided written informed consent. Six additional children were excluded from the final sample due to technical error (2), experimenter error (2), uncooperativeness (1), or withdrawal of informed consent by parents (1).

### **2.2.2 Design**

After a warm-up session, the children received four trials of the target task, the order of which was systematically varied. Conditions (selfish versus prosocial sharing norm) as well as the protagonist's behavior (following versus violating the norm) alternated between trials; half of the children of each age group received prosocial conditions first. The proposer puppet introduced first (prosocial versus selfish proposer) as well as the set of stickers used as resources were varied systematically. After the target tasks, all children participated in a forced choice posttest. The proposer introduced first (prosocial versus selfish proposer) was counterbalanced between children for each age group.

### **2.2.3 Materials**

In the warm-up session, a ball, a hammer game, and a disk-and-peg game were used. There were four target tasks (prosocial norm – protagonist follows; prosocial norm – protagonist violates; selfish norm – protagonist follows; selfish norm – protagonist violates). Two human-like hand puppets (named “Max” and “Emil”) were used as proposer puppets; a third human-like hand puppet was used as protagonist puppet (named “Hans”). The child, the respective proposing puppet and the protagonist puppet were handed a wooden game board equipped with a green and a yellow box and a device for fixing a photograph of the receiving child. We used a gender matched set of photos to portray the recipients in each trial of the GDG and in the posttest.

### **2.2.4 Procedure**

Two experimenters conducted the study which lasted roughly 20 minutes. E1 coordinated the game and operated the proposer puppets while E2 operated the protagonist puppet. Throughout the GDG, the child, E1, and E2 sat at a table. E1 sat to the child’s right, and E2 took seat to the child’s left. In the posttest, E2 coordinated the sequence and sat opposite the child (this way, the child faced the two proposer puppets which were put on stands in front of E2).

#### **2.2.4.1 Warm-up Phase**

In the warm-up session, the child and the three hand puppets (1 prosocial and 1 selfish proposer and the protagonist) played together with a ball. After the ball play, the two proposers “got tired” and went to sleep. The child, the protagonist puppet and E1 played a hammer game, followed by a disc-and-peg game. The

protagonist acted clumsily (to encourage the child's critical evaluation of his actions in the later intervention task).

#### **2.2.4.2 Introductory Phase**

E1 presented three game boards, handed one over to the child and said: "Here is a board for you with a green and a yellow box. And these are four stickers. Each sticker you put in the green box is yours. This yellow box belongs to this child [pointing at the picture of the recipient] from another kindergarten. Unfortunately, this child did not yet receive any stickers at all, but she/he would like some, too. If she/he does not get any stickers, she/he will be very sad. And here we have two more boards, one for [name of protagonist] and one for Hans. It's the same for them. Hans [addressed directly by E1], the green box is for you, the yellow box is for the other child. And for [proposer puppet's name] it's the same. The green box is for you [addressing protagonist puppet, still placed on a stand], and the yellow box is for the other child." E1 then turned towards the child and the hand puppets: "And you know what? You can decide together how to distribute the stickers. So, you're a team and decide together how each of you is going to do it, okay?" Then E1 took the proposer puppet off the stand and operated the puppet.

#### **2.2.4.3 Agreement Phase**

The proposer puppet suggested how to distribute the stickers: "Aaah [spontaneously], I have an idea. Shall we do it like this: Every one of us puts x stickers in the green box for ourselves and y stickers in the yellow box for the other child, okay?" Hans: "Okay, we can do it like that, can't we?" Proposer [turned to child] asked: "Are we going to do it like this?" After the child had answered, the protagonist said: "Okay, let's do this!" The proposer summed up: "Okay, so

everyone puts  $x$  stickers in the green box for themselves and  $y$  stickers in the yellow box for the other child. And I will start." The proposer distributed the stickers as agreed. Thereupon the proposer puppet said: "And now it's Hans' turn. [To child] And you pay good attention, ok?"

#### **2.2.4.4 Test Phase**

In the action phase, Hans distributed the stickers and the child's spontaneous reaction to the protagonist's action was observed. When Hans made a prosocial distribution (2:2) of stickers, he said: "Two for me and two for the other child". When he distributed selfishly (4:0), he said: "Everything for me" and put all four stickers in his box.

#### **2.2.4.5 Action Phase**

Then it was the child's turn to distribute their stickers. The number of stickers the child shared with the respective recipient "from another kindergarten" (1–4) was assessed. Furthermore, we documented if the child followed or violated the agreed-upon sharing norm.

#### **2.2.4.6 Posttest**

The posttest consisted of a forced-choice preference test. E2 sat opposite the child. The two puppets were placed on stands in front of E2, and a game board was installed in front of the child. E2 summed up: "Look, [proposer 1] had the idea to distribute the stickers this way. [E2 put two stickers in the green, two stickers in the yellow box of the game board]. And [proposer 2] had the idea to distribute stickers that way [E2 placed four stickers in the green box and no stickers in the yellow box]. Who do you think is the good one?" After the child's response, E2

asked the child to justify her decision by asking: “And why?” (for schematic representation of the whole experiment, see Figure 1).

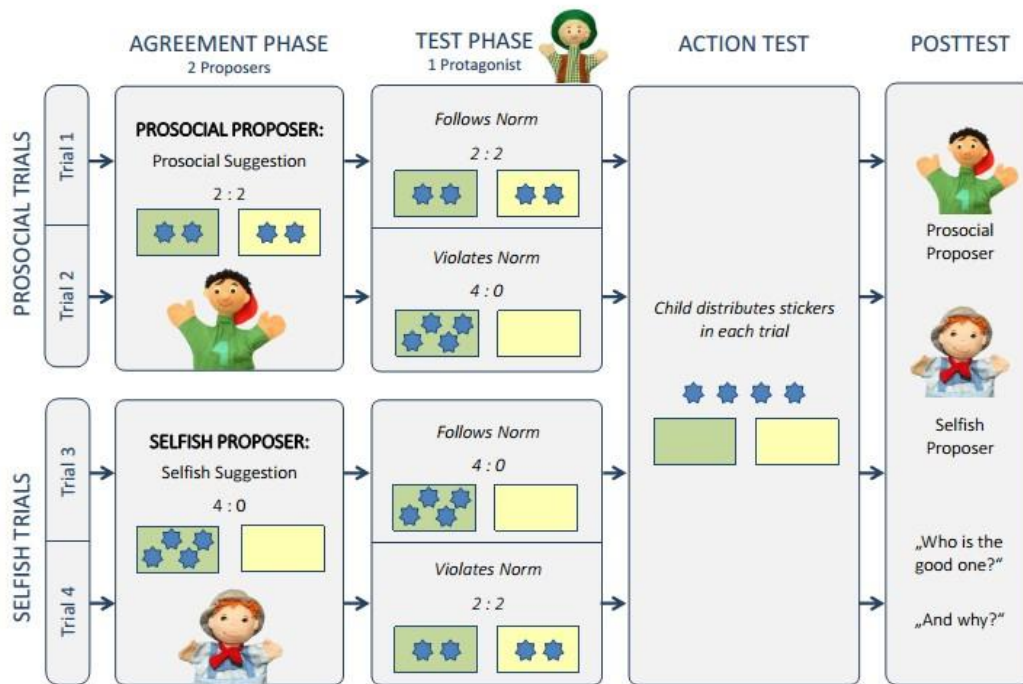


Figure 1. Schematic representation of Study 1.

*Note.* The procedure consisted of four within-participant conditions: two trials of a selfish and two trials of a prosocial sharing norm. The protagonist either followed (in 50% of the trials) or violated (in 50% of the trials) the norm. In each trial, children distributed stickers themselves in the action phase. The procedure was closed by a forced-choice posttest.

### 2.2.5 Coding and Dependent Measures

All sessions were recorded, transcribed, and coded from videotape by a single observer. A second independent observer, blind to the hypotheses and conditions of the study, transcribed and coded a random sample of 25% of all sessions for reliability.

### **2.2.5.1 Agreement Phase**

Children's agreement with the prosocial versus selfish proposals was coded in a binary system (0 = agreement, 1 = disagreement). Interrater reliability was good: Cohen's  $\kappa = .84$ .

### **2.2.5.2 Test Phase**

The children's verbal and behavioral interventions were classified into one of four (hierarchically ordered) categories:

- (i) *Normative protest*, that is, protest, critique, and tattling (towards E1), making use of normative vocabulary (e.g., "That's wrong", "You have to give two stickers to the child!", "He did it wrong")
- (ii) *Imperative-implicit protest*, that is, verbal and/or behavioral protest without normative vocabulary (e.g., "Give it to him!", changing position of protagonist's stickers)
- (iii) *Indirect forms of protest* (e.g., saying "There is one sticker missing in this box", "No!" or "Uh-uh!", head-shaking, pointing at the target box) and hints of protest (i.e., behavior suggestive of protest, but not explicit enough; e.g., pointing gestures, saying "No!" or "Uhuh!")
- (iv) *Irrelevant* (i.e., no or irrelevant utterances and behaviors)

Interrater reliability was good: Cohen's  $\kappa = .84$ .

### **2.2.5.3 Action Phase**

The number of stickers distributed by the children was coded. Interrater reliability was very good: Cohen's  $\kappa = 1$ .

#### 2.2.5.4 Posttest

Children's answers to the forced-choice test (dichotomous variable: correct or incorrect response to the question of E1) were coded. Interrater reliability was very good: Cohen's  $\kappa = 1$ . Additionally, children were asked to justify their decision ("why [is he the good one]?"). Children's responses were considered as *normative-moral reasoning* (e.g., "Because he did it correctly", "Because he acted fairly", "Because the other child will be glad if she/he gets stickers, too"), *informative reasoning* (e.g., "Because he gave two to himself and two to the other child"), and irrelevant responses (e.g., "Because he is the bigger one"). Interrater reliability was very good: Cohen's  $\kappa = 1$ .

#### 2.2.6 Statistical Analysis

Statistical Analysis were run in R, version 3.5.2 (The R Core Team, 2018). To account for the non-independence of the data (i.e., repeated observations per child), generalized linear mixed models (GLMM) with binomial error structure were used for comparing children's performance in the two conditions in the agreement phase and the test phase (Baayen, 2008; Bates, Maechler, Bolker, & Walker, 2013). Unstandardized parameter estimates ( $b$ ), standard errors, 95% confidence intervals (CIs), and odds ratios (ORs) were obtained from the full model. Models included trial and condition as fixed factors and participant as a random effect. Effects of interest were tested by comparing the fit of the full model (including all fixed and random effects) with the fit of a reduced model (without the predictor to be tested) using a likelihood ratio test (Dobson, 2002). There was no significant effect of trial.



## 2.3 Results

### 2.3.1 Agreement Phase

In the agreement phase, children's disagreement with prosocial or selfish proposals about how to distribute the stickers were analyzed (descriptive data is presented in Table 1). A Binomial GLMM revealed a significant effect of age,  $\chi^2(1) = 11.3, p < .001, b = 1.07, SE = 0.36, CI [0.44, 1.9], OR = 2.91$ . A planned comparison showed that 5-year-old ( $\chi^2(1) = 7.6, p < .01, b = 1.62, SE = 0.65, CI [0.44, 3.05], OR = 5.1$ ), but not 3-year-old children ( $\chi^2(1) = 0.36, p < .55, b = 0.73, SE = 1.26, CI [1.91, 3.84], OR = 2.08$ ) disagreed significantly more with selfish proposals than with prosocial proposals.

Table 1

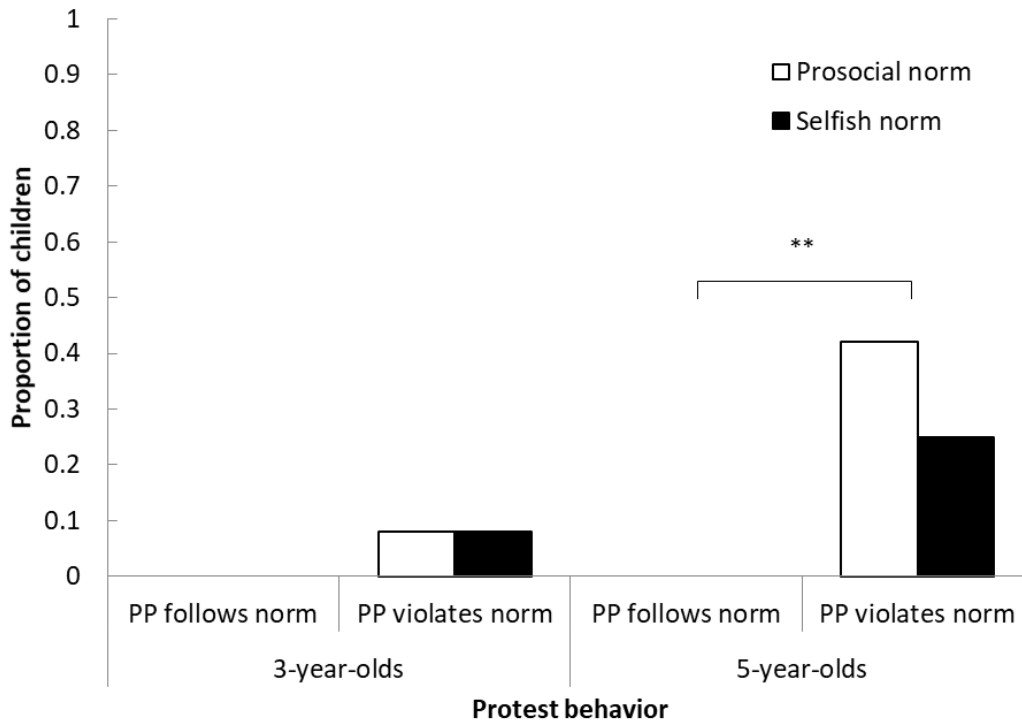
*Disagreement with Suggestions of the Proposer Puppet in the Prosocial and Selfish Trials per Age Group*

		Prosocial trials	Selfish trials
Age group	3-year-olds	1 (2%)	2 (4%)
	5-year-olds	4 (8%)	14 (29%)

### 2.3.2 Test Phase

The main research question of Study 1 aimed at the investigation of whether preschoolers enforced novel prosocial and selfish sharing norms in a GDG. Results show that 5-year-old children (McNemar's test,  $p < .01$ ) but not 3-year-old (McNemar's test,  $p = .248$ ) protested against prosocial but not selfish norm

violations at significant level. Figure 2 illustrates the proportion of children protesting the prosocial versus selfish norm violation for both age groups.



*Figure 2.* Children's protest behavior in the prosocial and selfish condition, split per age groups. The protagonist either followed or violated the prosocial or selfish agreement.

The asterisks indicate significance level  $p < .01$ .

*Note.* PP = Protagonist Puppet.

Children's protest behavior against the deviating puppet in the prosocial and selfish trials was categorized. Fisher exact tests revealed no differences in protest categories for 5- and 3-year-old children (see Table 2).

Table 2

*Number of Trials in Which Children Protest – Per Age Group and Condition*

Age group	Condition	Protest category			Fisher exact test
		Moral-normative	Imperative	Indirect	p
3-year-olds	Prosocial	2	1	0	.2
	Selfish	0	0	3	
5-year-olds	Prosocial	5	4	1	.327
	Selfish	5	0	1	

### 2.3.3 Action Phase

In the action phase, children's sharing decisions per condition and age group were analyzed. Table 3 illustrates the percentage of shared stickers by the children, per age group and norm adherence of the target puppet (who either followed or violated the agreed-upon prosocial versus selfish sharing norm).

Table 3

*Percentage of Stickers Shared by Children in Prosocial and Selfish Condition*

Age group	Shared stickers		Norm adherence of target puppet
	Prosocial	Selfish	
3-year-olds	50 %	21%	Following
	48%	35%	Violating
5-year-olds	49%	11%	Following
	40%	25%	Violating

*Note.* Varying norm adherence of target puppet: Target puppet *follows prosocial* norm (i.e. sharing 50%) or *violates prosocial* norm (i.e. keeping 100% instead of sharing 50%). Target puppet *follows selfish* norm (i.e. keeping 100%) or *violates selfish* norm (i.e. sharing 50% instead of keeping 100% of the stickers).

### 2.3.4 Posttest

The posttest consisted of a forced choice task and a reasoning phase. The experimenter simultaneously presented the prosocial and the selfish proposer puppets and asked children who was the *good one*. A planned exact binomial test (two-tailed) revealed that 5-year-old (92%,  $p < .001$ ) but not 3-year-old children (50% younger children,  $p = .581$ ) reliably identified the prosocial proposer as *the good one*. In the reasoning phase, participants provided justifications for their decision which were coded as normative-moral reasoning or informative reasoning processes. Justifications of those children who had not answered the posttest (“who is the good one?”) correctly ( $n = 10$ ) were excluded. Four additional children were excluded from the analysis because of experimenter error during the reasoning phase of the posttest. Therefore, the following analysis is based on 22 five-year-olds and 12 three-year-old children. Data reveals a significant correlation of age and verbal reasoning in the posttest ( $\chi^2(2) = 7.26$ ,  $p = .027$ ,  $\phi = 0.26$ ). Normative and moral reasoning increased with age (see descriptive statistics in Table 4). For the group of 3-year-old children these results should be considered with caution as the analysis refers only to 12/24 children in this age group.

Table 4

#### *Children’s Responses in the Reasoning Phase of the Posttest*

Age group	Verbal reasoning			n
	None	Informing	Moral/ Normative	
3-year-olds	9 (75%)	3 (25%)	0 (0%)	12
5-year-olds	1 (5%)	8 (36%)	13 (59%)	22

## 2.4 Discussion

The current study assessed if preschoolers stipulate and enforce prosocial sharing norms in a GDG. Therefore, one child and two hand puppets had the opportunity to agree on how to distribute resources between themselves and a group of passive recipients. Children's agreement to (costly) prosocial and (advantageous) selfish sharing norms was assessed. The prosocial norm consisted of an equitable distribution of stickers between the players and recipients; the selfish agreement included no sharing with passive recipients. The protagonist puppet either followed or violated the respective agreement: The violation of the respective agreement means that the target puppet shared more resources than agreed-upon in the selfish condition (50:50 instead of 100:0), or fewer resources than agreed-upon in the prosocial condition (100:0 instead of 50:50). We found 5- but not 3-year-old children enforced prosocial, but not selfish, sharing norms, by protesting against a group member who violated the prosocial norm. The protest against (or sanction of) norm-violation stems from someone's commitment to group norms (M. J. Rossano, 2012; Schmidt & Tomasello, 2012). Therefore, the fact that the older participants in the study enforced prosocial norms allows the conclusion that they considered the prosocial agreement to be normatively binding (while the selfish agreement did not gain normative weight). With other words, children had normative expectations about others' prosocial actions based on the agreed-upon prosocial sharing norm (but they did not have selfish expectations based on the selfish agreement) and expected that one "ought" to distribute resources fairly after agreeing on the prosocial sharing norm.

Furthermore, children at 5 years of age expressed more disagreement with the proposals of the selfish, then of the prosocial puppet in the norm setting phase. This means that children were willing to agree on the (costly) prosocial norm, but they expressed concern about agreeing to the selfish norm. Another

important finding of this study refers to children's sharing decisions: Children in both age groups shared half of their endowment with the recipient child, after agreeing to a prosocial sharing norm. This sharing behavior was not affected by the behavior of the target puppet following (e.g. shared half of the stickers himself) or violating (e.g. shared none of his stickers) the agreement. If the group had agreed on a selfish sharing norm, 5-year-olds children averagely shared 11% of their stickers and 3-year-olds shared averagely 21% of their stickers with the recipient child if the other group members acted selfishly. If the target puppet violated the selfish agreement (i.e., shared more resources than agreed upon), 3- and 5-year-olds shared significantly more stickers themselves. This means that the children's sharing behavior was affected by an agent who behaved prosocially despite an egoistic agreement. However, the prosocial sharing decisions of the children were hardly influenced by the behavior of a group member who behaved selfishly despite a prosocial agreement. With regard to the younger age group, this result was surprising, as children from 3 years of age are known to understand several principles of fairness, while this knowledge is not necessarily consistent with their behavior (Blake et al., 2014). Since it is known that young children are more likely to copy an action performed by others (Haun, Rekers, & Tomasello, 2012) it is also surprising that 3-year-old children shared on average 21% of their endowment (which is about one out of four stickers) even if both hand puppets did not share anything at all (in the selfish-following trials).

The posttest of this study assessed if 3- and 5-year old children identified the prosocial or the selfish proposer as the *good one*. It was found that the older, but not the younger age group reliably identified the prosocial proposer as the *good one*. The children justified their decisions predominantly on the basis of normative-moral reasons, such as that the prosocial proposer had done the "right" or "fair" proposals. Children's consideration of normative and moral reasons in their evaluations nicely fits with and complements previous findings on the

development of intent-based normative judgments. During the preschool years, children begin to show sensitivity to the intentionality of an agent's action (Proft & Rakoczy, 2018; Young, Cushman, Hauser, & Saxe, 2007). Proft and Rakoczy (2018) showed that children from 5 years onwards were more sensitive towards the mental state information for moral- compared to conventional transgressions. Although the posttest did not assess norm transgressions – but reasoning about why someone is a good person, 5-year old children in our study refer to normative and moral reasons in this morally relevant context. In the current task, the moral relevance of a prosocial sharing decision was underpinned by the wording of the experimenter. In the introductory phase, she stressed that the recipients would like to have stickers and would be sad if they did not get any. Eventually this might also be a reason for the overall high sharing rates in the GDG. This explanation resembles a finding by Engelmann and colleagues (2016) who conducted an experiment in which children had to decide whether to adhere to peer behavior - while the behavior of the peers was more or less prosocial. Children at 5 years of age were found to behave prosocially in a group context in case of a recipient in need, even when there was a strong selfish incentive not to. If the need of a recipient was reduced, children adapted to the asocial group.

Taken together, moral norms in the current study gained their normative force not only by agreement or expectations of conformity, but also by considerations of the content (i.e., being prosocial versus selfish) of the proposed norm. This is especially interesting when compared with findings of Schmidt et al. (Schmidt, Rakoczy, et al., 2016), who found that unanimity was the key factor for establishing novel conventional norms. The findings of the current study are limited to the special context of this GDG, and therefore require further investigations. For example, it would be helpful to contrast the findings of this study to a version of the GDG with covered resource allocation. The fact that children shared in public might have supported their prosocial motivation as it is

known that concerns about group reputation can increase prosociality in young children (Engelmann, Herrmann, & Tomasello, 2018). However, the prediction of reputational theory on prosociality (“higher levels of prosociality in the presence of others”) does not hold until 5 years of age (Engelmann & Rapp, 2018; Hepach, Haberl, Lambert, & Tomasello, 2017). Thus, while older children in this study were eventually concerned about reputation (based on the public donation of resources for the individual player as well as for the group as a whole), this might not be valid for 3-year-olds.

These results of the current study add important knowledge to the literature on children’s understanding of how norms can come into existence and suggest that – when moral issues are at stake – novel norms gain their force not only through agreement or expectations of conformity, but also through considerations of the content of the proposed norm. Within the current experiment, normative expectations about others’ prosocial behavior – as an important building block of moral autonomy – were assessed. Although the respective prosocial behavior came along with personal costs (i.e., fair distribution of resources means less stickers for the distributor in the GDG), children obeyed more to the internalized prosocial sharing norm than to desire for valued resources.



## **Chapter 3**

### **Study Set 2: Observed Choice Increases Preschoolers Sharing Behavior**

**Abstract**

While children learn much about themselves through their own actions, they are also competent social and cultural learners; in particular, they do not just learn how other individuals prefer to do things, but rather how “we” – as a cultural group – do things, even after minimal exposure to an agent’s single intentional action. We investigated whether the mere observation of an agent, who intentionally engages in costly sharing, would increase children’s own prosocial behavior.

In two experiments, preschoolers observed an agent who shared an item with a recipient in need. Experiment 1 consisted of three between-subject conditions: The actor either made an (a) intentional *costly choice* (i.e., sharing instead of keeping the item), (b) a *non-costly choice* (i.e., sharing instead of watching the item be thrown away), or (c) had *no choice* (i.e., was coerced to share by authority). Then, children were given the opportunity to decide how many stickers (out of three) they themselves would like to share with a recipient in need. Children showed more other-prioritizing sharing behavior when they had observed the actor making a costly choice than in the other two conditions. In Experiment 2 the design was reduced to the conditions (a) and (c), and two test trials were run per child. Two age groups were assessed separately: a younger age group of 4-year-old children and an older age group of 5-year old children. The results of Experiment 2 were similar to those of Experiment 1 for the group of 5- not for the group of 4-year-old children. In sum, these findings may help shed light on important mechanisms of children’s prosocial decisions and their prosocial motivation more generally.

### 3.1 Introduction

#### 3.1.1 Determinants of Prosociality

Prosocial behavior is a fundamental part of human coexistence which develops early in life. From 2 to 3 years of age, children help others complete their goals (Warneken & Tomasello, 2006), sympathize with those who are harmed (Vaish et al., 2009) or in distress (Zahn-Waxler, Radke-Yarrow, Wagner, & Chapman, 1992), share their toys (Schmidt & Sommerville, 2011; Svetlova et al., 2010), and show a preference for prosocial others (Burns & Sommerville, 2014; Hamlin & Wynn, 2011). High-cost sharing behaviors have longitudinal consistency (Eisenberg et al., 2002), and prosocial actions are associated with cognitive development like mature moral judgment and affective perspective taking (Eisenberg & Shell, 1986; Vaish et al., 2009). Research suggests even earliest acts of helping behavior to be intrinsically motivated and that socialization practices involving extrinsic rewards can undermine this tendency (Warneken & Tomasello, 2008). Ulber and colleagues (2016) found a similar effect on preschoolers' sharing behavior: After being rewarded for their prosocial costly sharing, children shared less when they did not receive rewards anymore opposed to when they had received no rewards at all. A possible explanation is *self-determination theory* which says that freedom of choice affects intrinsic motivation (Deci & Ryan, 1985).

In order to investigate the effects of choice on preschoolers' prosocial decisions, Chernyak and Kushnir (2013) compared three between-subject conditions: In the *costly choice* condition, children could decide if they wanted to share an item with a sad animal puppet or keep the item for themselves. In the *non-costly choice* condition, children could decide between donating the item to the sad recipient or throwing it into the trash. In the *no choice* condition, they were

instructed to give the item to a sad animal puppet. In the subsequent test trial, children's sharing decisions revealed that choice led to increased sharing behavior. The authors attributed their results to the *prosocial-construal hypothesis* which indicates that children rationally infer their prosociality through the process of making difficult, autonomous choices (Cialdini, Eisenberg, Shell, & McCreath, 1987). It was also assessed in how far freedom of choice affects prosocial helping of 3- and 5-year-olds (Rapp et al., 2017). Children either participated in a *choice* condition (in which they could decide whether to help or not) or a *no choice* condition (in which they were instructed to help).

Prosocial motivation was subsequently assessed by the extent to which children helped an absent peer in the face of an attractive alternative game. Five-year-olds who had experienced choice helped more than children who had no choice, whereas the results of 3-year-olds did not differentiate between conditions. Another study shows that preschool children consider freedom of choice when they evaluate their own moral behavior (Chernyak & Kushnir, 2014) or the immoral behavior of others (Josephs et al., 2016). Taken together, these studies outline the crucial factor of choice on preschoolers' prosocial action. So far, studies predominantly addressed first-person experience of prosocial motivation and moral learning. However, humans also interact and learn on the impersonal level, for example, they align with others through social norms and other cultural activities. For this reason, a third-person experience of prosociality and moral learning was investigated in the second study, which is to be presented and discussed in the section 3.1.2.

### 3.1.2 Intentionality and Cultural Learning

While children learn much about themselves through their own actions, they are also competent social and cultural learners (Tomasello, 1999; Tomasello et al., 2005). Tomasello and colleagues (1993) describe cultural learning as learning based on interaction and communication with other people, especially with other members of the cultural group (not only on direct encounter with the natural world). In particular, children do not just learn how other individuals prefer to do things, but how “things are done” in the cultural group (Schmidt & Tomasello, 2012). Through interactions with others, children infer social norms for example by observing others’ actions (Schmidt et al., 2011). Previous research has indicated that young children even have a promiscuous tendency to infer norms based on minimal evidence such as cues of intentionality (M. J. Rossano, 2012; Schmidt, Butler, et al., 2016). Younger children, in particular, differentiate between models using pedagogical or intentional cues versus models who accidentally perform an action (Butler & Markman, 2012).

In a study of Schmidt and colleagues (2016), children spontaneously inferred a social norm without verbal or behavioral hints of the adult model. Participants enforced this self-inferred norm in case of violation through a third party. What is not known so far is if children’s prosocial motivation and moral learning are confined to first-person experience of intentional prosocial action (Chernyak & Kushnir, 2014), or if the process is much more complex and includes a child who actively draws inferences from the observation of intentional prosocial agents.

### 3.1.3 Current Study

Due to mechanisms of cultural learning and shared intentionality, effects of children's tendency to promiscuously infer social (conventional) norms (Schmidt, Butler, et al., 2016) might also be found in a morally relevant context. Therefore, the results of Chernyak and Kushnir (2014) provide one part of knowledge of a presumably bigger picture: We argue that choice and intentional prosocial action do not only lead to increased prosocial behavior in situations involving first-person experience (i.e., experiencing choice and intentional prosocial action yourself), but also in third-person experience (i.e., observing a model making an intentional prosocial decision) due to mechanisms of cultural learning and collective intentionality. We hypothesized that children's prosocial sharing decisions should not only be relatively higher when having the first-person experience of being prosocial (Chernyak & Kushnir, 2013; Rapp et al., 2017), but also when having third-person experience of observing someone who is *intentionally* engaged in prosocial sharing (i.e., making a *costly choice*) versus observing someone who is coerced to act prosocially (i.e., an agent that has *no choice*). If a person acted prosocially at no personal cost (i.e., non-costly sharing) there were two possible options. Either the children would experience the agent as someone who did the "relatively" right thing by giving a valuable resource to a recipient in need instead of throwing it into the trash. Or children would not infer any generalizability because the action was more or less arbitrary from the donator's perspective due to the fact that it did not contain a personal cost.

Experiment 1 consisted of three between-participant conditions, (a) *costly choice*, (b) *non-costly choice* and (c) *no choice*. In Experiment 2, the design was repeated but reduced to conditions (a) and (c); two test trials were run per child,

and two age groups (4- and 5-year-olds) were assessed. Minor inaccuracies in the wording of Experiment 1 were adapted in Experiment 2.

## **3.2 Experiment 1**

### **3.2.1 Method**

#### **3.2.1.1 Participants**

Eighty-four (48 – 71 months;  $M = 5$  years, 0 month; 42 girls) preschoolers participated in the study. Children came from mixed socio-economic backgrounds from a large German city and were recruited via urban daycare centers (in which testing took place). Parents provided written informed consent. Three additional children were tested but excluded from the final sample due to procedural error (1), language deficit (1) and uncooperativeness (1).

#### **3.2.1.2 Design**

After a warm-up session, children observed a model phase and performed one trial of a sharing task. Children were randomly assigned to one of three between-subject conditions: *costly choice*, *non-costly choice* or *no choice*.

#### **3.2.1.3 Materials**

Stuffed animal puppets were used as recipients (a dog named “Doggie” [German: “Hundi”] in the model phase, and a sheep called “Ellie” in the test phase). The locations of the distributor’s and the recipient’s boxes (wooden boxes, 11.5 x 8 x 6.5 cm) were systematically varied. Two types of animal stickers (frog and giraffe, counterbalanced) were used as resources.



#### **3.2.1.4 Procedure**

Two experimenters conducted the study which lasted roughly 10 minutes: E1, the coordinator, and E2 who acted as herself. The child, E1, and E2 sat at a table. E1 sat to the child's left and E2 opposite the child. The warm-up session consisted of playing with a ball, a hammer game and a disk-and-peg game.

#### **3.2.1.5 Model Phase**

In the model phase, E1 put the dog on the table and said [addressing the child and E2]: "Look what I've got here. This is Doggie [petting the dog]. Doggie is feeling very sad today. And this is Doggie's box" [E1 put the box with the dog's picture inside of the lid on the table].

#### **3.2.1.6 Manipulation Phase**

During the manipulation phase, E1 slowly pulled out a sticker and said:

- (i) *Costly choice*. "[Name of E2], you can keep this sticker for yourself, or you can give it to Doggie so that he's feeling better". E2 took the sticker and said [neutrally]: "I could keep the sticker for myself.... But I'll give it to Doggie so that he's feeling better."
- (ii) *Non-costly choice*. "[Name of E2], I can throw this sticker in the trash now, or you can give it to Doggie so that he's feeling better". E2 took the sticker and said [neutrally]: "Instead of letting [name of E1] throw the sticker in the trash, I'll give it to Doggie so that he's feeling better."
- (iii) *No choice*. "[Name of E2], I'm going to tell you now whether you can keep this sticker for yourself or if you have to put it into Doggie's box so that he's feeling better. You have to put it into Doggie's box, so that he's feeling better." E2 took the sticker and said [neutrally]: "I have to give it to Doggie so that he's feeling better."

After the respective sentence, E2 put the sticker into Doggie's box. E1 closed the lid and cleared the box away.

### **3.2.1.7 Test Phase**

The test phase consisted of one trial which started by E1 addressing the child: "Look who else I've got here [presenting the sheep]. This is Ellie. Ellie is also feeling really sad today." E1 and E2 petted the animal puppet, then E1 put Ellie away. A box with a picture of Ellie in the lid was presented, accompanied by E1 saying: "And this is Ellie's box. And I've got another box here – this one is for you," [presenting a plain box]. The boxes were positioned in front of the child, about 10 cm apart from each other. Three stickers were placed in a row between the two boxes. "Here are three stickers. They're for you! But Ellie also likes these stickers very much. You can keep all these stickers, then they will be put into this box [plain box] or you can share some with Ellie, then they will be put into Ellie's box." While the child was distributing the resources, E1 and E2 were constantly preventing eye contact with the child by gazing at the edge of the table in front of them.

### **3.2.1.8 Coding and Reliability**

All sessions were recorded, transcribed, and coded from videotape by a single observer. A second independent observer, blind to the hypotheses and conditions of the study, transcribed and coded a random sample of 20% of all sessions for reliability. Children's sharing decisions were coded as dichotomous variables:

- (i) *Self-prioritizing behavior* (i.e., children kept the predominant number of stickers for themselves and gave the minor number to Ellie, e.g., child 2:1 Ellie)
- (ii) *Other-prioritizing behavior* (i.e., children kept the minor number of stickers for themselves and gave the predominant amount to Ellie, e.g., child 0:3 Ellie).

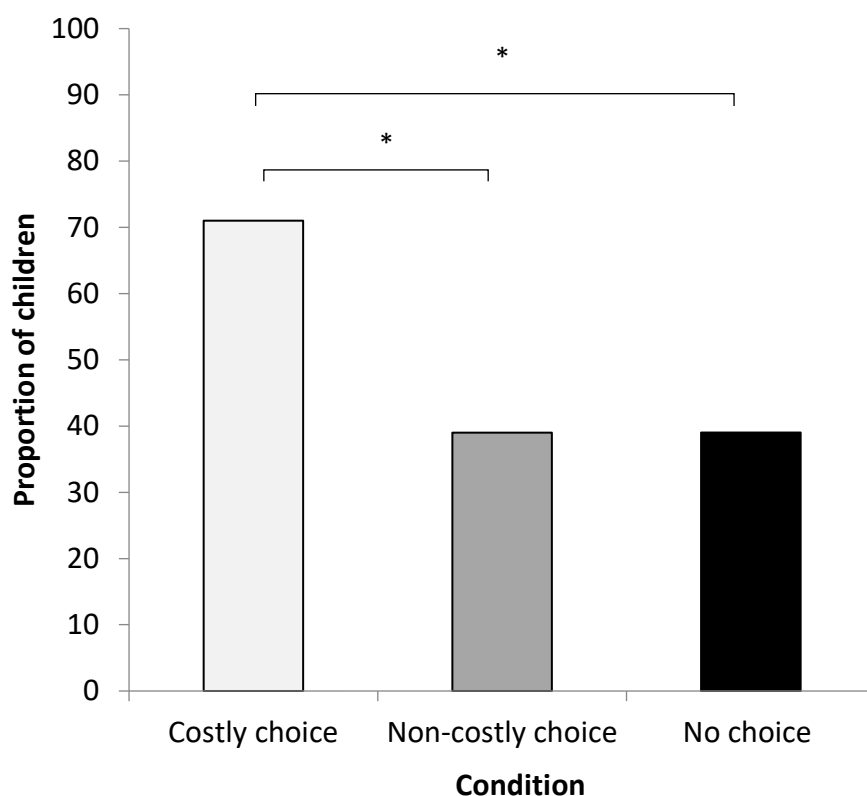
Interrater reliability was very good: Cohen's  $\kappa = 0.89$ .

### 3.2.1.9 Data Analysis

Statistical Analysis were run in R, version 3.5.2 (The R Core Team, 2018). Children's sharing patterns were analyzed by a  $\chi^2$  Test, the effect size *Cramer's V* was computed.

### 3.2.2 Results

The analysis of children's sharing decisions exposed a main effect of condition ( $\chi^2(2) = 7.71, p = .021$ , see Figure 3). Planned comparisons revealed that children shared significantly more stickers in the costly choice condition than in the non-costly choice condition ( $\chi^2(1) = 5.85, p = .016$ ) or in the no choice condition ( $\chi^2(1) = 5.85, p = .016$ ). This seems to represent the fact that, based on the odds ratio, the odds of other-prioritizing sharing decisions were 2.66 (0.73, 0.898) times higher in the costly choice condition compared to the no choice condition, and they were 2.66 (0.73, 0.898) times higher in the costly choice than in the no choice condition.



*Figure 3.* Proportion of children making other-prioritizing sharing decisions in the first experiment of Study Set 2.

The asterisks indicate significances at  $p < .05$ .

### 3.2.3 Discussion of Experiment 1

Experiment 1 investigated if observed choice increases the prosocial sharing behavior of 4- to 5-year-old children. The study design was based on a study of Chernyak and Kushnir (2013) who found that the experience of choice increased the sharing decisions of 3- and 4-year-old children. In the current experiment, children showed a more other-prioritizing sharing behavior after observing an adult model intentionally acting prosocially at personal cost. These results suggest that children's prosocial sharing may not only increase when having first-person

experience of being prosocial (Chernyak & Kushnir, 2013), but also infer the morally “right” action from the mere observation of a knowledgeable member of the society in a comparable situation. The participants in the current study were older than the participants in the Chernyak and Kushnir study, due to the more complex structure of the experiment. However, Experiment 1 did not control for possible age effects, which required further investigation. The wording of condition (a) and (c) in the experiment of Chernyak and Kushnir (2013) contained potentially distracting differences which were adopted in Experiment 1. Thus, to assess the question of possible age effects and to adjust the wording of condition (a) and (c), a second experiment was conducted. Experiment 2 compares the age groups of 4 and 5-year-old children. The experiment was reduced to the main conditions (a) and (c) a second test trial was added to investigate the stability of the effects during two trials.

### 3.3 Experiment 2

The objective of the second experiment was to disentangle possible age effects of Experiment 1, to adjust the wording of condition (a) and (c) and to investigate the stability of effects within two trials. To this end, the design of Experiment 1 was repeated but reduced to the conditions (a) *costly choice* and (c) *no choice*. Condition (b) *non-costly choice* was excluded as it was considered to not provide any relevant additional information. Furthermore, limitations concerning the wording in the model phase of Experiment 1 were adjusted. The following changes were implemented: The phrases “you can give this sticker to Doggie” (a), and “you have to put it in the box for Doggie” (c) were consistently transformed to “you can/have to give this sticker to Doggie” to ensure that wording in the two conditions was as similar as possible. Furthermore, the wording of the experimenter in condition (a) was adapted to highlight the personal cost: “Hmm, I could keep it for myself.... But I’ll give it to Doggie so that he feels better” was changed to “Hmm, I like the sticker and could keep it for myself.... But I’ll give it to Doggie so that he feels better”. The purpose of this change was to make clear that E2 did not give up the resource because it was not valuable to them but because of intrinsically prosocial reasons.

In addition, a second test trial was added to examine the stability of the effects within two trials. In the first trial participants were introduced to a stuffed sheep (“Ellie”, similar to Experiment 1). In the second trial, children were introduced to a stuffed penguin (“Hugo”). The procedure and wording of the sharing task in Experiment 2 were similar to those of Experiment 1. To investigate possible age-related changes, two age groups (4 and 5-year olds) were tested per condition.

### **3.3.1 Method**

#### **3.3.1.1 *Participants***

Ninety-six children ( $n = 48$  four-year-olds, 48 – 59 months,  $M = 4$  years, 4 months; 25 girls; and  $n = 48$  five-year olds, 60 – 71 months,  $M = 5$  years, 4 months; 25 girls) participated in the study. They came from mixed socio-economic backgrounds from a large German city and were recruited via urban daycare centers and a children’s museum (in which testing took place as well). Eight additional children were tested but excluded from the final sample due to experimenter error (6) or uncooperativeness (2).

#### **3.3.1.2 *Materials***

In the test phase, additional to the materials of Experiment 1, a stuffed penguin puppet (“Hugo”) was used. In the model and sharing tasks we used two types of animal stickers (frog and lion, counterbalanced).

#### **3.3.1.3 *Design***

After a warm-up session, children received one trial of a model phase and two trials of sharing tasks in which children could decide how many out of three stickers they wanted to share with sheep Ellie and, in the second test trials, with penguin Hugo. The participants were randomly assigned to one of two between-subject conditions: (a) *costly choice* or (c) *no choice* (for schematic representation of Experiment 1 and 2, see Figure 4).

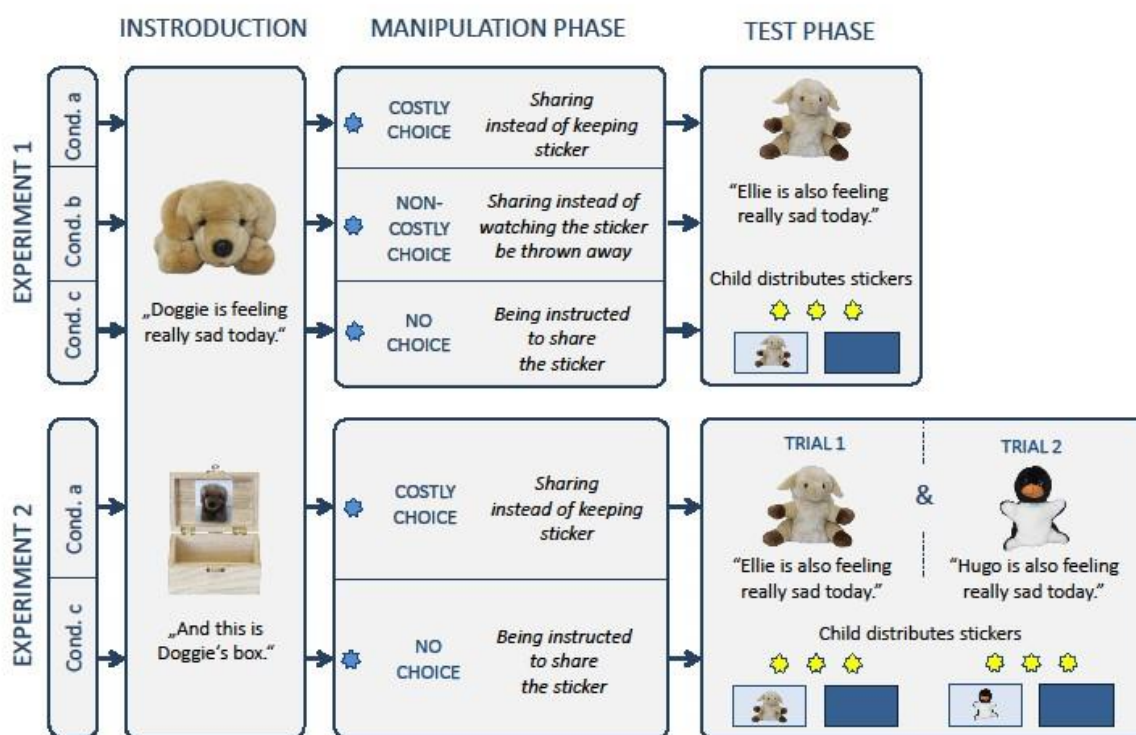


Figure 4. Schematic representation of Study Set 2.

### 3.3.1.4 Coding and Reliability

All sessions were recorded, transcribed, and coded from videotape by a single observer. A second independent observer, blind to the hypotheses and conditions of the study, transcribed and coded a random sample of 20% of all sessions for reliability. Children’s sharing behavior in the test phase was coded and categorized as:

- (i) *Self-prioritizing behavior* (i.e., children kept the predominant number of stickers for themselves and gave less to Ellie [Trial 1] or Hugo [Trial 2], e.g., child 2:1 Ellie)



- (ii) *Other-prioritizing behavior* (i.e., children kept the minor number of stickers for themselves and gave the predominant amount to Ellie [Trial 1] or Hugo [Trial2], e.g., child 0:3 Ellie)
- (iii) *Prioritizing in total* (i.e., the rate of other-prioritizing behavior across both trials was coded [0–2], e.g., [Trial 1] child 0:3 Ellie, [Trial 2] child 1:2 Hugo, leads to the sum score of 2).

Interrater reliability was very good: Cohen's  $\kappa = 1$  (total number of shared stickers); Cohen's  $\kappa = 1$  (self- versus other-prioritizing behavior); Cohen's  $\kappa = 1$  (prioritizing in total).

### **3.3.1.5 Statistical Analysis**

Statistical Analysis were run in R, version 3.5.2 (The R Core Team, 2018). To account for the non-independence of the data (i.e., repeated observations per child), we used Generalized Linear Mixed Models (GLMM) with binomial error structure was used to compare children's performance in the two conditions (*costly choice* and *no choice*) for each age group (Baayen, 2008; Bates, Maechler, Bolker, & Walker, 2013). Unstandardized parameter estimates ( $b$ ), standard errors, 95% confidence intervals (CIs), and odds ratios (ORs) were obtained from the full model. Models included condition, gender and trial as fixed effects and participant as a random effect. We tested for the effect of condition by comparing the fit of the full model (including all fixed and random effects) with the fit of a reduced model (without condition) using a likelihood ratio test (Dobson, 2002). There were no significant effects of gender and trial.

### 3.3.2 Results

A binomial GLMM with revealed that there was no interaction effect of condition and age  $\chi^2(1) = 0.44, p = .51, b = -0.32, SE = 0.00, CI [-2.4, 1.16], OR = 0.32$ . A second binomial GLMM revealed a main effect of age ( $\chi^2(1) = 10.56, p = .001, b = 2.72, SE = 1.06, CI [1.03, 5.55], OR = 15.24$ ) on children's other prioritizing sharing decisions. Planned comparisons revealed that 5-year-old children ( $\chi^2(1) = 4.76, p = .029, b = 1.33, SE = 0.63, CI [0.33, 3.09], OR = 3.78$ ), but not 4-year-old children ( $\chi^2(1) = 1.74, p = .187, b = 0.77, SE = 0.64, CI [-0.39, 2.89], OR = 2.76$ ) showed more other-prioritizing sharing decisions in the costly choice than in the no choice condition. Figure 5 illustrates other-prioritizing sharing decisions per trial and age group.

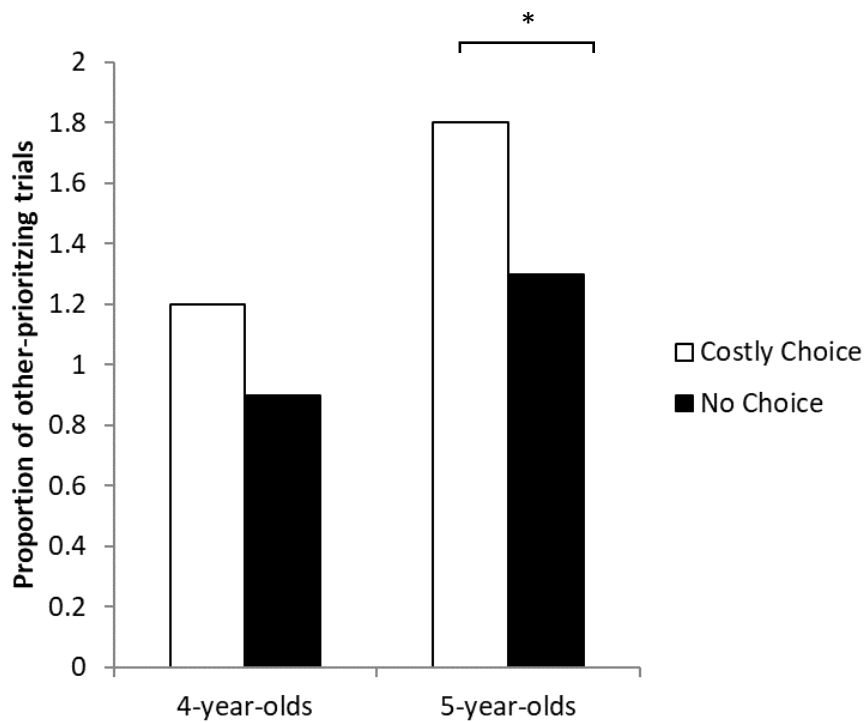


Figure 5. Proportion of other-prioritizing trials per age group. The asterisk indicates significance level of  $p < .05$ .

### 3.3.3 Discussion of Experiment 2

The aim of Experiment 2 was to assess age related changes in children's prosocial sharing decisions after observing an adult model sharing at personal cost in a *costly choice* or *no choice* condition. The wording of conditions (a) and (c) was adjusted to ensure to the fullest possible comparability between the conditions. Furthermore, a second test trial was added. The results of Experiment 2 revealed no interaction effect of age and condition which means that the results for the younger and older age groups tend towards the same direction. There was an effect of age for children's other-prioritizing sharing decisions: 5-year-old children showed overall more other-prioritizing sharing decisions than 4-year-olds. Planned comparisons exposed that 5-year-olds showed more other-prioritizing sharing decisions in the *costly choice* condition than in the *no choice* condition. This effect was not found for 4-year-old children. These findings indicate that the effect of observed choice on preschoolers' prosocial sharing decisions develops with age.

### 3.4 General Discussion of Study Set 2

Past research has shown that preschoolers tend to be more prosocial after having voluntarily shared a resource at a personal cost with another individual than after having shared at no personal cost or after having been instructed to share (Chernyak & Kushnir, 2013). While children learn much about themselves via their own actions, they are also competent social and cultural learners (Tomasello, 1999); in particular, they do not just learn how other individuals prefer to do

things, but rather how “we” – as a cultural group – do things (Schmidt & Tomasello, 2012), even after minimal exposure to an agent’s single intentional action (Schmidt et al., 2016). Therefore, the current study set investigated whether the mere observation of an agent who voluntarily decides to engage in costly sharing would increase children’s own prosocial behavior. It was examined whether the process of moral learning and prosocial motivation of preschool aged children involves not only first-person experience, but also an active child who draws conclusions from the observation of an intentional prosocial agent.

The results of Experiment 1 revealed that observed choice increased preschoolers’ prosocial sharing behavior. The participants in the *costly choice* condition shared more prosaically themselves than participants in the other two conditions. The sharing rates in the *non-costly choice* condition were identical to those in the *no choice* condition. This suggests that the participants in condition (b) could not derive any prosocial intentionality from the *non-costly* decision of the adult model, since it remained unclear how the model would have acted in the case of personal costs. These results add important knowledge to the research on how choice affects prosocial action. However, the important question of age-related changes remained unsolved. Whereas the children in the study of Chernyak and Kushnir were 3 and 4 years of age, Experiment 1 assessed children from 4-5 years of age, due to required underlying cognitive capacities to process the facets of observed intentional (versus non-intentional) prosocial action. But as many social-cognitive competencies develop in the span of 4.0-5.11 years of age, Experiment 2 investigated age-related changes between the groups of 4- and 5-year old children. Furthermore, minor inaccuracies in the wording of condition (a) and (c) of Experiment 1 were adjusted and a second test trial was added. The results of Experiment 2 replicate the findings of Experiment 1 for 5- but not 4-year old children: A significant effect of condition was found for 5- but not 4-year old children. Across both conditions, 5-year old children showed more other-prioritizing sharing behavior than 4-year old children. This finding is in line with

previous studies which show that prosocial behavior increases during the preschool years (Rochat et al., 2009; Smith et al., 2013). Eventually, the sharing rates between conditions did not vary for younger children because those who had observed the experimenter telling the adult model what to do might in condition (c) might have inferred that being prosocial was the “right thing” (Rakoczy et al., 2008).

Taken together, the results of Study Set 2 suggest how mechanisms of cultural learning and collective intentionality enable children to draw inferences from the mere observation of intentional prosocial agent’s action without pedagogical indication. The results revealed that 5-year-old children showed more other-prioritizing sharing behavior when they had observed an intentional agent sharing at personal cost compared to the other two conditions (i.e., sharing at no personal cost or being coerced to share). These results are supported by the study of Schmidt and colleagues (2011) who found that children do not passively wait for explicit instruction or socialization by adults but have active motivation to infer social norms when they observe others’ actions. Even after minimal exposure to an agent’s single intentional action, children learn from others and infer social norms. If a person was coerced to share, the participants in our study did not receive information about the model’s reasons, intentions, or motives for action. Thus, they could not generalize this behavior, and so they behaved relatively less prosocial in such a situation themselves. This overall effect can be particularly strong because children had evidence that the person who voluntarily chose prosociality was perceived as a competent member of their cultural group - a hypothesis to be investigated in future studies. For instance, future studies could investigate how a priming of mechanisms of cultural learning affect the prosocial behavior of children (e.g., the adult model might present a new game at the beginning of the study which is introduced as a cultural asset).

In sum, these findings help to shed light on important mechanisms of children's prosocial decisions as well as their moral learning and motivation more general.

## **Chapter 4**

### **Study 3: Preschoolers Expect Prosocial Actions from Others Who Shared Voluntarily, Not Involuntarily**

## **Abstract**

To navigate through our complex social world and to detect cooperative partners, children must pay attention to the underlying intentions of individuals performing morally relevant actions. These actions and the underlying intentions provide information about how the person will behave in the future, which can lead to ambiguous situations. For instance, we might be uncertain about a person's future prosocial behavior if that person was not acting voluntarily but was forced to behave in a certain prosocial manner. Prior research has found that children themselves tend to be more prosocial when they had voluntarily shared a resource at a personal cost with another individual compared to when they were instructed to share. It is not known, however, to what extent choice and intentional prosocial behavior play a role in preschoolers' third-party expectations about other's tendency to behave prosocial or selfish. Here, we investigated preschoolers' descriptive expectations about the causal agent of a prosocial and selfish action, based on agents' prior history of voluntary versus involuntary moral action. Our findings suggest that from around 4 years of age, children differentiate in moral terms between an agent who shares resources voluntarily and an agent who was instructed to share. From 5.5 years of age, preschoolers use information about the circumstances and underlying intentions of agents' prior moral actions to form descriptive, third-party expectations about their current prosocial versus selfish behavior. They expected an agent who had made an intentional decision to donate a resource at personal cost to be more likely to continue to act prosocially (and less likely to act selfishly) than an agent who was instructed to share by an authority.



## **4.1 Introduction**

### **4.1.1 Human Cooperation and Social Norms**

Human cooperation and group life require sophisticated strategies for social interaction and communication. More concretely, the human species has the specific ability to collaborate with a large number of genetically independent individuals in a mutually beneficial way (Melis & Semmann, 2010). Although the scale of human cooperation is an evolutionary puzzle, one key factor to these abilities lies in the evolution of human cultures, when people established moral systems of sanctions and rewards which led to the advantage of individuals with more prosocial motives, who adapted well to their social environment (Boyd & Richerson, 2009; Fehr & Fischbacher, 2004). These prosocial motives included preferences for reciprocity, altruism and inequality aversion. The establishment and enforcement of social norms (Camerer & Fehr, 2004) shaped human culture and stabilized coordination and cooperation within groups (Rakoczy & Schmidt, 2013). The participation in collaborative activities requires the ability to share intentions (Searle, 1995) with other individuals and groups, a phenomenon that is called shared intentionality (Göckeritz et al., 2014; Tomasello et al., 2005). From 14 months of age onwards, children understand others as intentional actors and actively exchange experiences and emotions with them (Tomasello et al., 2005). Research on the ontogeny of social norms reveals that already infants have a certain understanding of social norms (Rakoczy et al., 2008). From 3 years of age, they protest against an agent's moral transgression (F. Rossano et al., 2011; Schmidt et al., 2012; Vaish et al., 2011) and by 5 years of age, children understand that social norms are binding to everyone who participates (Göckeritz et al., 2014).

#### 4.1.2 Moral Judgment and Behavioral Prediction

It is an important developmental milestone for young children to realize that the moral judgment of an action is not only based on consequences, but also on underlying intentions (Fu, Xiao, Killen, & Lee, 2014; Killen & Smetana, 2015; Turiel, 2006; Zelazo, Helwig, & Lau, 1996). Piaget (1932) postulated that children up to the age of 10 put more weight on the consequences of an agent's morally relevant actions than on their mental states, such as intentions in evaluating the moral virtue of an action. Recent research about moral judgments of children reveals ambiguous results: Whereas some studies with simplified, age-appropriate methods showed that children at pre-school age consider an agent's intention in their moral judgments (Nobes, Panagiotaki, & Bartholomew, 2016; Nobes, Panagiotaki, & Pawson, 2009; Vaish, Carpenter, & Tomasello, 2010) others find that children up to school age give more weight to results than intentions (Cushman, Sheketoff, Wharton, & Carey, 2013; Gummerum & Chu, 2014; Zelazo et al., 1996). First and second order theory of mind competence plays an important role for children making appropriate moral judgments based on the intention of an actor in a social situation (Fu et al., 2014). Killen and colleagues (2011) investigated children's understanding of intentions in a morally relevant theory of mind task (MoToM) and found that children between 3.5 and 5.5 years of age began to take a transgressor's intention (i.e., accidental versus intentional transgressor) into account. Moreover, the competence of classical false belief tasks was related to the attribution of intentions. Li and Tomasello (2018) found that between the ages of 3 and 5, children develop the ability to make judgments on intent-based indirect reciprocity and that 5-year-olds' social preferences are affected by an agent's previous action. Gvozdic and colleagues (2016) furthermore highlighted the critical role of inhibitory control in processing situations with conflicting intentions and outcomes (e.g., in case of accidental harm). Inhibitory control is an important ability

for mature intent based moral reasoning because it helps to focus on important information while irrelevant information is tuned.

Another important social cognitive ability is the attribution of traits (Liu, Gelman, & Wellman, 2007). Some studies found that children until 8 years of age are reluctant in predicting stability of human behavior (Kalish, 2002; Rholes & Ruble, 1984; Rotenberg, 1980). Others show that, under certain conditions, preschoolers from 4 years of age can use information about past behavior to make predictions about future behavior (Cain, Heyman, & Walker, 1997; Liu et al., 2007). Dozier (1991) showed that 5- and 6-year-old children, when confronted with a simple, quantitative predictive task, can make feature-consistent behavioral predictions.

#### **4.1.3 Prosociality and Choice**

Prosocial behavior develops before the second year of life (Svetlova et al., 2010) and is driven by acts of helping, sharing or comforting others when in distress (Brownell et al., 2009; Eisenberg & Fabes, 1998; Schmidt & Sommerville, 2011; Warneken & Tomasello, 2006). Already infants do not behave equally prosocial towards all individuals but tend to prefer helping actors to hindering actors (Hamlin, 2013; Hamlin & Wynn, 2011; Hamlin, Wynn, & Bloom, 2007). Vaish and colleagues (2010) showed that preschoolers' prosocial behavior is mediated by the intentions underlying an agent's morally relevant behavior in a third party paradigm. Children at the age of 21 months helped other children if they had previously shown the intention to act prosocially towards them (Dunfield & Kuhlmeier, 2010). Olson and Spelke (2008) found that children at 3.5 years of age were more likely to distribute resources to individuals who showed direct or indirect reciprocal generosity themselves.

One important factor in young children's expression of prosocial behavior is freedom of choice. A basic understanding of the concept of free choice develops to an explicit form at 4 years of age (Kushnir, Gopnik, Chernyak, Seiver, & Wellman, 2015) and even infants show a fundamental understanding of the different factors that can constrain actions (Behne, Carpenter, Call, & Tomasello, 2005). Chernyak and Kushnir (2013) asked preschoolers to distribute stickers to a sad individual and compared the effects of a personal costly choice (i.e., keeping a sticker or giving it to sad individual), sharing without personal costs (i.e., sharing a sticker or throwing it in the trash) and no experience of choice (i.e., being told to share by an authority). Children who shared at personal costs shared more resources with a new individual in a subsequent sharing context than in the non-costly choice or on the no choice condition. The findings were discussed in the context of the *prosocial construal hypothesis*, which describes rational inferences about one's own prosociality through the process of making difficult, autonomous choices. Freedom of choice also effects preschoolers' evaluation of others' actions; they were found to protest more when a moral transgression occurs under free conditions compared to restricted conditions (Josephs et al., 2016). Taken together, these findings point out the importance of the factor of choice in children's own prosocial actions as well as in their evaluation of others. The open question is in how far information about the factor of choice in other's prosocial actions effect children's expectations about those agent's future prosocial behavior.

#### **4.1.4 Aim of the Current Study**

In conclusion, this study was interested in how children use information about an agent's intention to form predictions about future morally relevant actions. With other words, if children form descriptive third-party expectations about the causal

agent of a prosocial and a selfish action, based on the agents' prior history of voluntary or involuntary prosocial action.

The participants of the current study observed two human-like hand puppets who shared a resource with a sad plush dog. One of the agents made an intentional decision to donate a resource to the recipient (i.e., voluntary prosocial agent, VPA) the other agent wanted to keep the resource for herself but was instructed to share by an authority (i.e., involuntary prosocial agent, IPA). Thereafter, children were asked about the underlying intentions of both agents ("Did he *want to* or *have to* share the sticker?"). In the main task children saw a prosocial and a selfish distribution of marbles that they were asked to match to the respective distribution to the previously voluntary versus involuntary prosocial agent. In a forced choice posttest, children were asked who of both agents was the "good guy" and to justify their decision in a reasoning phase.

A group of younger (4.0 – 5.5 years) and older (5.6 – 6.11 years) preschoolers was assessed. It was assumed that both age groups would reliably identify the agent's intentions and therefore answer the control questions correctly. Due to the interrelation of the development of moral judgment and first and second order theory of mind (Cushman et al., 2013; Fu et al., 2014; Killen, Mulvey, Richardson, Jampol, & Woodward, 2011) as well as inhibitory or cognitive control (Greene, Nystrom, Engell, Darley, & Cohen, 2004; Gvozdic et al., 2016) it was assumed that older but not younger preschoolers would reliably identify the VPA as the initiator of the prosocial distribution of marbles and the IPA as the initiator of the selfish distribution of marbles. Furthermore, it was predicted that our participants would reliably identify the VPA as the *good one* in the posttest because research shows that children at only 3 years of age consider others' moral behaviors and disadvantage agents who have harmful intentions (Olson & Spelke, 2008; Vaish et al., 2010). Eisenberg-Berg (1979) investigated the development of children's reasoning about prosocial moral dilemmas (in which the need of an

individual conflicted with those of others). She found that empathic considerations and judgments reflecting internalized values increased with age. This led to the expectation that older children would justify their decision by reflecting on the intentions and inner attitudes of the actor, while younger children would predominantly refer to a description of the behavior of the selected actors.

## **4.2 Method**

### **4.2.1 Participants**

Seventy-two children participated in the study:  $n = 36$  younger children ( $M = 4$  years, 8 months; range = 48 – 66 months; 16 girls) and  $n = 36$  older children ( $M = 6$  years, 1 month; range = 67 – 83 months; 19 girls). Children came from mixed socio-economic backgrounds from a large German city and were recruited via a children's museum and urban daycare centers (in which testing took place as well). Parents provided written informed consent. Five additional children were excluded from the final sample due to experimenter error (3) or uncooperativeness (2).

### **4.2.2 Design**

In a mixed design, all children participated in the model phase (two control questions), the test phase (two trials) and the posttest (one trial). Both tasks were preceded by a warm-up session (playing with a ball, a hammer game, and a disc-and-peg game). The VPA and the IPA's position (left versus right from the child's viewpoint) were alternated within and varied between children. Furthermore, the puppet introduced first (left versus right) and the puppet speaking first were

counterbalanced across children. The order of marble distributions in the test phase (prosocial [1:2] versus selfish [3:0] condition) was systematically varied.

### **4.2.3 Materials**

Humanlike hand puppets were used as VPA and IPA (named “Max” and “Tom”). In the model phase, a plush dog [“Doggie”; German: “Hundi”] was presented as the recipient; colorful animal stickers were used as resources and a wooden box (11.5 x 8 x 6.5 cm) with a photo of the plush dog on the lid was used to deposit the stickers. In the test phase, two plush animals (sheep “Ellie” and penguin “Hugo”) were introduced as recipients. A wooden panel was equipped with two boxes: one belonging to the distributor and one to the recipient. In order to identify the boxes of the recipients, photos of the sheep and the penguin were put into the respective boxes. The box for the distribution did not have a photo. Three marbles were used as resources in the test trials. Two stands (wooden sticks, vertically attached to a base) held the hand puppets during the test phase and posttest phase.

### **4.2.4 Procedure**

Two experimenters conducted the study, which lasted roughly 20 minutes: E1, the coordinator, and E2, who operated the hand puppets. The child, E1, and E2 sat at a table. E1 sat to the child’s left, and E2 sat opposite the child.

#### **4.2.4.1 Warm-Up**

In the warm-up session, the child, E1 and E2 played together with a ball and a hammer game. After E1 put the hammer game away, the hand puppets appeared simultaneously facing the child. Both puppets introduced themselves successively

to the child and E1 ("Hi, my name is [Max/Tom]"). Then E1 invited the hand puppets to join her and the child in the disc-and-peg game, which the puppets affirmed. After each warm-up game, E1 said: "I'll put that away."

#### **4.2.4.2 Model Phase**

E1 put a plush dog on the table and addressed the child and the two hand puppets: "Look who else I've got here. This is Doggie. Doggie is feeling very sad today. And this is Doggie's box [putting the dog's box on the table]." E1 showed a sticker to the hand puppets, saying: "[Name of VPA], you can keep this sticker for yourself or you can give it to Doggie so that he is feeling better." The VPA responded, "I like the sticker and I could keep it for myself, but I want to give it to Doggie so that he is feeling better," took the sticker from E1 and put it into the dog's box. E1 asked the child: "Tell me, did [name of VPA] want to or did he have to give the sticker to Doggie?" After the child's response, E1 turned to the second hand puppet, pulled out a sticker and said: "[Name of IPA], I will tell you now if you can keep this sticker for yourself or if you should give it to Doggie to make him feel better." The IPA responded, "I would like to keep the sticker for myself," whereupon E1 told him: "But you have to give it to Doggie to make him feel better." Then the IPA took the sticker from E1 and put it into Doggie's box. E1 asked the child: "Tell me, did [name of IPA] want to or did he have to give the sticker to Doggie?" After the child's response, E1 put away the dog puppet and the box and said, "I'll go then" and left the room.

#### **4.2.4.3 Test Phase**

Both hand puppets were placed on stands opposite the child, E2 from now on acted as herself. E2 said: "[Name of E1] has left now, so she doesn't hear or see anything anymore." E2 pulled out another animal puppet and addressed the child: "This is



[name of recipient 1]. [Name of recipient 1] is feeling very happy today. And you know why?" E2 pulled out a board with two boxes on top, one of them equipped with a picture of recipient 1 inside the lid. Two marbles were put in the recipient's box, whereas one marble was put in the distributor's box. "Because someone has shared two marbles with [name of recipient 1] and only kept one marble for themselves. Now show me which one of them [referring to VPA and IPA] did that?".

After the child's response, E2 put recipient 1 and the board away and pulled out the second recipient puppet: "This is [name of recipient 2]. [Name of recipient 2] is feeling very *sad* today. And you know why?" E2 pulled out a board with two boxes on top, one of them equipped with a picture of recipient 2 in the lid. No marbles were put in the recipient's box whereas three marbles were put in the distributor's box. "Because someone kept all those marbles to themselves and didn't share anything with [name of recipient 2]. Now show me which one of them [referring to VPA and IPA] did that?" After the child's response, E2 put recipient 2 and the board away.

#### **4.2.4.4 Posttest**

E2 summarized for the child: "Look, [name of VPA] gave the sticker to Doggie because he wanted to do so. And [name of IPA] gave the sticker to Doggie because [name of E1] told him to do so. Now show me who (referring to VPA and IPA) is the good one?" After the child's response, E2 asked: "And why?" (for schematic representation of the whole experiment, see Figure 6).

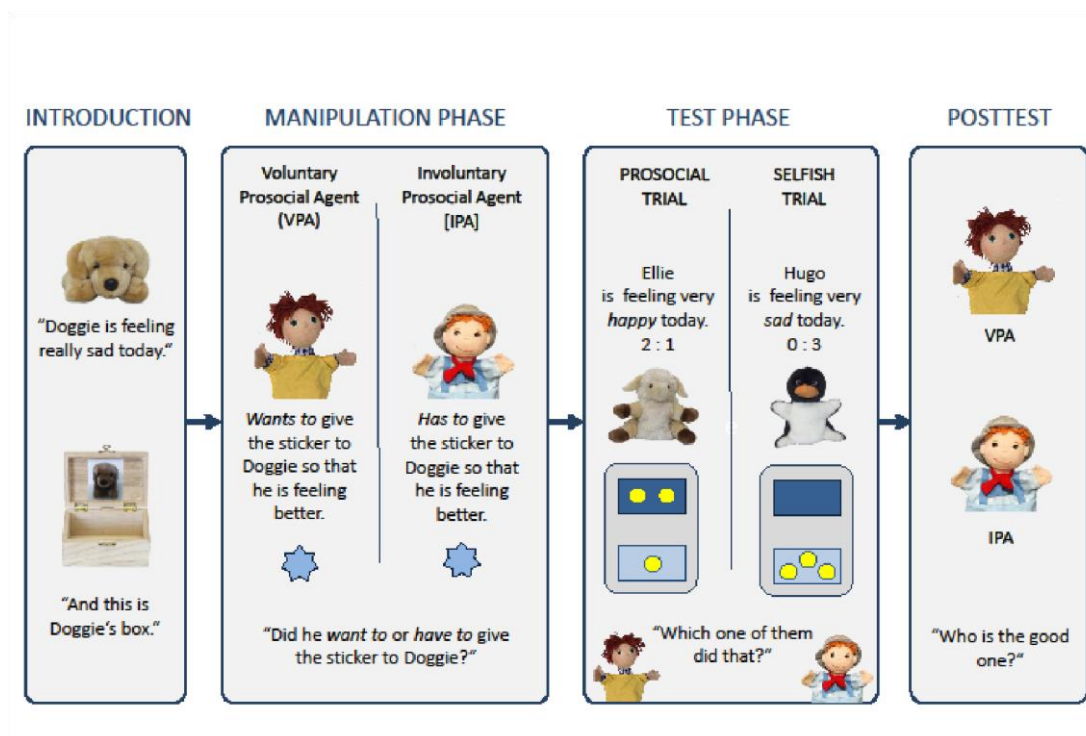


Figure 6. Schematic representation of Study 3.

#### 4.2.5 Coding and Reliability

All sessions were recorded, transcribed, and coded from videotape by a single observer. A second independent observer, blind to the hypotheses and conditions of the study, transcribed and coded a random sample of 25% of all sessions for reliability.

##### 4.2.5.1 Control Questions

The control questions assessed whether children identified the intentions of the voluntary and the involuntary prosocial agent correctly. Since two control questions were assessed, children's answering pattern per trial (correct / incorrect)

was coded. The sum score of the control task was calculated (0–2: 0 = no correct answer, 1 = one correct answer, 2 = two correct answers). Interrater reliability was very good: Cohen’s  $\kappa = .93$ .

#### **4.2.5.2 Distribution Task**

The distribution task assessed whether children assigned the prosocial and selfish distribution to the voluntary and involuntary prosocial agent correctly. Since two trials (prosocial and selfish) were assessed, children’s answering pattern per trial (correct / incorrect) was coded. The sum score of the distribution task calculated (0–2: 0 = no correct answer, 1 = one correct answer, 2 = two correct answers). Interrater reliability was very good: Cohen’s  $\kappa = .93$ .

#### **4.2.5.3 Posttest**

Children’s answers to the posttest (i.e., dichotomous variable: correct or incorrect response to the question of E1) and the justification of the decision were coded. Participants’ justifications were coded valid if children either gave intentional reasons (i.e., those which referred to the agent’s mental states and empathic concern for the recipient, such as “Because he wanted to share instantly” or “Because he wanted the dog to feel better”) or non-intentional reasons (i.e., those which referred to a description of an agents action, such as “Because he gave the sticker to the dog”). Other reasons were considered invalid if they contained irrelevant explanations (e.g., “Because he always smiled”), or no explanation (including “I don’t know”). Interrater reliability was very good, Cohen’s  $\kappa = 1$  (posttest),  $\kappa = 1$  (reasoning).

#### 4.2.6 Statistical Analyses

Statistical Analysis were run in R, version 3.5.2 (The R Core Team, 2018). To account for the non-independence of the data (i.e., repeated observations per child), we used generalized linear mixed models (GLMM) with binomial error structure for comparing children's performance in the two conditions (Baayen, 2008; Bates, Maechler, Bolker, & Walker, 2013). Unstandardized parameter estimates ( $b$ ), standard errors, 95% confidence intervals (CIs), and odds ratios (ORs) were obtained from the full model. The models included age and gender, condition, trial and performance in control question as fixed effects and participants as random effects. We tested for the effect of age by comparing the fit of the full model (including all fixed and random effects) with the fit of a reduced model (without condition) using a likelihood ratio test (Dobson, 2002). There were no significant effects of gender, condition, trial or performance in control question. For the analysis of children's answering pattern in the control task and the distribution task (with the outcome variable: 0 – 2), a one-sample  $t$ -test was conducted with test value 1.

### 4.3 Results

#### 4.3.1 Control Questions

Both age groups reliably answered the control questions correctly ( $M_{old} = 1.64$ , test value = 1,  $SD = 0.54$ ,  $t(35) = 2.33$ ,  $p < .001$ ;  $M_{young} = 1.31$ , test value = 1,  $SD = 0.62$ ,  $t(35) = 2.97$ ,  $p = .006$ ). A follow-up condition comparison revealed that the ascription of the VPA's and IPA's intention was significantly different from chance (.50). Subsequently, a planned exact binomial test (two-tailed) revealed that older

preschoolers reliably identified the intention of the IPA (97%,  $p < .001$ ) and the VPA (67%,  $p = .033$ ). Younger preschoolers, however, reliably identified the IPA (83%,  $p < .001$ ), but performed at chance level for identifying the intentions of the VPA (47%,  $p = .691$ ).

#### 4.3.2 Distribution Task

A binomial GLMM on children's performance in the distribution task revealed a significant effect of age ( $\chi^2(1) = 14.05$ ,  $p < .001$ ,  $b = 20.13$ ,  $SE = 4.82$ ,  $CI [8.06, 35]$ ,  $OR = 551$ ), suggesting that older preschoolers were more likely to ascribe the distributions of marbles to the respective agents than younger preschoolers. Figure 7 illustrates the mean score of correct trials per age group. The older, but not the younger, age group identified the agent's intentions correctly ( $M_{old} = 1.36$ , test value = 1,  $SD = 0.93$ ,  $t(35) = 23.28$ ,  $p = .026$ ;  $M_{young} = 0.09$ , test value = 1,  $SD = 0.89$ ,  $t(35) = -0.37$ ,  $p = .711$ ).

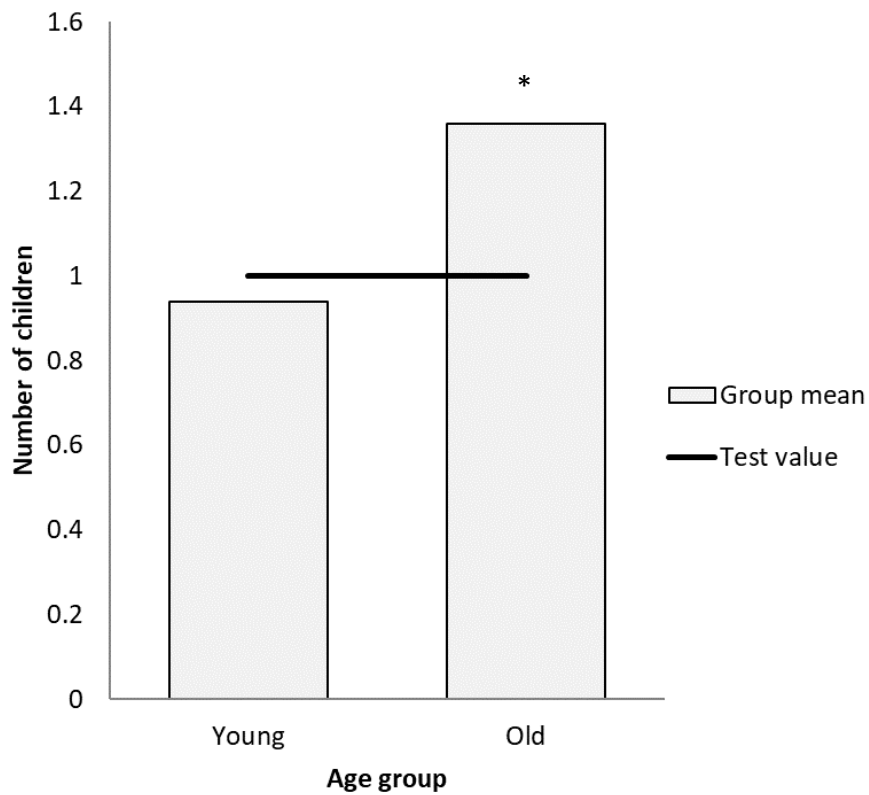


Figure 7. Mean score of distribution task for older and younger age group. Test value = 1.

The asterisk indicates significance at  $p < .05$ .

In a follow-up condition comparison, two exact binomial tests (two-tailed) revealed that the proportion of children identifying the intentions of the respective agents per trial was significantly different from chance (.50). The older age group ascribed distributions correctly to the respective agents in the selfish trial (69% of the children,  $p = .014$ ) and in the prosocial trial (67% of the children,  $p = .033$ ). The younger age group performed at chance level both in the selfish (50% of the children,  $p = .57$ ), and in the prosocial trial (44% of the children,  $p = .80$ ), see Figure 8.

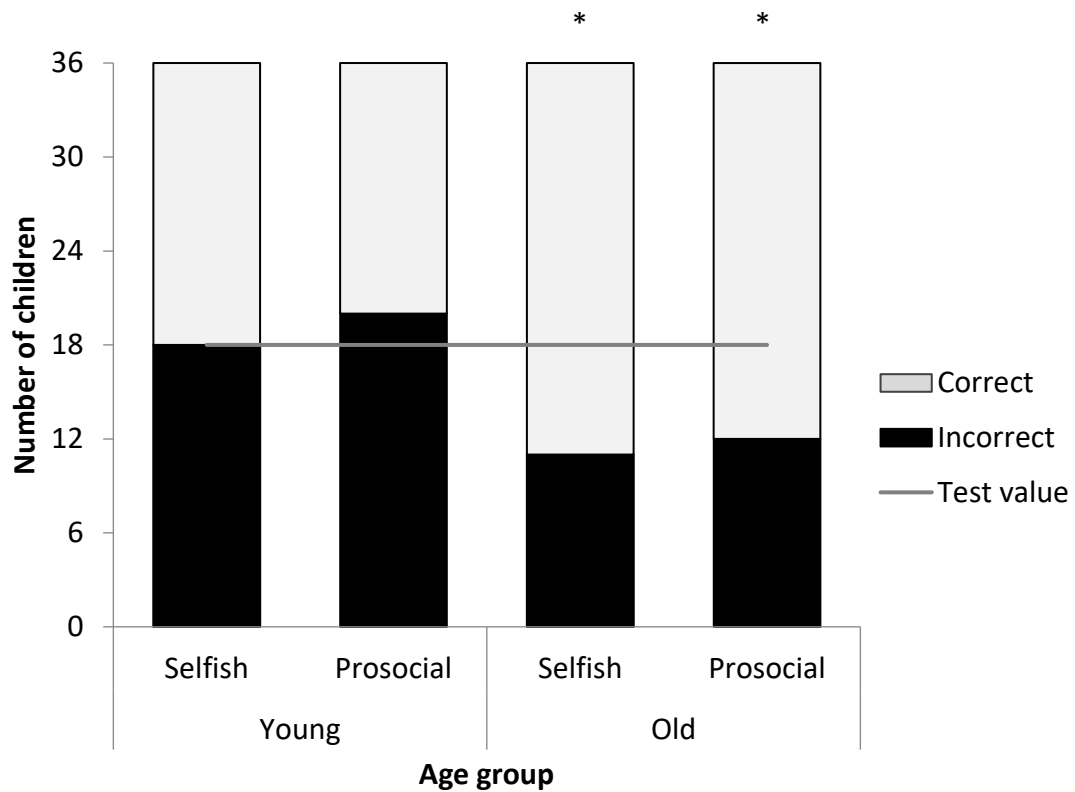


Figure 8. Number of children per age group who ascribe distributions correctly in the prosocial and selfish trials. Test value = .50.

The asterisk indicates significance at  $p < .05$ .

### 4.3.3 Posttest

The posttest consisted of a forced choice question and a reasoning phase. The children were exposed simultaneously to the VPA and IPA and were asked to identify the *good one* of both agents. We conducted planned exact binomial tests (two-tailed) and found that children of both age groups (72% of younger children,  $p < .01$ ; 89% of older children,  $p < .001$ ) reliably identified the VPA as the *good one*. In the reasoning phase, participants provided justifications for their decisions which

were coded as intentional or non-intentional reasoning processes. Participants who did not answer the posttest correctly ( $n = 12$ ) were not included. Four additional children had to be excluded because of experimenter error. Therefore, the following analysis is based on 26 younger and 30 older children. We found a significant effect of age, Fisher's exact test,  $p < .01$ , suggesting an age trend: 27% of the younger children and 47% of the older children described intentional reasoning processes, 54% of the younger children and 50% of the older children described non-intentional reasoning processes, such as describing an agent's action, whereas 19% of the younger and 3% of the older children refused to answer or gave invalid response.

#### 4.4 Discussion

The ability to evaluate social behavior of third parties is an evolutionary and ontogenetic base of human morality and cooperation in human societies (Fehr & Fischbacher, 2004; Henrich et al., 2005; Li & Tomasello, 2018; Nowak & Sigmund, 1998). Not only an agent's action but also the underlying intentions serve as an important source of social information. The aim of the current study was to investigate children's descriptive third-party expectations about the causal agent of a prosocial and a selfish action on the basis of the agents' prior history of voluntary and involuntary prosocial action. Furthermore, it was assessed who of both agents was evaluated as the *good one*.

As suggested, participants of both age groups identified the intentions of the VPA and the IPA in the control task correctly: Younger and older preschoolers understood that the VPA shared because he "wanted to share the sticker" and the IPA shared because he "had to share the sticker". Since previous research had shown that knowledge of traits plays a crucial role in whether children selectively



distinguish between social partners (Hermes, Behne, & Rakoczy, 2015), it was particularly important to ensure that both age groups could explicitly allocate the intentionality of both agents.

In the main task, a prosocial and a selfish distribution of marbles was presented. Children were asked to assess these distributions to the previously voluntary and involuntary prosocial agents. Although both age groups had identified the agents intentions in the control task correctly, only older preschoolers reliably assigned the prosocial distribution of marbles to the previous VPA (i.e., who had the intention to share) and the selfish distribution of marbles to the previous IPA (i.e., who wanted to keep the resources for himself but was instructed to share by an authority). The developmental shift that was observed in this study is in line with previous research: Other investigators have found that young children are reluctant in predicting stability in people's behavior, even when trait labels (e.g., children were asked whether an agent who shared was "nice and kind") were applied to the respective actor beforehand (Rholes & Ruble, 1984). Kalish (2002) emphasized that the ability to predict consistency in psychological and intentional causal relations increases with age, which presupposes that two events are understood to be causally related: If A has caused B in the past, then it will also cause B in the future. Therefore, it was not surprising that the younger age group in our study was not able to form predictions about the causal agent of the prosocial and selfish action, although they could ascribe the agent's previous intentions correctly.

Nonetheless, in the posttest, younger and older preschoolers reliably identified the VPA as the *good one*. Previous studies have shown that even 3-year-olds have an understanding of norm-compliant versus norm-violating behavior of others. They intervened both as victims of the transgression and as unaffected third parties alike which provides strong evidence for an agent-neutral understanding of social norms from early age (Hardecker et al., 2016). The

normative evaluation of the *good* agent in the current study shows that children not only protest or intervene against norm violators but evaluate an agent more positively who adheres to the moral norm. When it comes to reasoning about why the selected agent was the good one, older children tended to justify their decision with more intentional reasons which referred to the agent's mental states (i.e., "Because he wanted to do the right thing") and empathic concern for the victim (i.e., "Because he wanted to make the dog feel better"). Younger children substantiated their decision predominantly with non-intentional reasons (i.e., those which refer to a description of an agent's action, such as "Because he gave the sticker to the dog"). The competence of moral judgments is affected by multiple factors (Cushman et al., 2013) such as theory of mind capacities (Young et al., 2007), abstract reasoning abilities (Greene et al., 2004) and executive control resources (Greene et al., 2004). The main task of the current study required reasonably developed executive functions and working memory. Throughout the experiment, the participants had to keep competing information present and furthermore had to empathize with the sad dog to understand the importance of the agent's reactions (i.e., voluntary versus involuntary donation of resources). On the other hand, they had to keep their knowledge of this information mentally constant in order to be able to assess in the next step, namely, which distribution of marbles belonged to the respective agent.

These findings go beyond prior research on preschoolers' intent based moral reasoning by introducing an assessment of children's predictions of others' future actions, based on their prior history of voluntary or involuntary prosocial action. The results show that older preschoolers attribute subsequent prosocial actions to those who previously shared voluntarily. This can be explained by the fact that voluntary, intentional choices allow inferences about underlying traits which leads to the expectation that an agent will behave consistently across situations (Alvarez, Ruble, & Bolger, 2001). Research shows that from the age of 4,

children have an understanding about the freedom of choice (Kushnir et al., 2015), which is assumed to be a necessary (even though not sufficient) condition for the intentionality of an action (Josephs et al., 2016).

Additionally, we assessed in the posttest if children generally drew inferences when being explicitly asked (i.e., independently from their performances in the main task). As a recent paper suggests (Proft & Rakoczy, 2018), children might be able to form inferences when explicitly requested but fail to do so spontaneously. This would argue (in case of younger preschoolers) for a mere performance limitation. The wording of the experimenter's question in the posttest (i.e., recapitulation of intention and consequence of the model phase) may have promoted younger children's competence for moral evaluation. Literature reveals that children's ability to make intention-based judgment has often been substantially underestimated and that an age-appropriate language may help children to draw morally relevant inferences (Nobes et al., 2016). Integrating a transgressor's intention into moral judgment (Fu et al., 2014) is challenging for children. As far as Vygotski's (1978) theory about the zone of proximate development is concerned, children may have the competence to pass certain tasks in cooperation with an adult although they fail to do it on their own (Cole & Gajdamaschko, 2007).

In sum, preschoolers from 5.5 years of age distinguished between the underlying intentions of an VPA, who intentionally chose to engage in prosocial sharing versus an IPA who was instructed to share. The children used this information to draw inferences about the agents' future prosocial versus selfish behavior. Older and younger participants used information about the underlying intention to evaluate the VPA as the "good guy". This study may help integrate literature on intent-based moral reasoning and behavioral prediction by investigating two crucial factors: identification of an agent's intentions as a base of behavioral predictions (i.e., inferences about subsequent prosocial versus selfish

sharing behavior) and normative evaluation of the agent (i.e., on the base of their history of voluntary or involuntary prosocial action).

## 5 General Discussion

The aim of this dissertation was to examine important building blocks of moral autonomy in preschool age. This was assessed through experimental analyses of children's costly prosocial sharing decisions and their normative and descriptive expectations of the prosocial actions of others. The uniquely human capabilities of collective intentionality and cultural learning in a morally relevant context were considered as important underlying mechanisms. In three studies, I assessed whether preschoolers stipulate and enforce novel prosocial sharing norms (Study 1), if the observation of an intentional prosocial agent increases children's own prosocial sharing decisions (Study Set 2), and if preschoolers form descriptive expectations about third-party's future prosocial versus selfish behavior, based on their prior history of voluntary versus involuntary prosocial action (Study 3).

Various factors and mechanisms have been identified that are in line with previous studies in the field of social norm psychology. These include the notion that children develop a sophisticated understanding of moral norms and obligations to follow these norms during preschool years. In addition, the factor of choice was identified as an important determinant for obtaining information about the intentions that underlie a (prosocial) action. It was furthermore observed how children's capacity for cultural learning and collective intentionality can affect their prosocial decisions.

In the following, the results of the three studies will be discussed with reference to empirical findings from the field of developmental psychology and the philosophical roots of this thesis – such as the Kantian conception of moral autonomy. The chapter will close with limitations, future directions and a conclusion.

## 5.1 Summary

### 5.1.1 Study 1: Novel Norms through Agreement and Content

Study 1 examined whether children establish and enforce novel prosocial norms in a GDG. Previous studies had reported that children from 3 years of age follow social norms and also defend them through protest, sanctioning, criticism and teaching against transgressors (Rakoczy & Schmidt, 2013; Rakoczy et al., 2008; Schmidt & Tomasello, 2012). Recently, investigators have furthermore examined the role of agreement in a norm-creation paradigm (Schmidt, Butler, et al., 2016). The results revealed that unanimity is a key factor to establish a conventional norm through agreement. However, it remained unclear whether novel prosocial norms (e.g., a costly sharing norm) can also be established by agreement – and to what extent the content of the norm would affect this process. To answer this question, Study 1 assessed if children entailed normative force to a costly prosocial agreement in a norm-creation paradigm. Therefore, one child and two hand puppets engaged in a GDG and had the opportunity to agree on how to distribute resources of an original endowment between themselves and a group of passive recipients.

The main finding was that children from 5 years of age agreed on and enforced prosocial – but not selfish – sharing norms. This means that not only unanimity is key for the establishment of novel norms (Schmidt, Rakoczy, et al., 2016), but – in a morally relevant context – the norm’s content seems to overlap the factor of unanimity. A second important finding of Study 1 refers to the number of shared stickers in both age groups. Each player of the GDG had an individual endowment of stickers and could choose freely how to distribute these resources between themselves and a group of passive recipients. With reference to previous research on the “knowledge-behavior gap” (Blake et al., 2014), it is

particularly striking that the participants in the current study adhered to prosocial, but not selfish, sharing norms, even though the selfish norm would have been advantageous for the players themselves. Former research had shown that children from 3 years of age already know about principles of fairness from a third party stance – but do not necessarily adhere to these principles when it comes to their own sharing decisions (Blake et al., 2014; Fehr et al., 2008; Smith et al., 2013). In the GDG both facets of the knowledge-behavior gap were examined: On the one hand, how the children deal with fair versus unfair others and, on the other hand, children's own sharing decisions. It was found here that children from 3 years of age adhered to a prosocial agreement even if another player had deviated from this agreement. This result must be related to the finding that children from 3 years onwards did not adhere to the selfish agreement if another player had deviated from the agreement. On the contrary, they deviated themselves and behaviorally “followed” the deviator of the selfish agreement (instead of showing protest against him or sticking with the selfish distribution). One might assume that children inherently knew that a selfish norm was not the “right” thing; however as long as all members of the group adhered to the agreement, they acted selfishly themselves.

If the deviating group member acted prosocially (and thus deviated from the selfish agreement), the children in both age groups also acted more prosocially. This means that the content of the group norm seems to overlap selfish desires but can be influenced by the effects of group conformity. It is well known that conformity to the group (i.e., including its conventional cultural practices) is an integral prerequisite for learning and transmitting of cultural knowledge (Chudek & Henrich, 2011; Henrich & Boyd, 1998; Tomasello, 2018a) – but sometimes group conformity can infiltrate prosocial intentions of individual group members (Engelmann et al., 2016; Haun & Tomasello, 2011; Henrich & Boyd, 1998; Kim et al., 2016).

The findings of Study 1 go beyond research on children's understanding of moral norms, the role of agreement in the establishment of novel norms, group conformity, prosocial sharing and the knowledge-behavior gap. The current work may help to bridge this body of literature and integrate research on the developing understanding of moral norms, prosocial behavior and expectations.

In sum, the findings of this study suggest that the adherence to prosocial norms appears earlier than the enforcement of those norms on others. Owing to this, it is not before the age of 5 that children actively enforce prosocial sharing norms in a GDG.

### **5.1.2 Study Set 2: Increased Prosociality through Observed Intentional Choice**

Study Set 2 assessed whether the mere observation of an intentional prosocial agent increases children's prosocial sharing. To this end, Experiment 1 investigated the sharing decisions of 4- to 5-year-old children after observing an adult model in a *costly choice*, *non-costly choice* or *no choice* situation. In Experiment 2, age groups of 4- and 5-year-old children were analyzed separately, inadequacies in the wording of condition (a) and (c) were adjusted, a second test trial was added, and the non-costly choice condition was excluded from the paradigm. The results of Experiment 1 show that the children shared more prosocially in the *costly choice* condition than in the other two conditions. Experiment 2 emphasized these findings for 5- but not 4-year old children: they engaged in more prosocial sharing themselves in the *costly choice* than in the *no choice* condition.

These results add important information to previous research on the effects of choice on children's prosocial behavior (Chernyak & Kushnir, 2013; Rapp et al., 2017). While investigations to date have mostly focused on first-person experiences, third-person experiences as determining factors of prosociality have not been treated in much detail. Therefore, it was important to assess if moral



learning and prosocial motivation are confined to first-person experience only or whether children actively draw inferences from the observation of intentional prosocial agents, which were based on the assumption that the adult model was as a knowledgeable member of their cultural group (Boesch, 1993; Tomasello, 2016b). With reference to mechanisms of cultural learning and collective intentionality – and in line with already developed understanding of fairness (Blake et al., 2014) – the children may have inferred that prosocial costly behavior is the way that “we” as a group do things. In this respect, it is obvious that 5-year-old children shared prosocially themselves because they wanted to do the “right thing”. After the observation of an intentional prosocial model they learned that this meant to be prosocial, not to be selfish (Schmidt & Tomasello, 2012; Turiel, 1983). Due to the fact that children had no information about how the person would have acted if they were confronted with a costly choice situation or without coercion to share, they were relatively less inclined to share in the non-costly choice and no choice conditions.

The age effects that were found in Experiment 2 are in line with research on dictator games at preschool age that reveal an increased sharing rate with age (Hoffman et al., 1994; Ongley, Nola, & Malti, 2014; Smith et al., 2013). The design of the current experiment was more complex than the original design of Chernyak and Kushnir (2013) whose participants were distinctly younger (age range = 2.85 – 4.98 years). In the case of Study Set 2 it stands to reason that first and second order theory of mind as well as cognitive control play an important role in the experiment. At 4-5 years of age, these abilities are just emerging and might be higher educated in 5-year old children (Fu et al., 2014; Killen et al., 2011).

The findings of the current study set provide first evidence that children at the age of 5 develop an understanding of the intentionality of a prosocial action as key feature of cultural learning processes in a morally relevant context. Taken together, 5-year-olds children had internalized that the intentional prosocial

decision of a knowledgeable member of the cultural group provides information about how to behave in a certain situation (Boesch, 1993; Tomasello, 2016b). If an action is ambiguous, for example in the case of a non-costly sharing situation (e.g., it remains unclear if the agent would have acted prosocially if personal costs were involved) or had no choice (e.g. was coerced to share), children's sharing rates were lower than in the costly choice condition.

### **5.1.3 Study 3: Expectations of Prosociality on the Base of Intentional Prosocial Action**

Study 3 investigated preschoolers' descriptive third-party expectations about the causal agent of prosocial and selfish actions, based on agents' prior history of voluntary and involuntary prosocial behavior. To this end, the 4- to 6-year-old children observed a voluntary prosocial agent (who shared a sticker voluntarily) and an involuntary prosocial agent (who was instructed to share by an authority). Subsequently children saw a prosocial (2 of 3 marbles were shared), and a selfish distribution (none of 3 marbles were shared). Children were asked to decide who of the agents had performed the allocation. The results showed that from around 4 years of age, children differentiate in moral terms between an agent who shares resources voluntarily and an agent who was instructed to share by an authority. From 5.5 years of age, preschoolers use further information about the circumstances and underlying intentions of agents' prior prosocial behavior to form descriptive, third-party expectations about their current morally relevant action.

The findings of this study add important information to a line of research that investigates how children come to use psychological information to draw social inferences (see Ruble & Dweck, 1995 for review). Previous research had predominantly revealed difficulties in children's capacity to draw inferences from

personal information like traits or preferences about future behavior. Kalish and Shiverick (2004), for example, have shown that children at 5 years rather used social norms than individual preferences to predict third party's future behavior.

In Study 3, children at 5.5 years of age were able to use information about the intrinsic motivation of the VPA (namely to help a recipient in need to feel better) and the IVA (to keep the sticker for himself), although the outcome fit to the prosocial norm in both cases. The younger age group however answered at chance level. Searle emphasizes that social norms serve the same explanatory functions as traits because both are considered as reasons for action (Searle, 2001). So, it becomes clear that age plays an important role in processing competing social information (here: the moral norm to share with a recipient in need and the personal preference to share versus keep the sticker). In case of the VPA, the agent's intentions (to keep the sticker) were divergent from being coerced to share. This means that it was highly important to understand the "selfish" intention of the VPA and keep them mentally present during the task. The capacity to understand another person's intentions is a core aspect of moral judgment (Killen & Smetana, 2008; Zelazo et al., 1996) which was investigated by Killen and colleagues (2011). They found that accurate moral judgement on the base of colliding intentions and outcomes of actions develop within preschool years and are closely linked to theory of mind.

The current findings furthermore open the possibility that young children make use of the practical syllogism to form expectations about others' future actions. The practical syllogism is a central principle of social cognition and says "*If somebody wants X, and believes that Y will achieve X, then, all else being equal, they will do Y*" (see Kalish & Shiverick, 2004, p. 402). Syllogisms make use of information about mental states (e.g., beliefs and desires) to form behavioral predictions. Reasoning according to practical syllogism is found in research on theory of mind from 2-3 years of age (Wellman, 1990), although children might

not yet understand the possibility of false belief, which leads to misunderstandings about what someone might think or want at that early age (Perner, Leekam, & Wimmer, 1987). The practical syllogism provides an important tool for social inference in case of enough knowledge about mental states.

The results of the forced-choice posttest provide important insight into children's moral reasoning processes. In the posttest participants were asked which one of the two hand puppets (VPA or IPA) was "*the good guy*". Older and younger participants evaluated the VPA as the *good one*. As children's evaluations of people and their actions reflect both the perception of people and the children's own evaluation criteria (Berndt & Berndt, 1975), children's reasoning processes as explanations of their decision were also analyzed. It was found that children up to 5.5 years of age rather referred to non-intentional, descriptive reasons like "because he gave the sticker to the dog". This assumes that for younger children the positive effect of the action might be of high importance whereas older preschoolers reasoned more about underlying intentions of the agent's actions (e.g., "he wanted the dog to feel better"), which is in line with previous research (Berndt & Berndt, 1975; Gvozdic et al., 2016; Killen et al., 2011; Li & Tomasello, 2018). Moreover, the current findings add important information to previous research which has found that children's own moral and prosocial actions are affected by the recipient's previous (moral or immoral) behavior (Kenward & Dahl, 2011; Li & Tomasello, 2018; Olson & Spelke, 2008) in the sense that children's own actions in the current study (namely, their preference for one of the agents) were affected not only by the agent's previous behavior (which was prosocial in both cases), but also by the agent's intentions.

According to Killen and Dahl (2018), reasoning creates principles that show how people should interact with each other. These principles do not result from innate qualities and are not inculcated but develop through everyday interactions. It can therefore be concluded that the participants in this study have incorporated

their experiences and impressions of everyday life into their reasoning processes about the voluntary and involuntary prosocial agents. This in turn suggests distinctive social-cognitive competences and support findings on how children are highly attentive towards their social environment already before school age.

Taken together, the findings of Study 3 suggest that predictive expectations about others' prosocial or selfish actions are not only limited to the evaluation of the outcome (i.e., prosocial sharing), but also to the underlying intentions (i.e., voluntary versus involuntary sharing) of a prosocial action. The results of this study contribute significant knowledge to a better understanding of children's perceptions of cooperative partners and their moral reasoning.

## **5.2 Contributions to our Understanding of Prosociality and Choice**

The prosocial act of costly sharing is also labeled altruistic sharing – and emerges later in preschool years than other prosocial actions (Perner & Roessler, 2012; Svetlova et al., 2010). It differs from other prosocial actions because prosocial activities predominantly require the cost of energy, while sharing is associated with personal costs - so that an internal motivation to share with others could be undermined by a selfish desire for resources (Tomasello, 2016a). This makes sharing particularly important for the evolution of human societies and is therefore a highly interesting form of human prosocial behavior (Gurven, 2004; Jensen et al., 2014).

With regard to the building blocks of moral autonomy, it is inevitable to assess children's prosocial decisions in various contexts. In the current dissertation the contexts of a protest paradigm, a behavioral task, and a forced choice test were chosen. Study 1 and Study Set 2 investigated the willingness of the children to share resources at personal cost by examining children's own sharing patterns.

In Study 1, children had to agree with two group members about how to distribute four received resources per trial. In Study Set 2, children could decide themselves about how many stickers they wanted to share with a recipient in need, and in Study 3 children formed expectations about third parties future morally relevant action and evaluated their behavior on the base of concordant versus discordant actions and intentions. In the current section, I will focus on the results of Study 1 and Study Set 2, as they examined the children's own prosocial decisions.

Study 1 revealed that children agreed on a prosocial sharing norm and adhered to this norm from 3 years onwards, even if another group member had deviated from the prosocial agreement. The participants were willing to sacrifice half of their endowment to preserve a fairness norm and to donate stickers to the passive recipients, about whom they had learned beforehand that they would like to have stickers and otherwise would be sad. The children's adherence to fairness norms are consistent with those of other studies which have examined expectations about fairness in infancy (Schmidt & Sommerville, 2011) and children's aversion of inequity (Li, Wang, Yu, & Zhu, 2016). The results are also in line with previous research that demonstrated how children from 3 years onwards understand principles of fair distribution as normatively binding, regardless of whether they are personally affected or not, even if explicit normative protest was found more for 5- than for 3-year-old children (Rakoczy et al., 2016).

However, it was crucial to investigate another aspect of children's prosociality that is not linked to their general preference to equity. Therefore, in addition to the even number of stickers in Study 1 (4 stickers per trial, equal split possible), the participants of Study Set 2 faced an original endowment of 3 stickers that they could distribute between themselves and a passive recipient. This led to either self-prioritizing distributions (i.e., to keep majority of stickers for themselves) or other-prioritizing distributions (i.e., to give the majority of stickers to the recipient), and revealed the finding that prosocial sharing of 5-year-olds was

significantly higher after observing an adult model in a *costly choice* condition than in a *non-costly choice* or *no choice* condition. These findings indicate underlying mechanisms of cultural learning and collective intentionality and children's natural tendency to go from "is" to "ought" (Butler & Markman, 2012; Schmidt, Butler, et al., 2016; Tomasello & Rakoczy, 2003). There is evidence that children are sensitive to the intentionality of actions in deciding what to imitate, and tend to selectively imitate actions done intentionally (Butler & Markman, 2012; Carpenter, Akhtar, & Tomasello, 1998). This means that children behaviorally responded with their own sharing behavior to the adult's intentional act, which leads them to conclude that the act ("if someone is sad then I share so that he/she is happy again") should be generalized.

### **5.2.1 Key Information on Children's Normative and Descriptive Expectations of Others' Prosocial Actions**

As expectations are the conceptual basis of normativity (Mead, 1934), it was a crucial aspect of this dissertation to investigate children's normative and descriptive expectations about others' prosocial actions. Schmidt and Rakoczy (2018) empathize the distinction between normative and descriptive expectations about how people are going to behave in a certain context. While normative expectations come with motivational force and concern how people "should" behave, descriptive expectations explain expectations about how people "will" behave. Scholars also refer to normative expectations as having a world-to-mind direction of fit (like desires), whereas descriptive expectations (like beliefs) have a mind-to-world direction of fit (Schmid, 2011; Searle, 1983; Slote, 2019). This distinction between normative and descriptive expectations is illustrated in a study of DeJesus and colleagues (2014) who found evidence that although children express awareness that it is nicer of others to share equally between their in-and

outgroup (= desire) , they did not think that this is how people actually behave in competitive situations (= belief). This explains why it was a vital concern of this thesis to investigate both aspects of children's prosocial expectations.

The protest paradigm of Study 1 revealed that children had normative expectations about group members in the GDG to behave prosocially in case of a prosocial agreement. These findings are in line with a recent study which suggests that preschool children have negatively evaluated deviant group members who espoused an unequal distribution of resources – even if this unequal distribution would have benefited the group (Cooley & Killen, 2015). While Study 1 assessed how children think that their group members *should* behave, Study 3 investigated the beliefs about how the agents *will* behave, based on previous information about their prosocial versus selfish intentions. Children's capacity to use information about an agent's intention is known to emerge during preschool years (Killen et al., 2011; Koenig, Tiberius, & Hamlin, 2019; Nobes et al., 2009), but this, is to my knowledge, the first study that assessed children's capacity to use knowledge about prosocial versus selfish intentions – and prosocial outcome – to form expectations about future actions.

With regard to the research question of this thesis, these findings suggest that children have normative expectations about others to behave prosocially after agreeing to do so, which is not the case for selfish agreements. This expectation goes hand in hand with the children's willingness to engage in costly sharing. In line with previous research (Cooley & Killen, 2015; DeJesus et al., 2014; Van de Vondervoort & Hamlin, 2018), those proposers who suggested a prosocial norm were assessed positively – an aspect that is particularly relevant for deciphering the building blocks of moral autonomy. Children were furthermore capable to form adequate beliefs about future action based on previous knowledge about the agent's intentions and recognized that an agent who made the intentional decision to act prosocially is more likely to engage in another



prosocial action than an agent who only shared out of coercion. They also evaluated the intentional prosocial agent as the *good one* from 4 years onwards.

### 5.2.2 Key Information on the Aspect of Choice

The aspect of choice characterizes an important facet of prosociality (Chernyak & Kushnir, 2013; Rapp et al., 2017) and has been integrated into the three empirical studies of this dissertation. In the course of this thesis, it was important to investigate children's own sharing decisions as well as their observation of – and reaction to – the prosocial versus selfish decisions and intentions of others.

Study 1 assessed children's own sharing decisions in relation to prosocial versus selfish, norm-compliant versus norm-divergent sharing decisions of another player. It was shown that children from 3 years onwards choose to behave prosocially even if the prosocial norm was transgressed by another player. In the case of the selfish agreement, a different behavior was shown: If the selfish agreement was compromised by another player, the children themselves choose to share significantly more resources themselves. This means that children's sharing decisions were not only affected by an agreement or aspects of group conformity but predominantly by the compatibility with a predefined prosocial norm.

Study Set 2 assessed if observed choice increases preschoolers' prosocial sharing decisions. A study of Chernyak and Kushnir (2013) had shown that choice increased prosocial sharing which was explained through the prosocial-construal hypothesis (see Chapter 3.1.1). The results of the recent study suggest a much broader mechanism that includes a child that actively draws inferences not only from their own, but also from others' intentional actions. In this context, the interrelation between autonomous choice and intentionality is highly relevant. It is well known that in the transmission of conventional actions, intentional actions

are more likely to lead to conclusions that something should be generalized (Butler & Markman, 2012; Schmidt, Butler, et al., 2016).

The results of Study 3 revealed that children expected an agent that was provided with choice – and subsequently decided to share prosocially – to behave consistently prosocial in the future. Younger and older preschoolers furthermore assessed positive evaluation to a prosocial agent who was provided with choice and decided to share – which aligns with earlier research. Josephs and colleagues (2016) had shown that preschoolers take freedom of choice into consideration when they evaluate others immoral. Scholars of social psychologies state that an autonomous decision represents an action for which one is responsible (Deci & Ryan, 1987).

In Study Set 2, the model's freedom of choice did not lead to increased prosocial behavior of 4-year old children. Moreover, the younger age group of Study 3 was able to identify an important aspect related to the provision of choice ("did he want to or have to share the sticker?"), but they did not use this information to assess subsequent distributions of marbles to the respective agents. The ambiguous results for younger preschoolers in Study Set 2 and Study 3 raise the question whether the findings are related to developmental changes that may have been based on second-order false capacities or cognitive control (Fu et al., 2014; Killen et al., 2011). In line with previous research (Chernyak & Kushnir, 2013, 2014; Deci & Ryan, 1985, 1987; Rapp et al., 2017), the results of this thesis reveal that children show a general intrinsic inclination for prosocial behavior and that the aspect of choice seems crucial for children's prosocial drive (e.g. Chernyak & Kushnir, 2013; Rapp et al., 2017), but also for their perception of third parties. In sum, these findings highlight children's willingness for altruistic sharing and their adherence to moral norms in general. The findings furthermore underline children's sensitivity towards intentional prosocial agents in their social environment.

### **5.3 Contributions to our Understanding of the Roots of Moral Autonomy**

This dissertation is a first attempt to empirically examine important building blocks of moral autonomy in preschool age. This included the investigation of the following aspects:

- (i) Children's willingness to establish and enforce moral norms (e.g., a costly prosocial sharing norm)
- (ii) The sensitivity of children to the intentions and intrinsic motivation of prosocial agents and their willingness to adopt prosocial action through mechanisms of cultural learning and collective intentionality
- (iii) The ability to identify and process social information, such as intentions underlying prosocial action, in order to formulate expectations of the future prosocial or selfish behavior of others.

The main finding of Study 1 was children's willingness to establish a (costly) prosocial sharing norm and their motivation to enforce this norm against transgressors. The results suggest that a prosocial (but not selfish) norm can be established through agreement. Several aspects of the results of Study 1 fit Kant's normative concept of moral autonomy. Most importantly, children's interest in a prosocial norm does obviously not strive from the personal desire to maximize their own welfare but occurs to be based on an internalized moral norm that leads to espouse for fairness. According to Kant (1781/1913), a morally autonomous agent holds authority over his or her own moral actions which are grounded in principles of practical reason and rationality. This means that moral action is guided by the rational decision for action – instead of conventions, external pressure or even personal desire.

The second finding concerns children's sensitivity to the underlying intentions of prosocial actions, suggesting an early awareness of the fact that

prosocial actions do not necessarily stem from prosocial intentions. This information illustrates the responsibility placed on experienced members of society and supports the idea of children's natural predisposition to be particularly attentive towards intentional autonomous agents. The intentional prosocial agent in Study Set 2 and the voluntary prosocial agent of Study 3 represent autonomous prosocial agents who engage in costly sharing out of free will and rational reasoning. The agent who was provided with non-costly choice or no choice in Study Set 2 did not make an intentional prosocial decision to behave prosocially. On the contrary the agent who was instructed to share by an authority (in Study Set 2 and Study 3), acted out of heteronomous constraints and therefore eventually according to the hypothetical imperative – he shared to achieve the end to adhere to the instruction of the authority.

Kant's moral concept is based on a principle of respect for autonomous people as "ends in themselves" and on a system of strictly binding norms (Forst, 2004). Forst (2004) and Tugendhat (1993) criticize Kant's understanding of normativity, which I consider worth mentioning at this point. The two authors criticized the paradox, which stems from categorically binding norms that define what "ought" to be done in a certain situation, while normative actions themselves are based on an autonomous choice of the individual for a certain action. Forst (2004) notices that the idea of choice rather reminds on the hypothetical imperative, which leads to the question how an instrumental reason for moral action (doing the categorically "right" thing) can be based on an autonomous decision including non-instrumental motivation for action. Within this work there is no claim to provide a complete answer to these questions, however these thoughts enrich the discussion that is very relevant to empirical research on human normativity and, in particular, to the study of the understanding of moral norms in children. Future research is necessary to identify the reasons for adherence to moral norms in children (subjective versus collective).

#### **5.4 Limitations and Implications for Future Directions**

The aim to investigate the roots of moral autonomy at preschool age was addressed through the developmental-psychological investigations of children's own prosocial behavior and their (normative and descriptive) expectations about others' prosocial actions. The findings of three studies revealed that preschoolers have normative expectations about others' prosocial actions, that their own prosocial behavior increases after observing an intentional prosocial agent and that the observation of voluntary versus involuntary prosocial agents lead to descriptive predictions of future prosocial actions.

However, some questions remained unresolved. With reference to Study 1, the GDG's public setting may have affected the high rates of prosocial resource donation by children. Although this methodological approach was deliberately chosen to ensure the possibility of protest against deviating group members, it remains unclear how children would have acted if the stickers had been distributed in private. For instance, Benenson and colleagues (2007) found that 4year old children in the DG shared less than 1/3 of their stickers in private, whereas Yu and colleagues (2016) revealed children's willingness to engage in egalitarian sharing from 3 years onwards in case of predefined options to distribute stickers in the Mini-Dictator Game (2:2 versus 3:1). It would be helpful to contrast the findings of Study 1 in future experiments with a paradigm that enables private donation of resources, to investigate the effects of social desirability and also addresses group reputation (Engelmann et al., 2018). Furthermore, we did not check for the likeability of the resources. This aspect was left out with the aim of keeping the procedure as simple as possible (especially for younger children). In each trial, the participants received four attractive natural caoutchouc animal stickers of the same kind. At this point I cannot rule out that there would have been effects on the donation rates of children if they themselves

had been able to choose subjectively attractive resources (e.g., Benenson et al., 2007) which is also an aspect that should be investigated in future research.

The findings of Study Set 2 reveal how mechanisms of cultural learning and collective intentionality (Butler & Markman, 2012; Schmidt, Butler, et al., 2016; Tomasello & Rakoczy, 2003) led to increased prosocial sharing after the observation of an intentional prosocial agent who shares at personal cost. Although it is plausible that children's natural tendency to go from "is" to "ought" led to an inference of a prosocial norm in the costly choice condition, it needs further investigation of children's normative inferences. In order to answer the question of normative inferences, Marco F.H. Schmidt and I are currently investigating the role of the observed choice in normative expectations of children in a protest paradigm.

Another limitation concerns the ambiguity of the performances of younger preschoolers. In Study 1, the sharing decisions of the 3-year-olds were similarly differentiated and indicated an equal understanding as 5-year-old children. At first glance, it therefore seems surprising why the younger age group masters this part of the task so well without showing significant differences in behavior towards the deviating group member in a prosocial versus selfish condition. Rakoczy and colleagues (2016) observe similar effects, showing that 3-year-old children understand the principles of fair distribution as normatively binding, but - in contrast to 5-year-olds - do not make an explicit statement (such as protest) in the case of norm violations. In Study 3, younger participants were competent in the control question and also passed the posttest however, they did not perform above chance level in the attribution of the prosocial versus selfish distribution of marbles. This suggests that the methodological approach of the main task may have been very demanding for the younger age group. It might be helpful to revise the methodological approaches to further examine the competences of younger children. In the domain of theory of mind research, it was found that 3-year-old

children retrospectively inferred the content of someone's beliefs by combining present information with relevant events retrieved from episodic memory. The evolving capacities for episodic memory contributed to the development of social cognitive processes and enriched children's ability to monitor the mental states of others (Király, Oláh, Csibra, & Kovács, 2018). Therefore, it might help to add a retrospective inference of the agent's intentions, instantly before asking the main question about which of the agents had performed the respective action. Taken together, effects of group conformity due to the public setup of the GDG might have influenced the children's behavior on the individual prosocial level (Fu, Heyman, Qian, Guo, & Lee, 2016; Martin & Olson, 2015) as well as on children's concerns for the prosociality of the group (Engelmann et al., 2018). Effects of cultural learning and collective intentionality in morally relevant contexts need further investigation to provide knowledge about normative inferences (Schmidt, Butler, et al., 2016) and the performance of younger preschool children should be carefully assessed for possible performance limitations based on ambitious study designs.

## 5.5 Conclusion

Human cooperation and group living are based on societies in which individuals not only care about their own interests but share common norms and values – such as morality and prosocial behavior. Kant postulated autonomy as the key to human morality and explained that a rational agent who has a free will would necessarily make moral – not immoral – decisions.

A recent proposal, however, is that young children are also driven by internal social pressures such as skills for shared intentionality and group-mindedness, that help explain why young children not only follow, but also enforce social norms (Tomasello, 2009). The findings of the current thesis support this idea, suggesting that young children stipulate and enforce moral norms in a norm-creation paradigm and use mechanisms of collective intentionality and cultural learning to adhere their own prosocial sharing decisions to intentional prosocial agents. Moreover, children were found to draw inferences from prosocial versus selfish intentions to form descriptive expectations about third party's future morally relevant actions. These results are presented in the context of cultural learning and collective intentionality and contribute to the investigation of important mechanisms of cultural learning in a morally relevant context as well as to the discovery of important building blocks of moral autonomy.

Taken together, the current work adds important knowledge to the growing literature of the understanding of moral norms at preschool age and stresses the relevance that is provided by the factor of choice in children's own decisions and their perception of moral agents.



## 6 Zusammenfassung

Das Fundament einer Gesellschaft und menschlicher Kooperation im Speziellen basiert darauf, dass Individuen gemeinsame Normen und Werte teilen. Anstatt nur nach dem eigenen größtmöglichen Nutzen zu streben, handeln sie gegenüber ihren Mitmenschen aus innerem Antrieb heraus moralisch und prosozial. Der Philosoph Immanuel Kant postulierte bereits im 18. Jahrhundert die Autonomie als Schlüssel zur menschlichen Moral. Kant erklärte, dass ein rationaler Agent mit einem freien Willen notwendigerweise moralische – nicht unmoralische – Entscheidungen treffen würde. Die *Moralische Autonomie* versteht er in diesem Zusammenhang als die Fähigkeit nach den Prinzipien des eigenen Verstandes zu handeln: Frei von Heteronomie und Bestimmung durch die Wünsche anderer, aber auch frei vom Zwang der unbedingten Befriedigung der eigenen Bedürfnisse – wie beispielsweise der Maximierung des eigenen Nutzens. Die grundlegende Frage danach, wie moralische Verhaltensweisen normatives Gewicht erhalten, ist jedoch weitgehend ungeklärt – insbesondere, wenn diese moralischen Verhaltensweisen mit persönlichen Kosten für den Handelnden verbunden sind.

Die vorliegende Dissertation untersucht durch experimentelle psychologische Forschung wichtige Bausteine der moralischen Autonomie im Vorschulalter. Dazu werden die prosozialen Entscheidungen von Kindern sowie ihre normativen und deskriptiven Erwartungen an die prosozialen Handlungen anderer analysiert und im Zusammenhang mit den Mechanismen des kulturellen Lernens und der kollektiven Intentionalität diskutiert.

In Studie 1 nahmen 3- und 5-jährige Kinder gemeinsam mit zwei Handpuppen an einem Gruppendiktatorspiel teil. Hier durften die Mitspieler gemeinsam über die Verteilung von Ressourcen (Aufklebern) zwischen der eigenen Gruppe und einer Gruppe nicht anwesender, passiver Rezipienten entscheiden. Eine der Handpuppen machte prosoziale oder egoistische Vorschläge

zur Verteilung der Aufkleber: Der prosoziale Vorschlag beinhaltete das faire Aufteilen der Ressourcen (50/50), der egoistische Vorschlag beinhaltete, dass die Gruppe alle Aufkleber behält und nichts mit den passiven Rezipienten teilt (100/0). Um zu untersuchen, ob Kinder die jeweiligen Vorschläge als verbindliche Norm verstanden (und somit ein abweichendes Verhalten als Normverletzung verstehen würden) brach eine der Handpuppen die Vereinbarung, indem sie mehr oder weniger als die vereinbarte Menge von Aufklebern teilte. Dabei wurde der spontane Protest der Kinder erfasst. Es zeigte sich, dass 5-jährige (jedoch nicht 3jährige) Kinder gegen Verletzungen der prosozialen – aber nicht egoistischen – Vereinbarung protestierten. Dies weist darauf hin, dass moralisch relevante Vereinbarungen ihre normative Kraft nicht nur durch Zustimmung oder Konformitätserwartungen, sondern maßgeblich durch den entsprechenden Inhalt erhalten.

Das Studienset 2 befasste sich mit der Frage, ob die Beobachtung eines Akteurs, der eine intentional prosoziale Entscheidung trifft, dazu führt, dass auch die Kinder selbst prosozialer teilen. In Experiment 1 beobachteten 4- bis 5-Jährige, wie eine erwachsene Person Ressourcen mit einem bedürftigen Empfänger unter folgenden Bedingungen teilte: (a) als *intentionale, mit eigenen Kosten verbundene Wahl* (d.h. ein Aufkleber wurde geteilt – statt selbst behalten), (b) als *nichtkostspielige Wahl* (d.h. der Aufkleber wurde geteilt anstatt ihn in den Müll zu werden), oder (c) aus Zwang und folglich *ohne die Möglichkeit zur Wahl* (d.h. die Person wurde von einer Autorität angewiesen zu teilen). Anschließend erhielten die Kinder selbst drei Aufkleber und konnten entscheiden, wie viele sie mit einem traurigen Kuscheltier teilen möchten. In Experiment 2 wurde das Design für Bedingungen (a) und (c) wiederholt und ein zweiter Durchgang wurde eingeführt. Zudem wurden die Altersgruppen der 4- und 5-jährigen getrennt analysiert, um etwaige Alterseffekte zu ermitteln. Das Ergebnis aus Experiment 1 zeigt, dass das prosoziale Teilverhalten der Kinder höher war, wenn sie zuvor ein intentional prosoziales, erwachsenes Modell beobachtet hatten. Dieser Effekt wurde in

Experiment 2 für die Gruppe der 5-jährigen, jedoch nicht für die 4-jährigen Kinder, belegt.

Studie 3 untersuchte die deskriptiven Erwartungen von Vorschülern an zwei Akteure, die zuvor freiwillig oder unfreiwillig prosozial mit einem traurigen Kuscheltier geteilt hatten. Ähnlich wie in Studienset 2 traf einer der Akteure eine intentionale Entscheidung, prosozial zu teilen (*freiwillig prosozialer Akteur*), während der andere Akteur durch eine Autorität zum Teilen veranlasst wurde (*unfreiwillig prosozialer Akteur*). Basierend auf dieser Vorgeschichte sollten die Kinder zuordnen, welcher der beiden Akteure in einer nachfolgenden Situation prosozial beziehungsweise egoistisch geteilt hatte. Studie 3 fand heraus, dass Kinder im Alter von 5.5 Jahren Informationen über die Umstände und Absichten von früheren Handlungen nutzen, um deskriptive Erwartungen über das zukünftige prosoziale Verhalten anderer zu generieren. Ab dem Alter von 4 Jahren unterschieden Kinder zwischen den Intentionen eines Agenten, der intentional und freiwillig teilte und denen eines Agenten, der nur unfreiwillig teilte.

Zusammengenommen zeigen diese Ergebnisse erste Hinweise auf die Wurzeln moralischer Autonomie im Vorschulalter. Mit den drei Studien konnte gezeigt werden, dass Kinder im Vorschulalter über die Bereitschaft zum prosozialem Handeln verfügen und normative und deskriptive Erwartungen an das Teilverhalten anderer knüpfen. Diese Ergebnisse dienen einer beginnenden empirischen Erforschung des philosophischen Konzepts der moralischen Autonomie. Diese Forschung bedarf weiterer Untersuchungen, um ein vollständigeres Bild der Bausteine der moralischen Autonomie im Vorschulalter zu gewinnen.

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