

Borrower: UUO
System: OCLC

Call #:

Location: online

Lending String: *COU,AAA,AZU,KSW

Patron: Amsel, Eric

Journal Title: European journal of developmental psychology.

Volume: 10 **Issue:** 2
Month/Year: 2013 **Pages:** 144-158

Article Author: Gummerum, M., Cribbett, C.,
Nogueira Nicolau, A., & Uren, R.

Article Title: Counterfactual reasoning and moral
emotion attribution. European

Imprint: Basingstoke ; Psychology Press on
behalf

ILL Number: 109526701



Shipping Address:

STEWART LIBRARY - ILL
WEBER STATE UNIVERSITY
2901 UNIVERSITY CIRCLE
OGDEN US-UT 84408-2901 US

Phone: 137.190.23.31
Fax: (801)626-8521
Email: interlibrary@weber.edu

Billing Info:

Charge 12 IFM
Maxcost: 20.00IFM

NOTES:

Supplied From:

University of Colorado Anschutz Medical Campus
Health Sciences Library
OCLC Symbol: COU
DOCLINE Symbol: COUCOL

Contact Info:

Health Sciences Library - ILL/DocDel
Phone: 303-724-2111
Fax: 303-724-2150
Email: copydocs@ucdenver.edu
Odyssey: 206.107.42.56

Business Hours:

Monday-Friday, 8am to 5pm

Mailing Address:

Interlibrary Loan/Doc Del
Mail Stop A003, Health Sciences Library
12950 E. Montview Blvd., Room 2106C
Aurora, CO 80045

Health Sciences Library - Anschutz Medical Campus ILL Office



ILLiad TN: 122768

WARNING CONCERNING COPYRIGHT RESTRICTIONS

The copyright law of the United States (Title 17, United States Code) governs the making of photocopies or other reproductions of copyrighted material.

Under certain conditions specified in the law, libraries and archives are authorized to furnish a photocopy or other reproduction. One of these specified conditions is that the photocopy or reproduction is not to be "used for any purpose other than private study, scholarship, or research." If a user makes a request for, or later uses, a photocopy or reproduction for purposes in excess of "fair use," that user may be liable for copyright infringement.

This institution reserves the right to refuse to accept a copying order if, in its judgment, fulfillment of the order would involve violation of Copyright law. No Further reproduction and distribution of this copy is permitted by transmission or any other means.

Counterfactual reasoning and moral emotion attribution

Michaela Gummerum, Christopher Cribbett,
Anna Nogueira Nicolau, and Rebecca Uren

School of Psychology, Cognition Institute, University of Plymouth, Plymouth, UK

Studies in the happy victimizer paradigm have shown that preschool children attribute positive emotions to a norm violator whereas older elementary-school children tend to attribute negative emotions. The current research explored the possibility that children's counterfactual reasoning ability (i.e., their capacity to imagine alternatives to reality) can explain this age difference in moral emotion attribution. In Study 1, 100 4- and 8-year-old children attributed significantly more negative emotions to victimizers in a counterfactual-prime condition, in which an alternative course of action was presented before the emotion attribution, than in a no-prime condition, where no counterfactual prompt was given. Counterfactual reasoning ability significantly predicted negative emotion attribution in the no-prime condition. In Study 2, the counterfactual reasoning of 143 4- and 8-year-old children significantly predicted negative emotion attribution to the victimizer. When controlling for counterfactual reasoning, focusing on the victim of a violation did not affect emotion attribution to the violator.

Keywords: Moral emotions; Counterfactual reasoning; Happy victimizer paradigm.

Understanding and anticipating one's own and others' emotions is a major developmental achievement that plays an important role in social interactions and moral behaviour (Harris, 1985). By experiencing and remembering the emotional consequences and antecedents of moral and immoral acts, children imagine how they or others might feel when faced with a similar situation (Arsenio, Gold, & Adams, 2006; Arsenio & Lover, 1995). Anticipating the negative feelings of a norm violator (e.g., guilt, regret, sadness) and the victim of a violation (e.g., sadness, anger) serves as an important motivation to act in accordance with moral norms (Hoffman, 2000; Nichols, 2002). This study intended to investigate when

Correspondence should be addressed to Michaela Gummerum, School of Psychology, Cognition Institute, University of Plymouth, Drake Circus, Plymouth, Devon PL4 8AA, UK. Email: michaela.gummerum@plymouth.ac.uk

and why children attribute negative emotions to the violator of a moral norm by interconnecting research on counterfactual reasoning and the happy victimizer paradigm.

Attributing moral emotions: The happy victimizer paradigm

Imagine the following situation: A child brings a chocolate bar to school and puts it into the pocket of her jacket to eat later on. When the child is not looking, her classmate takes the chocolate out of the pocket. Is it right what the classmate did? And how does the classmate feel? Scenarios and questions like these are commonly used in the so-called happy victimizer paradigm, which investigates people's understanding of moral violations and the emotions associated with these violations (Arsenio et al., 2006). Research in this tradition has shown that most adults, adolescents, and children acknowledge that actions, such as stealing somebody's chocolate, are wrong. However, whereas adults generally attribute negative emotions, such as guilt, regret, and sadness, to a violator (i.e., the classmate), preschool and young elementary-school children attribute positive emotions to the classmate or any violator who benefits from a moral transgression by obtaining a (selfish) goal (see Arsenio et al., 2006; Krettenauer, Malti, & Sokol, 2008, for overviews). This is surprising, because even preschool children can differentiate between moral and social-conventional transgressions, understand that moral transgressions are wrong because they have negative effects on others' welfare and rights (Turiel, 1983), and know that the victim of the norm violation will feel bad. Thus, the happy victimizer phenomenon represents a disjuncture between children's knowledge about moral norms and their understanding of moral emotions.

The happy victimizer phenomenon has proven to be rather robust among preschool and early elementary-school children. Young children's positive emotion attributions to violators are not influenced by the severity of the transgression's consequences for the victim, the tangibility of the profit gained through the violation, or the kind of relationship between violator and victim (Arsenio & Kramer, 1992; Nunner-Winkler & Sodian, 1988). Whereas some studies reported an increase in the attribution of negative feelings to the victimizer between 6 and 8 years (Keller, Lourenço, Malti, & Saalbach, 2003; Nunner-Winkler & Sodian, 1988), others found no or only a partial shift during these ages (Arsenio & Kramer, 1992; Dunn, Brown, & Maguire, 1995; Murgatroyd & Robinson, 1993).

It is still unclear what causes the switch from attributing positive emotions to the victimizer in preschool to attributing negative emotions in late childhood. Nunner-Winkler and Sodian (1988) proposed a motivational approach to the happy victimizer findings: Young children focus on the match between a victimizer's desires and the outcome of the action and think that victimizers feel happy if they get what they want. Older children, in contrast, display a moral orientation that is influenced by moral standards and the victim's pain. Arsenio and colleagues (Arsenio et al., 2006; Arsenio & Kramer, 1992; Arsenio & Lover,

1995) suggested that the shift from positive to negative emotion attribution to victimizers is based on children's increasing ability to coordinate emotions. Whereas young children view the emotions of victims and victimizers as two independent affective reactions to the same event, older children recognize the victimizer's emotional conflict (i.e., happiness due to fulfilled desires vs. guilt over the victim's situation) and attribute mixed or negative emotions. These authors and others (e.g., Krettenauer et al., 2008) acknowledged that more general cognitive-developmental factors might account for the decline of happy victimizer emotions with age.

Emotion attribution and counterfactual reasoning

We investigated whether children's counterfactual reasoning ability, that is their capacity to compare reality to an imagined alternative (Roese, 1997), or their ability to "hold in mind two possibilities" (Beck, Robinson, Carroll, & Apperly, 2006, p. 414), is one of those general cognitive abilities that might explain the developmental shift from positive to negative emotion attribution to victimizers. In line with previous research with adults (e.g., Niedenthal, Tangney, & Gavanski 1994; Wells & Gavanski, 1989) we suggest that counterfactual reasoning helps people evaluate whether another person has caused the outcome of an action. Violators who could have acted differently should feel more responsible for their action (and thus should feel worse about a bad outcome) than violators, for whom one cannot envisage alternative, better actions (see Olthof, Ferguson, Bloemers, & Deij, 2004). This interpretation also fits with appraisal theories of emotions (e.g., Weiner, 1986), which suggest that emotion attributions are based on a two-step process: In a "primary appraisal" process, a situation is evaluated in terms of its perceived success and failure, and positive emotions are attributed for success, negative ones for failure. Weiner (1986) calls these emotions "outcome-dependent", because they are only determined by the (non-)attainment of a goal and not by any evaluation of what might have caused this outcome. In a "secondary appraisal" process, the individual then undertakes a causal search as to why the outcome occurred. The causal dimensions (e.g., locus of control, stability, controllability) people use to appraise the outcome play an important role in shaping affective reactions. Counterfactual thinking can be seen as assisting people in this causal analysis of an outcome.

A few studies have shown the importance of counterfactual reasoning for the experience and attribution of guilt, shame, and regret in adults. Niedenthal and colleagues (1994) suggested that guilt, shame, and regret are based on spontaneous counterfactual reasoning, that is, the tendency to cognitively undo a negative situation and to imagine alternative scenarios or actions that might have led to a better outcome. They found that adults instructed to generate behavioural alternatives for an event reported feeling greater shame and guilt than participants who only thought about the factual event. Mandel and Dhimi (2005)

showed that adult prisoners who were instructed to think counterfactually about their offence (e.g., “How things might have turned out, if I had done something differently”) reported more guilt than prisoners who were instructed to think factually (e.g., “How things turned out the way they did because of what I did”).

Developmental research has shown that it is not until the age of 6 or 7 years that children comprehend that the factual event and the counterfactual alternative are two possibilities that could both have realistically occurred in the past (Beck et al., 2006). Studies on the development of counterfactual emotions, such as regret and guilt (e.g., Beck & Crilly, 2009; Guttentag & Ferrell, 2004; Meehan & Byrne, 2005), have consistently found that 7- to 9-year-old children, like adults, compare the actual situation to “what might have been” when attributing regret or guilt to another person. For example, Guttentag and Ferrell (2004) presented 5- and 7-year-olds and adults with stories in which each one of two characters engaged in an action that led to a negative outcome. One protagonist, however, could have chosen an alternative course of action that would have led to a better outcome. Seven-year-olds and adults attributed more regret to the protagonist who could have chosen an alternative course of action. Five-year-olds attributed the same level of regret to both protagonists, indicating that they based their judgements only on the factual outcome and did not compare it to a counterfactual alternative.

STUDY 1

Study 1 investigated the role of counterfactual reasoning for children’s emotion attribution to violators in the happy victimizer task. In line with previous research with adults (e.g., Mandel & Dhami, 2005; Niedenthal et al., 1994), we expected that children would attribute more negative emotions to a victimizer in a counterfactual-prime condition, in which an alternative course of action was explicitly presented, than in a no-prime condition, in which no counterfactual alternative was mentioned before the emotion attribution.

Additionally, we predicted that counterfactual reasoning ability would be related to the attribution of negative emotions to the victimizer in the no-prime, but not in the counterfactual-prime condition. This is because in the no-prime condition no explicit counterfactual prompt is given, so children with higher counterfactual reasoning abilities should be more likely to generate alternatives to reality and attribute more negative emotions to the violator.

Method

Participants. One hundred children, fifty 4- and 5-year-olds ($M_{\text{age}} = 52.14$ months, $SD = 3.10$ months; 27 girls, 23 boys) and fifty 7- and 8-year-olds ($M_{\text{age}} = 96.50$ months, $SD = 5.02$ months; 28 girls, 22 boys) participated. Children were recruited either from a participant register at the authors’ institution or from primary schools in southern England. Ninety-eight percent of the sample was

White, and most participants came from lower-middle to middle-class families. Only children who received parental consent were allowed to participate.

Procedure. Participants were individually tested in a separate room or a quiet corner of their school by a female experimenter. The experimenter briefed the children about the study, explained that their answers would remain anonymous, and asked whether the children would like to participate. Participants were presented with two tasks in counterbalanced order, a happy victimizer task (consisting of two different stories) and a counterfactual reasoning task. All participants were tested in one session lasting no longer than 30 minutes and were debriefed and thanked after the session.

Measures

Happy victimizer task. This task consisted of two different stories, each illustrated with cartoon drawings (see Keller et al., 2003). The story characters' gender was matched to the gender of the participant. In the *stealing* story, the protagonist (victimizer) witnesses another child putting a chocolate bar in his or her bag. The protagonist steals the chocolate bar when the other child turns away. In the *helping* story, the protagonist (victimizer) refuses to share some colouring pencils with another child.

Participants were tested in either the no-prime or the counterfactual-prime condition. In both conditions, participants were first questioned about their *moral judgement*:

1. Is it right what Judy/Tim did?

In the no-prime condition, after each story two questions were asked in a specified order. For example, after the stealing story, the questions, in order, were:

2. How does Judy/Tim feel now? (*Factual emotion attribution victimizer.*)
3. How would Judy/Tim feel if she/he had not taken the chocolate? (*Counterfactual emotion attribution victimizer.*)

In the counterfactual-prime condition, the order of the factual and counterfactual emotion attribution questions was reversed. Thus, the counterfactual alternative (not stealing/helping) was directly pointed out to the participants before their factual emotion attribution. For example, after the stealing story, the following questions were asked:

2. How would Judy/Tim feel if she/he had not taken the chocolate? (*Counterfactual emotion attribution victimizer.*)
3. How does Judy/Tim feel now? (*Factual emotion attribution victimizer.*)

Participants' answers were transcribed verbatim by the experimenter. Responses to the moral judgement question were coded as 0 (protagonist's action was right) and 1 (protagonist's action was not right). Responses to the factual and counterfactual emotion attribution question were coded as 0 for

positive (e.g., protagonist felt happy, good, etc.), 1 for ambivalent (e.g., protagonist felt “good and bad”), 2 for negative (e.g., protagonist felt bad, unhappy, etc.), or 3 for uncodable (no answer or theoretically unrelated feelings, such as “surprised”). Inter-rater agreement was excellent with $\kappa = .98$. Because ambivalent feelings were attributed rather infrequently among the 8-year-olds only (8% vs. 10% in either story), we combined it with the “negative” category for statistical analysis.

Emotion attributions in the no-prime and counterfactual-prime condition were highly correlated across stories (no-prime: Cramer’s $V = 0.43$, $N = 89$, $p < .001$; counterfactual-prime: Cramer’s $V = 0.47$, $N = 89$, $p < .001$), and we therefore combined factual and counterfactual emotion attribution across stories. Values on these new variables could range from 0 (attribution of positive emotions in both stories) to 2 (attribution of negative emotions in both stories).

Counterfactual reasoning task. This task measured whether children acknowledge that the world would be different now if an earlier event had not occurred. Three stories were used (see Riggs, Peterson, Robinson, & Mitchell, 1998). In the picture story, a child’s painting is blown into a tree in her absence; in the post-office story, a husband leaves the house to put out a fire while his wife is out; in the shop story, a clerk leaves work to go to the doctor in the absence of a colleague. After each story, two questions were asked and participants’ answers were transcribed verbatim by the experimenter. For example, after the picture story, the following questions were asked:

1. If the wind had not blown, where would the picture be? (*Counterfactual question.*)
2. Where was the picture in the beginning? (*Memory question.*)

For each story, participants received a score of 1 if they answered both the counterfactual and the memory question correctly. Sum scores were derived.

Results and discussion

Ninety percent of younger and 95% of older children in the stealing story, and 90% of younger and 98% of older children in the helping story judged that the action of the protagonist was “not right”. All remaining analyses only include those participants who judged the protagonist’s action as “not right” in both stories.

Table 1 displays the means for the study variables by age and condition. Counterfactual reasoning was significantly higher in older than younger children, $F(1, 84) = 28.72$, $p < .001$, $\eta_p^2 = .26$. The insignificant effect of condition indicates that participants randomly assigned to the two prime conditions did not differ in terms of their counterfactual reasoning ability.

We predicted that participants would attribute more factual negative emotions to the violator in the counterfactual-prime than in the no-prime condition.

TABLE 1
Means and SDs of counterfactual reasoning and emotion attributions by age and condition in Studies 1 and 2

		Age	
		4- and 5-year-olds <i>M (SD)</i>	7- and 8-year-olds <i>M (SD)</i>
<i>Study 1</i>			
Counterfactual reasoning		1.98 (1.00)	2.90 (0.51)
No-prime condition			
	Factual emotion attribution	0.73 (0.70)	1.32 (0.75)
	Counterfactual emotion attribution	0.72 (0.96)	0.54 (0.66)
Counterfactual-prime condition			
	Factual emotion attribution	1.39 (0.85)	1.83 (0.39)
	Counterfactual emotion attribution	1.22 (0.81)	0.60 (0.68)
<i>Study 2</i>			
Counterfactual reasoning		2.48 (0.79)	2.85 (0.39)
Victim-first condition			
	Emotion attribution to victimizer	1.52 (0.75)	1.59 (0.62)
Victim-second condition			
	Emotion attribution to victimizer	0.77 (0.75)	1.63 (0.53)

A univariate analysis of variance (ANOVA) with the dependent variable Factual Emotion Attribution and the two independent variables Age and Condition revealed the significant main effect of Condition, $F(1, 82) = 15.07, p < .001, \eta_p^2 = .16$, and Age, $F(1, 82) = 11.55, p = .001, \eta_p^2 = .13$. Older children attributed significantly more negative emotions than younger children, which is in line with earlier research (Arsenio et al., 2006; Krettenauer et al., 2008). Overall, participants in the counterfactual-prime condition attributed significantly more negative emotions than participants in the no-prime condition (Table 1). This indicates that, similar to adults, prompting children to think about alternatives to reality, or encouraging them to think counterfactually about a situation, increases the attribution of negative emotions to victimizers (Mandel & Dhami, 2005; Niedenthal et al., 1994).

We used hierarchical linear regression analysis to assess the role of both condition and counterfactual reasoning for children's factual emotion attribution. We entered the independent variables of age, condition, and counterfactual reasoning at Step 1, and the interaction term of counterfactual reasoning \times condition at Step 2. Interaction terms were created by calculating the product of the mean-centred main effects (Aiken & West, 1991). As shown in Table 2, age and condition significantly predicted factual emotion attribution:

TABLE 2
Results of hierarchical regression analysis predicting factual emotion attribution in Study 1

Independent variables	Factual emotion attribution	
	β	ΔR^2
Step 1		.34**
Age	0.22*	
Condition	-0.47**	
Counterfactual reasoning	0.18	
Step 2		.05*
Age	0.22*	
Condition	-0.47**	
Counterfactual reasoning	0.01	
Counterfactual reasoning \times Condition	0.21*	

Note: * $p < .05$; ** $p < .01$.

Older children and participants in the counterfactual-prime condition attributed more negative emotions than younger children and participants in the no-prime condition. Furthermore, the interaction between counterfactual reasoning and condition significantly predicted factual emotion attribution.

To further analyse this interaction, we calculated the slopes and plotted the interaction following the procedures outlined by Aiken and West (1991). The slopes for the no-prime and counterfactual-prime condition were 0.28 ($p < .001$) and 0.01 (*ns*), respectively. Figure 1 shows that in the no-prime condition negative emotion attribution increased with the level of counterfactual reasoning. In the counterfactual-prime condition, negative emotion attribution did not depend on counterfactual reasoning. Thus, children’s capacity to spontaneously

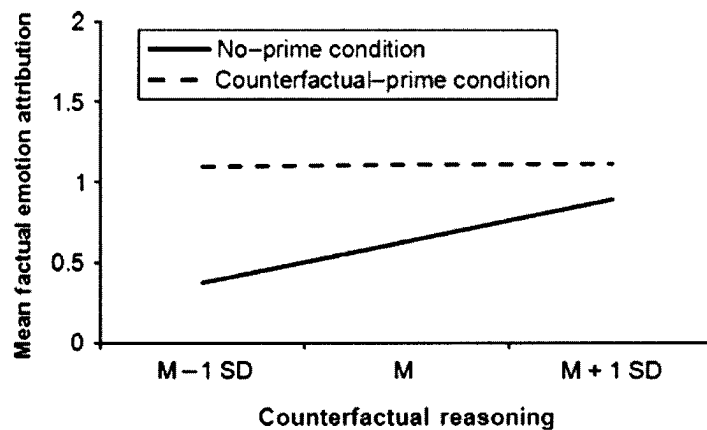


Figure 1. Interaction of counterfactual reasoning with condition: Prediction of factual emotion attribution to the victimizer in Study 1.

imagine “what might have been”, or their counterfactual reasoning ability, is related to the attribution of negative emotions to the violator in the no-prime condition, where no counterfactual prompt was given. When children are explicitly shown the counterfactual alternative, as in the counterfactual-prime condition, they no longer need counterfactual reasoning to generate alternative ways of acting. The explicit counterfactual prompt used in the counterfactual-prime condition is enough to increase negative emotion attribution to the victimizer. However, in the no-prime condition, this explicit cue is not provided, and therefore children must utilize their counterfactual reasoning abilities to ascribe negative emotions to the victimizer.

STUDY 2

Overall, Study 1 points to the importance of counterfactual reasoning for moral emotion attribution to a victimizer. However, it is possible that the counterfactual-prime condition, rather than prompting children to think about alternative courses of action, focused children’s attention on the negative consequences of the violation for the victim. Thus, an alternative interpretation would be that children thought more about the victim, and hence attributed more negative emotions to the victimizer, in the prime than in the no-prime condition.

We explored this hypothesis in more detail in Study 2. Children were tested in two conditions: In a victim-first condition children had to first attribute emotions to, and therefore focused their attention on, the victim before attributing emotions to the victimizer. In a victim-second condition participants were first asked about the emotions of the victimizer before they attributed emotions to the victim. If the condition effect found in Study 1 is due to a focus of attention on the victim, we would expect participants in the victim-first condition to attribute more negative emotions to the violator than participants in the victim-second condition.

We additionally assessed children’s counterfactual reasoning ability. Based on Study 1’s findings, we predicted a positive correlation between counterfactual reasoning and negative emotion attribution to the victimizer.

Method

Participants. One hundred forty-three children, 51 4- and 5-year-olds ($M_{age} = 58.91$ months, $SD = 6.65$ months; 29 girls, 22 boys) and 92 7- and 8-year-olds ($M_{age} = 93.65$ months, $SD = 10.97$ months; 52 girls, 40 boys), were recruited either from a participant register at the authors’ institution or from primary schools in southern England. Most participants came from lower-middle to middle-class families and about 90% of them were British, with the remaining children either having an East Asian or Eastern European background. Only children who received parental consent were allowed to participate.

Procedure. The procedure was the same as the one used in Study 1.

Materials

Happy victimizer task. We used the same helping and stealing stories as in Study 1. After each story, participants were first asked about their *moral judgements*:

1. Is it right what Judy/Tim did?

Then participants were either tested in the victim-first or victim-second condition. In the victim-first condition, after each story two questions were asked in specified order:

2. How does the victim feel now? (*Emotion attribution victim.*)
3. How does Judy/Tim feel now? (*Emotion attribution victimizer.*)

In the victim-second condition, the order of these questions was reversed:

2. How does Judy/Tim feel now? (*Emotion attribution victimizer.*)
3. How does the victim feel now? (*Emotion attribution victim.*)

Participants' answers were described verbatim and coded according to the same coding system described for Study 1. Inter-rater agreement was very good with $\kappa = .97$.

Emotion attributions to the victimizer were correlated across the two stories (Cramer's $V = 0.28$, $N = 140$, $p = .002$) and were therefore combined into a single variable, which could range from 0 (attribution of positive emotions in both stories) to 2 (attribution of negative emotions in both stories).

Counterfactual reasoning task. The stories, questions, and scoring of the counterfactual reasoning task were identical to those used in Study 1.

Results and discussion

Ninety percent of younger and 100% of older children in the stealing story and 92% of younger and 100% of older children in the helping story judged that the action of the protagonist was "not right". All following analyses are based only on those participants who judged the protagonist's action as "not right" in both stories. Ninety-two percent of younger and 93% of older children in the stealing story and 90% of younger and 97% of older participants in the helping story judged that the victim of the violation would feel bad.

Table 1 shows the mean scores of the main study variables by age and condition. Younger children's counterfactual reasoning was significantly lower than that of older children, $F(1, 135) = 12.34$, $p = .001$, $\eta_p^2 = .09$, but did not differ by condition. Older children attributed significantly more negative emotions to the violator than younger children, $F(1, 135) = 15.36$, $p < .001$, $\eta_p^2 = .11$, and participants in the victim-first condition attributed significantly more negative

emotions than those in the victim-second condition, $F(1, 135) = 9.07, p = .003, \eta_p^2 = .07$, which is line with previous research (Arsenio & Kramer, 1992). This effect of condition was particularly pronounced among younger children, whereas older children attributed similar levels of negative emotions to the violator in both conditions, $F(1, 135) = 11.43, p = .001, \eta_p^2 = .08$.

Counterfactual reasoning correlated positively and significantly with moral emotion attribution in younger, $r(43) = .33, p = .03$, and older children, $r(92) = .27, p = .009$ and in both conditions, victim-first: $r(67) = .37, p = .002$; victim-second: $r(68) = .34, p = .005$. To examine the role of both condition and counterfactual reasoning for participants' emotion attribution to the victimizer, we conducted hierarchical linear regression analysis. At Step 1, we entered the independent variables of age, condition, and counterfactual reasoning. At Step 2, we additionally entered the interaction term of counterfactual reasoning \times condition. Age and counterfactual reasoning significantly predicted emotion attribution to the violator (see Table 3). In line with previous research and findings from Study 1, older children and participants with higher counterfactual reasoning ability attributed more negative emotions to the violator than younger children and those with lower counterfactual reasoning ability. However, when controlling for counterfactual reasoning ability, condition did not affect negative emotion attribution to the victimizer.

These results indicate that the condition effect found in Study 1 is unlikely to have resulted from an increased focus on the victim's situation. Instead, prompting children to consider counterfactual actions might have led to an increase in negative emotion attributions to the victimizer in the counterfactual-prime compared to the no-prime condition.

TABLE 3
Results of hierarchical regression analysis predicting emotion attribution to the victimizer in Study 2

<i>Independent variables</i>	<i>Emotion attribution</i>	
	β	ΔR^2
<i>Step 1</i>		.17**
Age	0.23**	
Condition	0.11	
Counterfactual reasoning	0.28**	
<i>Step 2</i>		.001
Age	0.23**	
Condition	0.10	
Counterfactual reasoning	0.25**	
Counterfactual reasoning \times Condition	0.05	

Note: * $p < .05$; ** $p < .01$.

GENERAL DISCUSSION

Previous research in the happy victimizer tradition has had difficulties explaining the developmental shift from positive to negative emotion attributions to the victimizer when a moral norm is violated (e.g., Arsenio et al., 2006; Krettenauer et al., 2008). We investigated whether children's counterfactual reasoning ability, that is, their capacity to imagine alternatives to reality, might explain why older, but not younger, children attribute negative moral emotions to a victimizer. This hypothesis is based on previous research that conceptualized feelings of guilt, shame, and regret as being based on counterfactual reasoning, that is, the tendency to imagine better alternatives to reality (Beck & Crilly, 2009; Guttentag & Ferrell, 2004; Meehan & Byrne, 2005; Niedenthal et al., 1994).

Our research shows that counterfactual reasoning ability increases children's negative emotion attribution to violators in the happy victimizer task. First, we consistently found that children's capacity to spontaneously imagine "what might have been" was related to the attribution of negative emotions to the violator in the no-prime condition, when no counterfactual alternative was pointed out. This condition closely resembles the standard happy victimizer task used in previous research. Second, when encouraging children to think counterfactually by pointing out simple alternative courses of action, negative emotion attribution to the victimizer increased compared to the no-prime condition. This chimes with other findings in the happy victimizer literature. Keller and colleagues (2003) have shown that 5- to 9-year-old children attribute significantly more negative emotions to themselves as victimizers than to the victimizer in the story. As pointed out by Sokol (personal communication), in this research children are asked to indicate how they "would feel, if they had done that", thereby inviting them to think counterfactually, that is imagining an alternative to reality. Thus, inviting children to envisage themselves as violators might serve as a counterfactual prompt, similar to the one used in Study 1. Results from Study 2 indicate that it is unlikely that such a counterfactual prompt makes participants focus more on the negative consequences of the violation for the victim. This is in line with Nunner-Winkler and Sodian's (1988) finding that even when the victim suffers severe physical consequences, young children still attribute positive emotions to the violator.

The results of Study 1 indicate that both younger and older children benefit from a counterfactual prompt before they attribute emotions to the victimizer. Only one study has investigated whether children's attribution of regret increases when a counterfactual alternative is made more salient. Ferrell, Guttentag, and Gredlein (2009) presented 5-, 7-, and 8-year-old children with less explicit and more explicit stories. In the latter, the story characters' thoughts about an alternative decision were additionally reported. This manipulation only improved the attribution of regret for 8-year-old children; younger children failed to take the counterfactual alternative into account, even with the more explicit versions

of the stories. We believe that the differential influence of counterfactual prompts on children's emotion attributions in the present and Ferrell et al.'s (2009) study might be best explained by the different methodologies employed. In Ferrell et al.'s study, counterfactual information was embedded in the stories in the form of the characters' thought processes, and an alternative course of action would not have changed the outcome of the event. In the present study a counterfactual course of action with an alternative outcome was communicated to participants in the form of a question they had to answer. These differences might have made the counterfactual alternative more salient even to young participants in our study.

Why is the ability to think counterfactually about a situation important for children's emotion attribution in the happy victimizer task? We suggested that counterfactual reasoning helps people evaluate whether another person has caused the outcome of an action (see Niedenthal et al., 1994; Wells & Gavanski, 1989). Similarly, Sokol (2004; Sokol, Chandler, & Jones, 2004) has argued that children's changing views of human agency affect their emotion attribution in the happy victimizer task. Specifically, young children are thought to hold a mechanical or "copy-theory" of human agency: They view human action as being largely based on passively reacting and accommodating to the demands of the external environment. That is, young children would acknowledge that a violator's transgression is rooted in his or her selfish desires, but they would not understand that the violator has a choice to act on that desire or not. In contrast, older children subscribe to an interpretive theory of human agency: They view humans (and violators) as active and autonomous agents whose actions are based on a deliberate choice. That is, older children understand that by choosing to engage in a transgression, a violator is responsible for (or has caused) it. Children's counterfactual reasoning ability might be an important component for the development of such an interpretive theory of agency, because it allows children to understand the causes of behaviour in a more sophisticated way.

One surprising finding of our study is that few children attributed mixed emotions (i.e., feeling both happy and sad) to the victimizer. Mixed emotion attributions can be seen as reflecting a beginning awareness of the moral conflict presented to the victimizer: feeling happy about fulfilling a desire and feeling sad about the victim's suffering. It should be noted, however, that previous research has mainly found a sizable percentage of mixed emotion attributions in older children, but only when they were asked additional probe questions (Arsenio & Kramer, 1992). Without such probes, mixed emotion attributions tend to be rare, even in older children (e.g., Keller et al., 2003; Nunner-Winkler & Sodian, 1988).

This study indicates that counterfactual reasoning might be one of the processes important for the attribution of negative emotions to the violator of a moral norm. Yet, other abilities might contribute to children's understanding and attribution of moral emotions to victimizers. Research on self-conscious moral emotions (e.g., guilt, regret, shame; Lagattuta & Thompson, 2007) has identified three core capacities necessary for a person to experience and attribute such

emotions to others: self–other differentiation or self-awareness; recognition of external standards (e.g., moral norms); and evaluating the degree to which one meets these standards. Even though our analyses included only those children who judged the moral violations as wrong and who can therefore be assumed to recognize the moral norms violated in the respective happy victimizer scenarios, future research might want to investigate in more detail how counterfactual reasoning ability contributes to and interacts with those processes in children’s attributions of guilt, shame, and regret to a norm violator. Given that previous research has shown the importance of understanding (moral) emotions for children’s moral behaviour (e.g., Arsenio & Lover, 1995; Gummerum, Hanoch, Keller, Parsons, & Hummel, 2010; Malti & Krettenauer, 2012), future studies should continue to uncover the factors that help explain when and why children attribute negative emotions to the violator of a moral norm.

REFERENCES

- Aiken, L. S., & West, S. G. (1991). *Multiple regression. Testing and interpreting interactions*. Newbury Park, CA: Sage.
- Arsenio, W. F., Gold, J., & Adams, E. (2006). Children’s conceptions and displays of moral emotions. In M. Killen & J. Smetana (Eds.), *Handbook of moral development* (pp. 581–609). Mahwah, NJ: Erlbaum.
- Arsenio, W. F., & Kramer, R. (1992). Victimizers and their victims: Children’s conceptions of mixed emotional consequences of moral transgressions. *Child Development*, *63*, 915–927.
- Arsenio, W. F., & Lover, A. (1995). Children’s conceptions of sociomoral affect: Happy victimizers, mixed emotions and other expectancies. In M. Killen & D. Hart (Eds.), *Morality in everyday life: Developmental perspectives* (pp. 87–128). Cambridge: Cambridge University Press.
- Beck, S. R., & Crilly, M. (2009). Is understanding regret dependent on developments in counterfactual thinking? *British Journal of Developmental Psychology*, *27*, 505–510.
- Beck, S. R., Robinson, E. J., Carroll, D. J., & Apperly, I. A. (2006). Children’s thinking about counterfactuals and future hypotheticals as possibilities. *Child Development*, *77*, 413–426.
- Dunn, J., Brown, J. R., & Maguire, M. (1995). The development of children’s moral sensitivity: Individual differences and emotion understanding. *Developmental Psychology*, *31*, 649–659.
- Ferrell, J. M., Guttentag, R. E., & Gredlein, J. M. (2009). Children’s understanding of counterfactual emotions: Age differences, individual differences, and the effects of counterfactual-information salience. *British Journal of Developmental Psychology*, *27*, 569–585.
- Gummerum, M., Hanoch, Y., Keller, M., Parsons, K., & Hummel, A. (2010). Preschoolers’ allocations in the dictator game: The role of moral emotions. *Journal of Economic Psychology*, *31*, 25–34.
- Guttentag, R., & Ferrell, J. (2004). Reality compared with its alternatives: Age differences in judgments of regret and relief. *Developmental Psychology*, *40*, 764–775.
- Harris, P. L. (1985). What children know about the situations that provoke emotions. In M. Lewis & C. Saarni (Eds.), *The socialization of emotion* (pp. 161–186). New York, NY: Plenum Press.
- Hoffman, M. L. (2000). *Empathy and moral development. Implications for caring and justice*. Cambridge: Cambridge University Press.
- Keller, M., Lourenço, O., Malti, T., & Saalbach, H. (2003). The multifaceted phenomenon of “happy victimizers”: A cross-cultural comparison of moral emotions. *British Journal of Developmental Psychology*, *21*, 1–18.

- Krettenauer, T., Malti, T., & Sokol, B. W. (2008). The development of moral emotion expectancies. *European Journal of Developmental Science, 2*, 221–235.
- Lagattuta, K. H., & Thompson, R. A. (2007). The development of self-conscious emotions. In J. L. Tracy, R. W. Robins & J. P. Tangney (Eds.), *The self-conscious emotions. Theory and research* (pp. 91–113). New York, NY: Guilford Press.
- Malti, T., & Krettenauer, T. (2012). The relation of moral emotion attributions to prosocial and antisocial behavior: A meta-analysis. *Child Development*, doi: 10.1111/j.1467-8624.2012.01851.x.
- Mandel, D. R., & Dhimi, M. K. (2005). “What I did” versus “what I might have done”: Effect of factual versus counterfactual thinking on blame, guilt, and shame in prisoners. *Journal of Experimental Social Psychology, 41*, 627–635.
- Meehan, J. E., & Byrne, R. M. J. (2005). The temporal order effect in children’s counterfactual thinking. In B. G. Bara, L. Barsalou & M. Bucciarelli (Eds.), *Proceedings of the 27th Annual Conference of the Cognitive Science Society* (pp. 1467–1472). Mahwah, NJ: Erlbaum.
- Murgatroyd, S. J., & Robinson, E. J. (1993). Children’s judgment of emotion following moral rule transgression. *International Journal of Behavioral Development, 16*, 93–111.
- Nichols, S. (2002). Norms with feeling: Towards a psychological account of moral judgment. *Cognition, 84*, 221–236.
- Niedenthal, P. M., Tangney, J. P., & Gavanski, I. (1994). “If only I weren’t” versus “if only I hadn’t”: Distinguishing shame and guilt in counterfactual thinking. *Journal of Personality and Social Psychology, 67*, 585–595.
- Nunner-Winkler, G., & Sodian, B. (1988). Children’s understanding of moral emotions. *Child Development, 59*, 1323–1338.
- Olthof, T., Ferguson, T. J., Bloemers, E., & Deij, M. (2004). Morality- and identity-related antecedents of children’s guilt and shame attributions involving physical illness. *Cognition and Emotion, 18*, 383–404.
- Riggs, K. J., Peterson, D. M., Robinson, E. J., & Mitchell, P. (1998). Are errors in false belief tasks symptomatic of a broader difficulty with counterfactuality? *Cognitive Development, 13*, 73–90.
- Roese, N. J. (1997). Counterfactual thinking. *Psychological Bulletin, 121*, 133–148.
- Sokol, B. W. (2004). *Children’s conceptions of agency and morality: Making sense of the happy victimizer phenomenon*. Unpublished doctoral dissertation, University of British Columbia, Vancouver, Canada.
- Sokol, B. W., Chandler, M. J., & Jones, C. (2004). From mechanical to autonomous agency: The relationship between children’s moral judgments and their developing theories of mind. In J. A. Baird & B. W. Sokol (Eds.), *New directions for child and adolescent development, No. 103: Connections between theory of mind and sociomoral development* (pp. 19–36). San Francisco, CA: Jossey-Bass.
- Turiel, E. (1983). *The development of social knowledge: Morality and convention*. Cambridge: Cambridge University Press.
- Weiner, B. (1986). An attributional theory of achievement motivation. *Psychological Review, 92*, 548–573.
- Wells, G. L., & Gavanski, I. (1989). Mental simulation of causality. *Journal of Personality and Social Psychology, 56*, 161–169.