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Strategies of control, aggression, and morality in preschoolers: An evolutionary perspective

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Abstract

Moral reasoning, moral affect, social problem solving skills, and social preferences were assessed in 163 ethnically mixed preschoolers (2.86–5.95 years). Participants were rated by their teachers on prosocial and coercive strategies of control, success at resource control, and aggression (overt and relational). Based on their employment of coercive and prosocial strategies of resource control, the children were categorized as bistrategic controllers, coercive controllers, prosocial controllers, noncontrollers, or typicals. Teacher-rated relational aggression was positively associated with moral maturity in girls. Bistrategic controllers, although aggressive, were morally mature and preferred play partners by their peers. The results are discussed in terms of hypotheses that arise from evolutionary theory which suggests that highly effective resource controllers would be simultaneously aggressive and yet well aware of moral norms. The findings are contrasted with alternative hypotheses that might arise variously from traditional and prevailing approaches.

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Introduction

The ethics and morality of humankind have been hotly debated for centuries. Kant (1785/1996) spoke of duty devoid of emotions and personal desires. In contrast, Hume (1751/1998) believed in an innate sensitivity toward others and that altruistic behavior results from moral emotions such as sympathy and compassion.

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Hobbes (1651/1958) contended that altruistic behavior reduces negative emotions and wins approval from others thereby allowing self-interested individuals to reap the benefits of group life. Although testing the ‘true motives’ underlying prosocial and moral behavior is not commonly addressed in developmental inquiry, the aforementioned philosophical orientations are ever-present.

The tension between self-interest and group life described by Hobbes was well recognized by Freud (1930). According to Freud, inherently self-interested individuals come to internalize societal norms which then guide behavior. Guilt and anxiety are reduced by behaving according to these internalized sanctions. Both Freud’s and Hobbes’ views find commonality with modern evolutionary approaches which suggest that personal goals are best achieved by socially acceptable behavior, especially if those ways are consistent with moral norms. Evolutionists generally doubt that the underlying motivations to moral action are truly altruistic (Hamilton, 1964; but see Wilson, 1993) but believe instead that these motives ultimately arose from individuals resolving the self/group tension. Selective forces, therefore, should operate to create individuals who can satisfy their naturally self-interested inclinations while appearing to be upstanding group members (e.g., Hawley, 2003; Trivers, 1971; Wright, 1994). Highly developed moral reasoning (or justification) need not be accompanied by moral behavior.

In contrast, the prevailing sentiment in developmental circles appears to be that morally developed individuals should behave morally and less out of rudimentary self interest (Blasi, 1980; Krebs & van Hesteren, 1994; Kohlberg, 1981). Consistent with this reasoning, those engaging in antisocial behavior should have deficits in their moral orientations and/or skew the way they perceive the social world (e.g., Crick & Dodge, 1994; but see Pepler, Craig, & Roberts, 1998; Sutton, Smith, & Swettenham, 1999a).

The present study explores the moral thinking, self-reported moral emotions, and social problem solving strategies of preschool children. Is developmentally advanced moral thinking associated with a prosocial or moral orientation? Evolutionary theory is employed to suggest that this may not be the case and that there may be aggressive children who are morally developed, their self-interested behavior notwithstanding.

Dominant paradigms in the developmental literature

The sociocognitive tradition

Much of the work conducted by developmentalists in the domain of moral or prosocial behavior stems from the social cognitive tradition, namely that of Piaget (1965) and, later, Kohlberg (1981). To Piaget, moral reasoning progresses through largely invariant stages as a function of sociocognitive development by way of individuals’ reciprocal interactions with the social and material environments. Perspective taking abilities emerge and egocentrism diminishes as the child matures. As a result, concepts such as fairness and justice develop out of emerging understandings of mutual respect, cooperation, and behavioral guidelines (e.g., rules, laws; see also Youniss, 1980). Characteristic of this development, understanding of rules progresses from obligatory obedience to authority to self-guided, flexible, moral

guidelines. Kohlberg continued this tradition with his exploration of children's judgments about moral issues such as those concerning interpersonal obligations, justice, and law. As such, he deemphasized Freudian notions of anxiety and guilt, and underplayed moral emotions such as empathy and sympathy. His work centered on philosophical considerations in the measurement of morality and normative progression of self-reported moral analysis rather than on moral behavior per se, the prediction of individual differences in moral reasoning, or moral emotions (e.g., guilt).

Because of the presumed role of social context and maturational factors, socio-cognitive theoretical orientations engender questions regarding the roles of peer relationships and cognitive skills (e.g., perspective taking and intelligence) on prosocial and moral behavior. Consistent with the Piagetian/Kohlbergian approach, positive associations have been found between prosocial behavior and intelligence (Abroms & Gollin, 1980; Mussen, Rutherford, Harris, & Keasey, 1970), perspective taking (perceptual, affective, and cognitive; Underwood & Moore, 1982), and involvement in positive peer relationships (Coie, Dodge, & Kuperschmidt, 1990; Tremblay, Vitaro, Gagnon, Piche, & Royer, 1992). Reasonably intelligent children who are well-integrated in the peer group appear to have ample opportunity to learn and differentiate others' perspectives, emotional responses and personal goals from their own. As a consequence, these children become well-equipped to behave within social norms, treat others with respect and care, and, accordingly, are liked by their peers (e.g., Colby, Kohlberg, Gibbs, & Leiberman, 1983).

Some studies in aggression complement this view. Aggressive children not only eschew accepted rules of behavior, but also poorly understand the perspectives of others (Chandler, 1973), engage in faulty reasoning regarding social situations (hostile attribution bias; Crick & Dodge, 1994; Dodge, 1980; Nasby, Hayden, & DePaulo, 1979), and accordingly repel peers (Coie & Dodge, 1998; Coie et al., 1990; but see Hawley, 2003; Rodkin, Farmer, Pearl, & Van Acker, 2000).

Moral emotions and motivation

Hoffman later emphasized the role of emotions in morality and moral development. His influential approach to empathy (Hoffman, 1976, 1982) stimulated additional lines of research exploring children's emotional lives and prosociality. Eisenberg and her colleagues, for example, have explored extensively the distinction between empathy and sympathy and their effects on behaviors such as helping and sharing. Overall, children capable of empathic and sympathetic responding are more likely to engage in prosocial behavior. However, if empathy spills over into personal distress, then prosocial behavior decreases. Personality factors may also be relevant. Characteristics such as positivity (e.g., cheerfulness, warmth) incline a child to prosociality (Graziano & Eisenberg, 1997) as does emotion regulation (Eisenberg & Mussen, 1989). Not all studies, however, report similar results; many correlations are reversed or non-existent (see Eisenberg & Fabes, 1998 for review).

Additionally, prosocial motivation appears to be relatively weak and corruptible. For example, prosocial behavior may be exhibited when it involves helping or sharing (relatively low cost behaviors), but not when the cost is slightly higher, as in self-denial (e.g., donation; Grusec & Skubinski, 1970). Prosocial behavior may not occur unless

an adult is present (Zarbatany, Hartmann, & Gelfand, 1985). Material or social reinforcements may increase prosocial behavior in the immediate context (Eisenberg et al., 1993), but not necessarily (Mills & Grusec, 1989). Furthermore, tangible rewards may reduce the likelihood of future positive behavior (Deci & Ryan, 1985; Lepper & Henderlong, 2000). Similarly, classic experiments in social psychology demonstrate how disturbingly easy it is for individuals to behave in (injurious) ways that are at odds with their own principles (Haney, Banks, & Zimbardo, 1973; Milgram, 1963). Furthermore, Batson's work on moral hypocrisy (Batson, Thompson, Seufferling, Whitney, & Strongman, 1999) has shown that appearing moral seems to be as important, if not more important, than actually being moral to many participants in his studies. Taken together, one is impressed by how strongly inclined people are to behave out of self interest, even when the cost of doing otherwise is relatively low.

An evolutionary approach to morality

Evolutionary theorists agree that prosocial behavior is a natural component to human social orientation, but they would add that the ultimate force underlying it is probably self-interest (e.g., Alexander, 1979; Pinker, 1997; Williams, 1966). Working well with others within social groups is perhaps one of our more important and impressive adaptations. But as with nearly all adaptations, the ultimate goal is self-preservation and perpetuation. We help others, evolutionary theorists would argue, because in the long run they will help us in return (or our reputations are bolstered). The theory of reciprocal altruism as originally written by Trivers (1971) suggests that a good strategy is to be a good reciprocal altruist; others would be attracted to the reciprocal altruist and offer support in return because the reciprocal altruist genuinely appears to do so willingly as well. An alternative to being a true reciprocal altruist, according to Trivers, is *appearing* to be a good reciprocator while slyly taking more than one gives (see also Alexander, 1979; Pinker, 1997; Wright, 1994). In the long run, this strategy would yield large benefits over others without incurring the costs of blatant cheating.

Many misinterpret evolutionary approaches to mean that the characteristic in question would be common to all (i.e., adaptations; see, for example, Turiel, 1998). If cheating is advantageous, the faulty argument goes, then a population would be swamped with genetic cheaters and the competitive advantage of cheating would be lost. This outmoded view misunderstands the role that environmental or social factors play in providing context for strategic differentiation (i.e., individual differences). Individuals employ strategies in the presence of others also employing strategies (e.g., Axelrod, 1984). One's own phenotype (e.g., size, gender, personality) provides information about which strategies are feasible or optimal, and under what conditions (Tooby & Cosmides, 1990).

Resource control theory

Strategic differentiation has been explored in the context of children's resource oriented behavior. Successful access to preferred resources in the social group would lead one to be referred to as *socially dominant* (Hawley, 1999). This theoretical

orientation proposes that various strategies of resource competition would arise in the peer group. Coercive strategies, those which are direct, aversive, and immediate (e.g., taking, threatening), find similarity with traditional conceptions of social dominance in the ethological literature (e.g., Bernstein, 1981; Strayer & Strayer, 1976). Prosocial strategies of resource control, however, find their theoretical counterpart in evolutionary approaches to cooperation (Alexander, 1979; Axelrod, 1984; Charlesworth, 1988, 1996; Trivers, 1971). Reciprocity, cooperation, unsolicited help, and positive alliance formation (i.e., friendships) can serve successful resource acquisition. In contrast to coercive strategies, prosocial strategies are indirect, prolonged, and generally win positive group regard. This relation between prosociality and resource control has been documented empirically in preschool children (Hawley, 2002; LaFreniere & Charlesworth, 1987).

In principle, the degree to which an individual employs prosocial and coercive strategies of resource control can be measured independently by way of observation (Hawley, 2002; LaFreniere & Charlesworth, 1987), self-report (Hawley, 2003; Hawley, Little, & Pasupathi, 2002), or other report (Hawley, 2003). Based on the relative degree of endorsement or employment of the strategies, subgroups of individuals can be identified; bistrategics employ both strategies, coercive controllers employ coercive strategies over prosocial strategies, prosocial controllers employ prosocial strategies over coercive strategies, and noncontrollers employ neither. Profiles of the types are emerging in terms of associated personality traits (which presumably underlie resource directedness and strategy utilized) and social and personal outcomes resulting from successful/unsuccessful control and the strategy employed (Hawley, 2003; Hawley et al., 2002).

Bistrategic controllers confound commonly accepted views of social competence (Hawley, 2003; Hawley et al., 2002); they possess skills associated with traditional measures of social competence (e.g., they attract peers, are socially skilled, reasonably conscientious, extroverted, teachers see them as socially well-integrated and non-aggressive). At the same time—by their own admission—bistrategic preadolescents and adolescents cheat, have a very high need for recognition from others, and are among the most aggressive children in the school yard (Hawley, 2003; Hawley et al., 2002). Most developmental theories predict that such antisocial behavior would be associated with social skills deficits and peer rejection (Coie & Dodge, 1998; but see Sutton et al., 1999a, 1999b, 1999c). In contrast, bistrategic controllers show an intriguing combination of traits that suggests a socially adept, well-integrated, manipulative, and covertly aggressive individual (covert in the sense that peers report the aggression, but teachers do not). In addition, they appear to be extremely effective resource controllers in their own opinion and in the opinion of their peers (Hawley, 2003). Although boys are commonly held to be more aggressive than girls (Coie & Dodge, 1998, but see Crick & Grotpeter, 1995), girls are as likely to be bistrategics as boys (Hawley, 2003).

Are bistrategic preschoolers rated as aggressive as their adolescent counterparts? If so, are they morally underdeveloped? Do they hold commonly accepted views of right and wrong, or is righteousness viewed in terms of what is good for them? Different theoretical orientations would make different predictions. Traditional

and currently dominant approaches might suggest that these children would experience social-cognitive deficits associated with antisocial behavior (e.g., faulty perspective taking, poorly internalized norms, immature moral development; e.g., Lochman & Dodge, 1994). In contrast, evolutionary theorists (Alexander, 1979; Trivers, 1985; Wright, 1994) might hypothesize that the skills these individuals possess would also underlie their ability to appear moral, without actually behaving morally. These skills, furthermore, may underlie their ability to ascend the social dominance hierarchy. The present study compares the self-reported moral interpretations of bistrategics with coercive controllers and prosocial controllers, and other children who operate less out of self-interest (e.g., noncontrollers). Because boys and girls are likely to engage in different forms of aggressive behavior—girls favor relational forms of aggression (e.g., gossip, social exclusion; Crick, Casas, & Mosher, 1997; Crick & Grotpeter, 1995) whereas boys favor physical and/or direct forms of aggression (i.e., overt aggression)—the different forms of aggression (relational and overt) are explored especially as they relate to gender differences.

Method

Participants

Participants included 163 children and their families and teachers recruited from six preschools (14 classrooms, each with 9–20 children) from the communities around New Haven, Connecticut. Data were collected on 90 European-American children (55.2% of the sample), 46 African-American children (28.2%), 21 Hispanic-American children (12.9%), and 6 Asian-American children (3.7% of the sample). The average age of these children was 4.29 years ($SD = .74$; range 2.86–5.95 years). Eighty-nine of the children were girls (54.6% of the sample) and 74 were boys (45.4% of the sample). Written parental consent was obtained for all participating children, according to APA guidelines. Of all families invited, 92% provided parental consent. One teacher (the head teacher) from each classroom participated as well (i.e., 14 teachers).

Measures and procedures

Teacher ratings

Resource control strategies

In a multi-item questionnaire format, teachers were asked to rate each child using a 7-point scale on prosocial strategies of control (six items; “S/he is someone who influences others by doing something in return”), coercive strategies of control (six items; “S/he bullies or pushes other to do what s/he wants”), and resource control (six items; “S/he gets what she wants even if others don’t”). High scores indicate higher endorsement of employing the strategy. Table 1 provides raw means, standard deviations, and α reliabilities.

Table 1
Means, standard deviations for the subgroups, and overall reliabilities for the constructs

Construct	Bistrategic (<i>n</i> = 25)		Coercive (<i>n</i> = 27)		Prosocial (<i>n</i> = 42)		Typical (<i>n</i> = 40)		Noncontroller (<i>n</i> = 29)		Total sample (<i>n</i> = 163)		<i>α</i> s
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Teacher													
Prosocial control	5.41	1.19	2.56	.88	5.10	.98	2.61	.69	1.04	.11	3.26	1.71	.74
Coercive control	5.27	1.05	5.21	.98	1.88	1.02	2.03	.84	1.10	.24	2.71	1.78	.87
Resource control	5.70	1.14	5.24	1.33	4.60	1.20	3.56	1.26	3.29	1.51	4.38	1.58	.85
Overt aggression	4.28	1.77	5.02	1.38	2.18	1.40	1.97	1.06	2.09	1.30	2.91	1.83	.84
Relational aggression	4.04	1.39	3.28	1.63	2.43	1.62	2.19	1.35	1.91	.75	2.68	1.46	.78
Child													
Age	4.45	.73	4.18	.71	4.30	.67	4.42	.80	3.99	.95	4.29	.74	
PPVT	54.15	19.24	46.50	15.42	53.63	16.43	52.97	16.62	38.70	14.07	50	16.95	
Wrong to take	1.0	0	.87	.34	.93	.18	.93	.23	.69	.43	.90	.27	.62
Guilt	.44	.48	.31	.45	.22	.36	.41	.43	.44	.42	.35	.42	.84
Rule reasons	.28	.38	.11	.24	.05	.19	.17	.30	.26	.31	.15	.29	.70
Emotion reasons	.25	.24	.23	.33	.09	.12	.24	.24	.15	.18	.18	.23	.63
Hedonistic reasons	.13	.14	.13	.15	.21	.17	.17	.19	.25	.18	.18	.25	.67
Aggressive strategies	.09	.16	.14	.22	.09	.19	.06	.16	.06	.11	.08	.17	.62
Socially acceptable strategies	.50	.35	.44	.31	.41	.35	.48	.37	.25	.30	.42	.35	.82

Creating resource control subtypes

Because social dominance and strategy use is by definition a relative differential (see Hawley & Little, 1999), the resource control types were defined by dividing the distributions of teacher-reported descriptions of both the prosocial and coercive strategy-use constructs into thirds (rather than using absolute cut-offs or criteria). The five groups would be formed as follows: (a) *bistrategic controllers* score in the top 66th percentile on both dimensions, (b) *coercive controllers* score in the top 66th percentile on coercive control but average or low on prosocial control, (c) *prosocial controllers* score in the top 66th percentile on prosocial control but average or low on coercive control, (d) *noncontrollers* scored in the lower 33rd percentile on both dimensions, and (e) *typicals* scored less than the 66th percentile on both (but 33rd percentile on none or one of the control strategies).

Aggression

A multi-item aggression scale was designed to make distinctions among forms and functions of aggression (Little, Jones, Henrich, & Hawley, 2003a; Little, Brauner, Jones, Nock, & Hawley, 2003b). Two subscales reflecting overt and relational aggression were employed for the present study. Overt aggression (direct physical or verbal attack; Coie & Dodge, 1998) was represented by the following three items: “She’s the kind of person who... fights with others; pushes, kicks, or punches others; says mean things to others.” Relational aggression (purposeful manipulation of another’s personal relationships; Crick & Grotpeter, 1995) and was represented by the following three items: “S/he is the kind of person who... ignores others or stops talking to them; gossips or spreads rumors; keeps others from being in his/her group of friends.” Table 1 provides raw means, standard deviations, and α reliabilities.

Child interview

Participating children were interviewed on two separate occasions, each lasting from 10–20 min. After the interview, each child received a small participation gift.

Receptive language ability

The Peabody Picture Vocabulary Test—III (PPVT: Dunn & Dunn, 1997) was administered to each child to estimate the child’s receptive language ability in standard American English. Non-normed scores (i.e., raw scores) are utilized for the purposes of this study to reflect age-related differentials.

Moral cognition and moral affect

Based on the logic of Nunner-Winkler and others (Arsenio & Lover, 1995; Nunner-Winkler & Sodian, 1988), we presented six vignettes that called for the children to put themselves in the position of a transgressor. We then asked them to assess the rightness of the described transgression (moral cognition) and how they would feel if they were to commit the transgression (moral affect). To maximize independence

of responses across vignettes, three vignettes assessed moral cognition and three assessed moral affect. As an example of moral cognition assessment, the children were presented with the following: “Pretend you took the candy from this child,” (a) “Is it right or wrong to take the candy?” and (b) “Why?” Because a child’s response to (b) may hinge on his or her response to (a), these measures cannot be assumed to be independent. To assess moral affect, the child was asked, “Pretend you took the paints from this child,” (a) “How would you feel if you were painting with the paints?” and (b) “Why?” Again, (a) and (b) cannot be assumed to be independent.

For the vignettes assessing moral cognition, the children’s responses were coded according to whether they assessed the transgression as right or wrong. Responses to this query fell under the category “wrong to take,” if the transgression was assessed as “wrong.” Their reasons were then coded as being either rule-based (i.e., rule reasons; because it is wrong to take from others, it is against the rules; cf. Kohlberg’s Stage 1 reasoning), or emotion based (i.e., emotion reasons; citing the victim’s feelings, stating that it is not nice; cf. Eisenberg’s Level 2 “needs orientation”). If the transgression was assessed as “right” (i.e., negative pole of “wrong to take”), their reasons were coded as being outcome oriented (because I like candy; cf. Eisenberg’s Level 1 “hedonistic orientation”), deservedness (s/he took it first, it was my turn; cf. Kohlberg’s Stage 2 reasoning), or unclassifiable (irrelevant comment). Because of limited variability in both the outcome and deservedness reasons categories, they were collapsed to form a “hedonistic reasoning” category. Authority punish reasons (getting in trouble; cf. Kohlberg’s Stage 1 reasoning) were also recorded, but dropped from the analyses due to their rarity.

For the affect vignettes, a similar logic for the child’s reasoning applies. Children reporting that they would feel “bad” (falling under the category “guilt”) could justify these emotions by citing rule reasons or emotion reasons. Children reporting that they would feel good having committed a transgression (i.e., negative pole of “guilt”) generally cited hedonistic reasons. Because responses to the cognitive and affect vignettes are in principle independent, rule reasons and emotion reasons were aggregated separately for cognition and affect over the three vignettes respectively (rule reasons-cognition, rule reasons-affect, emotion reasons-cognition, emotion reasons-affect). Correlational patterns did not differ appreciably for the cognitive and affective versions of the variables. Therefore, for brevity’s sake, they are aggregated in the correlation matrix. For the mean level analyses, however, they are presented both in the aggregated and non-aggregated forms. Sample sizes are uneven across constructs largely because moral data were not collected at the first study site.

The applied schema has been modified from its predecessors in important ways to suit the goals of the present study (e.g., each transgression involves a contested resource). Nonetheless, emotion-based reasons may well be the most mature level of reasoning for these young children (Eisenberg, 1986).

Self-reported social problem solving strategies

A variation of Aber’s social problem solving measure was administered to assess a child’s self-reported readiness to employ coercive strategies in situations where there is a conflict of interest (Aber, Jones, Brown, Chaudry, & Samples, 1998). The

measure consisted of 6 vignettes that confronted the children with oft-encountered social problems such as gaining access to a swing that is being used by another child and getting teased on the playground. Children were asked, “What would you say or do to get a turn on the swing?” and “What would you say or do to get the other child to stop teasing you?” Included in the analyses here are aggressive responses (i.e., aggressive strategies; “I would call them names,” “I would yell”) and responses considered socially acceptable (i.e., socially acceptable strategies; “I would say please,” “I would ask him/her to stop”).

Social preference

Interviewees were shown photographs of participating classmates displayed in a randomized array mounted to a piece of poster board. In a typical nominations procedure (e.g., Coie & Dodge, 1983), the children were asked, “Who do you like to play with the most?” and “Who do you not play with?” After standardizing nominations received by classroom (to control for variability in classroom size), each child’s social preference score was computed by subtracting his or her number of ‘liked least’ nominations received from the number of ‘liked most’ nominations received.

Results

In this section, partial correlation coefficients (controlling for age) are presented first. Second, gender differences on variable clusters (i.e., via MANOVAs with age partialled) are examined followed by an exploration of mean differences on variable clusters by type (again, with age partialled). For both the gender and type analyses, significant MANOVAs (with age partialled) are followed by univariate tests and apriori contrasts comparing bistrategics to coercive controllers, bistrategics to prosocial controllers, and bistrategics to typical and noncontrollers. Descriptive statistics in raw metric are displayed in Table 1 for the resource control type analysis.

Intervariable partial correlations

Intervariable partial correlation coefficients (controlling for age) are presented in Table 2. In each cell, girls are represented in the top numbers and boys in the bottom numbers. All correlations significant at $p < .05$ are underlined.

Partial correlations among teacher variables

For boys and girls, teacher-rated coercive control was related to resource control and both aggression variables (overt and relational aggression; see Table 2). Additionally, resource control was related to prosocial strategies and both aggression variables for both genders. Furthermore, the aggression variables were strongly intercorrelated in both genders. Last, prosocial control was related to relational aggression for both boys and girls, but not to overt aggression for either gender.

Table 2
Partial correlations (controlling for age)

	Teacher					Child							Peer	
	Coercive control	Prosocial control	Resource control	Overt aggression	Relational aggression	PPVT	Wrong to take	Guilt	Rule reasons	Emotion reasons	Hedonistic reasons	Aggressive strategies	Socially acceptable strategies	Social preference
Teacher														
Coercive control	1.0													
Prosocial control	.21	1.0												
	.05													
Resource control	<u>.48</u>	<u>.37</u>	1.0											
	<u>.49</u>	<u>.35</u>												
Overt aggression	<u>.79</u>	.05	<u>.29</u>	1.0										
	<u>.81</u>	-.07	<u>.43</u>											
Relational aggression	<u>.62</u>	<u>.27</u>	<u>.33</u>	<u>.60</u>	1.0									
	<u>.49</u>	<u>.27</u>	<u>.38</u>	<u>.53</u>										
Child														
PPVT	<u>.29</u>	-.12	.04	.15	<u>.30</u>	1.0								
	-.20	.16	.08	-.27	-.03									
“Wrong to take”	<u>.34</u>	.13	.00	.24	.19	.19	1.0							
	-.15	.17	.09	-.04	.00	.22								
Guilt	<u>.30</u>	.01	-.05	.24	<u>.42</u>	.22	-.11	1.0						
	-.14	<u>-.35</u>	-.08	-.01	<u>-.33</u>	.05	.14							
Rule reasons	.20	.17	-.01	.20	<u>.31</u>	.01	.12	<u>.49</u>	1.0					
	-.01	-.25	.13	.09	<u>-.27</u>	.18	.16	<u>.51</u>						
Emotion reasons	<u>.36</u>	-.03	.00	.13	.26	<u>.31</u>	.04	<u>.48</u>	-.10	1.0				
	-.03	-.07	.14	-.03	.01	.01	.22	<u>.35</u>	-.12					

Table 2 (continued)

	Teacher					Child								Peer
	Coercive control	Prosocial control	Resource control	Overt aggression	Relational aggression	PPVT	Wrong to take	Guilt	Rule reasons	Emotion reasons	Hedonistic reasons	Aggressive strategies	Socially acceptable strategies	Social preference
Hedonistic reasons	<u>-.39</u>	-.02	.10	<u>-.34</u>	<u>-.37</u>	-.21	<u>-.62</u>	<u>-.36</u>	-.18	-.27	1.0			
	-.06	.06	.11	.00	.08	-.19	-.01	-.18	.11	-.16				
Aggressive strategies	.11	.20	.14	<u>.26</u>	.19	-.19	-.20	.01	-.04	-.05	.00	1.0		
	.20	-.16	.11	.18	.14	-.16	-.24	-.15	-.08	-.06	.20			
Soc. accpt strategies	.24	.02	.22	.15	.19	<u>.38</u>	<u>.41</u>	-.11	-.01	-.06	-.15	-.16	1.0	
	-.05	.20	.03	-.13	.01	.17	.15	.17	.27	.22	.18	-.20		
Peers														
Social preference	.03	.17	.04	-.12	.10	<u>.34</u>	.04	<u>.28</u>	.13	.23	-.03	.07	.06	1.0
	-.04	<u>.32</u>	.09	-.16	-.13	.22	-.06	-.20	-.07	-.19	-.03	-.03	.08	

Girls are represented by the top value and boys the bottom value. Values significant at $p < .05$ are underlined.

Partial correlations among child variables

Expressing guilt in the moral interview was positively associated with citing rule reasons and emotion reasons in boys and girls, and negatively associated with citing hedonistic reasons in girls (see Table 2). Also for girls, citing that it is wrong to take was negatively associated with reporting hedonistic reasons and positively related to describing socially acceptable strategies in the social problem solving measure. Scores on the PPVT, controlling for age, were positively associated with reporting emotion reasons and socially acceptable strategies for girls.

Partial correlations among teacher and child variables

For girls, teacher-rated coercive control was positively associated with the PPVT, reporting that it is wrong to take, expressing guilt, citing emotion reasons, and negatively associated with hedonistic reasoning (see Table 2). Teacher-rated relational aggression was positively associated with the PPVT, guilt, and rule reasons, and negatively correlated with hedonistic reasoning. In contrast, relational aggression was negatively associated with guilt and rule reasons in boys. Last, prosocial control was negatively associated with guilt in boys.

Peer partial correlations

For girls, social preference was positively associated with scores on the PPVT and expressions of guilt in the moral interview (see Table 2). For boys, social preference was positively associated with ratings of prosocial control.

Gender mean comparisons

Mean levels of aggression, morality, and social preference (controlling for age)

Gender differences emerged in a MANOVA including the variables associated with aggression and resource control (resource control, teacher-rated overt aggression, teacher-rated relational aggression, self-reported aggressive strategies, reverse coded socially acceptable strategies), $F(5, 154) = 5.80, p < .0001$. Follow-up univariate tests show this difference is due to gender differences on teacher-rated relational aggression, $F(1, 158) = 13.57, p < .0003$; girls: $M = .2$; boys: $M = -.29$. Girls were rated as more relationally aggressive than boys. A MANOVA including the variables associated with moral interview (i.e., wrong to take, guilt, rule reasons, emotion reasons, reverse coded hedonistic reasons) indicated no multivariate effect of gender, $F(5, 89) = 1.05, p = .39$. Additionally, there was no significant effect of gender on social preference, $F(1, 160) = 2.89, p = .09$.

Resource control subtypes

Sample sizes and compositions

Based on teachers' ratings of prosocial and coercive control, 25 children were classified as bistrategics (19 girls, 6 boys), 27 as coercive controllers (13 girls, 14 boys), 42 as prosocial controllers (25 girls, 17 boys), 40 as typicals (20 girls, 20 boys), and 29 as noncontrollers (12 girls, 17 boys). No significant differences were detected in gender

distribution by subtype, $\chi^2(4, n = 163) = 7.87, p < .10$. A MANOVA exploring subtype composition by chronological age and PPVT did not reveal a multivariate effect of subtype, $F(8, 206) = 1.66, p < .12$.

Aggression and resource control by subtype (controlling for age)

The five resource control subtypes differed on resource control, overt aggression, relational aggression, self-reported aggressive strategies, and reverse coded socially acceptable strategies as indicated by a significant multivariate effect, MANOVA; $F(20, 501.76) = 10.00, p < .0001$. Follow up univariate tests (controlling for age; see Table 3) indicated that this multivariate effect was due to significant differences on three of the five dependent variables: resource control, $F(4, 155) = 14.00, p < .0001$; overt aggression, $F(4, 155) = 42.49, p < .0001$; and relational aggression, $F(4, 155) = 20.23, p < .0001$.

A priori contrasts indicated that bistrategic controllers did not differ from coercive controllers on resource control, but were rated significantly higher on resource control than prosocial controllers and children who were not rated highly on the strategies (i.e., typicals and noncontrollers; see Table 4). A similar pattern emerged for overt aggression. In contrast, bistrategics were rated as more relationally aggressive than all other types.

Mean differences in moral measures by subtype

A MANOVA including the variables associated with moral interview (i.e., wrong to take, guilt rule reasons, rule reasons-cognition, rule reasons-affect, emotion reasons, emotion reasons-cognition, emotion reasons-affect, reverse coded hedonistic reasons) revealed a multivariate effect of subtype, $F(28, 293.47) = 1.57, p < .05$; see Table 3. Univariate tests revealed that four of the dependent variables differed significantly across the subtypes at the .05 level: wrong to take, $F(4, 87) = 2.48, p < .05$; rule reasons, $F(4, 87) = 3.03, p < .05$; rule reasons-affect, $F(4, 87) = 3.20, p < .05$; emotion reasons-cognition, $F(4, 87) = 2.62, p < .05$. There were no differences across the groups in expression of guilt, rule reasons-cognitive, emotion reasons, emotion reasons-affect, or hedonistic reasons.

A priori contrasts indicated that bistrategic controllers differed from neither coercive controllers nor prosocial controllers in terms of their tendency to say it was wrong to take from another child, but were significantly more likely than children who were not rated highly in resource control (i.e., typicals and noncontrollers; see Table 4). Bistrategic children were more likely to cite rule reasons than prosocial controllers and typicals/noncontrollers. For rule reasons-affect and emotion reasons-cognition, bistrategics differed significantly only from prosocial controllers.

Mean differences in social preference by subtype

An ANOVA on social preference indicated differences among the subtypes, $F(4, 155) = 3.42, p < .01$; see Table 3. A priori contrasts indicated that bistrategic controllers were significantly more preferred as play partners than coercive controllers and typicals/noncontrollers (see Table 4).

Table 3
Standardized means, *F*s, *p*s, and effect sizes for variables by subtypes

Variable	<i>N</i>	Bistrategic	Coercive	Prosocial	Typical	Noncontroller	<i>F</i>	<i>p</i>	<i>R</i> ²
Teacher									
Resource control	160	.74	.49	.06	−.40	−.67	14.00	<.0001	.26
Overt aggression	161	.80	1.11	−.44	−.54	−.36	42.49	<.0001	.52
Relational aggression	161	1.07	.44	−.20	−.39	−.55	20.23	<.0001	.34
Child									
Wrong to take (cognition)	94	.38	.26	.07	.01	−.57	2.48	.05	.13
Guilt (affects)	94	.23	.04	−.40	−.05	.34	1.79	.14	.09
Rule reasons	94	.48	−.05	−.14	−.26	.30	3.03	.02	.13
Cognition	94	.47	−.06	.12	−.35	.13	1.62	.18	.07
Affect	94	.48	−.03	−.39	−.16	.48	3.20	.02	.12
Emotion reasons	94	.27	.19	−.27	.19	−.05	1.87	.12	.07
Cognition	94	.42	.08	−.32	.41	.22	2.62	.04	.10
Affect	94	.11	.30	−.22	−.03	.12	.71	.59	.03
Hedonistic reasons	94	−.26	−.10	.10	.13	.08	1.73	.15	.08
Aggressive strategies	161	.03	.23	.08	−.14	.04	.53	.71	.01
Socially acceptable strategies	161	.26	.20	.08	.22	−.32	1.64	.17	.04
Peer									
Social preference	161	.52	−.57	.45	−.18	−.30	3.42	.01	.08

Table 4

Contrasts results comparing bistrategic controllers to coercive controllers, bistrategic controllers to prosocial controllers, and bistrategic controllers to typicals and noncontrollers

	BCs vs. CCs	BCs vs. PCs	BCs vs Typ/NCs
Teacher			
Resource control	ns	$F[1, 155] = 10.41^{**}$	$F[1, 155] = 42.01^{**}$
Overt aggression	ns	$F[1, 155] = 56.14^{**}$	$F[1, 155] = 65.61^{**}$
Relational aggression	$F[1, 155] = 8.46^{**}$	$F[1, 155] = 41.28^{**}$	$F[1, 155] = 69.25^{**}$
Child			
Wrong to take	ns	ns	$F[1, 87] = 5.06^*$
Rule reasons	ns	$F[1, 87] = 6.33^*$	$F[1, 87] = 3.85^*$
Rule reasons (affect)	ns	$F[1, 87] = 7.72^*$	ns
Emotion reasons (cognition)	ns	$F[1, 87] = 5.38^*$	ns
Peer			
Social preference	$F[1, 155] = 7.47^{**}$	ns	$F[1, 155] = 4.69^*$

BCs refer to bistrategic controllers, CCs refer to coercive controllers, PCs refer to prosocial controllers, Typ refers to typicals, and NCs refer to noncontrollers.

* Indicates $p < .05$.

** Indicates $p < .01$.

Discussion

Aggressive children are commonly believed to be morally underdeveloped. Yet, “aggressive children” are increasingly being recognized as a heterogeneous group (e.g., Hawley, 2003; Rodkin et al., 2000; Sutton, Smith, & Swettenham, 1999c). The present study explored this heterogeneity within the context of resource control theory, which hypothesizes two distinct groups of aggressive children: unskilled controllers and socially skilled bistrategic controllers.

First, a number of relations stand out in the correlational analysis. In terms of validity, both teacher-rated prosocial and coercive strategies of control are related to resource control. Additionally, teacher-rated coercive control is related to aggressive behavior. Interestingly, prosocial control was related to relational aggression in both boys and girls.

In terms of the moral measures, both citing of rule reasons and emotion reasons were correlated with the expression of guilt. In contrast, stating that it is “wrong to take” was not correlated with guilt. This pattern suggests a difference in moral maturity between those children who state it is wrong to take and follow up by valid reasons and the expectation that they would experience a negative emotional state if they committed such a transgression, and those who simply parrot back that it is wrong to take without necessarily understanding why and its emotional impact on themselves, the transgressor.

Also uncovered were positive correlational relations between teacher-rated aggression (coercive control and relational aggression) and moral functioning in girls. In other words, the more aggressive the girl as described by the teacher, the more morally mature her responses in the moral interview (guilt, rule reasons, emotion

reasons, and low on hedonistic reasons). Although not meshing well with commonly accepted notions about the relation between aggression and moral maturity, it may add additional information about the special relationship that girls have with aggression. Girls more than boys lean toward relational forms of aggression when described via teacher report (disrupting the social relationships of others by way of gossip, etc; Crick et al., 1997). This type of aggression, Crick and colleagues argue, may be a function of the different social goals of boys and girls (i.e., dominance versus intimacy; Crick & Grotpeter, 1995). Socially active girls high in intimacy needs may be the relational aggressors, and relational aggression is effectively employed only insofar as one understands the social nexus and its rules of interaction. If social relationships are viewed as a resource over which girls compete, relational aggression may be an effective means of defending a relationship once it has been won. Thus, relationally aggressive girls may hold superior social understandings in the pre-school years, perhaps those that would predict moral maturity in a moral interview such as ours.

The relations between relational aggression and moral reasoning contrast to trends described by, for example, Bear and Rys (1994) (see also Bear, 1989; Richards, Bear, Stewart, & Norman, 1992). In their studies of elementary school aged children, the most mature levels of reasoning tended to be associated with the absence of aggressive behavior in the classroom. Furthermore, hedonistic orientation in boys was associated with fewer social competencies, greater acting out, and less social preference (Bear & Rys, 1994). The relations among negative behavior and moral functioning found by Bear and Rys were not replicated in girls at least in part because, “. . . there was little variance in acting-out among girls—nearly all were well-behaved” (Bear & Rys, 1994, p. 637). They did not, however, measure relational aggression.

In the present study, acting out was not directly measured. Yet, overt aggression was unrelated to moral functioning in boys. In contrast, relational aggression was negatively associated with boys expressing guilt and citing rule reasons. By way of the relational aggression construct, the girls participating in the present study clearly demonstrated that they were not always well behaved (see also Hawley, 2003; Little et al., 2003a, 2003b). Not only did girls engage in more relational aggression than boys, but they did not differ from boys in terms of overt aggression (cf. Crick et al., 1997). Furthermore, the higher the ratings on coercive control, overt aggression, and relational aggression, the *less* likely the girls would cite hedonistic reasons (hedonistic reasoning was unrelated to negative behavior in boys). Thus, the results from the present study and those of Bear and Rys and colleagues stand in stark contrast. It is not clear whether the differential results are due to the different ways we measured negative behavior or whether genuine developmental differences were captured.

In addition to the unique findings in the correlational analyses, mean level exploration by subtype revealed additional patterns that suggest a relation between aggression and moral maturity not detectable with standard linear approaches. Significant differences among the groups were found for citing that it is wrong to take, citing rule reasons overall, citing rule reasons when expressing guilt, and citing emotion reasons when stating that it is wrong to take. Despite this modest patchwork of significant

effects, bistrategic children consistently scored among the top two groups on each and every moral variable. Their evident moral maturity is an interesting comparison to the findings of Sutton and colleagues (Sutton et al., 1999c) which show that ringleader bullies demonstrate a well-developed theory of mind. Both the present findings and the work of Sutton et al. confront commonly held stereotypes of the physically powerful and oafish bully.

In addition to being anything but morally deficient, bistrategics were also the most socially preferred children (although not significantly different from prosocial controllers). The comparison between the bistrategics and coercive controllers is instructive; coercive controllers were least preferred whereas bistrategics were among the most preferred. On the basis of aggression alone, we might expect to see both coercive controllers and bistrategic controllers as the least preferred since they are after all rated as highly aggressive by teachers (Coie & Dodge, 1998; Coie et al., 1990). This unconventional finding is not unique to this preschool age group. In adolescence, prosocial controllers are the most preferred peers followed by bistrategic controllers. Adolescent bistrategics, however, are perceived by the peer group to be the most popular (i.e., of very high status; Hawley, 2002). Similar patterns have been documented by others who have found social dominance to have both affiliative and aggressive dimensions (Pellegrini & Bartini, 2001). Aggressive behavior alone apparently is not cause enough for peer rejection, especially when the aggression is balanced by effective goal attainment and positive behavior towards others.

If moral reasoning was predicted solely on the basis of aggression and negative behavior, then we might expect to see noncontrollers as the most morally mature. This, however, was not the case. As a group, they were the least likely to cite a transgression as being wrong (although when they did cite it as being wrong, they were most likely to cite rule reasons). This finding is consistent with Furman's (1987) contention that social withdrawal may inhibit moral understanding. Across a number of studies, noncontrollers have been the least socially active and may in fact be most "at risk" in part due to their lack of resource-directed behavior (or lack of success), anxiety, and concomitant social rejection and negative affect (Hawley, 2003; Hawley et al., 2002). Additionally, noncontrollers rate themselves as lowest of all groups on measures of social competence (Hawley, 2003). In contrast, bistrategic grade-school children appear to be among the most socially sophisticated, socially integrated and resource-effective children, their aggression and deception notwithstanding. These children are likely among the most socially active, and that social activity may well be the proximal mechanism for the development of moral reasoning.

Curiously, the prosocial controllers were not particularly morally developed. As a group, they scored average on citing that it is wrong to take, yet well below average on expressions of guilt (see Table 3). This group as a whole tended to report positive emotions in response to the question, "how would you feel now that you are (playing with the toy)." One might conclude that they are "happy victimizers" (Arsenio & Lover, 1995). But the low level of aggression displayed by these children suggest that they are not moving roughly through the world denying other children access to

desired resources. Because these children tend to be highly agreeable (Hawley, 2003; Hawley et al., 2002), they might not have been able to disengage this positive enthusiasm within the context of our moral interview. As a group, they quickly reply that they would be happy swinging on the swing (after having taken it), because they love swinging. With a bit more development, these children may very well meet if not exceed other groups.

A theoretical perspective borrowing aspects from resource control theory (Hawley, 1999) and reciprocal altruism (Trivers, 1971) suggests that these findings are not wholly unexpected. Fundamental self interest guides individuals to be resource-directed to various degrees in part due to variability in proclivity and ability to compete with others. Various strategies are employed to this end. Unmitigated coercion is readily detected by the social group and censored by it. Such strategies may yield short-term gains (e.g., in terms of resource control), but these gains are counter-balanced by aversion from the peer group. In contrast, a more effective strategy, indeed the most effective strategy, would be to balance direct/coercive strategies with more socially acceptable ones (e.g., ingratiation, reciprocation). Resources won impress the group without incurring excessive social cost. This bistrategic orientation, however, requires skills and characteristics not essential to unmitigated coercion. Bistrategics have been found to be well-in tune with others' goals and perspectives, and appear to operate well-within social norms without, perhaps, actually doing so. This study provides the first evidence that these children may fulfill this theoretical profile.

Limitations of study

The moral interview measured moral cognition, not moral behavior. It is well documented within the developmental and other literatures that moral reasoning and moral behavior are only loosely connected (Eisenberg & Fabes, 1998). Perhaps this gap between knowledge and self-reported feelings and moral action is greatest for bistrategic children. They may be highly motivated to appear moral, without incurring the costs of actually behaving morally (e.g., moral hypocrisy; Batson et al., 1999). Additional studies are needed to clarify moral behavior in a well-controlled setting.

Furthermore, the measure of moral cognition and affect in this study followed only loosely accepted protocols (e.g., Eisenberg, 1986; Kohlberg, 1981; Lourenco, 1997). The vignettes used here were specifically designed to tap into moral reasoning and moral affect within the context of a resource-centered conflict of interest. The vignettes were not designed to measure helping and sharing or to elicit children's personal moral philosophies. Because the differences of interest in the present study hinge on how resources are controlled in this age group, resource-centered dilemmas provided the most appropriate test in this regard (Levin & Beckerman-Greenberg, 1980). In addition, because our participants were preschoolers of tender age, we clearly encountered a restricted range of responses. These children did not go beyond citing 'it's not nice' or 'it's against the rules' in terms of moral maturity. Perhaps differences among the groups would be enhanced with older participants.

Conclusions

Morality is the device of an animal of exceptional cognitive complexity, pursuing its interests in an exceptionally complex social universe.

Daly and Wilson, 1988 (p. 254)

An evolutionary perspective is not the only one useful to view these data. Interesting inferences can be drawn, for example, on the social activity argument alone, which is quite consistent with Piagetian points of view (for an additional perspective, see Sutton et al., 1999a, 1999b). Nonetheless, counterintuitive findings mesh well with perspectives that suggest clever and effective individuals will use various strategies to control resources, and social savvy, including the ability to understand and report back societal norms for resource-directed transgressions, will serve this end so much the better. Together, this theoretical profile and pattern of results evoke an image of Niccolo Machiavelli who was in fact well aware of the prevailing moral climate; he simply advised that following it closely may not serve the best interest of the state.

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