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Young Children See a Single Action and Infer a Social Norm: Promiscuous Normativity in 3-Year-Olds

Marco F. H. Schmidt[1,2], Lucas P. Butler[3], Julia Heinz[2], and Michael Tomasello[2]

[1]International Junior Research Group Developmental Origins of Human Normativity, Department of Psychology, Ludwig-Maximilians-Universität München; [2]Department of Developmental and Comparative Psychology, Max Planck Institute for Evolutionary Anthropology, Leipzig, Germany; and [3]Department of Human Development and Quantitative Methodology, University of Maryland, College Park

Abstract

Human social life depends heavily on social norms that prescribe and proscribe specific actions. Typically, young children learn social norms from adult instruction. In the work reported here, we showed that this is not the whole story: Three-year-old children are *promiscuous normativists*. In other words, they spontaneously inferred the presence of social norms even when an adult had done nothing to indicate such a norm in either language or behavior. And children of this age even went so far as to enforce these self-inferred norms when third parties "broke" them. These results suggest that children do not just passively acquire social norms from adult behavior and instruction; rather, they have a natural and proactive tendency to go from "is" to "ought." That is, children go from observed actions to prescribed actions and do not perceive them simply as guidelines for their own behavior but rather as objective normative rules applying to everyone equally.

Keywords

children, cognitive development, cooperation, social cognition, social norms, open materials

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Individuals of virtually all social species attempt to influence and control others' behavior, from threatening aggression to offering mating. But beginning with *Homo sapiens sapiens* some 200,000 years ago, human social groups—now, cultural groups—created a new form of social control in which the group as a whole communicated collective expectations for individual behavior in the form of social norms. Some social norms regulate, for instance, food distribution or mating and thus reduce interpersonal conflict and foster cooperative group functioning (Boyd & Richerson, 2009; Chudek & Henrich, 2011). But for other social norms, individuals are expected to conform merely to coordinate with other group members or to display their commitment to the group (Hogg & Reid, 2006; Lewis, 1969; Parsons, 1951; Turner, Hogg, Oakes, Reicher, & Wetherell, 1987). These conventional norms range from conventional ways of talking, dressing, using artifacts, and preparing food to cultural and religious rituals (Rossano, 2012; Schmidt & Tomasello, 2012; Turiel, 1983).

Young children are born into a world structured by social norms. For the first 3 years, however, they seem to perceive only the expectations that specific other individuals (e.g., their parents) have for their behavior. But from around age 3, children begin to say and do things that indicate a richer understanding of social norms as generic prescriptions and proscriptions coming from something larger than an individual and applying

Corresponding Author:
Marco F. H. Schmidt, International Junior Research Group Developmental Origins of Human Normativity, Department of Psychology, LMU Munich, Leopoldstraße 13, 80802 Munich, Germany
E-mail: marco.schmidt@psy.lmu.de

universally to anyone engaging in a certain activity (Nagel, 1986; Rakoczy & Schmidt, 2013; Schmidt & Tomasello, 2012; Smetana & Braeges, 1990). In several recent studies, 3-year-olds were taught the rules of a game, and then when a puppet played the game a different way, they corrected him or even taught him the right way to play it (Rakoczy, Brosche, Warneken, & Tomasello, 2009; Rakoczy, Warneken, & Tomasello, 2008; Schmidt, Rakoczy, & Tomasello, 2011, 2012). They often did this with so-called generic normative language (e.g., "That's not how it's done!"). At a very young age, children thus cross over from being targets to being enforcers, and they clearly recognize the generic, even objective, nature of the norms they are enforcing.

All previous studies of young children's norm learning have exposed them to the norm in a context that suggests the presence of a right way to act. Typically, an adult explicitly teaches children the norm using generic normative language ("This is how it's done") and a conventional label (e.g., "This is daxing"; Rakoczy et al., 2008), and the objects are artifacts clearly designed to be used in a normatively prescribed way (Casler, Terziyan, & Greene, 2009; Schmidt et al., 2011). By contrast, in the current two experiments, we explored whether children who see adults performing actions might overinterpret those actions as instantiated generic social norms, even without any teaching, language, or artifacts. Young children have been shown to be *promiscuous imitators* who overimitate actions irrelevant to an instrumental goal (Lyons, Young, & Keil, 2007; McGuigan, Whiten, Flynn, & Horner, 2007; Nielsen & Tomaselli, 2010) and *promiscuous teleologists* who overattribute purposeful design to natural kinds (Kelemen, 1999, 2004). In the experiments reported here, we investigated the possibility that they are also *promiscuous normativists* who overattribute objective social norms when there actually are none.

In two experiments, 3-year-old children saw an adult spontaneously perform a novel action with some materials, and then they saw a puppet perform a different action, with the same materials, that had the same result. This gave the children the opportunity to spontaneously intervene and protest if they perceived the action as normatively wrong (Rakoczy et al., 2008; Schmidt et al., 2011). The modeled action was arbitrary, without obvious purpose, and thus rather open to overinterpretation in terms of the way something is done (as in "This is how we do it!"; Schmidt & Tomasello, 2012; Searle, 1995). To investigate the key question, we manipulated both the manner of demonstration (between participants) and the type of materials (within participants) used in that demonstration. Prior research suggested that children readily learn generic and normative knowledge in both pedagogical and nonpedagogical contexts (Butler & Markman, 2012, 2014, 2016; Butler, Schmidt, Bürgel, & Tomasello, 2015; Butler & Tomasello, 2016; Csibra & Gergely, 2009, 2011; Schmidt et al., 2011; Vredenburgh, Kushnir, & Casasola, 2015); accordingly, children saw the identical action performed by an adult, either (a) pedagogically for their benefit or (b) intentionally or accidentally by a stranger in an incidental observation.

In Experiment 1, each child saw the adult spontaneously fishing objects out of her bag. The adult used a tool, either an artifact (e.g., a human-made object with a hook), from which the child could infer a conventional purpose, or a natural "tool" (e.g., a branch that happened to be usable as a hook) that suggested no conventional purpose. In Experiment 2, we went a step further, stripping away all of the cues—both in the objects themselves and in the social-pragmatic context—that might suggest a norm. We did so by using purposeless junk objects that the adult spontaneously took out of a trash bag (not out of her own bag). The trash bag was filled with junk objects that were incidentally found on the child's chair in the beginning of the experiment. We predicted that in both experiments, regardless of whether the objects had a conventional purpose, children would infer a social norm from a single intentional action and would thus protest more when the action was pedagogical or intentional than when it was accidental.

Experiment 1

Method

Participants. Forty-eight 3-year-old children (mean age = 37 months, 25 days, age range = 36–40 months; 24 girls, 24 boys) participated in the study. This age was chosen because 3 is the youngest age at which children have been shown to regularly understand and use normative language in response to potential norm violations (Rakoczy et al., 2008). Thus, this age is the clearest starting point for this investigation. The sample size in both experiments was specified a priori on the basis of previous research that used a similar design and procedure (Schmidt et al., 2011). In each condition, half of the participants were female and half were male. The children came from mixed socioeconomic backgrounds from a mid-sized German city and were recruited and tested in urban daycare centers. Parents provided written informed consent. The study was approved by the ethics committee at the Max Planck Institute for Evolutionary Anthropology. Eight additional children were tested but were excluded from the final sample because the experimenters made an error (n = 4), the children were uncooperative (e.g., refusing to sit at the table during the experiment; n = 1), or the children failed to meet the inclusion criterion of correcting or helping the puppet in at least one instrumental task during the warm-up session (n = 3; see Procedure).

Table 1. Overview of the Four Target Tasks in Each Experiment

	Description of tools and object		
Target task	Experiment 1	Experiment 2	Actions
Pushing	Artifactual tool: Gray handle with flat end Natural "tool": Piece of wood with longish, flat end Object: Multicolored object	— Natural "tool": Piece of wood with longish, flat end Object: Damaged snail shell	Action 1: Take tool horizontally and push object forward with the longish, flat end of the tool. Action 2: Take tool horizontally (longish, flat end to the left), put it on top of the object, and push it forward.
Pulling	Artifactual tool: Black stick with metal hook Natural "tool": Branch with hooklike end Object: Multicolored object	— Natural "tool": Branch with hooklike end Object: Piece of bark	Action 1: Take tool horizontally and pull object toward self. Action 2: Take tool vertically (hook at top), put it on top of the object, and pull it toward self.
Sliding	Artifactual tool: Brown handle with rectangular prism at one end Natural "tool": Piece of bark Object: Multicolored object with opening	Artifactual "tool": Piece of crumpled-up cardboard — Object: Slightly torn and crumpled-up sandwich paper	Action 1: Take tool horizontally, put it into the opening of the object, and slide it forward diagonally. Action 2: Take tool horizontally, put it on top of the object, and push it forward.
Hitting	Artifactual tool: Flat triangular slider with a flat handle Natural "tool": Flat stone Object: Multicolored object	Artifactual "tool": Piece of tattered fabric — Object: Piece of crumpled paper	Action 1: Take tool vertically and hit object so it moves forward. Action 2: Put object onto the tool (Experiment 1) and also wrap up piece of paper with piece of fabric (Experiment 2) and push the objects forward.

Note: Action 1 was performed by the coordinator-model or model. Action 2 was performed by the puppet.

Design. After a warm-up session, the children received four trials of target tasks, the order of which was systematically varied. The type of tool presented (i.e., artifact tool or natural "tool") alternated between trials; half of the children received the artifact first. The children were randomly and evenly assigned to one of three between-participants conditions: pedagogical action, intentional action, or accidental action. In the pedagogical-action condition, the experimenter's actions appeared to be intentional and occurred after an ostensive communication with the child. In the other two conditions, the child incidentally observed while an experimenter interacted with objects, and these actions appeared to be either intentional or accidental and inadvertent.

Materials. In the warm-up session, a ball, a hammer game, and a disk-and-peg game were used. There were four target tasks (pushing, pulling, sliding, and hitting), each with an artifactual object and either an artifact or a natural "tool" (i.e., only one tool was used per child; for an overview of the target tasks, see Table 1). In addition, a polar-bear hand puppet and a bag (to hold the materials) were used.

Procedure. The overall structure of the procedure was similar to that used in prior research on young children's norm learning (Schmidt et al., 2011). In the pedagogical-action condition, there were two experimenters: a coordinator-model and a puppeteer (see Fig. 1). The child, the coordinator-model, and the puppeteer sat at a table (Fig. 1). The coordinator-model addressed the child ostensively (e.g., by making eye contact). Consequently, the social-pragmatic context of the pedagogical-action condition differed from that of the two conditions involving incidental observation. There were three experimenters: the model, the puppeteer, and the coordinator (Fig. 1). In these incidental-observation conditions, however, the model was an unknown individual who was present in the experiment room at a separate table before the other parties entered the room. Upon entering, the coordinator addressed the model formally ("Oh, good morning! Excuse me, we actually wanted to play a bit here."). The model was busy writing something down and answered, "Yes, okay. I am just working here." In the intentional- and accidental-action conditions, the model was always busy writing something down except when performing actions during the introductory phase, as described later.

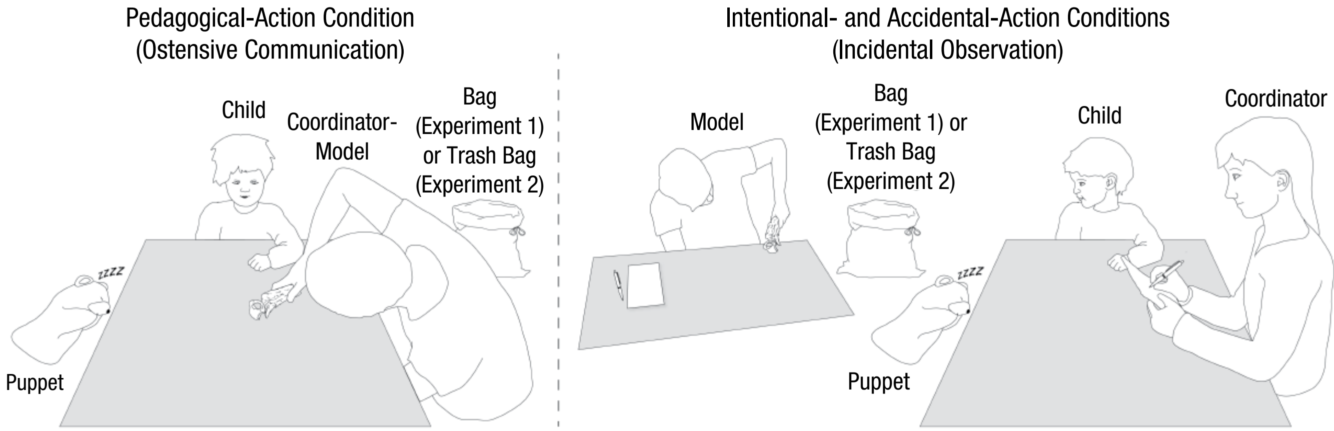

Fig. 1. Setup for Experiments 1 and 2: introductory phases of (left) the pedagogical-action condition and (right) the intentional- and accidental-action conditions (for details, see Table 1 and Fig. 2). In all conditions, the children witnessed the puppet going to sleep before the introductory phase. In the pedagogical-action condition, a coordinator-model performed Action 1 in front of the child. In the intentional- and accidental-action conditions, a model performed Action 1 right next to the child, looking down and away from the child, while the coordinator looked on; the distance between the two tables (i.e., from the corner closest to the model's left arm to the corner between the child and puppet) was approximately 45 cm. The objects and "tools" shown are from Experiment 2.

In the warm-up session for all conditions, the child, the coordinator or coordinator-model, and the puppet first played with a ball. Then the children received two instrumental tasks in fixed order: a hammer task, in which a hammer was used to send balls through holes in a cube-shaped wooden object, and a disk-and-peg task, in which disks were put on pegs. The coordinator or coordinator-model first modeled an instrumental action (e.g., putting a disk onto a peg) without using any language. Then, the child could play, followed by the puppet, which made an instrumental mistake (e.g., putting a disk vertically onto a peg, so it did not fit), so the children had the opportunity to correct and help the puppet. This intervention could be implicit, such as pointing gestures, or explicit, such as protest and action directives (e.g., "Wrong! The other way round!"). More details on the warm-up session are available at https://osf.io/fe9u2. This was done to familiarize and make the children feel comfortable with the puppet and to make clear that it was fine to intervene and interact with the puppet. Thus, the inclusion criterion of correcting or helping the puppet in at least one instrumental task was chosen to ensure that children felt comfortable and were not afraid of interacting with the puppet. Note that if this warm-up session merely primed the children to correct an incompetent puppet, they should intervene equally across conditions in the later target tasks.

The children then participated in four target tasks. Each target task consisted of an introductory phase and a test phase (for an overview, see Fig. 2; for more details, see https://osf.io/fe9u2). In the introductory phase, the coordinator-model (pedagogical-action condition) or the model (incidental-observation conditions) performed a simple action (Action 1; see Table 1) in the absence of the puppet (the children had witnessed the puppet going to sleep). Then, the coordinator-model or the coordinator gave the objects to the child, commenting neutrally, "Now you can have that." This gave the children the opportunity to act on the objects themselves. In the test phase, the puppet returned and performed an alternative action (Action 2), the result of which was equal or very similar to that of Action 1 but accomplished by different means (see Table 1). After the puppet's action, the coordinator-model or coordinator put away the objects, saying, "I'll put this away."

In the conditions involving incidental observation, the model sat at a separate table and performed the action on her own. Thus, the children's attention to the model's action was drawn by bottom-up, nonpedagogical cues (the model made noise when putting writing material on the table, when fetching objects out of the bag, and by laughing about the objects; the coordinator appeared busy—writing something down—before looking curiously toward the model when the model started making noise; see Figs. 1 and 2). After the model performed the action and went on working, the coordinator collected the objects from the model's table, came back to the main table, looked at the objects briefly, and then gave the objects to the child.

In one target task (pushing; see Table 1), for instance, the model used a tool (a piece of wood with a longish, flat end or a gray handle with a flat end) horizontally to push a multicolored object forward. The puppet's alternative action (Action 2) was to put the tool on top of the multicolored object (horizontally, longish end to the left) and push it forward.

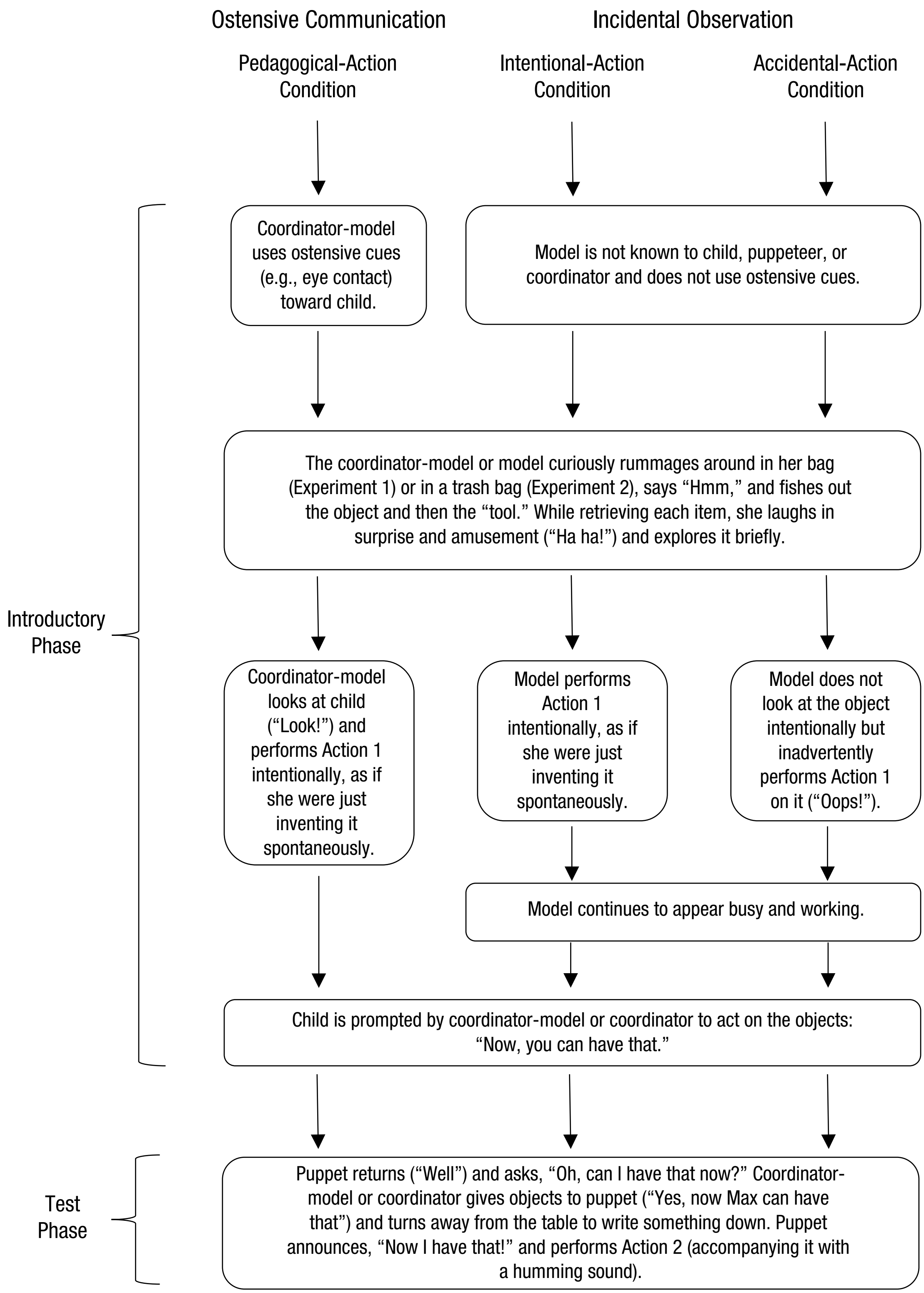

Fig. 2. Structure of the introductory and testing phases in Experiments 1 and 2. In all conditions, the children had witnessed the puppet going to sleep before the introductory phase began. Action 1 and its outcome for each task were the same in all conditions. Action 2 was performed by the puppet, and its result was equal or very similar to that of Action 1 but accomplished by different means.

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.

The children's spontaneous verbal and behavioral interventions in the test phase of each target task were coded as *protest* if they were indicative of the child either directly or indirectly referring to the model's Action 1 as the standard. Thus, there were four subcategories of protest:

- Normative protest, which included verbal or behavioral protest, correction, and critique that made use of normative or generic vocabulary (i.e., deontic terms, such as "right," "wrong," "must," "should"; e.g., "You should not do it this way!"), thus also including normative teaching (e.g., the child demonstrated Action 1 and said, "This is how it is done!").
- Imperative protest, which included verbal or behavioral protest without normative vocabulary but with imperative phrases or action directives (e.g., "Push it with this one!" or "Not like this!") or polite forms using "can" (e.g., "You can slide it like this!") that were related to the puppet's actions with the materials.
- Nonnormative teaching, in which the child demonstrated Action 1 and communicated with the puppet nonverbally (via eye contact) or verbally (e.g., "Like this!" or "I'm going to show you").
- Tattling, which consisted of telling the coordinator or coordinator-model, using the third-person form, that the puppet performed an action different from Action 1 (e.g., "He does it differently!").

Further behaviors or utterances not explicit or specific enough to be considered protest (with reference to Action 1) included the following:

- Descriptive interventions—for example, informing (e.g., "Look what [the puppet] has"), nonspecific statements (e.g., "No!"), asking about the objects or asking the puppet what he or she was doing, pointing to objects, or acting on the objects without communicating with the puppet.
- Ambiguous interventions—action directives that were not related to Action 1 or were nonspecific (e.g., "Knock on it!" although knocking was not modeled during Action 1, or "Take it!" without further qualification of the object the child was referring to).
- Irrelevant behaviors—all other behaviors (e.g., the child said "That's [the puppet]").

Interrater reliability was very good, Cohen's $\kappa = .89$. For each trial on each target task, protest was coded as 0 if the children exhibited no protest or as 1 if the children exhibited at least one of the four subcategories of protest. Each child thus received a binary protest score per trial and a summed protest score (0–4) over the four trials (collapsed across type of tool). Summed scores were computed on the basis of four trials (except for one trial that we excluded because the child did not pay attention to Action 1 during the introductory phase).

Statistical analysis. Statistical analyses were run in R (Version 3.0.2; R Development Core Team, 2013). Because the summed score and the binary score violated the assumptions of standard linear models (i.e., normally distributed errors), we used a generalized linear model (GLM) with negative binomial error distribution for the summed score (0–4) and a generalized linear mixed model (GLMM) with binomial error distribution for the binary score to account for the nonindependence in the binary data (i.e., repeated measurements per child; Baayen, 2008). Information-criterion statistics (Akaike information criterion) were used to determine the best-fitting and most parsimonious GLM (Burnham & Anderson, 2002).

For the GLMM on the binary score, the initial full model included condition, type of tool, and their interaction as predictor variables, the control variables trial (z-transformed) and gender as fixed effects, and random intercepts for participants' identity. Effects of interest were tested by comparing the fit of the full model with the fit of the respective reduced model (without the predictor to be tested) using a likelihood ratio test (Dobson, 2002). If the interaction of condition and type of tool was not significant, the interaction term was dropped from the full model. There were no effects of gender or trial, but these variables were kept in the GLMM to control for confounding effects. On the basis of the unstandardized parameter estimates (b) and standard errors of a GLM on the summed score with the predictor condition, a planned linear contrast was performed if the prior GLMM indicated no significant interaction of condition and type of tool. The GLM included an offset term (log-transformed total valid number of trials) to adjust for the number of opportunities that children had to perform protest (i.e., the response variable was treated as a rate). The measure of association was the value of r for the linear contrast ($r_{contrast}$; Rosnow & Rosenthal, 2003), and 95% confidence intervals (CIs) were computed for parameter estimates.

Results

The children's protest for the two types of tools (artifactual tools and natural "tools") showed the same pattern across conditions (see Fig. 3), as indicated by a nonsignificant interaction of type of tool and condition in a GLMM using the binary protest score, $\chi^2(2) = 0.20$, $p = .90$ (likelihood ratio test). Across conditions, the children

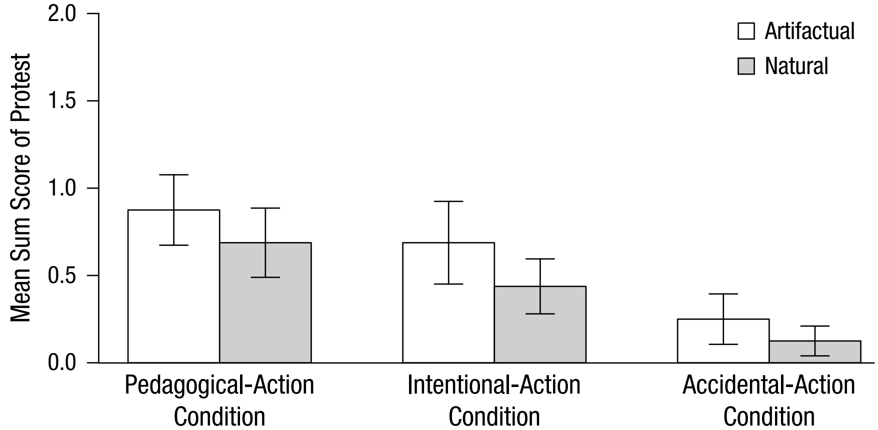

Fig. 3. Mean sum score of protest for each type of tool (artifactual or natural) in each condition of Experiment 1. Error bars indicate ±1 *SEM*.

protested significantly more for artifactual tools than for natural "tools," $\chi^2(1) = 4.50$, $p = .034$; $b = -1.02$, $SE = 0.48$, 95% CI = [−2.06, −0.08]. Thus, our main analysis focused on the summed protest score (0–4; collapsed across type of tool). Our prediction was that the children would protest equally in the pedagogical-action and intentional-action conditions, and that they would protest more in these two conditions than in the accidental-action condition. The corresponding linear contrast (pedagogical action: 1; intentional action: 1; accidental action: −2) was significant, with a medium effect size, $F(1, 45) = 5.67$, $p = .022$, $r_{contrast} = .33$: The children's protest did not differ between the pedagogical-action condition ($M = 1.56$, $SD = 1.55$) and the intentional-action condition ($M = 1.13$, $SD = 1.45$), $b = -0.33$, $SE = 0.46$, $z = -0.72$, $p = .472$, 95% CI = [−1.23, 0.56], but the children protested significantly more often in these conditions than they did in the accidental-action condition ($M = 0.38$, $SD = 0.81$; see also Fig. 3).

Discussion

These results suggest that children are capable of blocking a normative inference from a nonintentional action and, more importantly, that they seem to view any intentional action as at least somewhat normative and generalizable, even if carried out using a natural object without any conventional purpose.

In this experiment, however, the objects came out of the adult's own bag, which potentially suggested that she spontaneously selected her objects to serve a conventional purpose. In Experiment 2, therefore, we introduced two minor, but critical, changes. First, instead of using artifacts or even carefully selected natural objects, an adult performed novel actions with purposeless junk objects (natural junk or artifact junk). Second, the adult spontaneously took the objects out of a trash bag, which was filled with junk objects that had incidentally been found on the child's chair before. The adult then looked at them quizzically, laughed, and then went ahead and performed the idiosyncratic action. Thus, both the objects themselves and the social-pragmatic context precluded any potential normative interpretation that these actions represented the right way to act. This singular unplanned action was performed, as in Experiment 1, pedagogically, intentionally, or accidentally. Crucially, however, the context suggested that even in the pedagogical demonstration, the adult was showing the child only what one could spontaneously do with these novel objects on the spot rather than knowing how these kinds of things were meant to be used.

Experiment 2

Method

Participants. Forty-eight 3-year-old children ($M = 38$ months, 9 days, range = 36–40 months; 24 girls, 24 boys) participated in the study and were recruited and tested as in Experiment 1. Seven additional children were tested but were excluded from the final sample because of experimenter error ($n = 4$) or because the children failed to meet the inclusion criterion of correcting or helping the puppet in at least one instrumental task during the warm-up session ($n = 3$).

Design. The number and order of the tasks (warm-up session, target tasks) were identical to those in Experiment 1. Thus, the children received four trials of target tasks, and type of junk (artifactual, natural) was systematically varied. The children were randomly and evenly assigned to one

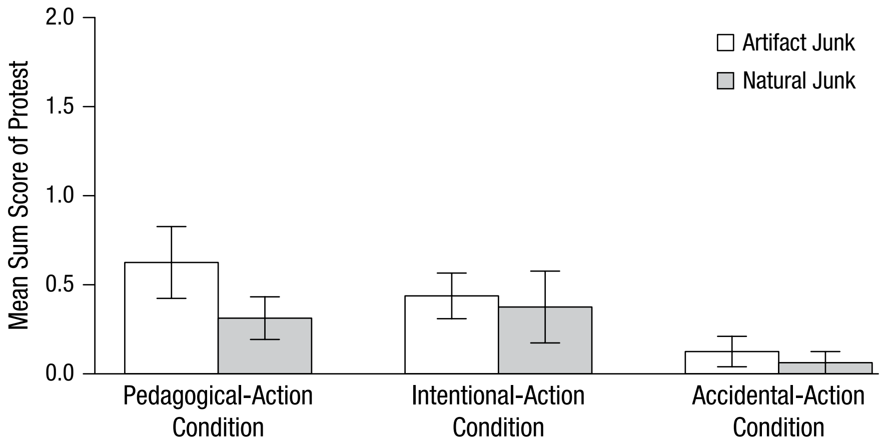

Fig. 4. Mean sum score of protest for each type of junk (artifact or natural) in each condition of Experiment 2. Error bars indicate ±1 *SEM*.

of three between-participants conditions: pedagogical action, intentional action, or accidental action.

Materials. In the four target tasks, artifact junk (sliding and hitting tasks), including artifactual "tools" and objects, and natural junk (pushing and pulling tasks), including natural "tools" and objects, were used (for an overview of the target tasks, see Table 1). Moreover, a trash bag and further junk objects were used.

Procedure. The overall procedure was very similar to that in Experiment 1, except for the following changes. First, as in Experiment 1, the coordinator, the child, and the puppeteer entered the room, and the coordinator addressed the model formally (incidental-observation conditions) or the coordinator-model, the child, and the puppeteer entered the room (pedagogical-action condition). Then the coordinator (incidental-observation conditions) or the coordinator-model (pedagogical-action condition) found junk (including the test objects and further junk objects) on the child's chair ("Huh, what kind of stuff is that?!"). She looked around, incidentally found a trash bag, and put the objects into the bag ("I'll throw this in this trash bag here"). Thus, in contrast to Experiment 1, the social-pragmatic context was devoid of any cues that might indicate that the objects belonged to the model or coordinator-model (or to anyone else) or served any particular purpose for playing a game or the like. Second, after the warm-up session, the coordinator or coordinator-model said, "All right, done! I don't have anything else with me!" to indicate that she did not plan to show the child more objects. Then, in the pedagogical-action condition, the coordinator-model looked around in the room, took the trash bag, curiously looked into it, and fetched objects out of it as in Experiment 1. In the conditions involving incidental observation, the model started fetching objects out of the trash bag (as in Experiment 1) after the coordinator's announcement that she had nothing more. Table 1 provides an overview of the target tasks.

Coding and reliability. Coding and reliability were the same as in Experiment 1. Interrater reliability was very good, Cohen's $\kappa = .83$. Summed scores were computed on the basis of four trials (except for 1 child for whom the last trial was excluded because the child wanted to leave).

Statistical analysis. Statistical analyses were run as in Experiment 1.

Results

The children's protest for the two types of junk (artifactual and natural) showed the same pattern across conditions (see Fig. 4), as indicated by a nonsignificant interaction of type of junk and condition in the GLMM using the binary protest score, $\chi^2(2) = 0.92$, $p = .63$. The children's binary protest scores for artifact junk and natural junk did not differ, $\chi^2(1) = 2.42$, $p = .12$; $b = -0.74$, $SE = 0.48$, 95% CI = [−1.73, 0.19]. Thus, our main analysis focused on the summed protest score (0–4, collapsed across type of junk). Our predictions were that children would protest equally in the pedagogical-action and intentional-action conditions and that they would protest more in these two conditions than in the accidental-action condition. The corresponding linear contrast (pedagogical action: 1; intentional action: 1; accidental action: −2) was significant, with a medium effect size, $F(1, 45) = 5.41$, $p = .025$, $r_{\text{contrast}} = .33$: The children's protest did not differ between the pedagogical-action condition ($M = 0.94$, $SD = 1.12$) and the intentional-action condition ($M = 0.81$, $SD = 1.17$), $b = -0.14$, $SE = 0.47$, $z = -0.30$, $p = .76$, 95% CI = [−1.08, 0.78], and protest was significantly higher in these conditions than in the accidental-action condition ($M = 0.19$, $SD = 0.40$; see also Fig. 4).

Discussion

We found that the children still corrected the puppet reasonably often in both the pedagogical-action and intentional-action conditions but not in the accidental-action condition, even though there was absolutely nothing in the social-pragmatic context, the objects, or the adult's language to suggest a general norm. Hence, the children truly seemed to be imposing a norm in the absence of any relevant cues, which suggests a natural tendency to overattribute normativity to intentional actions.

General Discussion

It is a truism in modern thinking (known as Hume's Law; Hume, 1739/2000) that one cannot make an inferential leap from how the world is to how the world ought to be. But that is precisely what the children in this study seemed to be doing. They incidentally observed how a particular person performed a spontaneous, unplanned action, with no normative trappings, no pattern of regularity, and no obvious purpose, but made the inferential leap that this is how one generally ought to do it. They were thus leaping inferentially from observing a spontaneous human action to understanding it as objectively binding, applying it to anyone who might perform the action. In Experiment 2, in particular, we exposed the children to a novel action in a context in which we eliminated any suggestion that the action had anything to do with cultural, prescribed, or generic ways of acting. Still, in the two conditions that had any intentional actions at all, many of the children assumed that a subsequent novel actor was subject to a general norm. Given the way the experiment was designed, this was a social norm that could only have come from the children themselves, illustrating their promiscuous normativity.

The children in this study committed the is-ought fallacy when observing simple, arbitrary, intentional acts that did not serve any obvious instrumental purpose. Thus, these actions were ends in themselves—albeit evidently individual and nongeneralizable—and at least open to overinterpretation regarding their conventionality and normativity if the children inferred that the models signaled the general way something is done (Schmidt et al., 2011). Clearly, it cannot be the case that children in general promiscuously attribute normativity to all the intentional actions they observe. However, if—as in our study—the action itself seems to be the goal of the activity and the action is performed on some objects in an intentional yet arbitrary way, children seem to be prone to overinterpret these singular, spontaneous actions as representing generic social norms. Psychologically, promiscuous normativity may derive from children's early motivation to entertain collective intentional states, to identify with their cultural groups, and to construct and reify social concepts (Gabennesch, 1990; Schmidt & Tomasello, 2012; Turiel, 1983). Functionally, promiscuous normativity may be an important mechanism in explaining human cultural evolution, institutionalization, and maintenance of social order, but also innovation (Boyd & Richerson, 2009; Chudek & Henrich, 2011; Legare & Nielsen, 2015; Tomasello, 2014). Overall, the children's protest rates were rather low; it might be the case that some of the children were too shy to intervene (Rakoczy et al., 2008). Nonetheless, these rates are comparable with findings from other studies using similar methods and, in some cases, even with findings from studies that included clear verbal cues introducing the act as normative (Butler et al., 2015; Schmidt, Rakoczy, Mietzsch, & Tomasello, 2016).

The current findings open new avenues for the study of the development of children's social cognition. Over the past few decades, developmental psychologists have gained insight into the development of children's theory of mind, broadly construed as understanding how other people's mental states reflect and represent reality and guide action (Wellman, 2011). But our results suggest that from very early in development, normativity may be fundamentally intertwined with children's understanding of other people's actions and intentionality. Further research is needed to investigate the (reciprocal) relations between theory of mind and normativity and to chart their interplay over the course of early development. Furthermore, it is vital to assess the developmental trajectory of promiscuous normativity and to examine what factors (e.g., the model's age or prior reliability) might modulate children's tendency to make normative inferences in contexts devoid of clear cues of normativity.

In summary, preschoolers regularly make generic and objective inferences when explicitly taught some action or when reasoning about existing regularities (Bonawitz et al., 2011; Butler & Markman, 2012; Cimpian & Salomon, 2014; Rakoczy et al., 2008); some theorists have proposed that this reflects a specific human adaptation for natural pedagogy dealing with kind-relevant information (Csibra & Gergely, 2009, 2011). Our results suggest that the phenomenon may be much broader than this; it may apply to cultural knowledge transmitted, obtained, and even constructed in all kinds of ways. Thus, young children are not only quick to acquire social norms from observing the actions of other people but also quick, perhaps even overly quick, to construct a social norm out of whole cloth, even when it does not exist in either the mind of the actor or the culture at large.

Action Editor

Ian H. Gotlib served as action editor for this article.

Author Contributions

M. F. H. Schmidt, L. P. Butler, and M. Tomasello designed the study. Testing and data collection for Experiment 1 were performed by J. Heinz. M. F. H. Schmidt analyzed the data. M. F. H. Schmidt, L. P. Butler, and M. Tomasello interpreted the data and wrote and revised the manuscript. All the authors approved the final version of the manuscript for submission.

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Open Practices

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