

# Children explain in- and out-group behavior differently

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## Abstract

Adults manifest a number of attributional biases in explaining the behavior of in- versus out-group members. The present study investigated the developmental origins of such biased explanation. Children from majority and minority populations in Israel, and from majority populations in Germany ( $N = 165$ ), were asked to explain the behavior of in- and out-group members. Across ages and groups, children more often referred to group membership when explaining an out-group as compared to an in-group member's behavior; and more often to individual factors when explaining an in-group as compared to an out-group member's behavior. These findings are consistent with the early emergence of fundamental differences in the conceptualizations of in- and out-group members.

## KEYWORDS

behavior explanation, cross-cultural comparison, majority-minority children, social categories

## 1 | INTRODUCTION

Decades of research on adults' inter-group attitudes document that people tend to favor in-groups over out-groups (Allport, 1954; Tajfel, 1982). In fact, many inter-group biases originally investigated in adults, have also been documented in children. From preschool-age, children reliably prefer in-groups over out-groups, more readily associate their in-groups with positive attributes, and do so even in cases where group membership is established on arbitrary grounds, such as the color of clothing (Aboud, 2003; Benozio & Diesendruck, 2015; Bigler et al., 1997). Work in adult social psychology indicates that a potential foundation for inter-group attitudinal biases relates to difference in behavioral attribution and explanation. For instance, out-group members' behaviors are more often

explained in reference to their category than those of in-group members (see Hugenberg et al., 2010; Macrae & Bodenhausen, 2000). The present study investigates whether such an asymmetry is manifested in young children.

Specifically, studies on adults have documented several inter-group explanatory asymmetries: people more readily attribute out-group than in-group negative behaviors to individuals' dispositions (the "ultimate attribution error", Pettigrew, 1979), and more readily generalize individual out-group member's behavior to the whole group ("group attribution error", Allison & Messick, 1985). The implications of such asymmetric attribution biases are numerous: from discouraging inter-group contact and prosocial emotions, to essentialism, entitativity, and dehumanization (Haslam, 2006; Yzerbyt & Rogier, 2001). Yet, a third attribution bias will be the focus of the present study. Namely, that the behaviors of out-group members are more readily attributed to their group membership relative to in-group members' behaviors (Hewstone & Jaspars, 1982). Note that the inference in this bias is from the group membership to the individual: "Each individual does what he/she does, because that's how *they* – as a group – are" whereas in the "group attribution error", the inference is from the individual to the whole group: "All of them do that, because that particular individual – who belongs to their group – did that".

This attributional bias has been only indirectly addressed in the developmental literature (see Rhodes & Mandalaywala, 2017), and mainly in relation to gender categories. For instance, Taylor and colleagues asked children to explain why boys or girls develop certain of their behavioral and physical features, and found that 5- to 6-year-old children, compared to 10-year-olds, quite often responded by referring solely to the category membership (e.g., "because she is a girl", Taylor et al., 2009). Analogously, Cimpian and Markman (2011) asked adults and 4-year-olds to explain why members of gender categories have certain physical features or psychological capacities, and found that when categories were described using generics (e.g., "boys are good at math"), participants were more likely to attribute the property to something intrinsic about the category. Following this suggestive evidence showing children's tendency to use (gender) category-based information to explain individuals' properties, and the evidence on adults' inter-group attributional biases, we asked whether children too would manifest a general inter-group attributional bias. Namely, would children be more likely to attribute an out-group, compared to an in-group, member's behavior, to his/her sheer category membership?

A further goal of the present study was to include not only majority participants, but also minority ones as well. Most of the studies on inter-group biases conducted among adults and children have drawn samples from majority populations. Crucially, studies with samples from minority populations indicate that conclusions from the former may not readily generalize to the latter. For instance, there seem to be differences between majority and minority adults in the extent of inter-group biases, with some studies documenting that minority group members exhibit more inter-group bias than majority group members (Leonardelli & Brewer, 2001), but other studies reporting the opposite pattern (Dasgupta, 2004; Sachdev & Bourhis, 1991). Relatedly, studies among minority children ranging in age from 3 to 13 years of age reveal less in-group favoritism when their in-group is contrasted with a culturally dominant out-group (Dunham et al., 2007; Shutts et al., 2011), though others have found more essentialization of the in-group relative to the out-group (Birnbaum et al., 2010). Clearly then, in order to obtain a more comprehensive picture of an inter-group explanatory bias, it is important to include both majority and minority participants.

To the above ends, we tested 5- and 8-year-old children from majority and minority populations in Israel, and also from the majority population in Germany. Israel and Germany are two countries particularly suited for assessing the extent to which inter-group construals are shaped by culture. Both encompass a majority that associates itself with secular values, and a salient Muslim minority (Arab Israelis, and Germans with Turkish origins, respectively). At the same time, the countries substantially differ regarding inter-group relations. In Israel, the groups' interrelation is determined by a protracted violent conflict, resulting in a heightened salience of inter-group boundaries (Teichman & Bar-Tal, 2008). There is *de facto* a clear segregation between cities inhabited by Jews and Arabs, and consequently of the educational settings frequented by Jewish and Arab children. In Germany, the relation between the investigated groups is less delineated, and their salience accordingly lower. For the above reasons, we decided to include a minority sample in Israel only.

### Research Highlights

- In a cross-cultural study, we investigated 5- and 8-year-old majority children in Germany and Israel, and minority children in Israel.
- Children were asked to explain the behavior of in- versus out-group members.
- Children referred more to the group when explaining out-group than in-group behavior, and referred more to the individual when explaining in-group than out-group behavior.
- In general, majority Israeli children were the most likely to provide group-based explanations.

The two age groups were chosen for several reasons. First, children at the age of five robustly display inter-group biases (e.g., Dunham, 2018), and competently make use of the explanatory schemata addressed in our study (Rhodes, 2014). Second, a comparison of middle and late childhood is of interest since a meta-analysis yielded high levels of prejudice in 5- to 7-year-olds, with a subsequent decrease in 8- to 10-year-olds (Raabe & Beelmann, 2011). Finally, in this period, children seem to undergo substantial changes in their awareness of social identities (Nesdale, 2004).

In the present study, children heard stories about in- and out-group individuals, and gave open-ended explanations concerning why each individual performed a certain action (see Giles & Heyman, 2004, for a similar procedure). Asymmetries in the behavioral attributions regarding in-group versus out-group members would manifest themselves in different explanatory tendencies: behavior of out-group members should more often be explained by recourse to category membership (what “the group” or “they” usually do) than that of in-group members whereas behavior of in-group members should more often be explained by recourse to individual factors (subjective preferences, and so on) than that of out-group members.

## 2 | METHOD

### 2.1 | Participants

#### 2.1.1 | Background information

In order to investigate children's intuitive conceptions, we focused on populations in Israel and Germany with only limited contact with the respective out-group. Israeli children were from middle-class, secular Jewish or Arab Muslim families. German children were from monolingual German-speaking families. In Israel, about 74% of the population consists of Jews and about 20% of Arabs (The Israeli Central Bureau of Statistics, 2019). Children in the majority group were recruited from kindergartens and schools located in the suburbs of Tel Aviv, where Jews constitute the strong majority (over 95%; The Israeli Central Bureau of Statistics, 2017). Children from the minority group were recruited from kindergartens and schools located in Tira, a city inhabited exclusively by Arab Muslims (The Israeli Central Bureau of Statistics, 2017). In Germany, children came from Göttingen, where 77% of the population does not have a migrant background, and 1% has a Turkish migrant background (Department for Statistics and Elections of the City of Göttingen (GÖSIS), 2016). Sample size was determined based on a previous study with a similar population (Shilo et al., 2019). Post hoc power analysis revealed that assuming an effect size for a within-subjects factor analogous to the one obtained in that study ( $d = 0.22$ ) and an alpha of 0.05, our overall sample size of 165 rendered a power value of 0.8. We obtained signed parental consent prior to testing all participants, and all participants received a small reward after testing.

### 2.1.2 | Israeli sample-majority

The sample comprised of 26 5-year-olds (38% female;  $M_{age} = 5.6$  years, range = 4.4–6.4 years) and 25 8-year-olds (44% female;  $M_{age} = 7.9$  years, range = 6.7–8.6). Children were tested in Israeli kindergartens and schools between May 2017 and June 2017.

### 2.1.3 | Israeli sample-minority

The sample comprised of 30 5-year-olds (50% female;  $M_{age} = 5.7$  years, range = 5.3–6.2 years) and 32 8-year-olds (44% female;  $M_{age} = 8.0$  years, range = 7.5–8.4). Children were tested in their city's kindergartens and schools between April 2018 and May 2018.

### 2.1.4 | German sample

The sample comprised of 26 5-year-olds (50% female;  $M_{age} = 5.2$ , range = 4.4–6.0) and 26 8-year-olds (50% female;  $M_{age} = 7.5$ , range = 6.8–8.4). Three additional children were excluded from the analyses due to linguistic problems ( $N = 1$ ) or missing cooperation ( $N = 2$ ). Children were recruited via urban kindergartens and a local database. The 5-year-olds were tested in their kindergartens; the 8-year-olds were tested at the University of Göttingen. Data were collected between October 2017 and December 2017.

## 2.2 | Design

The study included six trials, in which children were asked to explain a character's behavior. The characters' *group membership* (in-group/out-group) varied between trials, resulting in three trials about the in-group ("Jews/Arabs" in Israel, and "Germans" in Germany), and three trials about the out-group ("Arabs/Jews" in Israel, and "Turks" in Germany). The order of trials varied between subjects, and each trial was equally often presented as an in- or an out-group trial. Participants' *Age* (5-year-olds/8-year-olds), and *Group* (Jews/Arabs/Germans) served as between-subjects factors. The characters in the six test-questions matched the gender of the child.

## 2.3 | Procedure

### 2.3.1 | Introduction of groups

As previous studies of our lab in Germany had shown a substantial part of children to be unfamiliar with the concept "Turkish", we provided children (both in Germany and Israel) with an introduction on the given groups. To this end, we presented children with one PowerPoint Presentation slide on an *in-group* and one on an *out-group* cartoon character. The characters introduced themselves via a recorded audio in either Hebrew/Arabic/German or Arabic/Hebrew/Turkish. Thus, in-group and out-group members were presented as differing in terms of language (a particularly strong marker of social categories; Kinzler & Dautel, 2012). In case of the out-group character, the experimenter read out a translation of what just had been said in the recorded audio. In Germany, group membership additionally was defined by geographical origin (i.e., Germany or Turkey). To keep group membership salient during the experiment, we marked in- and out-group membership by shirt and background color (blue versus yellow in Israel, and blue versus red in Germany). The matching of groups and colors was counterbalanced.

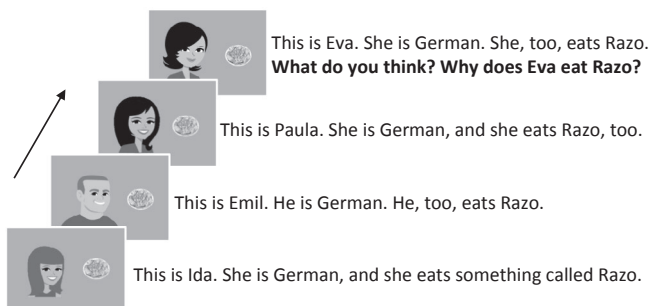
Additionally, group-prototypical names were used for all characters. Finally, the experimenter explicitly named in- or out-group membership in every item (see Figure 1).

### 2.3.2 | Explanation task

In two training trials, we prepared children to give “socially relevant” explanations. The experimenter presented the two previously introduced characters, each displaying two different behaviors. The experimenter explained the first behavior by giving an individual reason (e.g., “He buys pink flowers because he likes pink flowers”), and the second behavior by reference to the character’s group (e.g., “He plays Taki, because [IG/OG members] play Taki”). Then, the six test trials followed. In each trial, children successively saw four cartoon characters of either the in-group or the out-group, all engaged in the same activity (see Figure 1). We used everyday activities familiar to children (for a full list of items see Table 1). To avoid children’s preconceptions, we described all activities by using fictitious words (e.g., “She eats something called Razo”). To render the activities equally plausible for in- and out-groups, we told children all cartoon characters were adults, and they should not wonder about not knowing all of the words. Trial order was counterbalanced in terms of both, the characters’ group membership and the activity type (e.g., one child could have started with the activity “eating Razo” performed by either the in-group or the out-group members, and another child could have started with the activity “traveling to Timland” performed either by the in-group or the out-group members). After hearing about the four characters, children were asked to explain the behavior of the fourth character. Children’s answers were coded as (1) group (e.g., “Because Arabs eat it”; “Because they all like it”), (2) individual (e.g., “Because she likes it”; “It is her favourite food”), or as (3) socially irrelevant answers (e.g., “Because it is green”). Codes were mutually exclusive so that a given answer could not be assigned to more than one category. Children were allowed to give more than one explanation but were not encouraged to do so. If they did give several explanations, their first socially relevant answer was coded. In most trials, children gave only one explanation (in 97% of all trials in the Israeli majority sample, in 98% of all trials in the Israeli minority sample, and in 89% of all trials in the German sample). About 24% of Israeli Jewish children ( $N = 12$ ), 19% of Israeli Arab children ( $N = 12$ ), and 25% of German children ( $N = 13$ ) were coded by a second coder. In both countries, the inter-rater agreement was high ( $\kappa_{\text{Jews}} = 0.95$ ;  $\kappa_{\text{Arabs}} = 0.94$ ;  $\kappa_{\text{Germany}} = 1.00$ ). We separately analyzed the number of group explanations and the number of individual explanations (max. each = 3).




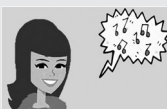


### 2.3.3 | Control questions

As noted before, the two countries (Israel versus Germany) differ fundamentally in terms of the salience of, and familiarity with, the minority group in question. In addition, within Germany, Göttingen is a city with relatively



**FIGURE 1** Exemplary in-group trial of the explanation task, in Germany

**TABLE 1** List of items with example pictures for female participants

Example pictures	List of behaviors
	[IG or OG member] eats Razo
	[IG or OG member] reads a book called Shiku
	[IG or OG member] watched a movie called Ka'of
	[IG or OG member] sings a song called Gidu
	[IG or OG member] drinks Shamta (Jews)/ Damta (Arabs)/ Shanti (Germans)
	[IG or OG member] travels to a place called Timland/ Tekkland (Germans)

Note: Two stimuli were adjusted in the German study as a pilot-testing revealed two words to be associated with existing words. Namely, 'Shamta' sounds similar to a real beverage in Germany, and 'Timland' contains a widespread German prename. For the Israeli Arabic version, one stimulus was adjusted, 'Shamta', as it sounds similar to a word in colloquial Arabic that means 'crazy'.

few inhabitants with Turkish migrant background. In order to assess the German children's familiarity with the "Turkish out-group", we therefore included three questions: "Have you ever heard the word 'Turkish' before?"; "Do you know anybody from the country 'Turkey'?", and "Do you know anybody who speaks Turkish?". Answers were coded as "yes", "no", or "don't know".

### 3 | RESULTS

#### 3.1 | Explanation task

We first analyzed the number of *group* explanations by conducting a 2 (group membership: in-group/out-group) × 2 (age: 5-year-olds/8-year-olds) × 3 (group: Jews/Arabs/Germans) repeated-measures ANOVA. There were three significant main effects. First, and pertinent to our main question, there was a significant effect of group membership, such that children explained the behavior of out-group members more often by reference to group membership ( $M = 1.01$ ,  $SD = 1.19$ ) as compared to the behavior of in-group members ( $M = 0.86$ ,  $SD = 1.51$ ),  $F(1,159) = 6.17$ ,  $p = .02$ ,  $\eta_p^2 = 0.037$ , 95% CIs [0.83, 1.20] and [0.68, 1.04], respectively. Second, there was a significant effect

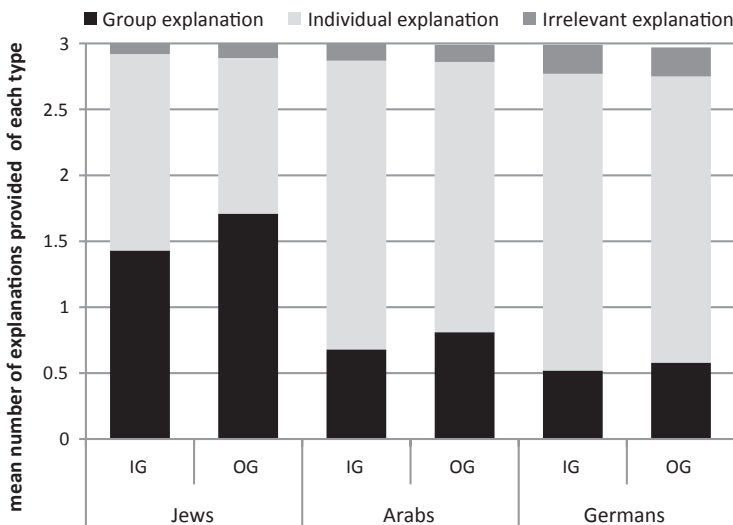
of age, such that 8-year-olds ( $M = 1.21$ ,  $SD = 1.15$ ) used group explanations more often than 5-year-olds ( $M = 0.66$ ,  $SD = 0.99$ ),  $F(1,159) = 13.98$ ,  $p < .001$ ,  $\eta_p^2 = 0.081$ , 95% CIs [0.96, 1.46], and [0.44, 0.87], respectively. Finally, there was a significant main effect of group,  $F(2,159) = 16.28$ ,  $p < .001$ ,  $\eta_p^2 = 0.170$ , 95% CIs [1.22, 1.92], [0.31, 0.79], and [0.51, 0.97], respectively. Specifically, post hoc Scheffe comparisons revealed that Jewish children ( $M = 1.57$ ,  $SD = 1.25$ ) named group reasons more often than German ( $M = 0.55$ ,  $SD = 0.88$ ), and Arab ( $M = 0.74$ ,  $SD = 0.91$ ) children ( $p$ 's  $< .001$ ) – with the latter two not differing between them (see Figure 2). None of the interactions were significant, suggesting that all three patterns – and of special theoretical interest, that of group membership – held for the complete sample.

Given that group and individual explanations were not fully complementary, we conducted a similar  $2 \times 2 \times 3$  repeated-measures ANOVA on the number of *individual* explanations. This analysis yielded a complementary pattern of results with no interactions but three main effects: of group membership  $F(1,159) = 7.34$ ,  $p = .01$ ,  $\eta_p^2 = 0.044$ ; age,  $F(1,159) = 19.33$ ,  $p < .001$ ,  $\eta_p^2 = 0.108$ ; and group,  $F(2,159) = 12.33$ ,  $p < .001$ ,  $\eta_p^2 = 0.134$  (see Figure 2).

Finally, in order to assess children's general response preference, we conducted a paired sample  $t$  test comparing the sheer number of individual versus group explanations across groups, ages, and group membership. This analysis yielded a significant effect,  $t(164) = 5.694$ ,  $p < .001$ , showing that overall, children provided more individual ( $M = 1.90$ ,  $SD = 1.13$ ) than group ( $M = 0.94$ ,  $SD = 1.10$ ) explanations.

### 3.2 | Control questions in Germany

About 34,6% of the 5-year-old and 80,8% of the 8-year-old children said they were familiar with the term “Turkish” before. About 3,80% of 5-year-olds and 34,60% of 8-year-olds said they knew people from Turkey, and 7,70% 5-year-olds and 34,60% 8-year-olds knew Turkish speakers. After dichotomizing the variables (“yes” = 1; “no”, “don't know” = 0), and controlling for age, there were no significant correlations between any of these measures and the number of group explanations in out-group trials. Thus, German children's group explanations seem to have occurred irrespective of their knowledge of Turkish people.



**FIGURE 2** Mean number of explanation types provided as a function of group membership and group

## 4 | DISCUSSION

The present study investigated a potential asymmetry in in-/out-group behavioral attribution, focusing on action explanation in 5- and 8-year-old minority and majority children in Israel, and majority children in Germany. In particular, we asked whether children explain one and the same action differently depending on whether it was performed by in- or out-group individuals, such that they would tend to refer to group membership in explaining out-group members' actions more than in-group members' actions, and refer to subjective preferences in the case of in-group members more so than of out-group members. The main findings of the present study confirmed this general hypothesis: across ages and groups, children referred to group membership more often in explaining out-group as compared to in-group behavior. Conversely, children used more individual explanations for in-group as compared to out-group members. These findings add to our knowledge of the development of social and group cognition in several respects.

First, work in adult social psychology had documented several inter-group explanatory asymmetries (the "ultimate attribution error", Pettigrew, 1979; "group attribution error", Allison & Messick, 1985). The present findings suggest that an additional inter-group explanatory asymmetry (Hewstone & Jaspars, 1982) emerges relatively early in ontogeny. One important lesson to be drawn from the adult work is that the deployment of such attributional biases has a strong motivational component, having to do with how in- and out-group members are construed (Fiske & Neuberg, 1990; Hugenberg et al., 2010). One potential implication to the present work is that intervening on children's motivation to construe others as individuals rather than category exemplars, may carry downstream consequences, such as swaying them away from inter-group attributional biases.

Furthermore, previous work in social-cognitive development had revealed that children by the age of 4–5 years are capable of applying two explanatory schemata in the service of action explanation (Rhodes, 2014): naïve psychology (referring to subjective preferences, desires, and other mental states) and naïve sociology (referring to rules, norms, conventions and other group-based regularities) (Clément et al., 2011; Hirschfeld, 2013; Kalish, 2002; Rhodes, 2014). Recent research suggests that young children, in some circumstances, apply one of them, naïve psychology, more readily to in-group than to out-group members (McLoughlin & Over, 2017). The present findings show that children this age deploy both explanatory schema in context-sensitive ways, as a function of the agent's group membership.

An important question these findings raise is what underlies this attributional bias. For instance, children may be more capable of processing information about in-group members due to increased familiarity with them – a process akin to the perceptual other-race effect observed even in infants (Kelly et al., 2007). Alternatively, children – like adults – might be less motivated to understand the individual causes of behaviors of out-group members relative to those of in-group others, due to considerations of the likelihood and benefits of future interactions (e.g., Hugenberg et al., 2010). Finally, and relatedly, this attributional bias could be a manifestation of a general tendency to construe in- and out-group members in fundamentally different ways. Namely, whereas in-group members might be construed first and foremost as individual agents, whose behavior is determined primarily by their own beliefs and desires, out-group members, may be viewed as category exemplars, whose behavior is governed strongly by properties of the category itself.

This conceptual distinction resonates with previous findings in adults (Haslam et al., 2000; Hewstone & Jaspars, 1982; Hugenberg et al., 2010), as well as with research on early inter-group biases (e.g., Dunham, 2018; McLoughlin & Over, 2018) and essentialist beliefs about certain social groups (e.g., Birnbaum et al., 2010; Rhodes & Mandalaywala, 2017). Indeed, essentialism has been offered as a key conceptual belief coloring children's social group concepts, and potentially attitudes. Namely, it has been argued that children view various social groups as being biologically determined, developmentally stable, homogeneous, and defined by intrinsic causal properties (Gelman, 2003). Although this *social* essentialism is representationally similar to essentialism applied to natural kinds, one important difference is that the former indeed seems to be asymmetrically applied to different categories, depending on a myriad of variables (see Diesendruck, 2020, for a review). Among the variables: the



particular cultural context, the social status of the categories, and group membership. In fact, a recent study also on Jewish Israeli and German children found that both 5- and 8-year-olds viewed out-group members (the same ones assessed here) as biologically more homogeneous than in-group members (Shilo et al., 2019). In other words, from an essentialist perspective, it would seem that children of this age, in these particular cultural contexts, and with regard to the particular social categories assessed in the studies, asymmetrically deploy two characteristics of essentialist beliefs: category homogeneity and category's causal power.

Along with confirming our main hypothesis, the study also yielded several important collateral findings. The first collateral finding was that, comparing between age groups, 8-year-olds engaged in group-based explanations more often than 5-year-olds, who in turn gave more individual explanations than 8-year-olds. Although this finding was not expected in light of the decrease in prejudice from middle to late childhood previously documented (Raabe & Beelmann, 2011), it is consistent with other developmental trends in social cognition. First, it corresponds with the development in the capacity to ascribe traits and other stable dispositions in the service of action explanation documented in this age range (e.g., Heyman, 2009; Rholes & Ruble, 1984; Yuill, 1992). For instance, Kalish (2002) asked children to predict future events involving people or objects after receiving information of a past behavior of that person (e.g., buying a toy of a certain color), or a past event involving the object (e.g., a certain object floating in water). Kalish found that when asked about objects, both 5- and 7-year-old children predicted the behavior of objects to be mostly consistent, but when asked about people's behavior, 7-year-olds were more likely to predict that a person would maintain a previous preference in the future whereas 5-year-olds did not, sometimes even predicting an opposite choice (Kalish, 2002). Arguably, as children mature, they become better at abstracting stable dispositions or characteristics that guide individuals' behavior—be they traits (e.g. Kalish, 2002) or social categories (e.g., Rhodes & Gelman, 2008). Second, the reported developmental trend resonates with an increase in group awareness (e.g., Bennett et al., 1998). Namely, as children mature in their socio-cultural environments, they arguably become more knowledgeable about their own group identity, and relevant out-group identities. In fact, Nesdale suggests that between the ages of 5- and 8 years, children start to more clearly differentiate between in- and out-groups, a process intimately related to the development of a more robust and affect-laden in-group identity (Nesdale, 2004; Nesdale & Flessler, 2001; see also Rutland et al., 2010).

A second collateral finding was that, comparing between the two majority groups from the two countries, Israeli Jewish children generally referred to group membership more often when explaining an individual's behavior than German children, who more often gave individual explanations. This difference likely mirrors a general difference in sensitivity to the target groups in the two countries: given the longstanding and intense inter-group conflict in Israel, group-related information may generally be more salient, relevant, and available compared to the situation in Germany. Along such lines, Diesendruck et al. (2013) found that Israeli children tend to essentialize central social categories in their society (i.e., ethnicity) at a younger age than their North-American counterparts (there, race). In other words, ethnic categories for Jewish children in Israel may have a heavier explanatory power than analogous categories for German children in Germany.

A third collateral finding was that, comparing between the two groups in Israel, Jewish (majority) children generally referred to group membership more often when explaining an individual's behavior than Arab (minority) children, who comparatively gave more individual explanations. This finding highlights the different experiences each social group has even within the same geographical space. In particular, other studies conducted in Israel that included majority and minority children showed different patterns of reactions with regard to stereotypes and essentialism. For example, one such study found that majority children tended to assign fewer positive attributes to out-group individuals than did minority children (Brenick et al., 2010). Furthermore, majority children were more likely to draw inferences based on individuals' ethnicity, than did minority children (Birnbaum et al., 2010). More generally, this is in line with the notion that majority children may be more prone than minority children, to inter-group bias (Dunham et al., 2007) and essentialism (del Rio & Strasser, 2011).

In addition, it is noteworthy that despite the differences between age groups and social groups in their general dispositions toward group explanations, the main finding of an inter-group explanatory bias did not significantly

interact with either of these factors. From a developmental perspective, this indicates that inter-group conceptual biases may underlie inter-group attitudinal biases already from a young age. Regarding social groups, the lack of interaction indicates that the bias is somewhat impervious to group status. Previous studies have documented that social status affects children's inter-group biases and concepts (e.g., del Río & Strasser, 2011; Shutts et al., 2011). The discrepancy between these findings and the present ones may be due to several factors: a lack of sensitivity of the present measure, sample size, differences between the cultural groups investigated in the various studies, or a true distinction between the processes underlying the present bias from those studied before. Future studies are needed to address these possibilities. A further point to note when looking at the overall pattern of results is that despite the inter-group bias in explanatory type, in no age or group, and with regard to no group membership, did children provide group explanations *more* than individual explanations. In fact, in most cases it was the opposite. This is an interesting finding as it hints of a potential hierarchy between the explanatory schemata available to children for understanding human behavior, whereby naïve psychology may take precedence over naïve sociology.

One caveat worth expanding regards the kind of items we used. Specifically, to avoid children's potentially preexisting stereotypes about the given groups, we described all activities by using novel words (e.g., a food called "Razo"). Even though we tried to make the activities sound equally plausible for in- and out-groups by telling children that the characters were adults, these newly invented behaviors could have affected children's explanations systematically. In- and out-groups differ in how familiar they are to children, and accordingly, it may seem to them more plausible that out-group members engage in unfamiliar behavior (e.g., "eat Razo"), than that their in-group does so ("If this was the case, I would have heard about it"...). Relatedly, it is quite plausibly the case that in general children know more about in-groups than out-groups, and thus, are more likely to believe that a characteristic of an out-group generalizes to the whole category. The present results, then, may simply reflect this asymmetry in the plausibility of group-based explanations rather than a more fundamental asymmetry in the representation of groups. In fact, inter-group biases have been found to vary according to children's familiarity with the social groups (e.g., Deeb et al., 2011; Pauker et al., 2016). Although we cannot rule out these alternative interpretations, several aspects of the present findings seem to speak against them. If they had been the case, then, one would expect the following: (a) older children, for whom the gap between knowledge of in- and out-groups is most plausibly smaller than that of younger children, should evince a smaller effect of group membership on explanation type, and overall provide less group-based explanations than younger children; (b) Israeli children, who arguably are more familiar with their respective in- and out-groups than their German counterparts, should also evince a smaller effect of group membership, and should generally give fewer group-based explanations than German children; and (c) there should be a correlation between familiarity and group-based explanation. None of these patterns held, suggesting that the bias holds irrespective of children's own experiences with and amount of knowledge about the groups.

This appraisal notwithstanding, it would be interesting to investigate more systematically, the cognitive and cultural underpinnings, as well as the developmental trajectories, of inter-group attributional biases and social group representation, by including more varied social categories, as well as minimal groups. Such an approach has the potential to address some of the concerns related to the interpretation of data with "natural" social groups. First, it would allow controlling for the familiarity of in- versus out-group, as discussed above. Second, such a procedure would allow assessing whether children in cultures with stronger focus on inter-group segregation (such as Israel) engage in "group thinking" more readily in general than children from other cultures. Given the potential deleterious effects of the targeted attributional biases, such an undertaking is certainly worthwhile.

In conclusion, the present results suggest a fundamental asymmetry in the ways children – across ages, countries, and group status – explain the actions of individuals from their in-group compared to individuals from out-groups. in-group members' actions, more than out-groups', tend to be seen as resulting from individuals' freely defined subjective choices, and in contraposition, out-group members' actions, more than in-groups', tend to be seen as heavily constrained by their group membership. This constitutes further evidence for the early emergence of inter-group conceptual biases, which may serve as foundations for attitudinal and behavioral biases.

## CONFLICT OF INTEREST STATEMENT

The authors have no conflicts of interests to declare.

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## DATA AVAILABILITY STATEMENT

All the data and relevant analyses will be made available at: <https://faculty.biu.ac.il/~dieseng/>.

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