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Aggressive and Prosocial Children's Emotion Attributions and Moral Reasoning

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Aggressive Behavior

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Abstract

Aggressive and prosocial children's emotion attributions and moral reasoning were investigated. Participants were 235 kindergarten children (*M* = 6.2 years) and 136 elementary-school children (*M* = 7.6 years) who were selected as aggressive or prosocial based on (kindergarten) teacher ratings. The children were asked to evaluate hypothetical rule violations, attribute emotions they would feel in the role of the victimizer, and justify their responses. Compared to younger prosocial children, younger aggressive children attributed fewer negative emotions and were more likely to provide sanction-oriented justifications when evaluating rule violations negatively. Furthermore, age-, gender- and context-effects in moral development occurred. The context effects included both effects of transgression type (i.e., prosocial morality versus fairness) on emotion attributions and moral reasoning and the effects of the context of moral evaluation and emotion attribution on moral reasoning. Findings are discussed in terms of the role of emotion attributions and moral reasoning as antecedents of children's aggressive and prosocial behavior.

Key-Words: Aggressive behavior, prosocial behavior, emotion attributions, moral reasoning, children

Aggressive and Prosocial Children's Emotion Attributions and Moral Reasoning

What types of emotions do aggressive and prosocial children attribute to hypothetical victimizers after moral rule violations? How do they justify their evaluations of moral rules and their emotion attributions? These issues are controversial. Whereas structural-developmental theory emphasizes the importance of moral reasoning for (im)moral behavior (Kohlberg, 1976; Piaget, 1965), other scholars have pointed to the need to investigate the neglected role of emotion attributions and moral emotions in the genesis of inter-individual behavioral differences (Arsenio, Gold, & Adams, 2006; Arsenio & Lemerise, 2004; Hoffman, 2000; Krettenauer, Malti, & Sokol, 2008). The question of how emotion attributions and moral reasoning impact children's social behavior is of great significance for developmental and clinical psychologists, because it may help us gain further insight into the moral deficiencies as well as the strengths of aggressive and prosocial children. Such an enhanced understanding is important if future educational interventions aimed at fostering moral resilience and social competence in children are to be effective (Nucci & Narvaez, 2008).

Despite this attractive prospect, very little research has been undertaken so far on the influence of emotion attributions and moral reasoning on the moral quality of children's social behavior. Further, much previous research in this area has unidimensionally focused on aggression. However, prosocial behavior is not simply the absence of aggressive behavior; rather, it has a genuine moral quality, as it includes the consideration of another person's welfare (Gibbs, 2003). Identifying the particular moral deficiencies of aggressive children and comparing these to the moral resiliencies of prosocial children may thus be of tremendous help in deepening our understanding of individual differences in children's social adaptation. In line with this argument, the present study breaks new ground by comparing aggressive and prosocial children's emotion attributions and moral reasoning. By investigating these relations in a large Swiss sample of two different age groups, we also methodologically enhance much

of the existing research in this area, which was predominantly restricted to small samples from North America.

Emotion Attributions of Aggressive and Prosocial Children

Emotion attributions are an important component of children's social-cognitive development (Harris, 1989). In this study, we focused on emotion attributions in the moral domain, which have been investigated mostly within the happy-victimizer research tradition. The *happy victimizer* describes the phenomenon that young children expect a moral perpetrator (e.g., a child stealing candy) to be happy, even though they understand the validity of the moral rule (see Arsenio et al., 2006, for a review). Social domain studies have provided ample evidence that already at 4 years of age, children have developed an understanding of the validity of norms of justice and care (Smetana & Killen, 2008). However, this moral knowledge is not necessarily experienced as personally binding and may remain seen as external to the self (Blasi, 1984). Moral emotion attributions indicated that a child not only understands, but also personally accepts the validity of these moral norms. The latter has been interpreted as indicating the child's moral motive strength (Keller, 1996; Montada, 1993; Nunner-Winkler, 1999; Nunner-Winkler, Meyer-Nikele, & Wohlrab, 2007). Although this exclusively motivational view has been criticized (Blasi, 1999; Krettenauer et al., 2008), emotion attributions in the happy victimizer paradigm do in fact tell us something about young children's motives in moral conflicts, and as such give impetus to children's (im)moral behavior (Krettenauer et al., 2008; Malti, 2007; Malti, Gummerum, Keller, & Buchmann, in press).

But what do empirical studies on aggression and emotion attributions in the happy-victimizer experimental paradigm tell us? Whereas some studies have documented a negative relation between aggression and the attribution of positive emotions to a moral transgressor (Asendorpf & Nunner-Winkler, 1992), other studies have revealed no such association (e.g., Hughes & Dunn, 2000). One of the reasons for this lack of consistency may be that children

do not spontaneously identify with the hypothetical victimizer. Keller, Lourenço, Malti, and Saalbach (2003) showed that children's emotion attributions to *themselves in the role of the hypothetical victimizer* are perceived as personally more obligatory (Keller et al., 2003). There is also first empirical evidence that self-attributed moral emotions are negatively relevant to immoral, aggressive behavior in adolescence (Arsenio, Gold, & Adams, 2004; Krettenauer & Eichler, 2006) and in childhood (Malti, 2007).

Our knowledge about the relation between prosocial behavior and emotion attributions after rule violations is even more limited. This lacuna is surprising, given the theoretically acknowledged importance of emotion attributions in moral action. To our knowledge, only three previous studies have investigated these relations. The first is a study by Gummerum, Keller, Rust, and Hanoch (2007), which showed that 3-to-5-year-old children's emotion attributions were related to prosocial sharing behavior. Second are studies by Malti, Gummerum, and Buchmann (2007) and Malti, Gummerum, Keller, and Buchmann (in press), which documented that negative emotion attributions to the self and moral justifications were related to prosocial behavior in 6-year-old children. In the present research, we extended these previous studies by comparing how aggressive and prosocial children attribute emotions to self. We expected this investigation to advance our knowledge about how this important component of morality contributes to promoting prosocial instead of aggressive behavior in children (Warden & Mackinnon, 2003). In addition, we also examined the effects of two different transgression types (prosocial morality versus fairness) on emotion attributions, as research indicates that particularly younger children attribute more negative emotions when transgressing rules in the domain of fairness than rules in the prosocial domain (Malti et al., in press).

Moral Reasoning in Aggressive and Prosocial Children

Aggressive and prosocial behaviors are affected not only by children's affective judgments, but also by their moral judgments and moral reasoning. Structural-developmental

theory strongly emphasizes the link between undifferentiated moral reasoning and immoral, aggressive behavior (Kohlberg, 1976; Piaget, 1965). However, the empirical picture is rather opaque. Whereas some studies have found that aggression is associated with a hedonistic orientation after rule violations (e.g., Arsenio & Fleiss, 1996; Menesini et al., 2003), other studies have documented no relation or even a positive one (Hawley, 2003; Leenders & Brugman, 2005). One of the reasons for these inconsistent data may be that children's moral judgments represent more a cognitive than a motivational aspect of children's morality. Understanding what others acknowledge as fair or unfair does not necessarily create a personal obligation to act accordingly. Another reason for the inconsistencies may be that many of these studies did not take into account that moral reasoning is contextualized, as Turiel and colleagues elaborated on within domain theory (Smetana, 2006; Turiel, 2006). For example, in a study by Astor (1994), aggressive children judged retaliation as more justifiable than did nonaggressive children, even though the two groups did not differ in their moral reasoning about unprovoked transgressions. Thus, we took into account the contextual nature of reasoning and investigated the context-specific relation between moral reasoning and social behavior. Thus, we distinguished moral reasoning in the context of moral judgments from moral reasoning in the context of emotion attributions. Our previous research indicates that children's reasoning differs in these two contexts (Malti & Keller, 2007). We also examined the effects of two different transgression types (prosocial morality versus fairness) on moral reasoning, as research has shown that these norms are associated with different types of justifications (e.g., Nunner-Winkler, 1999).

Research in the happy-victimizer tradition has demonstrated that children's justifications of emotion attributions vary according to the kinds of moral transgression involved. For example, children are less likely to give moral reasons for their emotion attributions in the context of positive duties (e.g., not sharing) than in that of negative duties (e.g., stealing; Nunner-Winkler, 1999). Further, the justification of emotion attributions, in

particular, seems to reflect the underlying motive for the anticipated emotional consequences, namely, the type of motivation (Nunner-Winkler, 1999). Moral justifications of moral judgments after rule transgressions, however, seem to express more the understanding of the validity of moral norms, which has been shown to be present from an early age (Nunner-Winkler, 1999; see Nucci, 2001, and Turiel, 1998, for reviews). Our study therefore was intended to investigate context-dependent moral reasoning in the happy-victimizer task and the relation between this moral reasoning and children's social behavior. This objective is important, because the studies cited above indicate that the arguments of aggressive children may be deficient compared to those of prosocial children, perhaps especially in contexts such as emotion attributions, but not necessarily moral evaluations.

This last assumption is supported by three studies. First, Malti and Keller (2007) found that moral reasoning in the context of emotion attributions negatively predicted elementary-school children's externalizing behavior, whereas moral reasoning pertaining to rule validity was unrelated to externalizing behavior. Second, a study by Woolgar, M. Steele, H. Steele, Yabsely, and Fonagy (2001) revealed that kindergarten childrens' punishment justifications of emotion attributions modestly predicted cheating behavior. Third, Gasser and Keller (in press) reported that children involved in bullying were less likely than uninvolved prosocial children to give moral reasons for their self-attributed emotions; however, bullies and controls did not differ in their moral justifications of moral evaluations.

Prosocial behavior has been shown to be associated with more differentiated levels of moral reasoning (e.g., Miller, Eisenberg, Fabes, & Shell, 1996). Nonetheless, we know of no studies on the relation between context-dependent moral reasoning in the happy-victimizer paradigm and prosocial behavior. The analysis of justifications in two different contexts (evaluations of moral rule validity and emotion attributions to self) is thus particularly useful for investigating further the specific reasoning patterns of children exhibiting social actions of differing moral quality. As children under the age of 7 seem often to justify emotion

attributions in terms of hedonistic self-interest (Nunner-Winkler & Sodian, 1988), age-specific relations between moral reasoning and aggressive or prosocial behavior seem plausible.

To briefly sum up, the present study examined two research questions. First, how do aggressive and prosocial children evaluate moral rule violations and attribute emotions to the self-as-victimizer? Based on previous findings (Malti, 2007; Malti & Keller, 2007), we expected that all the children would understand the validity of moral rules and evaluate their violation as morally wrong, but that aggressive children would attribute negative emotions less frequently than prosocial children. Second, do aggressive children justify moral rule violations and emotion attributions differently than prosocial children? As previous studies have shown that moral reasoning in the happy-victimizer task is context-dependent, we hypothesized that aggressive children may, particularly in their emotion attributions, refer to hedonistic factors more often than prosocial children, but that all children understand (cognitively) that rule transgressions are wrong and justify the rule with moral arguments. We compared pure aggressive and prosocial children in this study, as comparisons between these groups may clarify aggressive children's specific deficits (Waren and Mackinnon, 2003). Teacher ratings were used to identify children involved in bullying and prosocial children. Teacher ratings have been shown to be reliable and valid measures to assess aggression and prosocial behavior in kindergarten and young primary school children (e.g., Ladd & Kochenderfer, 2002).

Furthermore, we were interested in ascertaining whether possible differences between aggressive and prosocial children's emotion attributions and moral reasoning are dependent on the type of transgression involved and/or the child's sex (Turiel, 2006; Walker, 2006). We therefore used two types of transgression, which differed in both context (i.e., positive versus negative duty) and strength. Sex differences were explored because studies have shown that girls are perceived as more prosocial and less aggressive than boys (Coie & Dodge, 1998;

Eisenberg et al., 2006), and that boys attribute fewer moral emotions than girls (Malti & Keller, 2007). Finally, the above research questions were addressed in a sample of kindergarten and elementary school children. As the transition from kindergarten to elementary-school age involves important changes in children's emotion attributions and moral reasoning (e.g. Keller et al., 2003; Nunner-Winkler & Sodian, 1988), we were interested in exploring the age-specific relation of children's emotion attribution and moral reasoning to their aggressive and prosocial behavior.

Method

Participants

The participants were 872 Swiss kindergarten children (49.8% girls; Mean age: 6.2, *SD* = 0.20) and their kindergarten teachers, as well as 624 Swiss first- and second-grade elementary school children (50.2% girls, Mean Age: 7.6; *SD* = 0.6) and their teachers. Written parental consent for the children's participation was obtained. The kindergarten sample was representative of the German- and French-speaking parts of Switzerland and was drawn from the first wave of a longitudinal study on children's social development (Buchmann et al., 2007). The elementary-school sample was drawn from a cross-sectional study of children's social development in the German-speaking part of Switzerland (Gasser, 2007). Preliminary analyses showed that the German- and French-speaking kindergarten children did not differ on any of the study variables, thus ensuring that the results of the study would not be biased by language region.

Regarding socioeconomic background (SES), 17% of the primary caregivers in the kindergarten sample had little or no secondary education, 63% had vocational training in college or a baccalaureate degree, and 19% had a higher vocational diploma or a university degree. In the elementary school sample, approximately 19% of the primary caregivers had little or no secondary education and 21% of the primary caregivers had a higher vocational diploma or a university degree.[1] Thus, the socioeconomic composition of the two samples was

representative of Switzerland (Hermann, Heye, & Leuthold, 2005). Likewise, the ethnicity ratios were almost identical in the two samples: 80% of the primary caregivers in the kindergarten sample were of Swiss nationality, 18% percent were of other European nationalities, and 2% were of non-European nationalities. In the elementary-school sample, 83% of the primary caregivers were of Swiss nationality, 14% were of other European nationalities, and 3% were of non-European nationalities.

Measures

A pilot study with 214 six-year-old kindergarten children was conducted to make sure that the optimal interview techniques were used for the child interviews. We also aimed to ensure that all questions asked in the child interviews were age-appropriate and suitable for children from varying social backgrounds.

Aggressive and Prosocial Behavior. Children's aggressive and prosocial behavior was rated by the teachers. For overt aggressive behavior, three items from Perren and Alsaker (2006) were used (for example, "The child bullies other children."). Prosocial behavior was measured using three items from the Strength and Difficulties Questionnaire (SDQ; Goodman, 1997); for example, "The child is helpful if someone is hurt, upset or feeling ill." The teachers answered the items on a 6-point-rating scale ranging from 1 (not at all) to 6 (very much). The original scales consisted of four items for the aggressive scale and five items for the prosocial scale, respectively. The pilot study, however, indicated comparably good reliability with three items for each scale (Buchmann et al., 2007).

For the aggression scale, Cronbach's α was .83 for the kindergarten sample and .80 for the elementary-school sample. For the prosocial behavior scale, Cronbach's α was .84 for the kindergarten sample and .78 for the elementary-school sample.

For further analyses, two subgroups of children (aggressive and prosocial) were created as follows. Children with an aggression score more than one standard deviation above the sample mean and a prosocial behavior score more than one standard deviation below the

sample mean were assigned to the aggression group. Children with a prosocial behavior score more than one standard deviation above the sample mean and an aggression score more than one standard deviation below the sample mean were assigned to the prosocial group. Thus, after the categorization, no child in the aggressive category was also in the prosocial category, and vice versa. This categorization was made because we were interested in the particular moral strengths and deficiencies of children displaying different kinds of social behavior. We reasoned that restricting the analysis to groups representing the "pure" types of this behavior would be particularly useful to identify differences in their moral antecedents.

Although it has been controversially discussed if aggressive and prosocial behavior are theoretically distinct or just the opposite ends of a single behavioral dimension (e.g., Caprara, Barbaranelli, & Pastorelli, 2001; Krueger, Hicks, & McGue, 2001), our data indicate that teachers perceive these two dimensions as related. The overall correlation between aggression and prosocial behavior was $r(872) = -.34$, $p < .001$ in the kindergarten sample, and it was $r(624) = -.50$, $p < .001$ in the elementary school sample, respectively.

The final kindergarten sample consisted of 235 children with a mean age of 6.2 (SD = 0.20). Of these, 137 were categorized as prosocial (111 girls, 26 boys) and 98 as aggressive (35 girls, 63 boys). The final elementary-school sample consisted of 136 children with a mean age of 7.6 (SD = 0.67). The prosocial subgroup contained 59 children (47 girls, 12 boys), and the aggressive subgroup contained 77 children (21 girls, 56 boys). The gender imbalance in the aggressive and prosocial subgroup resonates with previous findings. According to the Surgeon General's Report, prevalence rates for boys' conduct disorder are higher than for girls (U.S. Department of Health and Human Services, 1999; see also Coie & Dodge, 1998). Likewise, research indicates gender differences (favoring girls) in prosocial behavior, although the magnitude of gender differences varies with the type of prosocial behavior investigated and with the informant (see Eisenberg & Fabes, 1998, and Eisenberg, Spinrad, & Sadovsky, 2006, for reviews). For the simple forms of altruistic helping as assessed here,

research supports ample gender differences across informants and measures. For example, in two recent longitudinal studies, girls were rated as more prosocial then boys in general by both teachers and mothers. Likewise, girls showed more prosocial behavior in a prosocial sharing situation (i.e., the dictator game) than boys (Malti et al., in press; see also Leman, Keller, Takezawa, & Gummerum, in press). Furthermore, Zakriski, Wright, and Underwood (2005) documented that girls displayed a higher level of prosocial behavior than boys when observed in everyday social interactions Thus, the gender imbalance in the aggressive and prosocial subgroup seems to indicate actual differences between girls and boys in simple forms of prosocial behavior.

Emotion Attributions and Moral Reasoning. Two stories describing different types of moral rule transgressions were used to assess children's emotion attributions and moral reasoning: "not sharing" and "stealing." These stories have been frequently used in happy-victimizer studies and have been shown to be valid (Eisenberg, 1982; Keller et al., 2003; Nunner-Winkler & Sodian, 1988). The sharing story involves the temptation to shirk performance of a positive duty, whereas the stealing story is a simple negative duty (Nunner-Winkler, 1999). Both vignettes reliably assess children's morality, as they both refer to universal moral principles: caring in the sharing story, and fairness in the stealing story. We illustrated the stories by a three-frame sequence of sex-matched cartoons, and order of story presentation was counterbalanced across participants. In the first story (stealing), a child (victim) leaves its jacket with a nice chocolate bar in the kindergarten/school hall (cartoon 1). Another child (victimizer) takes the chocolate bar (cartoon 2). In cartoon 3, the first child (victim) realizes that the chocolate bar has been stolen. In the second story (not sharing), two children sit next to each other in a kindergarten/school room, and one child (victimizer) is drawing a picture. The other child (victim) asks for a pen, but the first child (victimizer) refuses (cartoon 1). After listening to the stories, the children were asked the following questions: (1) Evaluation of rule validity: "Is it right to do what the protagonist (victimizer)

did? Why/why not?" (2) Emotion attribution to self-as-victimizer: "How would you feel if you had done that? Why would you feel that way?"

The first question assessed children's moral evaluation of the rule's validity, and answers to this question were coded as "right" (e.g., "it's right that he took the chocolate") and "wrong" (e.g., "it's wrong that he took the chocolate"). Question 2 addressed the attribution of emotions to self-as-victimizer. The attributed emotions were coded as "positive," "negative" (moral emotions), or "mixed". As "mixed" responses occurred very rarely (1%), they were combined with the "negative" responses for statistical analysis. Positive emotion attributions were scored 0 and mixed/negative emotion attributions were scored 1. Two independent raters coded 15% of the protocols; the interrater agreement for the emotion attributions was $\kappa = 1.00$.

Coding of Moral Reasoning. Children's justifications of their moral evaluations and self-attributed emotions were classified by a coding system validated in previous studies (e.g., Lourenço, 1997). *Moral reasons* refer to moral norms, rules, and obligations (e.g., "It is unfair,") as well as to the victim's welfare (e.g., "The victim will be very sad"); *hedonistic reasons* refer to the satisfaction of personal needs (e.g., "She can eat the chocolate, and she loves chocolate"); *sanctions-oriented reasons* refer to an authority or sanctions by that authority (e.g., "His mother will be mad at him"); *undifferentiated reasons* are unelaborated (e.g., "He has so many pens"; "She did it"). All responses were probed, and the argument after probing was coded. As children mentioned more than one justification very infrequently after probing, only one argument was coded.[2] For example, if a child initially responded with "It is not right" and then after probing said "because you should not steal," the second argument was coded as moral if the child also after probing responded with "because it is not right," this argument was also coded as moral, because it represents a naïve moral concept (Keller, 1996; Nunner-Winkler, 1999). In contrast, if after probing a child answered "because the teacher will find out and you will get into trouble," this response was coded as sanction-

oriented. In the very rare cases that after coding the child in effect repeated the initial answer or gave no additional answer at all, the initial argument was coded. The mean proportion of responses coded for each type of justification was obtained. Two independent raters coded 15% of the protocols; the interrater agreement for these was $\kappa = .92$.

Procedure

The children were individually interviewed in a quiet room. The kindergarten children were individually interviewed in a room at home via a computer-assisted personal interview (CAPI). The elementary-school children were interviewed in a separate room away from the classroom in their school. Both sets of interviews lasted an average of 30 minutes. The interviews in the latter sample were tape-recorded and subsequently transcribed. The interviewers were trained professionals who had received intensive training in the interview method. Approximately 70 interviewers participated.

Results

Preliminary analyses with arcsin-transformed scores were conducted on all proportional data to normalize the distributions (Winer, Brown, & Michels, 1991). As these results did not differ from those with untransformed scores, the results presented here are based on the latter. The analyses were performed using mixed analyses of variance (ANOVAs) with age, sex, and behavioral status (aggressive vs. prosocial) as the between-group variables, and transgression type (stealing vs. not sharing) as repeated measures. ANOVA has been found to be robust for analyses with dichotomous data (Gaito, 1980).[3]

Moral Evaluations and Emotion Attributions of Aggressive and Prosocial Children

Means and standard deviations for aggressive and prosocial children's moral evaluations and emotion attributions by age group are shown in Table 1.

Two ANOVAs—2 (Age) x 2 (Behavioral status) x 2 (Transgression type: stealing vs. not sharing), with transgression type as the repeated measure—were performed on children's mean moral evaluations and emotion attributions. Preliminary analyses indicated no

significant main or interaction effects of gender, and gender was therefore not included in the final analyses.

The analysis of moral evaluations revealed a main effect of transgression type, indicating that children evaluated not sharing as less wrong than stealing, $F(1, 358) = 10.88$, $p < .001$, $\eta_p^2 = .03$ (see Table 1).

The analysis of emotion attributions revealed a significant main effect of age, $F(1, 328) = 27.68$, $p < .001$, $\eta_p^2 = .08$, indicating that older children attributed more negative emotions to self than did younger children (see Table 1). Furthermore, children predicted feeling worse when stealing than not sharing, $F(1, 328) = 4.39$, $p < .04$, $\eta_p^2 = .01$. This main effect, however, was qualified by an age x transgression type interaction, $F(1, 328) = 8.81$, $p < .01$, $\eta_p^2 = .01$, indicating that the two transgression types differed only for younger children, $t(226) = -3.93$, $p < .001$, Cohen's $d = .45$: Older children were generally more likely than younger children to attribute negative emotions in both stories, $t(270) = 1.07$, *ns* (see Table 1). Finally, there was a significant age x behavioral status interaction, $F(1, 328) = 3.89$, $p < .05$, $\eta_p^2 = .01$, indicating that the younger aggressive children attributed negative emotions less frequently than the younger prosocial children (*M*s = .73, .82, *SD*s = .39, .31), $t(217) = 2.02$, $p < .05$, Cohen's $d = .26$. The aggressive and prosocial groups of older children did not differ in their negative emotion attributions to self (*M*s = .95, .94, *SD*s = .19, .21), $t(132) = -0.17$, *ns.*

Moral Reasoning of Aggressive and Prosocial Children

The mean proportions of each type of justification for moral evaluations and emotion attributions by behavioral status, age, and sex are presented in Table 2.

Table 3 shows the mean proportions of prosocial and aggressive children's justifications for moral evaluations and emotion attributions by transgression type. Overall, children primarily gave moral arguments to justify their moral evaluations and emotion attributions ($M = .54$, $SD = .30$), followed by undifferentiated arguments ($M = .22$,

SD = .24), sanction-oriented arguments (*M* = .06, *SD* = .14), and hedonistic arguments (*M* = .06, *SD*s = .13).

A separate ANOVA—2 (Age) x 2 (Sex) x 2 (Behavioral status) x 2 (Transgression type: not sharing, stealing) x 2 (Context: moral evaluations and emotion attributions), with transgression type and context as the repeated measures—was performed on the mean proportions for the different justification categories. As our main focus was on the relation between moral development and social behavior, we only report below the three-way interactions that include behavioral status.

Moral Justifications. Older children referred more frequently to moral justifications than did younger children, $F(1, 363) = 66.3$, $p < .001$, $\eta_p^2 = .15$ (see Table 2). One of the significant main effects of sex revealed that girls gave moral reasons more frequently than boys, $F(1, 363) = 7.82$, $p < .01$, $\eta_p^2 = .02$ (see Table 2). There was also a significant main effect of transgression type, $F(1, 363) = 8.58$, $p < .01$, $\eta_p^2 = .02$, indicating that children gave moral justifications more frequently with the stealing story than with the not-sharing story. These effects were qualified by a significant transgression type x sex interaction, $F(1, 363) = 3.85$, $p = .05$, $\eta_p^2 = .01$: Girls were more likely than boys to give moral reasons with the not-sharing story (*M*s = .57, .44, *SD*s = .38, .37), $t(369) = 3.33$, $p < .01$, Cohen's $d = 0.35$. There was also a significant main effect of context, $F(1, 363) = 150.5$, $p < .000$, $\eta_p^2 = .29$, indicating that children gave moral justifications more frequently in the context of moral evaluations than in the context of emotion attributions (*M*s = .73, .35, *SD*s = .34, .40).

Sanction-oriented Justifications. A significant main effect of transgression type revealed that the children were more likely to refer to sanctions with the stealing story than with the not-sharing story, $F(1, 363) = 14.37$, $p < .001$, $\eta_p^2 = .04$ (see Table 3). We also found a significant main effect of justification context, $F(1, 363) = 16.78$, $p < .001$, $\eta_p^2 = .04$, indicating that children were more likely to focus on sanctions when justifying emotion

attributions than when justifying moral evaluations (see Table 3). However, these main effects were qualified by a transgression type x context interaction, $F(1, 36\ 3) = 7.09$, $p < .01$, $\eta_p^2 = .02$, which itself was qualified by a transgression type x context x behavioral status interaction, $F(1, 363) = 4.39$, $p < .05$, $\eta_p^2 = .01$. Post-hoc tests revealed that aggressive children gave sanction-oriented reasons to justify their emotion attributions more often with the stealing story than with the not-sharing story ($p < .001$). Further, there was an age x behavioral status x context interaction, $F(1, 363) = 4.39$, $p < .04$, $\eta_p^2 = .01$: When evaluating the moral rule transgressions as wrong, the younger aggressive children were more likely than the younger prosocial children to provide sanction-oriented reasons (*M*s = .05, .01, *SD*s = .29, .16, $p < .04$), whereas no such difference was found for the older age group (*M*s = .04, .03, *SD*s = .30, .23, *ns*).

Hedonistic Justifications. The younger children focused more on the personal gains achieved by the moral transgressions than did the older children, $F(1, 363) = 5.58$ $p < .02$, $\eta_p^2 = .02$ (see Table 2). A main effect of context revealed that the children were more likely to give hedonistic reasons to justify their emotion attributions than to evaluate the validity of the moral rule, $F(1, 363) = 9.32$, $p < .003$, $\eta_p^2 = .03$ (see Table 3). Furthermore, there was an age x behavioral status x transgression type interaction, $F(1, 363) = 3.90$, $p < .05$, $\eta_p^2 = .02$. Post-hoc tests revealed that with the not-sharing story, the younger prosocial children were more likely to give hedonistic reasons than the older prosocial children (*M*s = .03, .09, *SD*s = .23, .12, $p < .04$), whereas with the stealing story, no significant group difference occurred (*M*s = .07, .02, *SD*s = .17, .11, *ns*).

Undifferentiated Justifications. A significant main effect of sex revealed that boys provided undifferentiated rationales more frequently than girls, $F(1, 363) = 8.19$, $p < .02$, $\eta_p^2 = .02$ (see Table 2). This main effect was qualified by an age x sex interaction, $F(1, 363) = 5.43$, $p < .03$, $\eta_p^2 = .02$: Only the older boys and girls differed in their undifferentiated

arguments, $t(134) = 3.89$, $p < .001$, Cohen's $d = .66$ (see Table 2). Furthermore, a main effect of transgression type revealed that the children were more likely to give undifferentiated justifications with the not-sharing story than with the stealing story, $F(1, 363) = 5.91$, $p < .02$, $\eta_p^2 = .02$ (see Table 3). Moreover, children reasoned more frequently in an undifferentiated fashion in the context of emotion attributions than in the context of moral evaluations, $F(1, 363) = 14.28$, $p < .001$, $\eta_p^2 = .04$ (see Table 2). This main effect was qualified by an age x context interaction, $F(1, 363) = 9.93$, $p < .002$, $\eta_p^2 = .03$, indicating that the younger children gave undifferentiated justifications more frequently than the older children in the context of moral evaluations, $t(369) = -4.50$, $p < .001$, Cohen's $d = .50$, but not in the context of emotion attributions, $t(369) = .84$, *ns* (see Table 2).

Discussion

In the present study, we analyzed different components of morality (i.e., evaluations of moral rule validity, emotion attributions, and justifications of both) in aggressive compared to prosocial children. This analytic strategy is based on the proposition that a more differentiated understanding of the moral strengths and deficits involved in children's (im)moral actions can only be reached by considering different components of morality (Arsenio & Lemerise, 2004). This knowledge is important for designing prevention strategies aimed at promoting aggressive children's moral resilience and adaptive development (cf. Malti & Noam, in press). So far, there has been little research comparing aggressive and prosocial children on emotion attributions and moral reasoning. The current study was intended to partly fill this research gap by examining two research questions. The first question asked how aggressive and prosocial children evaluate moral rule violations and attribute emotions to the self-as-victimizer; the second question asked how aggressive and prosocial children reasoned morally in the context of moral evaluations and emotion attributions.

The younger aggressive children attributed fewer negative (moral) emotions to the self than did the younger prosocial children. This finding supports the modicum of previous research on the negative relation between aggression and self-attributed moral emotions in adolescence (Krettenauer & Eichler, 2006) and childhood (Malti, 2007). Indirectly, the finding is in line with studies documenting a negative relation between children's aggressive behavior and other moral emotions, namely, empathy and guilt (e.g., Hastings, Zahn-Waxler, Robinson, Usher, & Bridges, 2000; Kochanska, Gross, Lin, & Nichols, 2002), as well as with research documenting the role of moral emotions in children's prosocial behavior (Eisenberg, Spinrad, & Sadovsky, 2006). As attributions of moral emotions in the happy-victimizer paradigm are conceptualized as an indicator of the strength of the children's moral motivation (Nunner-Winkler, 1999), this finding highlights the significant role of moral motivation in children's aggressive and prosocial behavior (cf. Malti et al., in press). Surprisingly, however, we did not find a relation between social behavior and emotion attributions in the older age group. On the one hand, children may increasingly learn to give socially desirable answers, given their growing understanding of mental states during the elementary-school years (e.g., Carpendale & Chandler, 1996). Thus, emotion attributions in elementary-school children may lose their predictive validity for moral motivation (Nunner-Winkler, 1999). On the other hand, it may be argued that the moral status of emotion attributions is somehow ambiguous. The motive behind a negative emotion attribution is not necessarily moral; instead, children may sometimes have self-centered reasons for anticipating and feeling negative emotions after moral transgressions (cf. Eisenberg, 2000). From this viewpoint, one might argue that it is only through the justification of emotion attributions that the moral quality of the underlying motive becomes completely apparent (Gasser & Keller, in press; Nunner-Winkler, 1999). It thus seems important to include children's moral reasoning about their emotion attributions in analyzing moral antecedents of aggressive and prosocial behavior. This argument is

particularly relevant to older children, because the diversity of justifications increases with age (Keller, Edelstein, Schmid, Fang, & Fang, 1998).

The younger aggressive children were more likely than the younger prosocial children to give sanction-oriented reasons when evaluating the moral rule transgressions as wrong. This finding can be explained by cognitive-developmental theory. In this tradition, externalizing behavior and moral misconduct are associated with a delay in cognitive moral developmental and are referred to as *egocentric bias* (Gibbs, 2003; Kohlberg, 1976; Piaget, 1965). This egocentric bias is reflected in fewer moral and a greater number of hedonistic or sanction-oriented justifications for morally relevant evaluations and emotion attributions (cf. Guerra, Nucci, & Huesmann, 1994). This view has been supported empirically. For example, in a study by Arsenio and Fleiss (1996), aggressive children referred to the desirable gains from rule transgressions more frequently than did nonaggressive children. Several studies have supported this link between undifferentiated moral reasoning and externalizing behavior (e.g., Huesmann & Guerra, 1997; Hughes & Dunn, 2000; Murray-Close, Crick, & Galotti, 2006; see Stams et al., 2006, for a recent meta-analysis on juvenile delinquents' moral judgments), whereas other studies have shown an apparent relation between prosocial behavior and more mature moral reasoning (Knight, Johnson, Carlo, & Eisenberg, 1994; Miller et al., 1996). As children's sanction-oriented justifications decrease over the course of time (cf. Keller et al., 1998), younger aggressive children may experience a longer delay than prosocial children in this normative developmental process.

Furthermore, the older prosocial children were less likely than the younger prosocial children to give hedonistic reasons with the not-sharing story. Perhaps children who behave prosocially may become less hedonistic in their justifications in the context typical of prosociality (i.e., sharing), as their prosocial disposition becomes more consistent and less situation-dependent over time. This interpretation is, however, rather speculative, and longitudinal research is needed to investigate this question further.

Besides the results of the hypothesis tests several other findings were of interest in our study. The older children attributed more negative emotions to self than the younger children, and they made more use of moral justifications than the younger children. Vice versa, the younger children focused more than the older children on the hedonistic gains achieved by the moral transgressions. These findings support the view that moral cognitions develop over time; morally less mature justifications decrease and justifications related to moral principles increase (Edelstein, Keller, & Schröder, 1990; Keller et al., 1998).

With regard to context effects, we confirmed previous research in the happy-victimizer paradigm showing that although almost all the children understood the validity of the rules and evaluated the rule violations as wrong, they did not all attribute negative emotions to the self-as-victimizer (Lourenço, 1997; Nunner-Winkler & Sodian, 1988). Furthermore, children were more likely to give moral reasons when justifying their moral evaluations than when justifying their emotion attributions. They were, however, more likely to focus on sanctions or undifferentiated arguments in their justifications of emotion attributions than in their justifications of moral evaluations. These differences may imply that in the context of rule evaluations, moral justifications of emotion attributions develop later than moral justifications, which children seem to acquire at a young age. In addition to this context-dependency, we also found that children treated the two moral transgressions (not sharing vs. stealing) differently: Children evaluated stealing more negatively than not sharing. Furthermore, children gave moral reasons to justify their moral evaluations, and sanction-oriented reasons to justify their emotion attributions to self, more frequently with the stealing story than with the not-sharing story. Finally, they were more likely to give undifferentiated reasons with the not-sharing story. These effects of transgression type indicate that children considered stealing to be a stronger moral rule violation than not sharing, and they confirm previous research showing that negative duties (i.e., not stealing) are experienced as more obligatory than positive duties (i.e., sharing; Nunner-Winkler, 1999).

We also found sex differences in moral reasoning. Whereas girls focused more on moral reasons than boys, boys provided more undifferentiated rationales than girls. These findings are in line with those of other studies. For example, girls of elementary-school age cited hedonistic concerns less often and empathic concerns more often than did boys (Malti & Keller, 2007; cf. Kochanska, Padavich, & Koenig, 1996). These sex differences in moral development can be explained by the fact that girls are frequently more relationship-oriented than boys (Maccoby, 1990), which may foster faster development of decentration and an orientation towards the needs of others.

Although the findings of the present study provide new insights into the moral antecedents of children's social behavior, several limitations must be noted: First, we did not specify the context of the rule violation further. As differing contexts, such as provocation and retaliation, seem to influence moral judgments (Turiel, 1998; Smetana, Campione-Barr, & Yell, 2003), examining emotion attributions and moral reasoning, as well as their relation to aggressive and prosocial behavior, in different contexts might be warranted. Second, we measured only overt aggressive behavior, but we did not differentiate between subtypes, namely, instrumental and reactive aggression (Vitaro, Brendgen, & Barker, 2006). As previous research has shown that different subtypes of aggression sometimes relate differently to social cognitions (e.g., Crick, Grotpeter, & Bigbee, 2002), it would be beneficial in future studies to investigate how different subtypes of aggressive behavior relate to emotion attributions and moral reasoning. Third, the design of the study was exclusively cross-sectional. Although our analytic focus was on how children with aggressive and prosocial behavior attribute emotions to self and how they argue in the context of moral rule violations, it is possible that both aggressive and prosocial children show typical intra-individual developmental patterns in these contexts. For example, early aggression may be associated with later hedonistic reasoning, thus enabling these children to reduce cognitive dissonance for their own immoral behavior by, for example, minimizing its negative consequences for the

victim afterwards (cf. Leenders & Brugman, 2005). Future research based on our study will help shed light on these complex developmental processes related to the genesis of stable individual differences in children's aggressive and prosocial behavior. Finally, we used dichotomous variables as the dependent variables in our ANOVAs. Although ANOVA has been found to be robust for analyses with dependent dichotomous variables (Gaito, 1980; Lunney, 2005), it violates some of the ANOVA assumptions (e.g., normal distribution of residuals), and the appropriateness of its use has therefore been controversially discussed in the literature.

Despite these limitations, the present study points to the importance of studying emotion attributions and moral justifications in the development of individual differences in children's aggressive and prosocial behavior. Further research is needed to validate these findings. In particular, longitudinal investigations of children's emotion attributions and moral reasoning, as well as their relations to social behavior, may enhance our understanding of the genesis of moral resilience and potential precursors of the moral self in childhood (Keller, 2004). Likewise, such research may help us develop additional strategies for promoting social adaptation in aggressive children (Malti & Perren, 2008).

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Footnotes

[1]In the kindergarten sample, information on SES was provided by the primary caregivers. In the elementary school sample, the estimate was based on socioeconomic information provided by the Swiss Federal Office of Statistics about the types of community in which the parents lived.

[2] Although studies in other countries have found that children frequently mention more than one reason, some researchers have found that Swiss children often give only one argument (e.g., Gasser, 2007). This may be due to socialization differences and/or the fact that younger children in Switzerland are frequently rather quiet and restrained in interview situations. For this reason, particular attention was paid in the interviewer training sessions to how the relationship between the child and the interviewer is established.

[3] An alternate approach is to use log-linear models. These, however, lead to serious estimation problems in the case of empty cells, which in the present study sometimes occurred in children's justifications. Empty cells violate an important assumption of log linear models, as the log of zero is undefined. ANOVA can handle this estimation problem, because minimal variance is sufficient to calculate means and generate estimates.

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Table 1

Means (Standard Deviations) for Aggressive and Prosocial Children's Moral Evaluations and Emotion Attributions by Story Context and Age Group

	Aggressive children (*n* = 166)			Prosocial children (*n* = 205)		
	Not Sharing	Stealing	*M*	Not Sharing	Stealing	*M*
Moral evaluations						
Younger	.91 (.29)	.98 (.15)	.96 (.14)	.90 (.30)	.96 (.20)	.93 (.20)
Older	.97 (.16)	1.00 (.00)	.99 (.08)	.91 (.28)	1.00 (.00)	.94 (.18)
Emotion attributions						
Younger	.67 (.48)	.77 (.42)	.73 (.39)	.76 (.43)	.88 (.33)	.82 (.31)
Older	.95 (.23)	.95 (.23)	.95 (.19)	.95 (.22)	.93 (.25)	.94 (.21)

Table 2

Proportions (Standard Deviations) of Aggressive and Prosocial Children's Justifications for Moral Evaluations and Emotion Attributions by Age Group and Sex

	Moral evaluations				Emotion attributions			
Justifications	Aggressive		Prosocial		Aggressive		Prosocial	
Moral	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys
Younger	.56 (.33)	.57 (.35)	.74 (.34)	.59 (.37)	.23 (.32)	.18 (.29)	.28 (.39)	.24 (.31)
Older	.86 (.28)	.83 (.29)	.96 (.14)	.75 (.34)	.60 (.46)	.42 (.41)	.66 (.38)	.54 (.45)
Sanction								
Younger	.08 (.18)	.03 (.12)	.01 (.07)	.03 (.12)	.12 (.21)	.08 (.24)	.08 (.23)	.14 (.26)
Older	.02 (.11)	.04 (.17)	.02 (.10)	.04 (.14)	.17 (.37)	.13 (.18)	.11 (.25)	.00 (.00)
Hedonistic								
Younger	.02 (.10)	.04 (.16)	.03 (.12)	.07 (.21)	.13 (.23)	.10 (.26)	.09 (.23)	.09 (.19)
Older	.02 (.11)	.01 (.07)	.00 (.00)	.00 (.00)	.02 (.11)	.02 (.09)	.01 (.07)	.08 (.19)
Undifferentiated								
Younger	.29 (.32)	.27 (.30)	.16 (.27)	.23 (.31)	.25 (.35)	.29 (.36)	.25 (.34)	.23 (.33)
Older	.10 (.26)	.12 (.25)	.01 (.07)	.21 (.33)	.17 (.29)	.39 (.38)	.19 (.32)	.38 (.38)

Table 3

Proportions (Standard Deviations) of Aggressive and Prosocial Children's Justifications for Moral Evaluations and Emotion Attributions by Transgression Type

	Moral evaluations				Emotion attributions			
	Aggressive		Prosocial		Aggressive		Prosocial	
Justifications	Not sharing	Stealing	Not sharing	Stealing	Not sharing	Stealing	Not sharing	Stealing
Moral	.64 (.48)	.74 (.44)	.70 (.46)	.82 (.38)	.31 (.46)	.33 (.47)	.35 (.48)	.41 (.49)
Sanction	.04 (.20)	.04 (.20)	.01 (.12)	.02 (.14)	.05 (.23)	.17 (.38)	.06 (.24)	.12 (.33)
Hedonistic	.04 (.19)	.01 (.11)	.05 (.22)	.01 (.10)	.07 (.25)	.07 (.26)	.08 (.28)	.06 (.24)
Undifferentiated	.22 (.41)	.18 (.39)	.16 (.37)	.12 (.33)	.31 (.47)	.29 (.45)	.27 (.44)	.21 (.41)