Children's Moral Motive Strength and Temperamental Inhibition Reduce Their Immoral Behavior in Real Moral Conflicts

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ASENDORPF, JENS B., and NUNNER-WINKLER, GERTRUD. *Children's Moral Motive Strength and Temperamental Inhibition Reduce Their Immoral Behavior in Real Moral Conflicts.* CHILD DEVELOPMENT, 1992, **63**, 1223–1235. This study is concerned with the prediction of interindividual differences in children's immoral behavior in real moral conflicts by moral motive strength (appropriate attribution of moral emotions to story characters), temperamental inhibition, and ego control. Children were tempted to cheat at age 6 when they felt unobserved, or to contend for a scarce resource in peer triads at age 7. Moral motive strength and inhibition, but not ego control, predicted low cheating and low nonverbal rivalry to a similar extent. Extreme group analyses of children low or high in both traits showed that cheating/noncheating could be predicted with a hit rate above 90%. Nonverbal rivalry in a group increased exponentially with the number of low-moral uninhibited children in the group, a finding replicated within the same sample. Discussion focuses on the influence of moral motive strength, temperamental inhibition, ego control, and their interaction on the reduction of immoral behavior.

This study is concerned with the prediction of interindividual differences in children's immoral behavior in real moral conflict situations involving a clash between a personal desire and moral rules. Children's knowledge and understanding of moral rules as well as their readiness to abide by these rules should be expected to play a major role in determining behavior in such situations. According to the perspective espoused by Kohlberg (e.g., 1981), a parallel between cognitive and affective processes is assumed in moral development. In preconventional children, an instrumental understanding of moral rules is expected to be accompanied by a primarily instrumental motive for conformity to norms. Thus, it should be possible to predict children's moral motivation and behavior from their cognitive understanding of moral rules. In contrast, we suggest that there may be considerable discrepancies between moral judgment and moral motivation during early childhood (Nunner-Winkler, 1989, in press; Nunner-Winkler & Sodian, 1988a), and that truly moral behavior (i.e., behavior motivated by the wish to do what is right rather than by fear of punishment) can be found even in preconventional children.

Nearly all children from very early on adequately understand the intrinsic validity of moral rules (see Turiel, 1983). However, Nunner-Winkler and Sodian (1988a) have shown that, despite this knowledge, most 4-year-old, about half of 6-year-old, and still about 10% of 8-year-old children expect that a child who satisfies his or her own needs by transgressing a moral rule will feel good. Furthermore, interindividual differences in this outcome-oriented, amoral emotion attribution have been shown to be consistent across different types of moral situations and to be independent of intelligence (Nunner-Winkler & Sodian, 1988b).

Our central hypothesis is that the extent to which children attribute emotions in a morally appropriate way to hypothetical pro-

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tagonists in moral conflict is a good empirical indicator of the strength of children's moral motive, that is, for their readiness to abide by the moral rules they understand to be valid. Children who attribute morally appropriate emotions to hypothetical wrongdoers for a wide variety of moral conflict situations are assumed to have a strong moral motive; children who attribute morally inappropriate or no moral emotions despite a full understanding of the moral rules are expected to have only a weak moral motive.

This expectation is based on the assumption that emotions are global and immediate judgments about those aspects of a situation that are of special importance to the subject (Scherer, 1984; Solomon, 1976). The attribution of regret about wrongdoing or joy about the profit gained can thus indicate the relative importance of moral versus nonmoral concerns.

The present study was aimed at providing empirical evidence for the proposal that moral emotion attribution is an index of moral motive strength by relating children's attribution of moral emotions to story characters to their immoral behavior in real moral conflict situations. Two kinds of moral conflicts were used. First, children were tempted to cheat when an adult experimenter left the child alone for a short time during a guessing game. We expected that moral motive strength would be inversely related to cheating in this situation. Second, groups of three children of the same age were given the task of resolving the distribution of a scarce resource among the group members; the resource was seeing a funny movie (see Charlesworth & Dzur, 1987, for a similar approach). A morally appropriate solution in such an interpersonal conflict is to find a fair procedure that considers everyone's interests (e.g., drawing straws to see who could see the movie); a typical nonmoral solution is to try to gain access to the resource by egoistic behavior (e.g., pushing a rival aside). We expected that moral motive strength would be inversely related to egoistic behavior in these conflicts. To test the robustness of this finding, we assessed the same children in two such triadic conflicts.

In triads consisting of familiar peers, the particular relationships among the group members should strongly influence conflict resolution and serve as an additional source of variance. However, if children are only briefly familiarized, the partners are roughly equivalent from a moral point of view (e.g., there are no special obligations toward friends). We therefore studied triads of unfamiliar peers.

When children confront unknown peers, their social behavior is strongly influenced by how inhibited or shy they are. Inhibited children only become slowly involved in social interaction with strangers (see Asendorpf, 1990, 1991; Kagan, Reznick, Snidman, Gibbons, & Johnson, 1988), and their activity (e.g., exploration) is restricted in unfamiliar nonsocial situations (Kagan, Reznick, Clarke, Snidman, & Garcia-Coll, 1984). Stable individual differences in inhibition to strangers emerge early in life (Kagan et al., 1984) and show high continuity in behavioral expression between preschool age and adulthood (Asendorpf, 1992), high stability during childhood (Asendorpf, 1990; Kagan et al., 1988), and autonomic-physiological concomitants (Kagan, Reznick, & Snidman, 1987). These characteristics suggest that individual differences in inhibition to strangers qualify as a temperamental trait (see also Kagan, 1989).

The influence of temperamental inhibition on children's behavior in moral conflict situations has not been studied thus far. If moral conflicts are such that immoral behavior requires activity (cheating, gaining access to resources), and if inhibition is aroused by situation unfamiliarity, the restricted activity level of inhibited children in these situations suggests that they will show less immoral behavior. Thus, we expected that temperamental inhibition would be negatively related to egoistic resource utilization in the triads composed of unfamiliar children.

For the cheating situation, we expected a similar, though less strong effect of inhibition, because no stranger was present when children were tempted to cheat. This situation, however, occurred in the middle of an interaction with an unfamiliar experimenter, and being left alone during testing had never happened to them before; thus, a transfer effect from the just-preceding stranger interaction was likely, and the whole situation was very unusual for the children. We expected that this moderate unfamiliarity would lead to a moderate inhibition effect on cheating.

Beyond the stranger-mediated influence of temperamental inhibition on behavior, we were interested in an additional effect. Translating a moral motive into behavior requires evaluating the actual situation for its

moral implications. Such an evaluation takes time. One effect of temperamental inhibition, aroused by situation unfamiliarity, may be to prevent the spontaneous enactment of impulses and to provide time for reflecting on the moral implications of one's behavior. Thus, temperamental inhibition may function as a "brake" on spontaneous transgressions of moral norms and as a "catalyzer" for moral reflection and action. These effects were expected to increase the unfamiliarity-mediated inhibition effect in both the cheating and the triadic conflict situations.

Finally, we expected that individual differences in impulse control beyond temperamental inhibition would be related to moral behavior. Some authors conceptualize these differences as a dimension of "ego control" (Block & Block, 1980; Krebs & Kohlberg, 1973). According to Block and Block, one pole of this dimension is characterized by "the containment of impulse, delay of gratification, inhibition of action and affect, and insulation from environmental distractors"; the opposite extreme refers to "insufficient modulation of impulse, the inability to delay gratification, immediate and direct expression of motivations and affects, and vulnerability to environmental distractors" (Block & Block, 1980, p. 43). These authors have developed a method of assessing ego control with a Q-sort procedure; this operationalization of ego control has been applied in many studies during the last decade (see, e.g., Block, Block, & Keyes, 1988; Funder & Block, 1989).

Ego control is a broadly defined construct; thus it is likely that many different specific traits underlie individual differences in ego control. One—but only one—of them is temperamental inhibition. Therefore, we expected a positive correlation of a moderate size between temperamental inhibition and ego control, and independent effects of ego control on immoral behavior in addition to inhibition effects.

To summarize our main hypotheses, we expected that moral motive strength, temperamental inhibition, and ego control would be inversely and partly independently related to children's immoral behavior both in the cheating situation and in the two triadic conflicts.

Behavior in the triadic conflict situations was influenced not only by each individual child but also by the partners. Because children were classified a posteriori in terms of moral motivation, inhibition, and ego control, experimental control of the composition of the triads was not possible. Therefore, all main analyses were conducted at the group level by distinguishing different types of triads rather than different types of individual children.

Method

Subjects

The subjects in the present study were recruited from the sample of the Munich Longitudinal Study on the Genesis of Individual Competencies (LOGIC; Weinert & Schneider, 1986) that comprises a cohort of more than 200 children who started to attend 22 different preschools in the Munich area in the fall of 1984, and whose first language was German. This is a relatively unbiased sample because the preschools were selected from a broad spectrum of neighborhoods, and more than 90% of the parents who were asked for permission gave their consent for studying their children. The data for the present study were obtained at age 4;11 (±6 months) (parental inhibition scale 1), 5;4 (moral motive assessment 1), 5;11 (cheating situation), 6;2 (teacher Q-sort), 6;11 (parental inhibition scale 2), 7;2 (moral motive assessment 2 and first triadic conflict), and 7;5 (second triadic conflict). Altogether, 153 children participated in at least one of the three moral conflict situations.

Predictor Variables

Moral motive strength.—Moral motive strength was assessed two times (at ages 5 and 7) by the same emotion-attribution task. Children were presented four picture stories depicting a same-gender protagonist in moral conflicts of different types (a negative duty: not to steal sweets; three positive duties: to share a drink with a needy child, to share an illegitimately won prize, to help a needy child). After children's understanding of the moral rule was ascertained, the experimenter made it clear that the protagonist also knew the rule but transgressed it, and that the victim was sad. Subjects were then asked how the wrongdoer felt, and why. In two stories, children were also asked to attribute an emotion to a "moral hero" (in the helping story, another protagonist who did help; in the theft story, the protagonist who later returned the stolen sweets). Thus, children made up to six emotion attributions to the characters in the four stories. These emotion attributions were coded independently by two coders as "moral" if (*a*) they were morally appropriate (i.e., if the protagonist felt bad after rule transgression or good after

rule conformity), and (*b*) they were accompanied by an adequate justification. Justifications were considered adequate if the child said that the protagonist had transgressed/followed a valid moral rule, had done something mean/good, or had hurt/helped the victim.

The intercoder agreement for the two assessments was 96% and 97%, and disagreements were resolved by consensus. All but two children who participated in the real moral conflict situations (see below) had nonmissing values in both assessments; scores for the two children with missing values in the first assessment were estimated by their scores in the second assessment.

Ego control.—Following the procedure proposed by Block and Block (1980), ego control was assessed with the California Child Q-set. A German short version (54 items) was used (Göttert & Asendorpf, 1989). Children's main preschool teacher provided the Q-sort, which was then correlated for each child with the prototypic Q-sort description of an ego controlled child; this correlation served as the child's ego control score (see Block & Block, 1980). Ego control showed a 3-week stability of .78 and a 1-year stability of .71 between ages 5 and 6 in the total LOGIC sample (see Göttert & Asendorpf, 1989).

Inhibition.—Children's inhibition toward strangers was assessed at ages 5 and 7 by the same eight-item parental scale (7-point frequency format, internal consistency .94 [age 5] and .93 [age 7]; see Asendorpf, 1990, for details). Asendorpf (1990) has shown for children in the sample for the present study that this short scale showed significant correlations in the range of .40–.60 with behavioral measures of inhibition toward adult and peer strangers (e.g., the latency to the first unsolicited utterance to the stranger, the percentage of time looking at a peer from a distance instead of playing, or the percentage of speech during the first minutes of conversing with an adult stranger).

Twelve children who participated in the real moral conflict situations were missing a value in one of the two inhibition scales. Because of the highly similar scale means, the missing score was replaced by the existing score in these cases. Nineteen additional children had missing values in both scales. These children's inhibition was estimated by the average of teacher Q-sort indices of inhibition that were obtained at ages 4;2, 5;2, and 6;2, using the German short version of the California Child Q-set that was described above (see Asendorpf, 1990, for details). These averaged Q-sort indices of inhibition correlated .52 and .43 with the parental inhibition scale at ages 5 and 7. We preferred the parental judgments to the teacher judgments because the former showed higher correlations with children's inhibited behavior toward strangers (see Asendorpf, 1990). This estimation procedure was necessary for the analysis of the triadic conflicts because otherwise the data for complete triads would have been lost due to a missing value for only one member of the triad.

Cheating Situation

After familiarization with the experimenter, the child played a game in which he or she was rewarded for guessing what kind of animal the experimenter hid under a scarf. After three trials in which the child's guesses were unsuccessful, the experimenter pretended to have forgotten some test sheets and left the room (audibly closing the double doors). Children's subsequent behavior was videotaped from behind a one-way mirror. After a maximum of 120 sec, the experimenter returned, unaware of whether the child had or had not cheated. In a posttask interview, children's understanding of a rule against cheating in this situation was explored. A total of 91 children participated in this task.

Conflict Situations

First session.—Children were assigned to triads of three unfamiliar, same-sex, and otherwise randomly selected peers. After a free-play period of 8 min with age-appropriate toys, the experimenter asked the three children to clean up the room, and set up an attractive blue box with golden stars and a small window. She explained to the children that one could see a very funny cartoon movie in this "children's cinema" by peeking through a hole in the box. Next, she showed a kaleidoscope to the children and explained its function. Then she said: "Only one of you can watch the movie because you have to peek through this hole. Another one gets the kaleidoscope, and the third one can watch the other two. Who wants to see the movie? [waits until two children volunteer] Yes, but only one of you can see the movie. You must decide on your own who can see the movie, who gets the kaleidoscope, and who just watches." This instruction was intended to induce an interpersonal conflict among the three children because they were

led to believe that they would get access to only one of the two resources, or to none. Pilot studies had shown that the "cinema" was clearly more attractive than the kaleidoscope; thus, children had to reach a decision about who would get access to resources that were clearly different in attractiveness. If children failed to solve this conflict within 30 sec, the instruction was repeated, and if they again failed after another 30 sec, the experimenter made the decision by assigning the resources according to children's expressed interest.

Nearly all children laughed when they watched the 2-min movie. This increased the attractiveness of the "cinema" even more for the two other children. When the movie was over, the experimenter repeated the instruction. This procedure induced a second conflict that had to be solved as before. No child watched the movie twice or looked through the kaleidoscope twice. When the second child had watched the movie, the experimenter established equity by assigning the children to such conditions in which they had not been before. The whole procedure was videotaped by a hidden camera. A total of 126 children participated in this session.

Second session.—Three months after the first session, the same procedure was repeated. Again, all children of a triad were unfamiliar with each other. A different funny movie was used. In order to counteract an assumption that every member of the triad would get access to the two more attractive resources, the instructions were amended as follows: "Unfortunately we have only a little time here today. In a few minutes, Mr. Asendorpf will come, and then we will have to leave the room. So please make up your minds quickly; probably not each of you will have a chance to watch the movie." Of course, Mr. Asendorpf did not come, and every child did see the movie. A total of 117 children participated in the second session (97 children in both sessions).

Posttask interview.—After each session, a posttask interview was administered individually to the children asking them to judge the fairness of the solution reached and suggest better ways of solving the conflict.

Dependent Variables

Cheating.—Children's behavior was coded as cheating if they peeked underneath the scarf or into a basket with additional animals, or if they touched the scarf. In coding touching as cheating we followed Krebs and Kohlberg (1973), who argue that from a moral perspective the decision of whether or not to cheat is critical, whereas the degree of yielding to temptation is determined by nonmoral considerations; from this view, touching indicates immoral behavior.

Of the 91 children who were administered this task, 51 cheated. Cheaters and noncheaters had identical mean IQ (Columbia Mental Maturity Scale). Three noncheaters were excluded from further analyses because they had detected the camera. Thus, among the remaining 88 subjects, there were 58% cheaters. In the posttask interview, 84% of the children explicitly stated that cheating was not allowed in that situation.

In the first assessment of moral motive strength, 96% of the children held the negative duty to be valid, and between 58% and 86% of the children held the positive duties to be valid. However, despite this understanding, the majority of these children did not attribute any adequate moral emotions to the stories. In a series of earlier studies, it was shown that young children's lack of moral emotion attributions was not due to a failure to understand moral emotion terms (Nunner-Winkler & Sodian, 1988a), nor was it correlated with IQ (Nunner-Winkler & Sodian, 1988b). Thus, this test of moral motive strength is not confounded with cognitive abilities, knowledge of moral rules, or understanding moral emotion terms.

Conflict situations.—Children's videotaped behavior in the conflict situations was transcribed into a detailed verbal description that listed both verbal and nonverbal behavior. These transcripts were independently scored by two coders. Among other variables, the following were scored separately for each of the two conflicts per session: (*a*) verbal egoistic statements ("I want to see the movie"); (*b*) nonverbal egoistic reactions, such as raising one's finger to volunteer for seeing the movie, stepping toward the movie, peeking through the hole, pushing another child away from the movie, grabbing the kaleidoscope; and (*c*) verbal potentially moral reactions, such as taking another's perspective into account during the negotiation of conflict solutions ("it's his/her turn—she/he hasn't had anything yet") or proposing drawing straws or a similar conflict solution. Coding reliability was established for these three codes in terms of percentage agreement/mean percentage of disagreements. Intercoder agreement varied between .76 and .87 for the two sessions;

coding disagreements were then resolved by consensus. In the first session, 88% of the children wanted to be the first to see the film, 1% wanted to watch it in a later position, 5% were more interested in the kaleidoscope, and 5% showed no reaction. In the second session, 88% of the children wanted to see the film first, 3% in a later position, 3% were interested in the kaleidoscope, and 6% showed no reaction.

Results

Moral Motive Strength, Inhibition, and Ego Control

In the full LOGIC sample, moral motive strength increased from age 5;4 (M = 0.99, SD = 1.28, MAX = 4, n = 213) to age 7;2 (M = 1.97, SD = 1.76, MAX = 6, n = 203). This increase was significant, $t(199) = 8.18$, $p < .0001$, and the correlation between the two assessments 1;10 apart was .37 ($p < .0001$, n = 200). Because there was a floor effect at age 5;4 (52% of this age group did not attribute any justified moral emotion), and because moral motive strength showed some stability over time and there were only 18% zero attributions at both assessments, we aggregated the two assessments to provide a more robust measure of moral motive strength with better distributional characteristics (M = 1.48, SD = 1.26, MAX = 5, n = 200).

All analyses reported below were initially performed separately for the moral measures at each measurement point and for the aggregate. A comparison of the findings indicated that the measure of moral motive more distant in time was consistently less powerful in predicting children's immoral behavior than the more proximal measure, and that the aggregated measure yielded at least as strong results as either of the two age-specific measures. Therefore, we report here only the results for the aggregated measure.

The correlation between the parental inhibition scales as assessed at age 4;9 and 6;9 was .70 ($p < .0001$, n = 95). The aggregate of the two inhibition measures yielded at least as strong results as either age-specific measure. Therefore, we used the aggregated scales as the measure of inhibition. Moral motive strength was not significantly correlated with either inhibition or ego control. As expected, inhibition and ego control were moderately correlated (r = .50, n = 126).

Cheating

Multiple regression.—To analyze the relations between cheating and gender, moral motive, inhibition, and ego control, we performed hierarchical regression analyses. The first two predictors were gender and moral motive, entered in this order, because we wanted to control for gender differences and we considered moral motive strength as the main predictor for moral behavior. Because there were no a priori reasons to consider inhibition as primary and ego control as secondary, or vice versa, we performed two analyses. In one analysis, inhibition was entered before ego control, and in a second analysis it was entered after ego control.

Gender, $F(1,68) = 3.92$, $p < .06$, and moral motive, $F(1,68) = 2.83$, $p < .10$, showed independent, marginal contributions to cheating. Negative regression coefficients indicated that boys tended to cheat more than girls, and that, after controlling for gender differences, moral motivation tended to be inversely related to cheating. When inhibition was entered as the third predictor, inhibition, $F(1,68) = 6.97$, $p < .02$, but not ego control ($F < 1$), showed an additional, significant contribution to cheating. When ego control was entered as the third predictor before inhibition, again, ego control was not significantly related to cheating, $F(1,68) = 1.29$, $p = .26$, but inhibition was, $F(1,68) = 5.76$, $p < .02$. Negative regression coefficients indicated that both inhibition and ego control were inversely related to cheating. Thus, even after controlling for gender differences, both moral motivation and inhibition showed the expected negative relation with cheating. Contrary to our hypothesis, ego control did not significantly contribute to cheating.

Analyses of variance.—To explore the relations between moral motive, inhibition, and cheating in more detail, children were cross-classified by median split for their moral motive and inhibition scores. Additionally, children with scores in the lower tercile for both moral motive strength and inhibition were compared to children with scores in the upper tercile of both distributions, using the remaining children as a control group, in order to test the effects of consistently high or low moral motive strength and inhibition. Table 1 presents the means and standard deviations for these two analyses.

Not surprisingly, the results from analy-

TABLE 1

MEANS AND STANDARD DEVIATIONS OF CHEATING FOR CHILDREN LOW OR HIGH IN MORAL MOTIVE STRENGTH AND INHIBITION

CHILDREN		CHEATING[a]		
Inhibition	Moral	*N*	Mean	SD
Low	Low	23	.83	.39
Low	High	28	.58	.50
High	Low	18	.57	.51
High	High	23	.28	.46
Very low in both		11	1.00	.00
Controls		66	.58	.50
Very high in both		11	.18	.40

[a] 1 = cheating, 0 = noncheating.

ses of variance were similar to those for regression analyses when groups were defined by a median split: moral effect, $F(1,84) = 7.95$, $p < .01$; inhibition effect, $F(1,84) = 6.97$, $p < .01$; for their interaction, $F < 1$. The effect of consistently high or low moral motive strength and inhibition on cheating was studied by a linear contrast within an analysis of variance, assuming that low-moral uninhibited children would cheat the most, high-moral inhibited children would cheat the least, and controls would show an intermediate rate of cheating. This contrast was significant, $F(1,85) = 17.62$, $p < .0001$, and of a substantial effect size (nearly 1 SD). An inspection of the group means for the two extreme groups indicated that the cheating behavior of the 22 consistent children could be predicted in 91% of the cases. All the low-moral uninhibited children cheated, and with only two exceptions, none of the high-moral inhibited children cheated (see Table 1). This is an extremely high hit rate, given that it refers to the prediction of actual behavior from answers to a picture story and parental judgments. These findings suggest that powerful behavioral predictions require considering both moral motive strength and inhibition together, whereas each variable alone has only moderate effects on behavior.

First Triadic Session

The central measure to be reported is children's nonverbal egoistic behavior in the first conflict in the session. The results for the second conflict were similar to those for the first, but less strong. This was probably because children's reactions in the second conflict depended on the outcome of the first. Verbal group-oriented reactions were rare ($M = 0.44$, SD = 0.74) and did not show any significant effects, most likely due to a floor effect. Although verbal egoistic reactions were more frequent ($M = 3.43$, SD = 4.79) than nonverbal egoistic reactions ($M = 2.23$, SD = 1.56), and produced results similar to those for nonverbal egoistic reactions, the results were generally much stronger for the nonverbal reactions; they were also stronger than the results for the aggregated verbal and nonverbal reactions.

Definition of triadic scores and types.— The nonverbal egoistic reactions were significantly correlated within triads; the average between-partner correlation was $r = .41$ ($n = 42$, $p < .01$). Because of this positive covariation of the egoistic reactions within groups, it seemed inappropriate to analyze these data at the individual level. Rather, nonverbal egoistic reactions were summed over the three children in a triad, and each triad was characterized by one egoistic score.

Because partners in a triad were randomly assigned, neither the moral motive nor the inhibition scores were significantly correlated within triads. Because one partner's median score cannot be regarded to be equivalent to a combination of a high and a low score of two other partners, triadic scores for moral motive strength and inhibition were not computed by averaging partners' scores. Instead, we used a qualitative approach. Moral motive strength and inhibition were split at the median into low and high scores (high moral motive score = at least two moral emotion attributions on average in the two tests). Thus, each triad was characterized by the number of moral children (children with high moral motive scores) and by the number of inhibited children (children with high inhibition scores)

in the triad. Each of these triadic moral motive and inhibition scores could range from 0 to 3.

Multiple regression.—Hierarchical regression analyses exactly comparable to those for cheating were performed. Gender and moral motive were always entered first, then inhibition or ego control as the third predictor. Gender, $F(1,37) = 6.90$, $p < .02$, and moral motive, $F(1,37) = 6.74$, $p < .02$, showed independent, significant contributions to the triads' egoistic behavior. Similar to the cheating analyses, inhibition, but not ego control, showed an additional significant, independent contribution to egoistic behavior: when entered first, $F(1,37) = 9.31$, $p < .01$; when entered second, $F(1,37) = 7.87$, $p < .01$. Negative regression coefficients indicated that male triads showed more egoistic behavior than female triads, that the number of moral children in the triads was inversely related to the triads' egoistic behavior independently of gender differences, and that the number of inhibited children in the triads was inversely related to the triads' egoistic behavior. These effects confirmed our hypotheses for moral motive strength and inhibition, but again, contrary to expectation, ego control did not contribute to egoistic behavior after controlling for gender and moral motive strength.

Analyses of variance.—To explore these data in more detail, particularly the moral motive × inhibition interaction, triads were cross-classified by a median split on the triadic moral motive and inhibition scores to produce four types of triads. Triads were defined to be high in moral motive, or inhibition, if at least two of the three children in the triad were high in moral motive or inhibition. Table 2 presents the means and standard deviations of the triadic egoistic scores for these four types of triads.

Not surprisingly, an analysis of variance replicated the findings of the regression analyses: moral effect, $F(1,38) = 7.47$, $p < .01$; inhibition main effect, $F(1,38) = 6.38$, $p < .02$; moral × inhibition interaction, $F(1,38) = 5.97$, $p < .02$. An inspection of Table 2 revealed that the moral × inhibition interaction arises because both two children low in moral motivation and two uninhibited children are required to produce many egoistic reactions during conflict resolution. Neither two nonmoral children alone nor two uninhibited children alone suffice to produce this effect.

This observation suggested that low-moral uninhibited children may be responsible for the high rate of egoistic behavior in the low-moral uninhibited triads. To explore the influence of these children on the egoistic behavior of the triads, triads were classified according to the number of low-moral uninhibited participants. This number showed a Pearson correlation of $r = .64$ ($p < .0001$, $n = 42$) and a Spearman correlation of $rho = .56$ ($p < .0001$, $n = 42$), with the egoistic behavior in the triads. Thus, this surprisingly high correlation cannot be attributed to outliers or skewed distributions.

To explore this finding in more detail, the relation between the prevalence of low-moral uninhibited children in a triad and the triad's egoistic behavior was analyzed by an ANOVA. Figure 1 presents the means and standard deviations of the four types of triads.

Figure 1 suggests an escalation effect. Compared to triads with none of these critical children, one critical child had little in-

TABLE 2

MEANS AND STANDARD DEVIATIONS OF NONVERBAL EGOISTIC BEHAVIOR FOR TRIADS LOW OR HIGH IN MORAL MOTIVE STRENGTH AND INHIBITION IN TWO CONFLICT SESSIONS

TRIADS		NONVERBAL EGOISTIC BEHAVIOR					
		Session 1			Session 2		
Inhibition	Moral	N[a]	Mean	SD	N[a]	Mean	SD
Low	Low	11	11.27	5.50	10	8.90	5.47
Low	High	12	5.25	3.93	9	5.11	2.32
High	Low	9	5.00	2.12	11	4.64	2.38
High	High	10	4.90	2.81	9	4.00	2.29

[a] Number of triads.

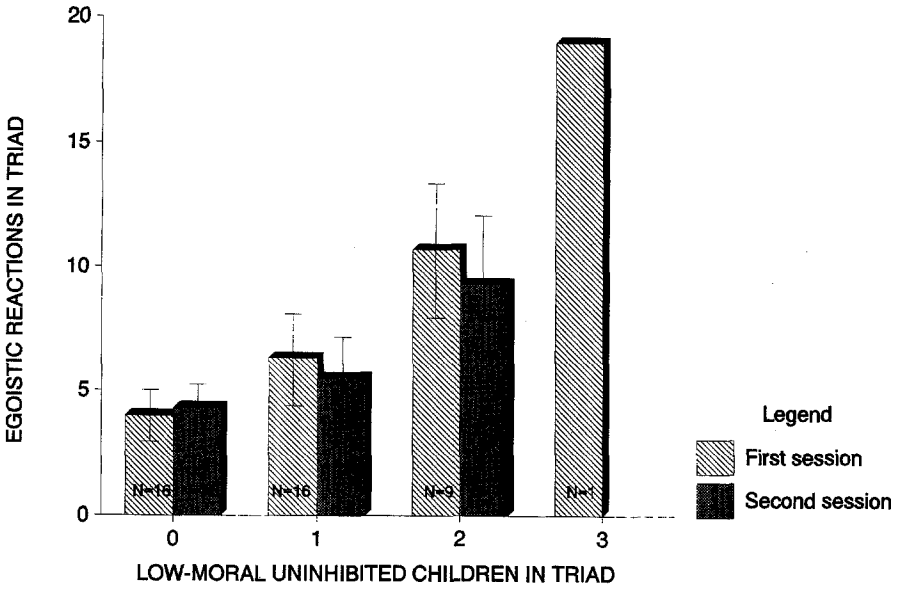

FIG. 1.—Number of nonverbal egoistic reactions in triads with 0–3 low-moral uninhibited children in two conflict sessions.

fluence on the resulting egoistic behavior in the triad, whereas two critical children doubled the effect of one such child; finally, adding a third critical child again doubled the effect of adding a second critical child. In other words, the means follow a quadratic trend. It should be noted, however, that there was only one triad consisting of only low-moral uninhibited children. Despite this problem, these data can be analyzed by linear and quadratic trends within an analysis of variance of the four groups with a pooled standard deviation as error term. Both the linear effect, $F(1,39) = 19.40$, $p < .0001$, and the quadratic effect, $F(1,39) = 15.62$, $p < .0003$, were significant and of substantial effect size (about 1.5 SD). That both these statistically independent effects were strong indicated that the data followed a quadratic increasing function rather than a U-shaped curve.

This escalation effect was preserved when the most critical triad with three low-moral uninhibited children that produced the maximum number of 19 egoistic behaviors was removed from the analysis: linear effect, $F(1,38) = 19.63$, $p < .0001$; quadratic effect, $F(1,38) = 19.26$, $p < .0001$. Thus, both the general hypothesis that low-moral uninhibited children contribute to the egoistic behavior in a triad, and the more specific escalation hypothesis that adding more of these children disproportionately increases egoistic behavior, were fully confirmed.

In contrast, when a parallel type of analysis was performed by assessing the effect of the number of high-moral inhibited children on the triads' egoistic behavior, only marginal linear, $F(1,39) = 2.68$, $p < .11$, and quadratic effects, $F(1,39) = 3.57$, $p < .07$, were found. Triads with two high-moral inhibited children showed as many egoistic reactions as triads with one such child ($M = 5.0$ vs. $M = 5.3$). Thus, being particularly moral and inhibited does not seem to prevent a minimum level of egoistic behavior in the triad.

All in all, these analyses suggest that low-moral uninhibited children present a problem in rival situations because rivalry between two or more of these children leads to an escalation of egoistic behavior. Because of the small number of triads, a replication of this finding was needed. This was done with the data from the second triadic session, where triads were composed of different groups of children.

Second Triadic Session

The data for the second triadic session were analyzed exactly as those for the first session. Again, children's nonverbal egoistic behavior correlated significantly across partners (mean $r = .37$, $p < .05$, $n = 39$), and

hierarchical regressions revealed significant effects for moral motive, $F(1,34) = 5.19$, $p < .03$, and inhibition, but not ego control, regardless of whether inhibition was entered before ego control, $F(1,34) = 5.35$, $p < .03$, or after it, $F(1,34) = 4.58$, $p < .04$. However, the effects were weaker than in the first session. The gender effect and the moral × inhibition interaction were not significant this time (in both cases $F < 1$). The effects for the median-split ANOVA were also weaker: moral effect, $F(1,35) = 5.96$, $p < .02$; inhibition effect, $F(1,35) = 4.04$, $p < .06$; interaction, $F(1,35) = 2.05$, $p = .16$. The means in Table 2 further support the finding that the effects were similar to those for the first session, but less pronounced.

The analysis of the influence of low-moral uninhibited children on a triad's egoistic behavior again revealed a significant correlation between the frequency of these children and egoistic behavior ($r = .44$, $p < .006$, $n = 39$), and significant linear and quadratic trends from the ANOVA: linear trend, $F(1,36) = 10.02$, $p < .004$; quadratic trend, $F(1,36) = 10.06$, $p < .004$. Figure 1 indicates that the same escalation effect was found as in the first triadic session. The effects were weaker but still strong (effect size about 1 SD). All in all, all effects except the gender difference were replicated, but less strongly so.

Consistency of Children's Egoistic Behavior across the Three Moral Conflict Situations

Consistency in moral behavior was explored by correlating children's cheating and nonverbal egoistic scores; because of the skewed distributions of the variables, Spearman correlations were computed. We did not expect high correlations because this correlational approach ignores triadic effects on children's egoistic behavior. Cheating correlated .23 ($p < .05$, $n = 75$) with egoistic behavior in the first triadic session, and .20 ($p < .10$, $n = 67$) with this behavior in the second session; egoistic behavior correlated .18 ($p < .08$, $n = 97$) between the two triadic sessions. These are weak findings compared to the analyses at the triadic level.

Discussion

This study suggests that interindividual differences as well as intergroup differences in immoral behavior can be predicted to some extent by individual motivational characteristics. In line with our hypotheses, higher moral motive strength and higher temperamental inhibition reduced immoral behavior in both the cheating situation and the triadic conflicts. Contrary to expectation, ego control had no effect on immoral behavior. Extreme group analyses of children low or high in both moral motivation and inhibition showed that cheating/noncheating could be predicted with a hit rate above 90%. The role of low-moral uninhibited children in the triads replicated this pattern in part: The number of these children in a triad exponentially increased nonverbal rivalry in the group. The comparable effect for verbal rivalry was weaker, and the influence of moral motivation and inhibition on *moral* behavior in the triadic conflicts could not be studied in meaningful ways because such behavior was difficult to identify and occurred very rarely.

Immoral behavior was defined as behavior that transgressed rules that children clearly knew to be valid. In the cheating experiment, 84% of the children declared in a posttask interview that cheating in this situation was wrong; in the conflict sessions, the experimenter clearly stated that children should come to an agreement among themselves in a situation in which conflicting interests were publicly manifested.

The fact that even in triads without low-moral uninhibited children a minimum of about five nonverbal egoistic acts occurred is because almost all children in response to the experimenter's question, "Who wants to see the film?" expressed their interest by raising their finger—obviously a transfer of school rules to the experimental situation. A baseline of about five egocentric acts per triad is to be expected simply on the basis of this ritualized behavior with which children legitimately made their interests publicly known. Egocentric nonverbal behaviors above this minimal baseline can be considered to be "immoral" since they indicate that distribution will be decided by physical power rather than by negotiation.

The same is not true of verbal egocentric acts: it may be morally appropriate to repeat one's declaration of interests if one has completely been ignored by the other two partners—since morality means impartiality rather than pseudo-altruistic abandonment of one's own interests. By merely stating rather than physically enforcing these interests, one may still be attempting to arrive at a fair solution. This may explain why verbal egoistic behavior produced less strong effects than nonverbal egoistic behav-

ior. Thus, both in the cheating and in the conflict situation, physically transgressing known moral rules in the service of individual interests is a rather clear-cut operationalization of immoral behavior.

Moral behavior was difficult to observe in the triadic conflicts. Group-oriented verbal reactions—the most likely candidate for moral behavior—occurred very rarely and posed unsolvable problems of interpretation. If, for example, a child says "It's his turn to see the movie—he hasn't had anything before," this might be an expression of moral concern; it might, however, just as well be nothing but a desire to establish dominance in the group, or a clever strategy for winning allies for the next round. Even proposing to "count out" (undoubtedly a fair procedure) cannot be taken as "moral behavior" at face value. In fact, one child proposed counting out, but rejected the whole procedure as soon as he was the first out.

Temperamental inhibition, operationalized as parental judgments of inhibition to strangers, contributed to the reduction of immoral behavior independent of moral motive strength and gender in all three situations. This effect can be attributed to the inhibition of the enactment of spontaneous impulses, mediated by unfamiliarity. When inhibition and moral motive strength were considered in combination, the prediction of immoral behavior became particularly powerful. Thus, our results provide a good illustration of the fact that individual differences in behavior can be influenced by multiple traits, and that prediction of behavior becomes particularly strong when we consider more than one trait (see Ahadi & Diener, 1989).

Contrary to expectation, ego control had no effect on children's immoral behavior, after controlling for gender and moral motive strength. This lack of predictive power is surprising, given the relations between resistance to temptation and ego control reported by Block and Block (1980), the lack of a correlation between ego control and moral motive strength, and the correlation of .50 between temperamental inhibition and ego control. Those aspects of the broad construct of ego control that are not covered by temperamental inhibition were unrelated to the enactment of immoral behavior. The influence of inhibition on immoral behavior was perhaps so strong that it masked the influence of other aspects of ego control. Future studies are needed to explore whether the expected inhibiting effect of ego control on immoral behavior becomes more visible in more familiar situations when temperamental inhibition is less influential.

Abstaining from immoral behavior may occur for reasons other than moral concerns, inhibition, or impulse control, such as lack of motivation, fear of sanction, or a failure to think of nonmoral strategies for satisfying own desires. We have attempted to control for these possibilities. Almost all children were highly motivated to win the game in the cheating experiment, or to see the movie in the conflict situation; care was taken to make children believe that they would remain undetected in the cheating experiment, and the experimenter completely refrained from intervening in any fights arising between the parties in the conflict situations; inventing immoral solutions to the conflicts was a simple task in both situations. Lewis, Stanger, and Sullivan (1989) have shown that even 3-year-olds peek in a similar situation as the one devised in the cheating experiment, and trying to physically get hold of a desired good is an obvious strategy.

Whereas inhibition and moral motivation contributed to noncheating independently of each other, they interacted in the conflict situations in the form of an escalation effect. This interaction at the group level was further specified as an interaction effect at the individual level. Although triads containing moral/inhibited children did show some egoistic behavior, this was only the minimum amount necessary for showing one's interests publicly. The inclusion of one "critical" low-moral uninhibited child only slightly increased the frequency of nonverbal egoistic behavior. This is because the other two children then tended to choose one of two possible solutions: giving in to a more dominant child by abstaining from interacting (inhibition solution), or conceding priority to the "critical" child since this child's need seemed to be the most urgent (moral solution). Indeed, need is one of the criteria (besides equity and equality) to be considered in trying to find a moral solution in distribution conflicts.

This peaceful conflict solution failed when two critical children were involved. As soon as one of these children makes a move to appropriate the desired good, the other will feel forced to reaffirm his or her claims, and if the first move was a physical one (e.g., grabbing the kaleidoscope or trying to look through the hole of the movie

box), the likelihood that the second child will retaliate in kind is high because physical prowess will come to be seen as the criterion according to which distribution will be decided. Since the first child will in turn respond to the second child, an escalation of competing claims is set in motion: neither child is willing to give in, and neither is able to come up with a solution that both might agree upon. Quite often it was the experimenter in these groups who—after time had run out—intervened and made a decision. It is easy to see that the number of egocentric reactions will again dramatically increase in the case of three critical children.

The escalation effect was replicated in the second session. That it was less pronounced can be attributed to the fact that the experimental manipulation may not have been wholly successful in the second session. Children may have remembered that all children received access to the movie in the first session, and may have expected the same to happen again. This interpretation is supported by the fact that more children in the second posttask interview stated that they felt the conflict resolution had been fair (87% vs. 73%) and offered no suggestions for handling the conflict better (72% vs. 54%).

The escalation effect is interesting from a methodological point of view because the effect is a social-psychological one that can only be discovered at the group level. When we analyzed the data for the triadic conflicts at an individual level, we were disappointed by weak and inconsistent findings. Strong and consistent effects became visible only when we began to study group composition effects in terms of the personalities of the participating children. Ignoring partner effects in analyses of individual differences in social behavior often obscures the impact of personality characteristics on behavior.

The findings of the present study contribute to the long-standing debate on attitude-behavior consistency. One main strategy in this field has been to increase predictive power by making attitudes more and more similar to the behavior in question (see Fishbein & Ajzen, 1974). In contrast, in our study "attitude" (moral motive strength) is conceptualized as a generalized competence. The measure for moral motivation involved hypothetical moral conflicts in a variety of different concrete situations (stealing, not sharing with someone in need, not making up for an injustice, not helping someone in need) that differed from the ones tested in the experiments (cheating in a game, egocentrically asserting one's own interests). What is common across these different situations is the abstract fact that all situations involve conflicts between individual desires and moral concerns, not similarity of situational context. The present findings thus support the notion of a generalized moral motive.

They do depart, however, from mainstream research on moral judgment. In contrast to the assumption of cognitive-affective parallelism, cognitive moral understanding and moral motivation were clearly separate. Whereas children did not differ in their cognitive understanding of the validity of moral rules, they did differ strongly in the number of morally appropriate emotions they attributed to hypothetical wrongdoers, and it was these interindividual differences that predicted behavior in real moral conflict situations, supporting our interpretation of the emotion-attribution task as a measure of moral motive strength.

The present findings also contradict Kohlberg's description of the preconventional stage. According to Kohlberg (e.g., 1981, 1984), preconventional children have a mainly instrumentalistic or authority-oriented understanding of morality and would, if safe from sanctions or control by authorities, be expected to satisfy their own desires regardless of whether this involves transgressing moral rules. The present results, however, show that children may refrain from actively pursuing egocentric interests, not only because they are too inhibited to do so or are afraid of sanctions, but also for truly moral reasons, that is, because they do not want to do what is wrong.

These results support our view that research on moral development profits from a clear separation of moral judgment and moral motivation, and that emotion attribution to hypothetical wrongdoers may be a good indication of the strength of a moral motive in children. This may prove to be an important variable that helps bridge the gap between moral judgment and moral action.

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