



## Early Group Bias in the Faroe Islands: Cultural Variation in Children's Group-Based Reasoning

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To cite this article: M. G. Schug, A. Shusterman, H. Barth & A. L. Patalano (2015): Early Group Bias in the Faroe Islands: Cultural Variation in Children's Group-Based Reasoning, The Quarterly Journal of Experimental Psychology, DOI: [10.1080/17470218.2015.1093511](https://doi.org/10.1080/17470218.2015.1093511)

To link to this article: <http://dx.doi.org/10.1080/17470218.2015.1093511>



Accepted author version posted online: 07 Oct 2015.



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**Publisher:** Taylor & Francis & The Experimental Psychology Society

**Journal:** *The Quarterly Journal of Experimental Psychology*

**DOI:** 10.1080/17470218.2015.1093511

EARLY GROUP BIAS IN THE FAROE ISLANDS: CULTURAL VARIATION IN  
CHILDREN'S GROUP-BASED REASONING

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Acknowledgments: We thank the Culture and the Mind Project and the U.K. Arts and Humanities Council. Additionally, we thank our local contacts Eiler Fagraklett, Femja Petersen, Bergur Rasmussen and our local research assistants Turið Nolsøe, Anna Maria

Jorgenson, and Friðrikur Henrikson. This work was supported in part by a Wesleyan University Psychology Department postdoctoral fellowship to Mariah Schug.

### Abstract

Recent developmental research demonstrates that group bias emerges early in childhood. However, little is known about the extent to which bias in minimal (i.e., arbitrarily assigned) groups varies with children's environment and experience, and whether such bias is universal across cultures. In this study, the development of group bias was investigated using a minimal groups paradigm with 46 4- to 6-year-olds from the Faroe Islands. Children observed ingroup and outgroup members exhibiting varying degrees of prosocial behavior (egalitarian or stingy sharing). Children did not prefer their ingroup in the pretest, but a pro-ingroup and anti-outgroup sentiment emerged in both conditions in the post-test. Faroese children's response patterns differ from those of American children (Schug, Shusterman, Barth, & Patalano, 2013), suggesting that intergroup bias shows cultural variation even in a minimal groups context.

An extensive body of literature demonstrates that positive ingroup and negative outgroup attitudes are readily evoked in early childhood (e.g., Baron & Banaji, 2006; Bigler, Jones, & Lobliner, 1997). While much of the existing literature addresses children's attitudes in response to socially demarcated groups (e.g., McGlothlin & Killen, 2006; Rutland, Cameron, Milne, & McGeorge, 2005), there is growing evidence of a generalized tendency for children to exhibit bias (i.e., conceptualizing ingroups and outgroups differently) even for arbitrarily assigned groups, in the absence of real-life

experience with those groups (Dunham, Baron, & Carey, 2011; Schug, Shusterman, Barth, & Patalano, 2013; Jordan, McAuliffe, & Warneken, 2014). Some argue that ingroup favoritism reflects a fundamental representational system in human psychology (Hirschfeld, 2001; Spelke & Kinzler, 2007). In other words, children may have a generalized concept of groups in which ingroups are regarded more favorably than outgroups, and they may draw upon this schema when processing information about and interacting with novel groups and group members. Such a mechanism might have been favored by natural selection, as there are numerous proposed benefits to maintaining pro-ingroup and anti-outgroup attitudes. For instance, attending to group membership is helpful in developing alliances and avoiding threats (Ackerman et al., 2006; Kinzler, Shutts, DeJesus, & Spelke, 2009; Kurzban, Tooby, & Cosmides, 2001). In spite of the evidence and theoretical arguments for such a mechanism, little is known about how such biases may be brought to bear on the processing of experiences with ingroup and outgroup members, or how the development of these biases might be influenced by cultural context. Furthermore, although researchers have made the argument that pro-ingroup bias may be a universal characteristic of human cognitive development (e.g., Spelke & Kinzler, 2007), the expression of this bias may nevertheless vary in any number of ways as a function of cultural context. Indeed, it is logical to speculate that there should be variation in intergroup biases across contexts, given that the extent to which individuals rely on their ingroup varies cross-culturally (Schwartz, 2006).

The most compelling support for the existence of a generalized group concept relies on minimal groups paradigms. In these paradigms, participants are assigned to artificial groups with which they have not had previous experiences. Groups must be of

equal status and not be in competition with each other (e.g., Bigler, et al., 1997; Dunham et al., 2011; Tajfel, 1970; Vaughn, Tajfel, & Williams, 1981). For instance, Dunham and colleagues (2011) demonstrated that children in the U.S. readily prefer their ingroup over an outgroup almost immediately after being assigned group membership, as expressed via both explicit and implicit measures. Generalized bias further affected how children processed new information about the relevant groups: after hearing stories in which ingroup or outgroup members performed an equal number of positive and negative actions, children were more likely to recollect positive actions performed by their ingroup (Dunham et al., 2011), indicating a tendency to maintain a more positive concept of one's own group. Membership in a minimal group not only affects children's attitudes but also their behavior. For instance, 6-8 year olds are more likely to allocate desirable resources to an ingroup member (Buttleman & Böhm, 2014) and to mete out harsher punishments to outgroup members who behave selfishly (Jordan et al., 2014). By further examining children's minimal groups concepts, we may better understand the resilience of these biases and how strongly they affect children's attitudes and inferences in light of specific experiences with group members.

In a study that set the stage for the present work, Schug and colleagues (2013) provided further evidence of children's differential processing of experiences with group members through monitoring children's attitudes both before and after they were given group-based experiences. In this study, children in the U.S. were assigned to one of two minimal groups. The children reported how much they "liked" puppets from each group. They then observed videos in which ingroup and outgroup puppets shared in either an egalitarian or a stingy manner. In one between-subjects condition, the ingroup puppets

largely shared in an egalitarian manner and the outgroup puppets shared in a stingy manner (called the Outgroup Stingy/Ingroup Egalitarian Condition); in the other condition, this was reversed (Ingroup Stingy/Outgroup Egalitarian Condition). After viewing the videos children were asked how much they liked novel puppets from each group. Children's initial ratings showed no significant ingroup preference, and children's attitudes about their ingroup remained positive regardless of whether they viewed ingroup members sharing in an egalitarian or stingy manner. In contrast, attitudes about the outgroup changed as a result of the sharing observation: attitudes about the outgroup remained positive when outgroup members shared in an egalitarian manner, but when the outgroup demonstrated stingy sharing behavior, children's liking of the outgroup decreased dramatically. Additionally, children successfully identified the more generous group only when the ingroup was egalitarian and the outgroup stingy. This differential processing of equivalent experiences provides compelling evidence that children have a generalized concept of groups, and that this concept can influence judgments following observations of and experiences with novel group members (Schug et al., 2013).

Although evidence for a generalized group-based concept in childhood is growing, very little is known about how bias toward minimal groups may unfold differently when it emerges in different environments. Much of the work demonstrating group bias – with both naturalistic and lab-created groups – has been conducted in societies that value autonomy and individualism, such as the U.S. and England (e.g., Olsson, Ebert, Banaji, & Phelps, 2005; Tajfel, 1970). However, some adult studies suggest that cultural context might affect the degree to which we observe positive ingroup and negative outgroup attitudes in childhood. For instance, empirical studies

show that adults with more collectivist values tend to have stronger ingroup affiliations and anti-outgroup bias (Leong & Ward, 2006; Schwartz, 2006; Triandis, Bontempo, Villareal, Asai, & Luca 1988). In a review of empirical studies on individualism and collectivism, Oyserman and colleagues (Oyserman, Coon, & Kemmelmeier, 2002) indicated that one of the more consistent findings was a tendency for collectivists and individualists to interact with others differently (e.g., collectivists tended to favor and accommodate ingroup members, and individualists tended to feel less loyalty to their ingroup and more comfortable interacting with strangers). Adult studies applying the minimal groups paradigm suggest that members of individualist and collectivist societies may respond differently to minimal groups. Members of both types of societies show ingroup preferences – though in some cases ingroup bias is stronger in individualist societies, perhaps because social categories are meaningful in those societies even in the absence of interpersonal connection (Yamagishi, Mifune, Liu, & Paluing, 2008; Yuki, Maddux, Brewer, & Takemura, 2005). However, members of collectivist societies show increased bias when they have been primed to consider interdependence or potential for interpersonal connection among group members (Karp, Jin, Yamagishi, & Shinotsuka, 1993; Yuki et al., 2005). Based on the limited literature, it is clear that much remains to be explored about how cultural orientation may influence group attitudes, even in the case of artificial minimal groups where the child's culture could not have provided specific information about those groups.

Although the extent to which a society has an individualist or collectivist cultural orientation may influence bias, it is not the only variable thought to be influential.

Another aspect of environment that may affect the emergence of bias is that of exposure

to diversity. Empirical studies with both adults and children demonstrate that, in many instances, intergroup bias with real-world groups (e.g., native Europeans in Europe as compared to immigrants) is reduced in heterogeneous environments (McGlothlin & Killen, 2006; Wagner, van Dick, Pettigrew & Christ, 2003). However, under some circumstances (e.g., Stephan, 1978), exposure to outgroup members may evoke more negative attitudes toward those individuals. With these contrasting observations in mind, further study is clearly needed to examine where and when exposure to diversity is related to the reduction, or entrenchment, of bias.

Cultural variation in levels of bias in adult populations raises the question of how cultural context affects the emergence of bias in childhood. However, studies of minimal group bias in childhood have relied on data from multicultural and individualistic societies – leaving open the question of how bias might emerge differently in less diverse and more collectivist societies. The emergence of bias from a young age and in minimal groups could indicate an early-arising tendency to conceptualize ingroups and outgroups differently (Hirschfeld, 2001; Spelke & Kinzler, 2007). However, before such a conclusion can be drawn, it is essential to examine whether and how responses to the minimal groups paradigm may vary with cultural context.

In the current study, we address the question of cultural variability in minimal groups bias, focusing on the Faroe Islands<sup>1</sup>. In this minimal groups design we look at a developmental population – 4 to 6-year-old children – in order to understand the role of cultural experience in the development of group-based reasoning. The present study assesses both children's initial group bias prior to any experience with an artificial

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<sup>1</sup> The Faroe Islands (population ~48,000) are a largely self-governed province of Denmark located in the North Atlantic (Duhaime & Caron, 2008).



ingroup and outgroup, and their responses following equivalent positive and negative experiences with each group, replicating the method previously used with U.S. children (Schug et al., 2013). If there exists a universal tendency to regard novel ingroups and outgroups differently, then we would expect children to exhibit the same manner and degree of bias observed previously in the U.S. If this tendency varies between cultures, such as with degree of homogeneity or collectivism, we would expect to find a different pattern of bias.

The Faroe Islands are particularly well suited to a replication of group bias research in a novel cultural context. According to a government-funded statistical database, this is a very homogeneous population: only 1% of the population is of non-European descent and the vast majority of residents identify as belonging to the national church (Hagstova Føroya, 2013). In addition, the Faroese have a unique culture and identity that blends individualist and collectivist characteristics (Gaini, 2009). According to the anthropological literature, the Faroese embody “traditional family relations” and “have strong links to the pre-modern collective family system,” (Gaini, 2009, p. 2-3). Ethnographic data underscore the centrality of family and community-based relationships; for instance, evening visits to family and neighbors are culturally integral and help to maintain a communal social order (Gaffin, 1995; 1996; Wylie, 2011).

Because of the Faroe Islands’ relatively greater collectivism and homogeneity, it differs from the previously studied American population and other populations in which developmental minimal groups designs have been explored. We thus speculated that Faroese children would demonstrate higher levels of intergroup bias when compared to American children, or that their biased attitudes would be particularly resilient to

contradictory evidence. However, we recognized a potential contrasting outcome. If group bias stems from a universal schema for social cognition (Hirschfeld, 2001; Spelke & Kinzler, 2007), young children might show more similarities than differences in their group-based reasoning; it is possible that cultural experience would not affect the level of group bias in children as young as 4 to 6 years old. Our goal was to assess whether Schug and colleagues' (2013) earlier findings would replicate in a culture different from that of the U.S., in order to explore whether cultural background mediates children's processing of group-based information at all in a minimal groups paradigm.

We replicated Schug et al.'s (2013) method previously used to assess children's attitudes about ingroup and outgroup individuals in the U.S. The earlier data were collected in a diverse Connecticut town of approximately 47,000, with 32% of its population being of non-European descent (CERC, 2013). The final U.S. sample included 80 five and six-year-old children (female = 42,  $M = 71.33$ ,  $SD = 6.57$ ), and testing was conducted in preschools, a local children's museum, and in a university lab (Schug et al., 2013).

By contrast, the current data were collected in and around the urban capital of the Faroe Islands, Tórshavn. The Faroe Islands has an approximate population of 48,000 (Hagstova Føroya, 2013). As in the previous study, we used a minimal-groups method in which we assigned 4 to 6-year-olds to artificial groups and showed them instances of ingroup and outgroup individuals (puppets) sharing in either an egalitarian or a stingy manner. Sharing behavior is a frequent choice for experimental manipulation in group bias studies because observations of prosocial behaviors affect children's judgments of others (McCrink, Bloom, & Santos, 2010) and, although the strength of the effect varies

across studies, children change their own sharing behaviors based on the group affiliation of the recipient (Fehr, Bernhard, & Rockenbach, 2008; Buttleman & Böhm, 2014; Dunham et al., 2011). Our central question was whether the previous results in a U.S. population would extend to a culture that differs from the U.S. along dimensions, like collectivism and homogeneity, that are potentially relevant to the development of group bias.

## Method

### Participants

Four to six-year-old children ( $N = 46$ , female = 28,  $M$  age = 64.20 months,  $SD = 10.73$  months) from the Tórshavn region of the Faroe Islands were included in the final sample. Researchers obtained permission to test in local preschools and tested all children who received parental consent and were in the appropriate age range. Children were assigned before testing to either an Outgroup Stingy/Ingroup Egalitarian ( $n = 25$ , 16 female,  $M = 63.00$  months,  $SD = 10.18$ ), or an Ingroup Stingy/Outgroup Egalitarian ( $n = 21$ , 12 female,  $M = 65.62$  months,  $SD = 11.43$ ) condition, with assignment alternating between the two conditions.

### Procedure

Testing in the Faroe Islands was conducted via the same methods used with the previously studied American population except that the data were collected by native Faroese research assistants under the close supervision of an American principal investigator. One female experimenter (E1) interacted with the child while another experimenter (E2) recorded responses.

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Before beginning the study, children were randomly assigned to a Group (Kite or Balloon) and to a condition (Outgroup Stingy/Ingroup Egalitarian or Ingroup Stingy/Outgroup Egalitarian). Although children were assigned to just one group, they observed members of both the ingroup and the outgroup. E1 began the study by explaining that the child would meet puppets belonging to two groups, and that the child would also be assigned to a group (“The puppets you’re meeting today are special because they belong to two groups: the Kite Group and the Balloon Group. You get to belong to a group too. You get to belong to the Kite/Balloon Group.”). The child was assigned to one of these groups and asked to wear a badge with the group’s symbol (kite or balloon). A kite badge and a balloon badge were placed in front of the child (where they remained for the study). The child was asked to identify which badge belonged to each group and was asked to identify his or her own group membership. The child then saw four pictures of puppets wearing badges and identified each puppet’s group membership (“Does he belong to the Kite Group or the Balloon Group?”). Finally, the face scale was introduced as a way for the child to show how much he or she liked the puppet, and E1 asked questions to confirm that the child understood how the scale worked (e.g., “Which face are you going to point to if you really like a puppet a lot?”). In the rare instances where a child did not understand, E1 repeated explanations until they were clear.

Before watching the video children simultaneously met two puppets, one ingroup and one outgroup, and answered questions about them. Which group children were asked about first was counterbalanced between participants.

1. Liking: How much do you like him? (Child points to 3-point smiley face scale)

coded as frown = 1, straight mouth = 2, and smile = 3.)

2. Child's intended sharing: Who do you want to share your stickers with?
3. Predicted puppet sharing: Who do you think will share his stickers with you?

The children then watched a series of 12 video clips (6 ingroup, 6 outgroup) in which Kite and Balloon puppets shared either half of their candy or only two candies with a neutral-group puppet (see Figure 1). Puppets were counterbalanced between groups such that each group contained puppets that were similar – though not identical – in appearance. A neutral animal puppet was chosen as the sharing recipient to avoid any risk that the children would perceive the Kite and Balloon puppets were sharing with members of their own or the other group.

The video series corresponded to one of two conditions. In the Outgroup Stingy/Ingroup Egalitarian Condition, most of the clips (10/12) showed ingroup members sharing half their candy and outgroup members sharing only two candies. The remaining two clips showed the ingroup being stingy and the outgroup egalitarian. Varying each group's sharing strategies in this way created a more naturalistic scenario; in real-world encounters, children would be likely to see variation in ingroup and outgroup behaviors. The Ingroup Stingy/Outgroup Egalitarian Condition showed the opposite configuration of clips.

For example, if a child was assigned to the Kite Group and the Outgroup Stingy/Ingroup Egalitarian Condition, she observed videos in which the Balloon Group was stingy most of the time and the Kite Group was egalitarian most of the time. In contrast, if she was assigned to the Kite Group and the Ingroup Stingy/Outgroup Egalitarian Condition, she would see the video with more stingy Kite Group and more

egalitarian Balloon Group behaviors. Pilot testing in the U.S. indicated that, when not assigned to a group, 4-5-year-olds accurately determined which group had shared more (binomial  $p = .01$ ) and that exactly 50% of children preferred Kite or Balloon puppets.

At post-test, children met one new puppet from each group and were asked the same questions as in pre-test. Children were also given a sticker to share with only one of the puppets. Finally, children were asked two more questions only in the post-test: which group was the "nicest" and which group shared the most in the video.

### Results

Initial analyses revealed no effect of sex so data were collapsed. When conditions were collapsed, children identified which group shared most in the video with a rate of accuracy in the Faroese population (60%) as in previous research with the US population (58%) (Schug et al., 2013)<sup>2</sup>. Also as in Schug et al. (2013), there was no significant difference in children's liking of ingroup and outgroup puppets at pre-test,  $t(45) = -1.12$ ,  $p = .134$ .

We ran a three-factor ANOVA with children's liking of the puppets (based on scores from the smiley face scale, coded as: 1, 2, and 3) as the dependent measure, group (Ingroup vs. Outgroup) and experience (Before Video vs. After Video) as within-subjects factors, and condition (Outgroup Stingy/Ingroup Egalitarian vs. Ingroup Stingy/Outgroup Egalitarian) as a between-subjects factor. Although Schug et al. (2013), observed a three-way interaction in the three-factor ANOVA, the current study did not. We did, however, find a significant two-way interaction of experience and group,  $F(1, 44) = 4.86$ ,  $p = .040$ ,

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<sup>2</sup> All of the analyses described below were run separately by individuals who correctly identified who shared the most and those who were inaccurate. The same pattern of responses was observed regardless of participants' accuracy.

$\eta^2 = .093$ , such that liking increased for the ingroup but decreased for the outgroup from pre- to post-test. There were no reliable two-way interactions involving condition or any main effects ( $p$ 's  $> .500$ ). Thus, it appeared that group membership influenced children's liking of the puppets over time, and this pattern did not differ by children's experience with videos showing distinct patterns of ingroup or outgroup sharing.

Because the difference in liking between conditions was not a significant factor, we collapsed across conditions for further analysis. An ANOVA again revealed only the interaction between experience and group ( $F(1, 45) = 4.62, p = .037, \eta^2 = .093$ ), and no main effects ( $ps > .637$ ). Follow up t-tests (collapsed over condition) indicated that liking of the ingroup significantly increased after viewing the video (pre- vs. post-test,  $t(45) = -2.00, p = .026, d = .359$ ), while liking of the outgroup decreased (pre- vs. post-test,  $t(45) = 1.70, p = .048, d = .348$ ; see Figure 2). Further, at post-test, there was a preference for the ingroup over the outgroup ( $t(45) = 1.86, p = .035, d = .449$ ). These findings differ from Schug et al. (2013) in which this pattern was found only in the Outgroup Stingy/Ingroup Egalitarian Condition (see Figure 3).

The additional categorical measures (e.g., which puppet is nicer) were analyzed for differences between conditions and collapsed across conditions. We observed a marginal tendency for children to report a desire to share with the ingroup at post-test more often in the Outgroup Stingy/Ingroup Egalitarian Condition,  $\chi^2(1, N = 45) = 3.57, p = .057, \phi = .282$ . Children's preference for the ingroup was statistically significant only in the Outgroup Stingy/Ingroup Egalitarian Condition (75% chose the ingroup,  $p = .023$ , binomial test). This condition effect is different from the one observed in the U.S. study, in which children showed greater accuracy in identifying which group

shared the most only in the Outgroup Stingy/Ingroup Egalitarian Condition (Schug et al., 2013). There were no other differences between conditions. When collapsed across conditions, children reported their ingroup as being "nicer",  $p = .001$ . This pattern was statistically significant in both conditions in the Faroese children (76% in Outgroup Stingy/Ingroup Egalitarian,  $p = .015$ ; 76% in Ingroup Stingy/Outgroup Egalitarian,  $p = .027$ , binomial test). This broad pro-ingroup appraisal contrasts with the pattern in Schug et al. (2013), where children reported the ingroup to be nicer only in the Outgroup Stingy/Ingroup Egalitarian Condition.

#### Discussion

In the current study, Faroese children were assigned to one of two minimal groups and observed members of both groups engaging in positive or negative behaviors. We asked two primary questions. First, would Faroese children's responses differ from those of U.S. children in an equivalent study? Second, if differences between cultures were observed, what form might they take? Following videos of ingroup and outgroup members sharing equally or less than equally with a third party who belonged to neither the ingroup nor outgroup, Faroese children's liking of the ingroup increased and liking of the outgroup decreased. This pattern emerged whether the ingroup or outgroup was observed to share in an egalitarian manner or in a "stingy" manner. Faroese children's liking scores differed from previous results in which U.S. children's liking of the ingroup remained relatively constant in both conditions, while liking of the outgroup significantly decreased only after viewing negative outgroup behavior. This difference between cultures in responses to minimal groups information suggests that if there is a universal



tendency to conceptualize novel ingroups and outgroups differently, this tendency remains subject to cultural influences even from a young age.

Could Faroese children's pro-ingroup and anti-outgroup attitudes have arisen regardless of condition simply because these children failed to attend to puppets' sharing behavior in the videos? This explanation is unlikely given that children in the Faroe Islands identified which group shared the most with the same accuracy as observed in previous research. Additionally, there was one small indication that children were sensitive to condition: Faroese children in the Outgroup Stingy/Ingroup Egalitarian condition reported a greater desire to share with the ingroup, as compared to Faroese children in the Ingroup Stingy/Outgroup Egalitarian condition. These findings suggest that the children noticed the sharing behaviors they observed but that their liking of the ingroup and outgroup was not affected by differences in sharing.

Faroese children appear to have experienced a fast entrenchment of pro-ingroup and anti-outgroup bias regardless of the sharing behaviors in the videos they observed. Taken together, the different performance patterns of the U.S. and Faroese children appear to be consistent with the hypothesis that group-biased sentiments are stronger in societies with relatively collectivist tendencies, and inconsistent with the hypothesis that the emergence of bias conforms to a universal pattern. Both groups responded more favorably to the ingroup when presented with the same observations, supporting claims that humans have a universal tendency to treat ingroups and outgroups differently. The observed tendency in which members of one's own group are recognized as different and are favored is consistent with evolutionary arguments proposing a link between a recognition of individuals' group memberships and a need detect potential coalitional

partners (Kurzban et al., 2001). However, the specific manifestations of this bias differed across the two cultures. American children were particularly prone to developing negative outgroup attitudes in response to negative outgroup information, while they retained a consistent positive appraisal of the ingroup regardless of the ingroup's behavior. Faroese children, in contrast, responded positively to the ingroup and negatively to the outgroup at post-test regardless of either group's behavior. It could be argued that both groups showed anti-outgroup attitudes, but that the Faroese showed a greater tendency to develop pro-ingroup attitudes. Adult studies on the minimal groups paradigm have previously demonstrated some cross-cultural variability in group bias (Yamagishi, et al., 2008). Our results suggest that the socio-cultural norms that underpin this variability appear to emerge from as early as 4 to 6 years of age.

That Faroese children's liking of the ingroup increased regardless of condition is not surprising given what we know of collectivist values. Previous empirical studies with adults indicate a positive relationship between collectivism and pro-ingroup attitudes (Oyserman et al., 2002; Triandis et al., 1988). The Faroe Islands embody many qualities of collectivist societies, especially relative to the highly individualistic U.S. (Clark, 2004; Gaffin, 1995; 1996; Lamm & Keller, 2007). It is therefore reasonable that we would see earlier and stronger emergence of strong pro-ingroup sentiments in Faroese as compared to U.S. children.

More surprising is our finding that Faroese children's liking of the outgroup decreased – even when the outgroup was egalitarian. Previous well-known studies have documented the positive effects of intergroup contact on attitudes toward the outgroup (for a review see Pettigrew & Tropp, 2006). However, the apparent entrenchment of bias

that we report here, in which exposure to an outgroup increased negative sentiments, has precedent in the developmental literature (Stephan, 1978), and similar patterns have been reported more extensively in U.S. adults. In adults, contact with an outgroup can evoke negative attitudes when ingroup members lack experience with outgroup members and, therefore, find interactions with outgroup individuals to be potentially threatening and anxiety evoking (Plant & Devine, 2003; Stephan et al., 2002). In such cases, the presence of the outgroup may elicit anxiety about how to present oneself, or it may threaten one's own identity, values, or self-image. Such anxiety is associated with a tendency to experience negative affect in intergroup interactions and with predictions of feelings of hostility when engaging in these interactions (Plant & Devine, 2003; Plant, 2004; Stephan et al., 2002). Our participants may have been particularly vulnerable to developing intergroup anxieties. Given the Faroe Islands' pervasive homogeneity, children were very unlikely to experience diversity in their daily lives, and thus they may have experienced negative emotions while observing outgroup members in the video. One possibility is that these negative emotional experiences could be the driving force behind their decreased liking of the outgroup – regardless of the nature of their observations.

There are a number of other mechanisms that might explain the entrenchment of Faroese children's intergroup biases, besides the idea that participants experienced negative affect when exposed to an outgroup. One possibility is that the Faroese children attended primarily to positive behaviors by the ingroup and negative behaviors by the outgroup – even in the condition in which the reverse patterns were far more frequent. This explanation is consistent with the fact that Faroese children increased ingroup liking and decreased outgroup liking even when each group more often behaved in a negative

and positive manner respectively. Similarly, this same finding could have emerged if Faroese children better remembered negative outgroup and positive ingroup behaviors. These interpretations align with previous minimal groups studies in which children showed enhanced recall for positive ingroup behaviors (Dunham et al., 2011).

It is important to acknowledge that the current study has limitations. The Faroese sample is small; consequently, statistical comparison of these complex response patterns between cultures is not possible. Although the current study has identical methods to one conducted in another society (Schug et al., 2013), the strongest claim that can be made from these data is that the patterns appear to differ between cultures in the two studies and that the pattern observed in the U.S. was not replicated in the Faroe Islands. Ideally, future studies exploring the influence of environment on group-based thinking would include larger samples directly comparing at least two cultures. Finally, while there are many intriguing possible explanations for our findings, further research is needed to provide a more conclusive understanding of the relevant cultural influences and the cognitive processes driving our results.

Regardless of the specific cultural and cognitive mechanisms underpinning the differences observed between the U.S. and Faroese populations, our finding that minimal groups bias varies between cultures in childhood has an important implication: if there is a universal cognitive mechanism promoting a tendency to conceptualize ingroups and outgroups differently, that mechanism remains subject to environmental influences. That cultural variables should shape the expression of what appears to be a generalized cognitive system in such young children is remarkable. Furthermore, our finding presents a fundamental challenge to researchers applying this paradigm. Because a frequent

assumption of the minimal groups paradigm is that it eliminates potentially confounding environmental variables, it is critical to recognize that even when the creation of groups and all information about them are controlled by researchers, one cannot assume that participants are unaffected by the social systems in which they have been immersed from birth.

In conclusion, this work provides evidence that the development of minimal groups bias varies based on cultural context. Children from the Faroe Islands, a largely homogeneous society that highly values family and community relationships, demonstrated a tendency to increase their liking of the ingroup and decrease their liking of the outgroup, regardless of each group's behavior. This differs from a previous study with U.S. children, who showed particular sensitivity to negative outgroup behavior. These findings underscore the need for caution when considering the question of a universal developmental trajectory of early group bias. Until more evidence can be collected across cultures, claims of universality in the development of minimal groups bias may be premature.

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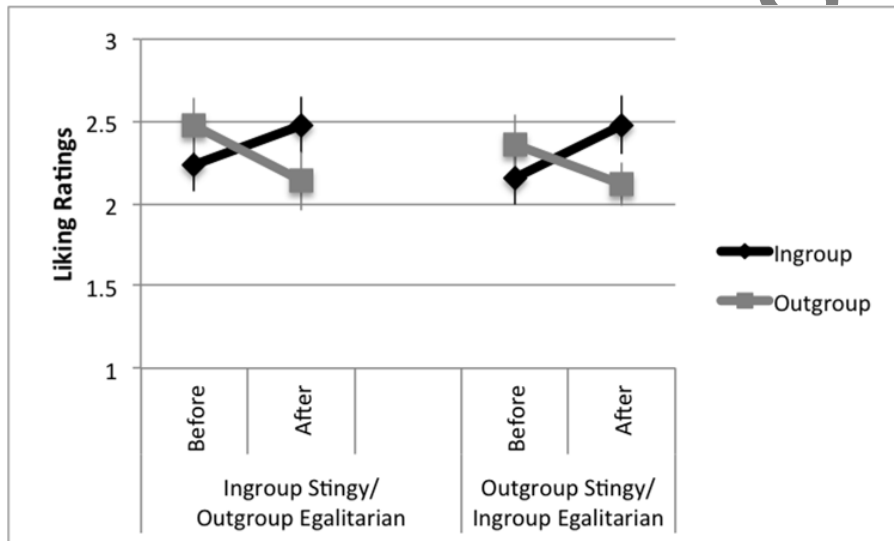
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#### Figure Captions

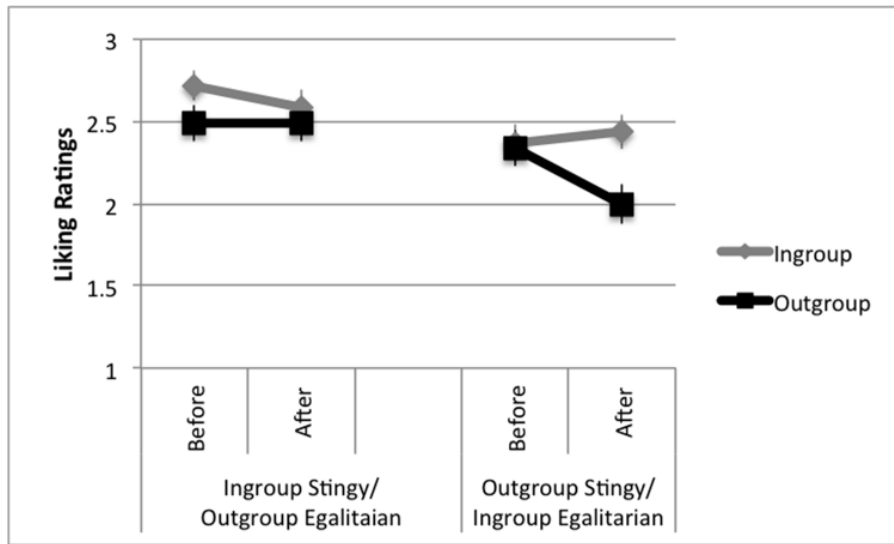
Figure 1. Still frames from egalitarian (left) and stingy (right) video clips. In the egalitarian clip, the group puppet shared half of his or her candy with the animal puppet. In the stingy clip, he or she shared only two pieces of candy.

Figure 2. Liking-rating means (frown = 1, straight mouth = 2, and smile = 3) and standard errors for the Faroese population including the Ingroup Stingy/Outgroup Egalitarian (left) and Outgroup Stingy/Ingroup Egalitarian (right) Conditions before and after viewing the video of sharing behavior.

Figure 3. Liking-rating means (frown = 1, straight mouth = 2, and smile = 3) and standard errors for the comparison American population including the Ingroup Stingy/Outgroup Egalitarian (left) and Outgroup Stingy/Ingroup Egalitarian (right) Conditions before and after viewing the video of sharing behavior. Used with permission for Schug et al., 2013.



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