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Children's Acquisition and Application of Norms

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Abstract

All human societies are permeated by collectively shared entities that govern daily social interactions and promote coordination and cooperation: norms. While the study of norm development is not new to developmental psychology, it has only recently been the target of an interdisciplinary wave of research using new methodologies and (often) complementary theoretical accounts to describe and explain the origins and potentially species-unique aspects of human norm psychology. Here we review recent developmental research showing that young children swiftly acquire and infer norms in a variety of social contexts. Moreover, children actively enforce these norms, even as unaffected bystanders, when third parties do things the wrong way. This research suggests that the foundations of human norm psychology can be found in early childhood. Deeper insights into the ontogenetic roots of norm psychology may contribute to understanding the evolutionary emergence of human cooperation and its maintenance in the contemporary world.

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INTRODUCTION

Norms are powerful and ubiquitous. Yet, there is perhaps hardly a phenomenon in our daily lives that is so easily overlooked, because these things called norms are so naturally ingrained in, and constitutive of, virtually all aspects of human sociocultural life. Try to imagine a random episode, be it in solitude or with others such as children, relatives, friends, colleagues, or strangers. Now assess whether this incident could be considered completely devoid of norms. It goes without saying that many social interactions (including the mere presence of others) could hardly be without norms (those regarding, e.g., respecting personal space, manners, collaborative activities, religious rituals, making promises, fairness, rights, institutional roles). But even in solitude, we are only superficially distanced from the normative realm, as it were. For instance, when we read a book, do some gardening, try to get home, or simply think about a situation in the past, various kinds of norms still play a role. The structure of books, for example, follows certain rules and, of course, reading (or even thinking in words) is made possible by following language conventions. When we engage in gardening, we do not simply act idiosyncratically but follow cultural goals and conventions and try to do things the right way so that plants can flourish. Even when trying to get home we search for efficient or beautiful routes and, thus, follow norms of instrumental rationality or aesthetics. Finally, when remembering an event, we typically try to remember it correctly and truthfully (and thereby follow epistemic norms).

Thus, in our everyday life, we can hardly do without normative notions, such as right or wrong, good or bad, appropriate or inappropriate, valid or invalid, correct or incorrect, justified or unjustified, sensible or nonsensical, proper or improper, and so on. Human life is "fraught with ought," as the philosopher Wilfrid Sellars (1962) put it. From a developmental perspective, children's lives, and their sociocultural upbringing, are situated in a normative environment organized by norms, conventions, obligations, and rights. Far from being passive receivers of norms, however, from early in development children seem to be eager and motivated to proactively acquire norms, apply them in their own actions, enforce them on others, and sometimes challenge them in context-specific ways.

When we hear about norms, what may first come to mind are regulations and restrictions on our conduct and freedom, perhaps even mere obedience to authority. But a closer look at norms reveals that they actually often enable freedom (think about rights and entitlements), new forms and possibilities of action (e.g., games, such as chess), and even dynamic phenomena, such as societal change (e.g., people fighting injustice; Killen & Dahl 2021, Turiel & Dahl 2016) or cultural innovation (e.g., novel pieces of action and knowledge need to be meaningful, shareable, reproducible, and generalizable, based on cooperation and on standing on the shoulders of giants; see Boyd & Richerson 2005, Tennie et al. 2009). Norms by themselves are, thus, neither good nor bad, neither conservative nor progressive, but simply an inherent structural component of human sociocultural group living across cultures and historical times. We learn, accept, construct, and challenge norms, and this is an ongoing process that starts in early development. Children in all societies are expected to learn and conform to the norms that are important for becoming an accepted member of society and for taking up roles in their community. More fundamentally, norms are the basis for the stability and maintenance of human cooperation and human group life (Chudek & Henrich 2011, Fehr & Fischbacher 2004), and human cooperativeness is essential for norms to emerge and exist (Schmidt & Rakoczy 2019, Tomasello 2016).

What Is Normativity?

To make sense of normativity, it seems vital to get a grip on the notion of a norm, as the term is used widely in such diverse disciplines as philosophy, sociology, psychology, and anthropology. What norms are, and what is normal, are highly ambiguous matters. In one broad sense, regularities in nature and in human behavior (sometimes called descriptive or statistical norms) and normality more generally pertain to what is statistically usual, that is, how the world is. Think of normal distributions or observations of regular patterns of behavior (e.g., "It is the norm to go to the bakery on Saturday mornings"). However, in another, narrower, sense—the one of interest here—norms do not describe what is usually the case but prescribe or proscribe certain human actions (or beliefs, emotions, etc.) in certain contexts, that is, how the world ought to be. Here, we use the terms norm and normativity in this latter, normative, sense. From a methodological point of view, this ambiguity (regularities versus norms proper) poses deep problems when the question arises of what kind of norm psychology a given creature or population operates with, in particular, before propositional language (as with infants) or in its absence (as with nonhuman animals). Does an individual merely do what is descriptively usual, or do they follow a norm? Do they descriptively expect that others will do what is usual, or do they normatively expect them to do what ought to be done? We return to these issues below.

From a very broad perspective, normativity is ubiquitous (Brandom 1994, Engel 2011, Gibbard 1990, McDowell 1984, Millikan 1990): Norms are in play whenever we deal with phenomena of intentionality and the possibility (and distinction) of success and failure. For instance, psychological states (e.g., mental states such as beliefs, perceptions) may successfully or unsuccessfully represent reality, and linguistic phenomena, such as linguistic expressions and meaning, have conditions of correct application; for some, norms even apply to biological and other functions [which imply criteria for (un)successful execution of the function in question]. Here, we focus on a more specific, sociocultural form of normativity that primarily occurs and originates within social interactions, that is, the norms that guide, regulate, and justify our actions (including speech acts, behavioral expressions, epistemic states and claims about beliefs or knowledge, emotions, etc.) in daily life and in a variety of different contexts. Such norms have four key structural features: they (*a*) set standards of correctness, (*b*) have intrinsic normative force and authority, (*c*) apply with some generality, and (*d*) are valid in context-relative ways.

First of all, norms are at the same time abstract and concrete because they set standards of correctness (Popitz 2006). This is an abstract ideal, which only makes sense if one can compare (in propositional or nonpropositional terms) concrete actions, thoughts, and emotions in the here and now (i.e., concrete manifestations) with these standards or principles (Pettit 1993, Winch 1958).

Second, norms have intrinsic normative force. They give us reasons for action and thus inherently move us motivationally. The normative force that moves us is, of course, very different from physical force: We cannot help but obey the laws of gravity or be pushed around by strong wind, but we are rationally moved by norms guiding our actions. Normative force seems to reside in and between us and cannot be reduced to mere coercion or enforced obedience [Rousseau 1997 (1762), pp. 43–44]. The force and authority of norms (or oughtness) are then closely connected to the possibility to do otherwise, that is, to violate norms (Brandom 1994, Korsgaard 1996, Lavin 2004). An important consequence of the above features is that we usually have normative expectations about what we and others ought to or should do in a particular situation (Chudek & Henrich 2011, Gloor 2014). It is both theoretically and empirically crucial to distinguish this type of normative expectation from merely descriptive (or statistical) expectations about how agents will act. Couched in somewhat technical terms, descriptive expectations are like weather forecasts that try to match reality. They have mind-to-world direction of fit: Like epistemic states, they aim at representing the world as it is or will be (Searle 1983). Normative expectations, in contrast, are peculiar in that they have both mind-to-world direction of fit (i.e., they represent what is the case) and the opposite world-to-mind direction of fit typical of desires, intentions, and other volitional states (Christen & Glock 2012, Schmid 2011, Searle 1983, Smith 1994). Thus, norms are Janus-faced: They represent what is the case while motivating and guiding action at the same time. This action guidance applies in the first person (moving the agent themselves) and in the third person (moving the agent to enforce normative expectations toward other agents). Hence, normative expectations toward third parties may result in formal and informal sanctioning behavior, such as criticizing, protesting, or intervening in other ways when a norm has been violated (Parsons 1951, Schmid 2009).

Third, normativity is not a solitary or private affair, but requires shareability and comes with generality [Korsgaard 1996; Nagel 1970, 1986; Wittgenstein 2001 (1953)]. That is, all things considered, norms provide a reason to act in certain ways for any relevant agent in equivalent circumstances. For instance, the norm of standing in line in grocery stores applies in general ways to any agent, in any store. Norms are thus shared and public in this sense, and one can assess both one's own and others' acts in light of the norm. Hence, norms are valid and generalizable in ways that preferences are not. Note that the scope of norms may, of course, vary dramatically (some norms apply globally, others only very locally). But, within a given scope, the norm holds with generality.

Fourth, and relatedly, norms typically apply in context-relative ways. What counts as appropriate in one context (e.g., using your hand in handball, hitting your sparring partner in a boxing ring) may have very different normative status in another context (e.g., using your hand in soccer, hitting your colleague in the office). Context relativity does not conflict with the above feature of generality, because when a given norm is valid in general (i.e., in all contexts of a certain category and for anyone who joins the practice), this is perfectly compatible with the norm being invalid, irrelevant, or of minor importance in other categories of contexts (and for anyone who is not within the scope of the norm).

How to Study Norm Psychology?

With these key features of normativity at hand, we can now turn to methodological questions of how to measure norm understanding. First of all, we can simply observe children's behavior

in norm-governed situations. In his landmark study on children's developing morality, Piaget (1932) observed how children play marble games as a kind of norm laboratory or ontogenetic cradle of morality and studied whether children's behavior in such games conforms to alleged norms (practice of rules). The mere observation of children's own actions, however, remains ambiguous. Basically, if the data are confined to such observations, one cannot distinguish behavior that is merely in accordance with a norm (imagine a toddler moving a pawn one field forward on a checkerboard) from true norm following (acting this way because of the norm in question) [Brandom 1994, Wittgenstein 2001 (1953)].

A second type of method, therefore, involves direct interviews that probe children's understanding of normative matters. Piaget also pioneered such methods and investigated whether children's judgment (consciousness of rules) was indicative of norm understanding in the context of games. Ever since, interview studies have asked children to judge whether actions were right or wrong and good or bad and to provide justifications for their judgments. Over the last decades, numerous interview studies based on Turiel (1983, 2006) and colleagues' social domain theory have found that preschoolers, when asked to judge norm transgressions in hypothetical scenarios, make subtle distinctions (e.g., in terms of the severity or scope of a norm) between different types of norms. With increasing age, children come to justify their judgments in increasingly proficient ways (Killen & Smetana 2014; Nucci 2014; Smetana 2006; Turiel 1983, 2002, 2006; Turiel & Dahl 2016). Like every empirical method, interview techniques also come with drawbacks. For instance, they cannot be used with very young children, infants, or nonhuman animals, although it is of vital importance we assess these populations to better understand the ontogeny and phylogeny of normativity (Fitzpatrick 2020, Rudolf von Rohr et al. 2011, Schmidt & Rakoczy 2019, Westra & Andrews 2022). Moreover, interviews focus on children's knowledge about common norms when asking them whether a given action is okay or not okay. They do not directly assess whether children understand the above-mentioned normative force or the oughtness of norms.

Such an understanding of the force of norms is evidenced most clearly in a third type of measure: We can study when and how a child enforces norms by intervening as a third-party observer (e.g., by sanctioning, correcting, criticizing) against norm transgressions in social interactions (Rakoczy & Schmidt 2013, Schmidt & Tomasello 2012). While such measures are most informative in the case of positive evidence (spontaneous norm enforcement is a very good indicator of norm understanding), absence of evidence (a child does not intervene spontaneously) is inconclusive: Is the child shy, or does the child not care about or understand the norm?

So, fourth and lastly, it is also possible to use more implicit methods (e.g., looking time, preference for one of two agents, pupil dilation, gestural or mimic expressions) to assess potential precursors to norm understanding in infants and nonhuman animals. For example, in their anticipatory or reactive looking patterns, will infants or nonhuman animals reveal that they (at least descriptively) expect an agent to act in accordance with a given norm, or even to normatively enforce a norm toward another agent? As we argue in more detail below, these methods face the fundamental problem that, taken by themselves, they cannot, in principle, distinguish descriptive from normative expectations. While they cannot provide solid evidence for true norm understanding, these methods are still potentially helpful for tapping into precursor capacities.

HOW DOES NORM PSYCHOLOGY DEVELOP?

In the section below, we first take a closer look at current research on precursors to norm understanding in infants, toddlers, and nonhuman animals. We argue that, though important and innovative, this research falls short of providing evidence for genuine norm understanding in these populations. Next, we review recent research on young children's developing understanding

of normativity in different domains and contexts using mainly the method of spontaneous third-party norm enforcement. Overall, this line of research suggests that by 2 or 3 years old, children have acquired a robust understanding of norms and their standards of correctness, normative force, generality, and context relativity. Crucially, they not only rapidly learn about different types of norms (e.g., conventional, moral, linguistic, epistemic) but also apply, follow, enforce, and coconstruct them in a variety of contexts.

Precursor Abilities and Behaviors

Before looking at more mature forms of norm understanding and application, it is vital to explore the developmental and evolutionary roots of norm psychology. In the next sections, we give a brief overview of potential precursors to norm understanding in ontogeny and phylogeny. It is important to stress, however, that to date, it is largely unclear which of the observed phenomena are truly indicative of norm understanding or necessary prerequisites for, or even related to, (later) normative cognition (e.g., Campbell & Richie 1983).

Descriptive expectations about conventionality. Around their first birthday, infants start to make generic inferences about culturally relevant conventional affairs, such as artifact use or language use. They (descriptively) expect that different agents use artifacts or language (e.g., object labels) in the same conventional ways, whereas they do not expect such conventional conformity across agents when it comes to personal tastes or preferences (Buresh & Woodward 2007; Elsner & Pauen 2007; Graham et al. 2006; Henderson & Scott 2015; Henderson & Woodward 2012; Träuble & Pauen 2007, 2011; for a review, see Diesendruck & Markson 2011). What makes these findings important for children's developing understanding of normativity is that they show that infants start to make inferences about the generalizability (to other agents or objects) of different kinds of conventional forms, such as object labels and functions. Though important, such generalizations do not necessarily reflect normative generalizations (what everyone ought to do) but may simply indicate generalized descriptive expectations (what everyone will do). Initial systematic and naturalistic observations of young children's expectations that plausibly go beyond the merely descriptive have been reported by Jerome Kagan: Infants from their second year start to express surprise or concern when tools and other artifacts deviate from standards and do not function properly any more, and they even express this with corresponding language (e.g., "broken") (Kagan 1981).

Preferences for prosocial over antisocial actions and agents. While infants' developing understanding of conventionality may be construed as a precursor to understanding conventional normativity, including its arbitrariness, infants' expectations and preferences regarding (pro)social actions and agents might be considered precursors to nonarbitrary moral normativity (e.g., issues of harm) (Turiel 1983). The empirical basis here is as follows: During the first year of life, infants differentiate (in their preferential reaching and looking behaviors) between what adults would regard as positive and negative actions, such as helping and hindering others (for overviews, see Hamlin 2013a, Margoni & Surian 2018, Schlingloff et al. 2020, Van de Vondervoort & Hamlin 2018, Woo et al. 2022). For example, in a series of experiments, Hamlin and colleagues (2007, 2010, 2011) showed infants (from as early as 3 months to about 20 months) animated geometrical shapes or puppet scenarios in which an actor performed positively valenced (e.g., helping another agent reach a goal) or negatively valenced (e.g., hindering another agent from reaching a goal) actions. Infants typically preferred the prosocial actors over the antisocial ones in their reaching preference, even when witnessing incomplete actions, suggesting that they considered the agents' (prosocial versus antisocial) goals (Hamlin 2013b). Further studies found differential treatment

of prosocial and antisocial actors in toddlers' (20–24 months) sharing preferences and negative actions (Hamlin et al. 2011, Van de Vondervoort et al. 2018), as well as longitudinal correlations between early social preferences at around 12 months and later behavioral adjustment at around 48 months (Tan et al. 2018), and an ingroup bias in infants' descriptive expectations about helping behavior in intergroup contexts (Jin & Baillargeon 2017; for related findings examining infants' social preferences, see Hamlin et al. 2013, Hamlin & Wynn 2012).

What do these lines of research indicate about children's early norm psychology? First of all, if the findings turn out to be robust (currently an open question in light of mixed replicability results; Salvadori et al. 2015, Scarf et al. 2012, Schlingloff et al. 2020; for a review, see Woo et al. 2022, and for a large replication project, see Lucca et al. 2021), they suggest that infants have a rich social understanding (regarding agents' goals) and social preferences (for agents with benign or aligned goals). These forms of understanding and preferences may be important for young children's developing understanding of normativity, but by themselves they do not yet amount to normative expectations or assessments of right and wrong and, thus, not to normativity or morality proper.

Preferences for distributional fairness. Beyond expectations and preferences regarding prosocial actions, infants also develop rich descriptive expectations about the fair distribution of resources. A number of studies with different tasks and paradigms found that from around 15 months of age, infants descriptively expect a (disinterested) distributor to allocate resources equally between two recipients (Schmidt & Sommerville 2011, Sloane et al. 2012, Sommerville et al. 2013; for findings suggesting descriptive expectations about fairness in the first year of life, see Buyukozer Dawkins et al. 2019, Meristo et al. 2016). Moreover, analogous to reported preferences for prosocial actions, studies have also documented that infants (by 16 months) show preferences for fair over unfair distributors via their looking and reaching behavior (Geraci & Surian 2011; see also Burns & Sommerville 2014, Lucca et al. 2018, Ziv et al. 2021). Additionally, in some studies, infants' own prosocial behavior (e.g., sharing a preferred rather than a nonpreferred toy) was positively related to their third-party fairness expectations (Schmidt & Sommerville 2011, Sommerville et al. 2013), which may suggest that other-regard or altruistic motives foster the early development of fairness understanding as not just based on social regularities but on distribution principles.

Nonetheless, although these findings on infants' descriptive expectations and social preferences in distributional contexts are fascinating, they do not provide evidence for a normative understanding (or normative evaluation) of distributive justice. They can be explained by a rich and social, but nonnormative, reading of the observed social interactions.

Excursus: Precursor Abilities and Behaviors in Nonhuman Primates?

It is beyond the scope of this review to discuss the now abundant (theoretical and empirical) literature on potential precursors to normative or moral understanding in nonhuman primates (Boesch 2012, Bräuer & Hanus 2012, Brosnan & de Waal 2014, Burkart et al. 2018, Lorini 2022, Schmidt & Rakoczy 2019, Tomasello 2016). Here, we discuss a few key findings and observations in chimpanzees and bonobos in relation to the conceptual distinctions introduced above. In general, it is not trivial to consider how we can best avoid both anthropomorphism (e.g., inferring normative competence from observing behavior that looks moral) and anthropocentrism (or adultcentrism, e.g., egocentrically introducing human-centered concepts and standards and inappropriately applying them to non- or prelinguistic creatures). Nonetheless, the central features of normativity (standards of correctness, normative force, generality, context relativity) are abstract and general enough to apply them, in principle, in context- and species-sensitive ways.

Relevant domains of investigation include apes' conflict management and interventions (e.g., so-called policing), social learning, resource distribution, and aggressive behavior directed toward young conspecifics (infants). Regarding conflict management, individual chimpanzees have been observed to police or intervene in fights, apparently as unaffected bystanders (Flack et al. 2005, 2006; Rudolf von Rohr et al. 2012). It is, however, mainly high-ranking individuals that intervene in third-party ways (with little risk of experiencing retaliation), and in general, interventions occur rarely (for similar findings in a food retrieval task requiring collaboration, see Suchak et al. 2016, and for discussion, see Schmidt & Tomasello 2016, Suchak & de Waal 2016). This makes it likely that nonnormative, egocentric motivations and individual preferences, such as securing one's dominant position, enhancing group harmony (which is in dominant individuals' own interest), or being in the presence of resources and desiring to obtain them, drive this behavior (Rudolf von Rohr et al. 2012, Schmidt & Tomasello 2016). Importantly, in a well-controlled experiment, researchers found that when observing a conspecific stealing food from another ape, chimpanzees do not engage in third-party punishment but only in second-party punishment (i.e., revenge when the self is affected by stealing) (Riedl et al. 2012; for related observations and findings, see Boesch 1994, Jensen et al. 2007). Overall, this suggests that dominant chimpanzees' interventions are not driven by normative attitudes but rather by individualistic motives.

Regarding social learning, of special interest are group-specific behavioral traditions and forms of culture, which cannot be easily explained by ecological or genetic variation (Luncz et al. 2012; Whiten 2011, 2019, 2021; Whiten et al. 2007). For instance, neighboring chimpanzee groups have been observed to use different nutcracking strategies (Luncz et al. 2012), and one female chimpanzee who swapped groups changed her nutcracking method in favor of the predominant method of her new group (Luncz & Boesch 2014). It is not clear whether such aligned behaviors amount to social or even normative learning (Jensen et al. 2014) or whether they are based on individual motives and learning mechanisms including efficiency or payoff gains (Gruber et al. 2022, Langergraber et al. 2011, Schmidt & Rakoczy 2019, Tennie et al. 2009, Van Leeuwen et al. 2013). Moreover, stable between-group differences in chimpanzees may be explained by a preference to copy dominant chimps (Kendal et al. 2015), and apparent customs in chimpanzees (e.g., specific ways of grooming one another, such as hand-clasp grooming) may not be the result of conformity to the group ways of doing things (see also Van Leeuwen et al. 2013) but of matrilineal inheritance (learning from one's mother) (Wrangham et al. 2016). Together, these findings suggest that social learning and culture in our closest living relatives are rich, but at the same time, they seem confined to individual and nonnormative attitudes and mechanisms of transmission.

Regarding resource distribution, the most prominent situation used in prior research involves a fairness context in which participants may be averse to inequality. Using clever designs and methods, researchers presented two individuals with a token-exchange task in which they could exhibit comparable efforts (i.e., handing over tokens to an experimenter) in order to receive a reward. However, rewards in the key condition were unequal (e.g., a high-value grape versus a low-value carrot), so the question was whether recipients would refuse to take a reward if the conspecific received a better one. Initial studies indicated that chimpanzees and monkeys may be inequality averse (refusing low-value rewards) and thus sensitive to fairness issues (Brosnan & de Waal 2003; Brosnan et al. 2005, 2010). Follow-up studies, however, have teased apart mechanisms of social comparison and the mere expectancy to receive a better reward regardless of social fairness concerns. These studies found that apes show no signs of inequality aversion (Bräuer et al. 2009, Ulber et al. 2017) but rather human-directed social disappointment (i.e., the experimenter could have offered better food) (Engelmann et al. 2017). Overall, there is thus no stringent evidence for fairness concerns in apes, and social disappointment seems to be a rich, but nonnormative, explanation for primates' behavior in token-exchange tasks.

The last interesting case is apes' reaction to aggressive acts directed at conspecifics (both very young and adult individuals). Chimpanzees generally show tolerance toward infants in their group (Rudolf von Rohr et al. 2011). But when harmful behaviors are directed at infants (up to infanticide), strong emotional reactions by not only the infant's mother but also other members of the group have been reported (Goodall 1977, Rudolf von Rohr et al. 2011, Townsend et al. 2007). Besides these observations, Rudolf von Rohr and colleagues (2015) conducted a looking-time study and showed chimpanzees recordings from a different chimpanzee group including infanticide scenes and other social (e.g., hunting, aggressive behaviors) and nonsocial (e.g., nutcracking) situations. They found that chimpanzees looked longer, but showed no increased arousal, at the infanticide compared with the other scenes. While the researchers could rule out a few basic alternative explanations (e.g., novelty, presence of infants in movies), the findings are nonetheless ambiguous. Given the nature of the measures, they might simply reflect increased interest in infanticide scenes. As the different video clips differed along many dimensions and given that it is not clear which prior experiences (e.g., chasing one another) might play a role, statistical expectations and a novelty preference might still have led to the reported results.

In related observational work with bonobos, researchers found that victims' screams were structurally distinct and showed individual acoustic profiles in response to expected (e.g., food-related) and unexpected, unprovoked acts of aggression by conspecifics (Clay et al. 2016). The presence of an audience or conflict severity, however, did not influence individual vocal behavior. Again, these results may indicate some kind of normative response, but more parsimoniously, they may simply reflect violations of descriptive expectations (the unexpected events being relatively, not necessarily absolutely, rare and thus surprising or arousing).

Taken together, these findings demonstrate a rich, descriptive, and statistical understanding of social situations, perhaps including the desire to receive help by allies or friends (Engelmann & Herrmann 2016). However, they do no not provide compelling evidence for true understanding of norms with force and generality that go beyond mere self-centered expectations.

Conventional Norms

Going beyond the precursory abilities documented in human infants and nonhuman animals, there is substantial evidence that by around 2 to 3 years of age, children operate with solid forms of basic norm psychology. That is, they understand something about the central features of the norms that govern social activities and social life (standards of correctness, generality, normative force, context relativity). One line of research investigated, for instance, how children learn novel game-like activities that share basic features with conventional norms, such as arbitrariness (e.g., one could play the game another way) and context relativity.

In these studies, children saw an experimenter demonstrate a new game-like action (e.g., "daxing"), could then perform the action themselves, and later saw a third party (usually a hand puppet) perform the action in the same or in an alternative but still goal-directed and instrumentally successful way (e.g., Rakoczy et al. 2008). Children spontaneously and reliably intervened as unaffected third parties and protested against what they considered a violation using explicit normative language (e.g., "This is wrong!"). This indicates a grasp of the standards that norms embody, the force they bring with them, and the generality with which the force applies to oneself and third parties alike. More recent research indicates that this mature understanding of the normativity of game rules in young children may be preceded by an early grasp of the normative force of interpersonal agreements (on how we use an artifact or play a simple game) during the second year of life, without full appreciation of the generality of norms (Schmidt et al. 2019).

This line of research has also documented that by age 3, young children appreciate the context relativity of conventional norms. For instance, they protest against a given act only in the relevant

game context in which that act constitutes a mistake (e.g., when the agent plays the game but not when the agent announced she would do something else) (Rakoczy et al. 2009, Wyman et al. 2009).

What this line of research has shown in different domains is that children readily and swiftly pick up new norms, follow them, and enforce them. Interestingly, young children may sometimes even pick up norms somewhat too swiftly. There is evidence to suggest that young children operate with promiscuous normativity (analogous to children's promiscuous teleology, their tendency to overattribute goals and purpose to natural objects; Kelemen 1999a,b): Children assume the existence of norms in overly liberal ways. For instance, when 3-year-olds incidentally observe an unknown person spontaneously fetching junk objects out of a trash bag and performing an idiosyncratic, arbitrary, and intentional action without any clear purpose (e.g., taking a damaged snail shell and pushing it a bit forward with a piece of wood), they attribute normativity to this act. Young children not only imitate it but protest when a third party later acts on the junk objects in a different way. Only when the adult marked their action as accidental did children not impute normativity (Schmidt et al. 2016a; see also Schmidt et al. 2011). It almost seems as if the default assumption for children was that social actions are norm-governed unless noted otherwise. Based on minimal cues, they quickly jump to normative conclusions and overgeneralize intentional actions. This promiscuous normativizing tendency might be an important mechanism for rapid acquisition of the immense variety and multitude of culturally relevant knowledge and practices.

In fact, promiscuous normativity may be key to explaining otherwise puzzling phenomena, such as children's descriptive-to-prescriptive overinduction regarding group regularities (e.g., because most "Hibbles" wear red clothing, children infer that a new Hibble should wear red clothing; Roberts 2021, Roberts et al. 2017), and their tendency to overimitate (copying not only causally relevant but also more stylistic causally irrelevant acts; Keupp et al. 2018, Legare & Nielsen 2015). Recent evidence suggests that children do not overimitate because they think the action elements are causally necessary but rather because they think they are normatively necessary as part of a bigger conventional activity (for reviews, see Keupp et al. 2018, Legare & Nielsen 2015). Children overimitate in context-sensitive ways (leaving out the unnecessary part, if the goal is efficiency rather than conventionality), and they enforce this normative structure toward third parties (they protest if a third party achieves the goal without performing all the action elements).

Taken together, this body of empirical findings on children's acquisition and application of conventional norms suggests that they do not passively wait to be taught the rules of their cultural group. Rather, from early on, children proactively look for norms and cues that might indicate normativity, are highly motivated to enforce them, and apply norms in selective and rational ways.

Norms of Instrumental Rationality

One of the most basic forms of normativity pertains to norms of instrumental rationality: If an agent desires a given end, they should (all else being equal) use the most adequate means to attain this end. This is the basic structure of the so-called hypothetical imperative [Kant 1998 (1785)], arguably one of the most basic requirements of practical rationality and one that seems to be widely shared across cultures (Shweder 1986). In many of the reported protest studies, children were confronted with instrumental mistakes committed by an agent (hand puppet) in warm-up games. The agent, for example, failed to use a certain tool (e.g., a functioning pen) to achieve an instrumental goal (e.g., drawing or writing). Children usually intervened verbally (e.g., using normative language, such as "You can't do it like this") and/or behaviorally (e.g., by correcting the puppet's mistake) in these situations (Rakoczy et al. 2008). Interestingly, preschoolers draw systematic distinctions between such rationality norms and other kinds of norms, such as conventional or moral rules: They apply rationality norms equally to in-group and out-group individuals, as with moral

norms but in contrast to conventional norms, potentially because of the nonarbitrariness of both ineffective (instrumental) and harmful (immoral) acts (see the section titled Moral Norms) (Dahl & Schmidt 2018, Schmidt et al. 2012).

Overall, these findings suggest that young children understand something about the normativity of rationality norms, and future protest studies could systematically vary agents' instrumental goals in different contexts to explore how sophisticated young children's appreciation of instrumental rationality is (see also Dahl & Schmidt 2018).

Norms of Language Use

Language is a normative, rule-governed activity at many levels (Brandom 1994, Searle 1969). When do children develop a basic understanding that speech acts are subject to normative assessment? The earliest forms of normative awareness were reported by Pea (1982), who found that very young children, ages 2–3, spontaneously corrected adults who made incorrect assertions about some state of affairs (e.g., "The dog is on the mat!" when this was not the case). A more mature normative understanding of language use, however, would reveal itself through differentiating between different types of typical human speech acts with different directions of fit (assertions aimed at representing reality correctly have mind-to-world direction of fit, while imperatives aimed at realization have world-to-mind direction of fit) (Searle 1969, 1983). Rakoczy & Tomasello (2009) found that 3-year-olds understood this structural difference: They protested against the commentator if they asserted that an actor was performing a certain action (and this was not the case) but against the actor if they were not doing what the commentator told them to do (for related findings, see Lohse et al. 2014).

Moral Norms

Over the last decades, much research has found that young children judge immoral acts (e.g., harming others without reason) as blameworthy and systematically distinct from conventional transgressions (Killen & Smetana 2014, 2015; Turiel 1983). Further, they also actively intervene in social interactions as disinterested parties when norms involving moral issues have been violated, thus providing evidence for their appreciation of the normative force and generality of these norms (Schmidt & Rakoczy 2018, Tomasello 2016). Research suggests that by age 3, children intervene and criticize others who cause harm by destroying or stealing someone's property (Hardecker et al. 2016, Rossano et al. 2011, Schmidt et al. 2012, Vaish et al. 2011), and they even defend others' entitlement in ownership contexts by intervening against someone who (illegitimately) threatens another agent's right to use their property (Schmidt et al. 2013; see also Friedman et al. 2018, Neary et al. 2009, Ross et al. 2015, Rossano et al. 2011).

Do young children also treat moral violations differently than conventional violations in their normative protests and other types of reactions? More recent research using different methods suggests that they do so in context-sensitive ways, as indicated by their spontaneous protest behaviors, emotional reactions, descriptive expectations, and even physiological arousal (Hardecker et al. 2016, Josephs & Rakoczy 2016, Liberman et al. 2018, Schmidt et al. 2012, Yucel et al. 2020). For instance, for conventional norms (simple arbitrary game rules), they criticize in-group members more than out-group individuals for performing alternative actions (Schmidt et al. 2012) and expect in-group members to be more likely to conform to and less likely to violate conventional norms than out-group individuals (Liberman et al. 2018).

Regarding resource distributions, young children have a strong preference for equality in their own distributions (Schmidt et al. 2012, 2016d). But more importantly for the current argument, young children even enforce the norm of equality, employ it when coconstructing a prosocial

sharing norm with others (Friedrich & Schmidt 2022), and protest when others allocate resources unequally (Paulus et al. 2020, Rakoczy et al. 2016). With age, children's understanding of distributive justice matures and goes beyond the principle of equality. Children come to appreciate that inequality may be normatively justified by some reasons (e.g., merit, need) but not by others (idiosyncratic demand) (Schmidt et al. 2016d; see also Blake et al. 2015, Rizzo et al. 2016).

In sum, this work suggests that young children care about moral norms and that they understand them to be distinct from other types of norms. Their (selective) third-party norm enforcement provides evidence for their appreciation of the generality and force of moral norms.

Intentionality, Theory of Mind, and Normativity

The question of whether norm psychology develops in isolation or is integrated with other forms of social cognition from early in development is of vital importance. Several findings suggest a close interrelation and integration of normativity, intentionality, and theory of mind. First, and most intuitively, when normatively evaluating actions, children—just like adults—take into account an agent's intentionality (their background desires or intentions). They do so in their verbal judgments, as shown by numerous interview studies (for reviews, see Killen & Rizzo 2014, Killen & Smetana 2015), as well as in their spontaneous prosocial behaviors and active norm enforcement in a variety of contexts (Josephs & Rakoczy 2016; Schmidt et al. 2016b,c; Vaish et al. 2010). Further, children do so when evaluating different kinds of actions, including speech acts (e.g., claims) with potentially (intended) harmful effects (Fedra & Schmidt 2018). Young children, again like adults (Giffin & Lombrozo 2015), make these intent-based normative judgments in different ways for different types of norms. For example, they considered whether an agent had a choice or was constrained (and thus not guilty) and refrained from protesting in a moral context when the perpetrator was constrained (thereby considering the intentionality of the agent). Yet, children still protested against mistakes at considerable rates in a conventional context (e.g., sorting objects) with an external constraint, suggesting children put more weight on intentions in moral versus conventional contexts (Josephs et al. 2016, Tunçgenç et al. 2015; see also Van Wye et al. 2021).

Beyond the intuitive direction (i.e., intentionality matters for normative assessment), there is also the less intuitive direction, namely, that normative assessment matters to ascriptions of intentionality, a phenomenon called the side-effect effect (Knobe 2003): Participants tend to judge that an agent intentionally brought about merely foreseen side effects more often when the effect had negative normative value compared with positive value. Ample evidence has documented this effect in adults (Knobe 2010). Interestingly, even 4-year-old children show the very same kind of side-effect effect (Leslie et al. 2006, Pellizzoni et al. 2009, Rakoczy et al. 2015).

Together, these lines of research thus suggest that children's norm psychology does not develop in isolation but rather closely in tandem with other social-cognitive capacities and abilities for individual intentionality (for further research, see also Fu et al. 2014, Killen et al. 2011, Li et al. 2017, Smetana et al. 2012, Sodian et al. 2016).

Epistemic Normativity

Epistemic norms broadly pertain to the reasons, obligations, and entitlements we have regarding our epistemic states and claims (e.g., beliefs, knowledge). The study of the development of children's grasp of epistemic norms is a relatively new field. In research on the development of selective trust in testimony, many studies have investigated children's understanding of important epistemic cues (e.g., reliability, accuracy, competence) in social learning situations (Koenig et al. 2004, Koenig & Harris 2005, Mills 2013, Nurmsoo et al. 2010, Robinson & Einav 2014; for reviews, see Harris et al. 2018, Landrum et al. 2015). In contrast, the normative dimension of epistemic matters

(beliefs, knowledge) in social interactions, such as challenging and correcting each other's beliefs and epistemic claims, has not been systematically addressed (Tomasello 2020). A recent study by Fedra & Schmidt (2019) assessed whether preschoolers take others' knowledge claims (about the location of an object) for granted or whether they would reject these claims if they have reason to believe that the claims are incorrect (e.g., when the speaker did not have perceptual access to a crucial hiding event). The findings were that older, but not younger, preschoolers reliably rejected incorrect knowledge claims (for related findings on the obligation to verify one's claims, see Butler et al. 2018, 2020). Overall, this relatively new field of study may be of particular importance with respect to the challenges that children (and adults) face in the digital age, such as evaluating information (sources), claims, trustworthiness, and authority.

Coconstructing Norms

Children do not only passively learn from others and apply pre-existing norms. Rather, recent research has also accumulated evidence that children take part in coconstructing norms with others and that they understand that norms are essentially human-made social facts that can be established under certain circumstances (e.g., agreement). Schmidt and colleagues (2016c) investigated what young Western children (aged 3) think about the establishment of a new conventional norm (an arbitrary game rule): For example, when does such a new norm come into existence, and is full group consensus required? They found that if all parties involved (i.e., the child and puppet participants) had agreed upon a game norm, children enforced this novel norm on a participant who violated the rule. If, however, there was dissent during the norm-setting process, children did not interpret subsequent actions to be subject to a game rule and thus refrained from protesting against deviation. Interestingly, agreement between even a majority of 90% would not suffice to create a valid norm. This work thus suggests that young children understand something of the role of agreement in creating norms and that, initially, they do not accept majority rule as a means to construct norms. Additionally, 5-year-old children's spontaneous construction and transmission of coordination norms have been investigated (Göckeritz et al. 2014; see also Nobes 1999). Children collaborated on an apparatus in order to achieve a shared goal of receiving rewards. Children coconstructed rules for coordination (including assigning different roles) to regulate their interactions. When children were paired with ignorant peers, they transmitted the created norms as general facts (i.e., they used generic normative language such as, "One should do it this way!") and did not engage in renegotiating how to coordinate. This suggests that children reified the coconstructed norms as if they had discovered preexisting entities (for related findings, see Köymen et al. 2014, 2015).

THEORETICAL PERSPECTIVES ON CHILDREN'S DEVELOPING NORM PSYCHOLOGY

Ample research documents that from fairly early in development, young children acquire, understand, follow, coconstruct, and even enforce norms. But how does norm psychology develop? In particular, how do normative capacities evolve from basic, nonnormative precursor abilities? What are the underlying developmental motors and acquisition processes? Doing justice to these questions would require an extensive separate treatment far beyond the scope of the present article. Here, we, more modestly, outline the general logical geography in which various (possible and real) attempts to answer such questions of the ontogeny of norm psychology can be located. We focus on one fundamental dimension of variation and dispute between alternative accounts that concern the relation of norm acquisition to the acquisition of other types of representations in other areas.

At one end of the spectrum, rich, nativist modularity views would assume that there are innate, specialized, dedicated, domain-specific, and informationally encapsulated acquisition devices for norm psychology (analogous to universal grammar and the language acquisition device postulated in modularity accounts of language learning; Chomsky 2006, Pinker 1994). By their nature, these devices would be functionally isolated from other forms of learning and reasoning. It is not completely clear whether there are any real accounts at this very end of the spectrum that take such an ambitious view on domain specificity regarding norm acquisition. Yet, some accounts come close in some respect or another, for example, those that postulate cheater detection modules (Cosmides & Tooby 1992), systems of moral grammar (Mikhail 2007), or dedicated norm acquisition mechanisms (Sripada & Stich 2006).

At the opposing end of the spectrum would lie lean, deflationary accounts claiming that norm acquisition does not build on any special cognitive machinery but just on the same general learning resources that are in play in any other domain. The starting state infants begin with would be characterized in very lean ways. Given the relevance of (statistical) regularities—which are related to, but not sufficient for, normativity—such accounts would focus on infants' initial abilities to track norms in the sense of behavioral regularities. Again, it is not clear whether there are any serious views at this very end of the spectrum that take such deflationary views on norm acquisition, but one section of a recent and influential account comes close (Heyes 2023). According to this account, initial learning about norms in infancy and early childhood is subserved by domain-general associative, statistical, and inductive learning mechanisms. Norm acquisition is, thus, merely another form of learning about social statistical patterns. This is the deflationary part. Real normative thought that goes beyond mere social statistics does emerge (this is the nondeflationary part) but only considerably later and is based on a complex theory of mind, language, and cultural learning. In between these two ends of the spectrum, there is plenty of space for various third-way accounts. According to such third-way views, early norm acquisition builds on cognitive foundations that are less modular and rich than those posited by extreme nativist accounts and less unspecific and lean than those posited by deflationary accounts. It is probably fair to say that most existing accounts are located roughly in this vicinity. Many of these accounts address questions of ontogenetic norm acquisition ("How do children become normative creatures?") against the background of evolutionary questions ("How did we become a normative species?"). This often involves a more or less implicit assumption that ontogeny may to some degree recapitulate phylogeny, that is, the stages through which children pass in becoming normative creatures may mirror the stages through which humans passed evolutionarily in becoming a normative species (Tomasello 2016).

Third-way positions come in many variants. According to views with a rationalist–constructivist background in the tradition of Piaget (1932), Kohlberg (1963, 1969), and Turiel (1983), norm acquisition builds upon general capacities for reasoning, social-cognitive capacities for perspective taking, and social experiences in interacting and discoursing with others (in particular, peers). Views with a more sentimentalist or emotivist background come with varying assumptions about the richness of the starting state, and norm acquisition builds on the coordination of reactive attitudes and broadly normative feelings such as resentment, indignation, or sympathy with growing flexibility in perspective taking. In this way, children developmentally move from egocentric prenormative notions of social preferences and expectations ("actions that make me/Dad frown") to more general genuinely normative expectations ("actions that make us/one/ideal observers frown") (Bloom 2013, Haidt 2012, Nichols 2004, Roughley 2016, Wynn & Bloom 2014).

Another class of accounts poses that norm acquisition reflects and builds on the development of different interlocking forms of individual and shared intentionality (Rakoczy & Schmidt 2013;

Rakoczy & Tomasello 2007; Schmidt & Rakoczy 2019; Schmidt & Tomasello 2012; Tomasello 2014, 2016; Tomasello & Rakoczy 2003). The starting point for these accounts is the premise that normativity goes deep: Every form of intentionality (in the general sense of aboutness) already involves basic normative dimensions, that is, conditions of success or correctness (e.g., mental states can successfully represent reality, actions can be successfully carried out). Being an intentional agent thus already involves, at least implicitly, sensitivity to minimal normative standards (e.g., Burge 2009, Searle 2001). Normative awareness proper then develops based on the emergence of more complex forms of individual and shared intentionality. Within this process, the developing child actively coconstructs at first primitive, and then more complex, forms of normativity with others in social interactions.

From the end of the first of year of life, infants develop basic forms of second-order individual intentionality: In simple ways, they begin to understand that others and themselves are intentional beings with perceptual views on, and goals toward, the world. Based on this, from the second year of life, children develop the first forms of shared "we" intentionality, most clearly indicated by joint cooperative activities, both serious (e.g., problem-solving) and nonserious (e.g., pretend play and rule games). These social forms of higher-order and shared intentionality make the basic normativity that is inherent and implicit in simple individual intentionality (e.g., standards of correctness) more explicit and public, which introduces and facilitates the detection of deviations (e.g., mistakes) and the reciprocal assessment of each other's actions. Thus, understanding another agent's intentional action and trying to imitate it bring with them (potentially) shareable representations of criteria of success, and engaging in cooperative activities involves shared commitments to normative standards (fulfillment of one's role, striving toward the joint goal, etc.). Over development, shared intentionality becomes more complex in structure and wide-ranging in scope such that it is no longer restricted to dyadic, small-scale, concrete, and short-lived physical interactions but rather encompasses bigger groups, larger timescales, and more abstract matters (e.g., "In this society, we treat private property like this. . ."). As a consequence, the normative matters going along with shared intentional practices become more wide-ranging, abstract, context relative, and so on. Ultimately, this leads to practices in which institutional and societal norms are applicable in large contexts (spatially, temporally, personally)—in the case of moral norms of well-being, fairness, and the like, they are at least potentially applicable to the kingdom of ends encompassing all rational agents [Kant 1998 (1785)].

How do these theoretical accounts relate to each other and to the empirical evidence? There are certainly very lively debates between different accounts (for a recent example, see the target article by Heyes 2023 and the subsequent commentaries). However, compared with other areas of cognitive development, this field is, unfortunately, still in an early stage. Many accounts are sketched very abstractly, with many aspects left vague, creating large degrees of freedom in translating them into more concrete and empirically addressable predictions. Across accounts, the foci, terminology, and approaches are often highly incommensurable such that it is not obvious how competing predictions should be derived in order to test between them. Thus, desiderata for future research are the following. Theoretically, the accounts need to be spelled out in more detailed and precise ways and in categories more commensurable across different approaches so that productive debates between accounts are facilitated (for initiatives in this direction see, for example, Heyes 2023, Sripada & Stich 2006). Empirically, systematic research (including cross-cultural comparisons) needs to then test contrasting accounts carefully against each other. Ideally, this could and should be done in adversarial collaborations in which proponents of competing accounts together agree a priori about what would be a crucial test case, then preregister and finally test it (for recent examples in developmental and comparative cognitive science, see Boeckle et al. 2020, Schuwerk et al. 2023).

OUTLOOK

Humans live not only in a natural world of causes and regularities but equally in a normative one filled with reasons and norms. Children grow into this normative habitat with remarkable ease and speed. The research from the last years reviewed here has impressively shown how early in development children learn about, acquire, understand, follow, construct, and enforce norms in such diverse domains as language use, fictional and rule games, cooperation, (over)imitation, property, or fairness. Empirically, we have learned a lot from a developmental perspective about the early trajectories of norm psychology. Relatedly, we have learned a lot from comparative perspectives about the uniquely human nature of many of these normative phenomena.

From a theoretical point of view, however, the evolutionary, (social-)cognitive, motivational, emotional, and other foundations of these normative capacities and their development are still not well understood. Future work will hopefully contribute to a deeper understanding of the foundations of our normative nature, its ontogeny, and its contribution to uniquely human forms of cooperation and culture.

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