Journal of Experimental Psychology: General

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In a just society, who should have a voice in group decision making? Should everyone get to decide, or only the most elite and competent individuals? We probed the foundational intuitions underlying these important societal questions through a developmental lens, examining how adults and 4- to 9-year-old children evaluate universalist versus exclusive decision-making systems that could potentially have better decision effectiveness and efficiency. Study 1 found that compared to *expert-led* exclusive voting, children and adults preferred *universal* systems and thought they were fairer. Study 2 found similar patterns even when we emphasized the decisions as important and consequential. We also introduced a moral-led exclusive voting system and found that, with age children increasingly believed the universalist system was more fair than both expert-led and moral-led exclusive systems, although they acknowledged the exclusive systems could yield better outcomes (in line with adult responding). Study 3 further investigated evaluations of exclusive systems based on *incompetence*, *immoral* behaviors, or *arbitrary* characteristics. Children and adults regarded immorality-based exclusions as the fairest type of exclusion, followed by incompetence-based and then arbitrary exclusions. Across studies, with age, children increasingly recognized that exclusive voting systems were faster than universal voting, demonstrating an awareness of the trade-offs between inclusiveness and efficiency. These results reveal an early emerging preference for universalist voting and a growing sophistication in children's thinking about fair decision-making systems in society.

Public Significance Statement
Reasoning about who is allowed to participate in group decision making is a fundamental aspect of political thinking. Exploring how children think about these questions reveals basic building blocks of how we reason about these systems. These findings reveal that long before children engage in formal political activities, they already develop early beliefs concerning universalist versus exclusive voting systems and the trade-offs associated with them, which contributes to a better understanding of the moral origins and conceptualizations that underlie significant group decision-making systems in modern society.

Keywords: group decision making, voting, fairness, competence, morality

Supplemental materials: https://doi.org/10.1037/xge0001795.supp

Who should participate in making group decisions? This fundamental and longstanding political question shapes decision-making procedures, impacting many aspects of our lives from small group decisions to large-scale national policies. One central debate revolves around the trade-offs between "exclusive" practices that limit participation for more effective or efficient decision making (Teorell, 2006) and universal practices that emphasize inclusivity and maximal participation. Real-world decision-making practices

vary from highly authoritarian and efficiency-oriented to highly democratic and inclusion-oriented, reflecting these contrasting approaches to different extents. Within the United States, for example, states strive for democracy but also implement a spectrum of officially exclusive practices, from excluding individuals under guardianship for emotional and cognitive impairments (Schriner et al., 2000) to those previously convicted of felony crimes (Uggen & Manza, 2002). Given the ongoing political debate and the lack of consensus in practice, questions arise about the perceived fairness of various voting systems, the factors influencing these moral intuitions, and the origins of such beliefs.

Voting procedures such as the above are shaped by our intuitive understanding of what is or is not a fair reason for excluding someone from participating in decision making. Research examining the developmental underpinnings of how children think about different voting practices and procedures can help us better understand the very basics of the psychology that drives group decision making, as well as illuminate the kinds of experiences necessary to form inferences about the fairness of these different procedures. To shed light on these questions, our research adopted developmental and social cognitive approaches to examine how 4- to 9-year-old children reason about different decision-making procedures, specifically focusing on their intuitions (and potential age-related changes) about exclusive versus universalist voting systems.

Exclusive and Universalist Political Theories

Historically, exclusive and universalist procedures represent two distinct paradigms in political philosophy, both of which exist in modern life across different settings and issues. Early proponents of exclusive, expert-led systems, such as Plato, advocated for rule by the wisest and most knowledgeable individuals. His ideal of philosopher-kings was essentially an early form of epistocracy prioritizing the state's long-term welfare over popular opinion (Ferrari, 1990). Some contemporary political thinkers share similar views, fearing that widened democracies may dilute expertise and corrode outcome quality (e.g., Irvin & Stansbury, 2004). As a real-world example of this type of decision making, one can consider air pollution response and policy in China. In response to severe air pollution, the Chinese government quickly enacted and enforced comprehensive environmental regulations, primarily through expert-led decision-making processes (Jin et al., 2016). Similar expert-led structures exist in democratic countries like the United States, including the United States' Federal Reserve System and the Food and Drug Administration, where decision making is limited to individuals with crucial knowledge or expertise in their respective fields.

In contrast, universalist democracy, as exemplified by the ideals of ancient Athens, emphasizes egalitarianism and participatory governance where each citizen has an equal say in decision making. Philosophers like John Stuart Mill have explored these concepts, highlighting democracy's role in reflecting the collective will and promoting personal liberty and development (Mill, 1861). Universalist systems push for more inclusive voting practices that empower all citizens to enhance the representativeness and legitimacy of the decision-making process (Beckman, 2008). Although real-world practices have varying degrees of exclusion based on factors such as citizenship and eligibility, some procedures are more

"directly" universalist than others. Consider, for example, when citizens from the United Kingdom decided whether the country should remain in the European Union or leave it in 2016, in a referendum vote colloquially referred to as "Brexit." The decision was made directly by the electorate on this policy instead of by an elite or exclusive body of decision-makers, reflecting a case where each citizen's vote has equal importance in the decision-making process (Kröger, 2018; Offe, 2017).[1]

While these political views and practices provide support for both universalist and exclusive decision-making systems, they were situated in particular historic and societal contexts, wherein positions are often tainted by the interests of different entities and political parties. It is thus unclear to what extent exclusive and universalist practices are aligned with our fundamental moral intuitions about group decision making. How would young children feel about endorsing these varied political ideals? Below, we briefly review some relevant developmental research, focusing on two competing hypotheses regarding children's perceptions of group decision-making systems.

The Universalism = Fair Hypothesis

One possibility is that children prefer universalist decision making over exclusive decision making, given their robust, early emerging sense of fairness and equality. Most previous research on children's evaluation of political systems focused on concrete aspects of formal governance such as congress or elections (e.g., Barrett & Pachi, 2019; Flanagan et al., 2005; Sherrod et al., 2010), and little research has directly examined more basic beliefs about children's intuitions of decision-making systems (for an exception, see work by Helwig & Kim, 1999). However, there is an extensive literature probing children's intuitions about individual decision making, finding that infants and young children expect equal treatment between individuals when making resource allocations and resolving disputes (Blake & McAuliffe, 2011; Hook & Cook, 1979; Schmidt, Svetlova, et al., 2016; Sloane et al., 2012; Shaw & Olson, 2012). These early intuitions align with Fiske's (1992) notion of equality matching, which emphasizes that in certain domains we expect that everyone will get an equal amount or an equal opportunity. Voting may serve as a tangible manifestation of this principle, embodying the idea that everyone should be treated equally and have an equal voice (Fiske, 1992).

Relatedly, we know that concerns with morality and fairness exist around decisions to exclude others: Children generally reject exclusion and view it as unfair (Killen, 2007; Killen et al., 2002), and they prefer having consensus when enacting some decisions such as new norms or rules within a group (Schmidt, Rakoczy, et al., 2016). Therefore, children may be quite against excluding others from an important procedure like voting. More directly relevant to our inquiries, Thomas et al. (2022) found that 6- to 8-year-old children, but not 4- to 5-year-olds, preferred to interact with groups that had an egalitarian decision-making structure (where all the group members make the decisions) over groups that had a

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[1] There are some debates about the legitimacy of the "Brexit" referendum as a legitimate case of democracy, but that is out of the scope of this article and is merely used as a structural example here. The authors also know that the referendum was nonbinding, but it was pitched as being something that approximates the universalist intuition here.

hierarchical decision-making structure (where one group member makes all the decisions). These findings suggest that by midchildhood, children prefer interacting with groups with more inclusive decision-making systems. While this work might suggest that children would endorse universalist systems, this previous work has not examined a specific "trade-off" or provided a justification as to why power may be more concentrated, such as competence in decision making. While children may generally prefer egalitarian decision making in the absence of a compelling reason for someone to be in power, they might favor exclusive systems when given a reason for doing so (as we will review in the next section, they readily divert from equal distribution of resources when doing so is justified).

Competing Hypothesis: Expertise and Efficiency Concerns

The above research supports the possibility that children might view universalist decision-making systems as more fair than exclusive ones. Still, as some political philosophers have argued, many exclusive decision-making systems, especially those that exclude "incompetent" people, may offer inherent benefits over universalist systems in terms of greater expertise, decision quality, and efficiency (e.g., Ferrari, 1990; Irvin & Stansbury, 2004). If children recognize these advantages, they may prefer exclusive decision-making systems with such features over systems that include everyone in the decision-making process.

There is indeed robust evidence showing that children value expertise (Bernard et al., 2015; Danovitch & Keil, 2007; Johnston et al., 2015; Koenig & Harris, 2005; Koenig & Jaswal, 2011; Zhang et al., 2022). While children show many of the same conformity effects as adults, trusting even unreliable information provided by majorities rather than minority dissenters (e.g., Corriveau et al., 2009; Einav, 2014; Fusaro & Harris, 2008), by ages 5 or 6 children recognize and trust minority experts more than unreliable majorities (e.g., Bernard et al., 2015; Koenig & Harris, 2005; Koenig & Jaswal, 2011; Zhang et al., 2022). These findings suggest that at least when learning from others, children prioritize expertise over sheer numbers of people. Further, extensive research demonstrates that children and infants can identify and use power asymmetries between agents in decision making and that children and adults recognize pyramidal decision-making structures that feature hierarchical decision making (Heck, Shutts, & Kinzler, 2022; Hok et al., 2024; Lourenco et al., 2016; Mascaro et al., 2023; Pun et al., 2017). These structures, along with a bias to infer what ought to be from what is (Roberts et al., 2017), may incline children toward favoring more exclusive systems.

Relatedly, while there is an early emerging preference for equal distributions of resources (as reviewed above), research suggests that as children mature, they increasingly perceive impartiality in procedure as mattering more than equal outcomes, and they recognize factors such as merit (e.g., Schmidt, Svetlova, et al., 2016; see also Hook & Cook, 1979, for extensive review), need (see also Huppert et al., 2020; Sigelman & Waitzman, 1991), and moral character (e.g., for review, see Marshall & McAuliffe, 2022) as legitimate reasons for some people to receive more resources than others. Based on these findings, it seems quite possible that children may think it is fair to give some individuals more decision power if their characteristics are relevant for decision quality and effectiveness—for example, some work suggests that children

understand that ownership might give someone more decision power over an object (e.g., being able to use it or being able to destroy it; Huh & Friedman, 2017; Neary & Friedman, 2014). In a similar vein, it is possible that children might think of expertise as a form of merit in decision making and so would favor giving expert voices more influence.

In addition to generating higher quality decisions with better outcomes, allowing for fewer individuals to make decisions may lead to greater expectations of efficient decision making, given that the costs of coordinating and communicating are thought to be lower (Hackman & Morris, 1975; Mintzberg, 1979). Research suggests that children are sensitive to trade-offs between time and effort in decision making (e.g., Leonard et al., 2019; Richardson et al., 2023; Richardson & Keil, 2022); they recognize that groups with more people and more diverse opinions will take more time to come to a decision (Richardson et al., 2023). The considerations about efficiency may also lead children to favor exclusive decision making. Taken together, these findings predict that children might prefer exclusive voting systems over universalist systems, especially when exclusive voting systems feature higher quality and more efficient decisions—such as by only including competent voters with relevant expertise or excluding incompetent individuals from voting.

The Present Studies

The present studies investigate 4- to 9-year-old children's intuitions of fairness regarding universalist and exclusive voting structures. We focused on this age group because previous research has shown that by age 4 children already have a general sense of fairness and understanding of group structures, which becomes more sophisticated between ages 4 and 9. Further, for each study, we collected an adult sample online as a developmental "endpoint" comparison. Across studies, we operationalized universal voting as a system in which "everyone is allowed to vote" and contrasted it with different types of exclusive voting systems. As we reviewed above, philosophical and political discussions emphasize competence and efficiency as favorable features of exclusive voting systems, and our primary focus is how children evaluate universalist systems versus exclusive systems limiting decision making only to group members with competence and expertise.

That said, even the most inclusive historical voting practices have adopted voting systems that exclude criminal offenders or convicts. Therefore, we also explored "immorality" as an exclusion criterion as a comparison in our studies. In Study 1, we examined children's views about the *expert-led* exclusive voting system, where "only the experts are allowed to vote." In Study 2, we conceptually replicate Study 1 with a more stringent case of expert-led exclusive voting in which we make clear the decisions being made are important, as well as collect a comparison condition of *moral-led* exclusive systems. To further probe the boundaries of children's evaluations of exclusive voting systems, Study 3 explored children's perceptions of systems that specifically excluded individuals based on *incompetence*, *immoral character*, or *arbitrary* reasons. Across studies, children evaluated different voting systems primarily in terms of fairness and efficiency.

If we were to find any preference toward universalist or exclusive voting systems, our argument would, of course, not be that either of these preferences are "innate" or "universal" in

development. Rather, this article attempts to explore whether young children might have a sophisticated notion of group decision-making structures and who can participate in making decisions. Expanding the growing body of work on children's beliefs about complex societal systems (e.g., Anderson et al., 2023; Bregant et al., 2016; Dunlea et al., 2022; Dunlea & Heiphetz, 2021; Heck et al., 2021; Reifen-Tagar & Cimpian, 2022), the findings may help reveal intuitive, early emerging conceptual foundations underlying the major group decision-making processes observed in real-life political systems, even before extensive experience with these formal structures.

Transparency and Openness

All data, analyses, and additional online materials relevant to the following experiments are available on the Open Science Framework at https://osf.io/nx3fu/?view_only=f7e9709d1beb43aca4009cbef8cee 6fd. The additional online materials include exact scripts, samples of the stimuli, supplemental studies, as well as full counts for binomial data.

Study 1

Study 1 explored how adults and children perceive a universal voting system compared to an exclusive voting system, specifically an expert-led exclusive voting system that may offer clear advantages in terms of effectiveness and efficiency. If children view that all individuals in general should be allowed to participate in a group decision, they should believe that universal voting is fair and prefer it to exclusive voting. However, if children prioritize competence and efficiency in decision-making processes, then they should prefer expert-led voting and view it as more fair as well. To investigate this, we asked participants to evaluate the two types of voting systems in terms of fairness, preference (what they thought was better and what they would rather do), and efficiency of the decision process.

Method

Participants

We recruited 107 4- to 9-year-old children (M_{age} = 6.17 years, SD = 1.67 years, range = 4.03–9.87, boys = 45%, girls = 55%). Participants were recruited through a database of families in a Midwestern city in the United States. Fifty percent were White, 12% were Black, 11% were Hispanic, 19% were Asian, and 10% were of another identity. Parents provided written consent, and children provided verbal assent before the sessions in all studies reported in the article. Each family received a $5 Amazon gift card for participation. We also recruited a sample of 110 adults from CloudResearch (Litman et al., 2017), who completed the study in exchange for a small participation fee (M_{age} = 49.43 years, SD = 13.07 years, boys = 55%, girls = 45%). Adult participants were all located in the United States, had previously completed 50 studies or more, and had an approval rate of 97% and above. Sixty-two percent reported being White, 12% were Black, 12% were Asian, 8% were Hispanic or Latino, and 7% were of another identity.

Design and Procedure

Each child was tested individually on a laptop, large tablet, or computer at a quiet space over Zoom, and adults were tested via Qualtrics. Before the session began, parents were asked to check that their devices were functioning appropriately, that background noise was minimal, and that any distractions were removed from the room. Parents were permitted to stay in the room with the child but were instructed not to talk to them or guide their responses. Children then began warm-up trials to get familiar with our testing platform; these involved viewing pairs of stimuli and verbally indicating which of the two stimuli our cursor was pointing at on the screen. The testing session lasted, on average, 10 min or less. All materials were presented through Qualtrics. Adult participants responded to the same stimuli and questions through Qualtrics on their own.

Because the term "voting" may be an abstract or unfamiliar concept to many children, children were first provided with a brief familiarization of the voting process. They were told:

> Today, I'm going to tell you a story about voting. Do you know what voting is? Here is a group of people, and they need to decide what to do as a group. Voting is to let each person say what he or she wants to do, and the group can do what MOST people want to do! Let's see an example!

Children were then shown a group of townspeople who were deciding between whether to paint a new building blue or yellow through voting:

> If most of the people say they want to paint the new building blue, then the entire group will paint the new building blue! But if most of the people say yellow, then the entire group will paint the new building yellow.

This initial framing might have seemed slanted toward the universalist position ("each person" having a "say"), but this concern should be allayed by the fact that immediately after this familiarization, in the testing phase, participants were introduced to two towns, one of which had a nonuniversalist voting system:

> These ones on the left are called Greens and they live in Greentown. These ones on the right are called Oranges and they live in Orangeville. Both towns have to make all sorts of decisions for their town, but they have different ways to decide what to do.

We told children that each town has some experts, which means "they know a lot about the town and know what is the best decision to make. Other Oranges/Greens know less about the town and do not know the best decision to make." Children then learned that Orangeville had a universal voting system, and Greentown had an expert-led voting system. Orangeville and Greentown were represented by a respectively orange- or green-colored cluster of human-shaped figures overlaid on a simple graphic of a town. Each town had a red square surrounding a group of people to represent who was permitted to vote (universal vs. expert-led); for the universal system, this square surrounded the entire town, and for the expert-led system, the square only surrounded a small cluster of figures at the top of the group (Figure 1). One thing to note is that the visual placements of the groups in Study 1 may have signaled something about status. Although we do not believe status and expertise are always necessarily related, we believe that given that expertise is related to decision-making power specifically, status is a fine conflation here.

After hearing about the towns, participants were asked to indicate which voting system was (a) *better* (Which way of

Figure 1

Example Testing Stimuli in Study 1
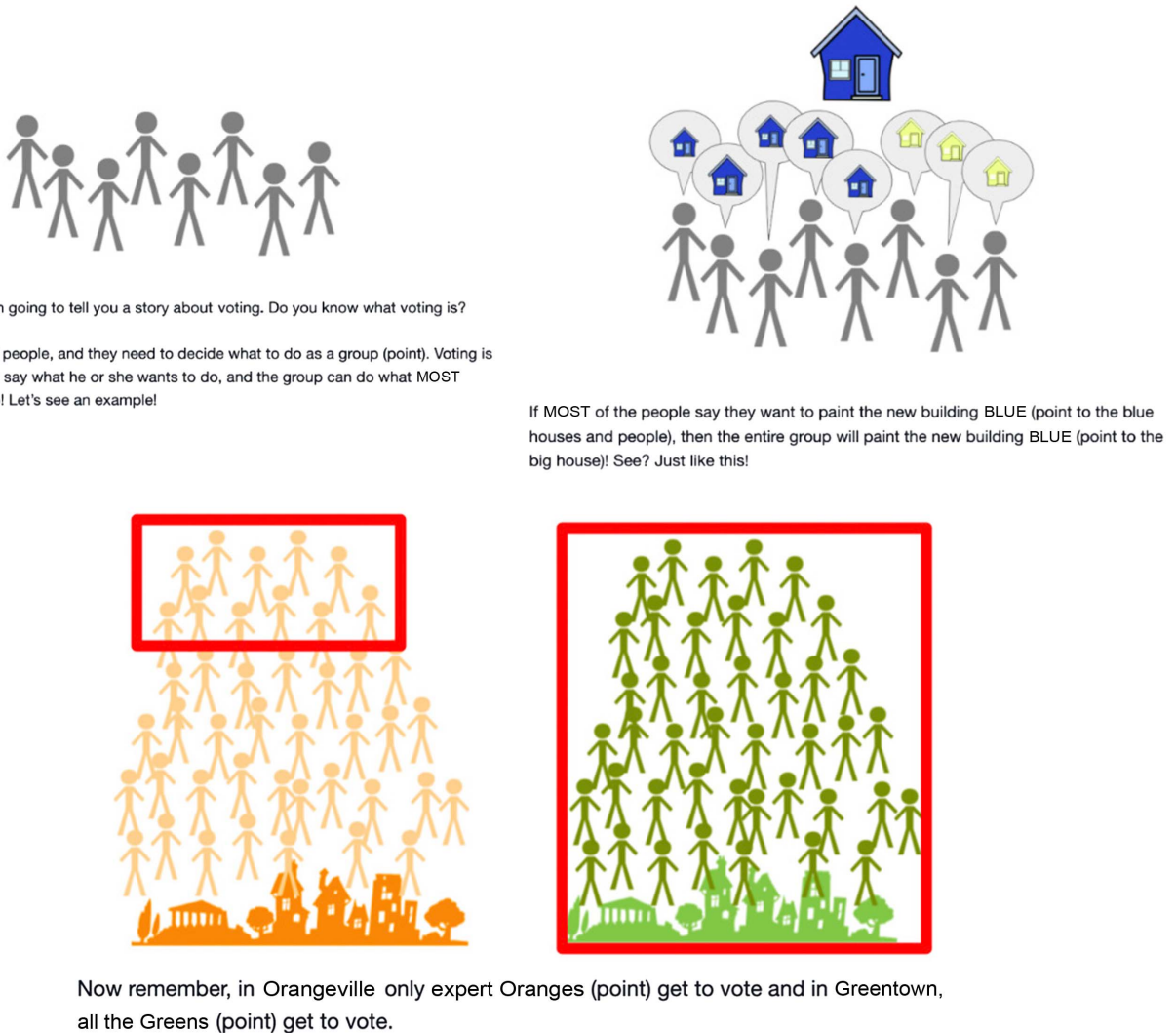
Note. See the online article for the color version of this figure.

deciding is better?); (b) *more preferable* (Which town would you rather live in?); (c) *more efficient* (Which way of deciding is faster?), and (d) *more fair* (Which way of deciding is more fair?). Question order was randomized across the trials. Participants could choose universal, expert-led, or neither for each question. We removed responses for "neither" from the analyses as these were neither a vote for exclusive or universalist systems (though we will note that these responses were slightly more frequent for adults than children; interested readers can see the tables and counts in Supplemental Materials).

Results and Discussion

Adults

We conducted a mixed-effects logistic regression model using R's generalized linear models function using question (fair, better, rather, faster) to predict adults' selections and with participant ID included as a random effect. The variable "question" significantly contributed to model fit, $\chi^2(3) = 246.96$, $p < .001$. Model comparisons revealed that adults' judgments about which voting system is faster significantly differed from judgments about which voting system is better ($B = 13.76$, $SE = 1.57$, $Z = 8.76$, $p < .001$), more fair ($B = 19.71$, $SE = 2.69$, $Z = 7.31$, $p < .001$), and which they would rather live in ($B = -14.05$, $SE = 1.63$, $Z = -8.65$, $p < .001$). Other comparisons did not significantly differ ($p > .70$).

We also analyzed adults' responses to each question by conducting binomial tests to compare responses to each question against chance (50%). Adults were significantly more likely to select the universal voting system for better (85 out of 100, 85%, $p < .001$), fair (102 out of 106, 96%, $p < .001$), and rather (90 out of 105, 86%, $p < .001$). Importantly, adults did not think that universalist system was better for everything and they were significantly less likely to select the universal voting system for faster (17 out of 90, 19%, $p < .001$; Figure 2).

Figure 2
Proportion of Adult and Children's Forced Choice Responses (1 = Universalist System, 0 = Exclusive System) by Measure (Fair, Better, Rather, Faster) in Study 1

Note. See the online article for the color version of this figure.
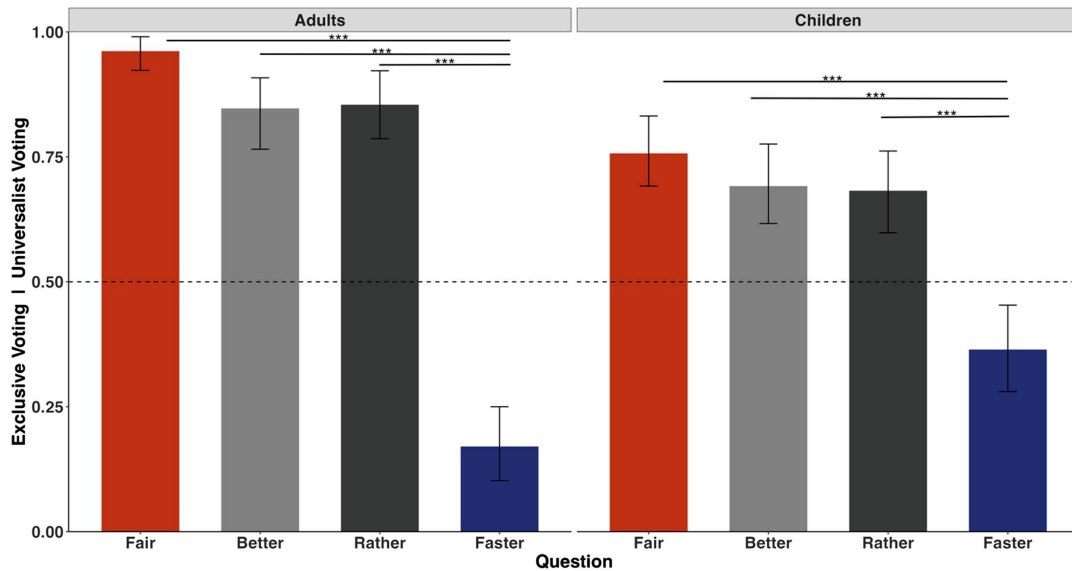*** $p < .001$.

Children

We conducted a mixed-effects logistic regression model using R's generalized linear models function using question (fair, faster, better, rather) to predict children's responses, with participant ID included as a random effect. The variable "question" significantly contributed to model fit, $\chi^2(2) = 35.77$, $p < .001$. Model comparisons indicated that children's judgment of which voting system is faster differs from their judgment of which voting system is better, $(B = 1.69, SE = 0.35, Z = 4.86, p < .001)$, more fair $(B = 2.34, SE = 0.40, Z = 5.90, p < .001)$, and which they would rather live in $(B = -1.79, SE = 0.36, Z = -4.98, p < .001)$. The other questions did not significantly differ from each other $(ps > .13$; Figure 2).

To explore potential age changes, we added age in years and its interaction with question to predict children's responses, with participant ID included as a random intercept. According to the "drop 1" function in R, the interaction significantly improved model fit (likelihood ratio test comparing the full model to a model without the interaction), $\chi^2(2) = 14.02$, $p = .003$. To further understand the interaction, we conducted a separate logistic regression using age to predict each question. With age, children were more likely to think exclusive voting was faster $(B = -0.31, Z = -1.51 \ p = .13$, 95% CI [-0.72, 0.09])$, whereas they were more likely to think universal voting was more fair $(B = 0.41, Z = 1.81, p = .07$, 95% CI [-0.03, 0.86])$. Age did not have a significant effect on children's ratings for better $(p = .12)$ or rather $(p = .91$; Figure 3).

We next analyzed younger (4- to 6-year-olds) and older children's (7- to 9-year-olds) responses separately and conducted binomial tests comparing responses to each question at chance level. We found that the majority of young children selected the universal voting system for better (36 out of 46, 78%, $p < .001$), fair (29 out of 40, 73%, $p = .013$), rather (33 out of 46, 72%, $p = .005$), but were at

chance in their selection of system for faster (22 out of 47, 47%, $p = .780$). Similarly, the majority of older children marginally selected the universal voting system for better (34 out of 53, 64%, $p = .058$), fair (43 out of 49, 88%, $p < .001$), and rather (31 out of 43, 72%, $p = .014$). Unlike younger children, most older children selected elite voting as faster (13 out of 52, 25%, $p < .001$).

These results demonstrated that adults and 4- to 9-year-old children evaluated the universalist voting system as better and more fair than the expert-led exclusive voting system. At the same time, related to the trade-off between effectiveness and efficiency, adults and children believed that universalist voting was not faster than the elite voting system—indeed, adults and 7- to 9-year-old children believed that the elite voting system was faster than the universal system. In children, fairness and efficiency beliefs became more pronounced with age (or more "adult-like"), highlighting an increasing sophistication in children's reasoning about these two types of decision-making structures.

Study 2

Study 1 provided initial evidence that while children saw the efficiency advantage of expert-led exclusive voting systems, they nevertheless endorsed universalist voting systems and thought they were more fair. However, it is possible that children believed the decisions being made in Study 1 were relatively inconsequential, given the example of voting that we chose (choosing which color to paint a building). We also included no measure of outcome to verify that children indeed believed that the so-called experts would produce decisions with better outcomes. If children believed that the decisions were trivial and that expertise was irrelevant for these decisions, then it is unsurprising that they thought that one should use a universalist rather than an exclusive voting system.

Figure 3

Proportion of Children's Forced Choice Responses (1 = Universalist System, 0 = Exclusive System) by Measure (Fair, Better, Rather, Faster) and Age in Study 1
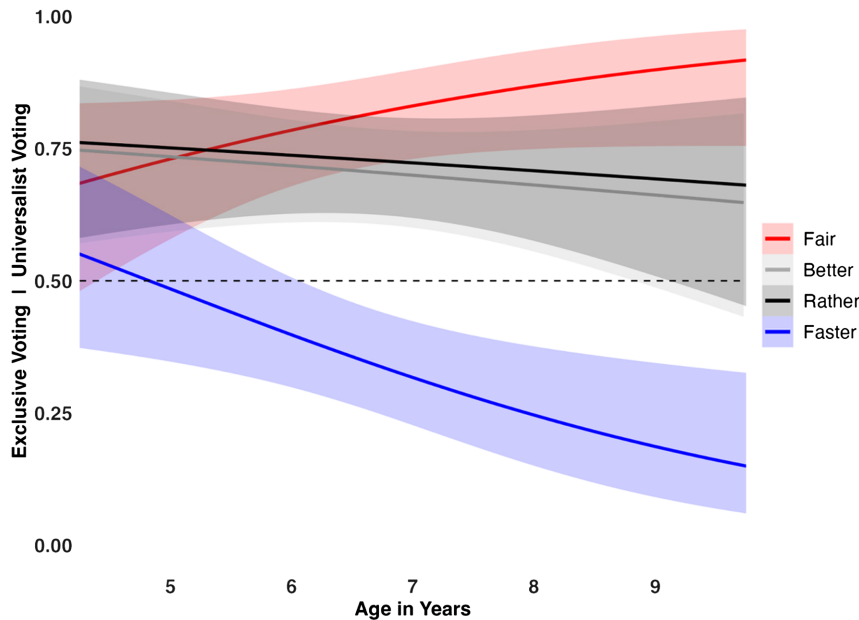
Note. See the online article for the color version of this figure.

In Study 2, we remedied both of these issues. First, we sought to replicate the previous design but with language that placed more stress on the importance of decisions being made. Second, we added a measure that specifically asked about the outcome of the decision to further probe whether children believe there is additionally a trade-off between quality of decisions (e.g., an outcome made by universalist vs. exclusive systems) and fairness. These changes allow us to make firmer conclusions about children's intuitions surrounding exclusive systems that are based on competence. We predicted that we would observe similar results here as we did in Study 1—that is, children thinking that universalist systems were better with age while acknowledging that expert-led systems are more efficient.

Furthermore, we included another exclusive system where the elite decision-makers were selected based on another very common historical justification for exclusion: morality. As alluded to in the introduction, history is rife with real-world examples of exclusion based on moral justifications, such as the disenfranchisement of felons (for review, see Chapter 2 of Tripkovic, 2018, particularly for a discussion around ancient Athens). Not only are people excluded based on morality, but leaders are also often asked to demonstrate or embody some higher levels of moral character in particular (e.g., Gabriel, 2015). Although people may expect moral character from their leaders, moral expertise and decision-making expertise may not always go hand-in-hand. Thus, moral exclusive systems act as a good comparison point to competence exclusive systems examined in the previous study (note in Study 3 we will explore exclusions based on incompetence and immorality, but here we focus on exclusivity in favor of competence-based and morality-based elites).

To investigate this, adults and children were asked to evaluate two different exclusive methods of voting, in which one elite group led the vote: expert leaders ("They know a lot about the town and know

the best decision to make") and moral leaders ("They are helpful to other people in the town and always try to be super helpful to others"). As in Study 1, children evaluated the fairness of these exclusive systems compared to universal systems, as well as which system was faster, better, and where they would rather live. In addition, at the end of each trial, children were given a scenario in which expertise could lead one to make a better choice (voting on how best to grow fruit trees) and asked whether the exclusive or universal voting method would produce the best outcome. We know that children do believe that there can be moral experts and understand that these are different from scientific experts (Danovitch & Keil, 2007), and so there was some reason to expect they might treat these two exclusive criteria differently, at least by the age of 8- or 9-year-olds. However, we had fewer firm predictions about morality and thought it was possible that children might or not might endorse this form of moral exclusion.

Method

Participants

We aimed to recruit roughly 100 participants, in line with Study 1. The final sample included 101 4.5- to 9-year-old children (M_{age} = 7.25 years, SD = 1.62 years, range = 4.51–9.98, boys = 48%, girls = 52%). Participants were recruited through a database of families in a Midwestern city in the United States. Among these participants, 66% were White, 7% were Black or African American, 4% were Hispanic, 8% were Asian, 4% were mixed, and 9% were of another identity. Two percent of participants declined to share demographic information. We also recruited a sample of 102 adults from CloudResearch (M_{age} = 40.47 years, SD = 10.44

years, boys = 68%, girls = 32%). Adult participants were all located in the United States, had previously completed 50 studies or more, and had an approval rate of 97%; 79% reported being White, 14% were Black, 2% were Asian, 3% were Hispanic or Latino, and 2% were other.

Design and Procedure

Study 2 was very similar to Study 1, with a few key changes. First, we altered the familiarization trial introduction used in Study 1 to emphasize more strongly that these were consequential decisions and that expertise thus mattered for these decisions. Here, instead of being given an example of choosing what color to paint something, children were given a scenario in which a group of people had to vote to decide whether to build a school or a hospital in their town. Like in the previous study, we emphasized that whichever option received the most votes would be the one the town would choose; however, we also emphasized the outcome of the voting process and how it could affect the group:

> See, when people vote, they have to make all sorts of decisions—especially decisions that are important to the group! These decisions can be good for everyone, or they can even be bad for everyone.

These changes were implemented to emphasize that this decision was consequential and required careful consideration.

A second change was the addition of moral trials to the expert trials from Study 1. After the introduction, children responded to two trials (i.e., moral or expert) in a random order, each featuring two different groups of people in two different towns. As in the first study, the towns, as well as their modes of decision making, were represented by cartoon images (see Figure 4). Each town had a red square surrounding a group of people to represent who was permitted to vote.

In the expert trial, participants were told about a smaller group of citizens in each town who were experts: "Some Oranges are experts, which means that they know a lot about the town and know what is the best decision to make. Other Oranges know less about the town

and do not know the best decision to make." In the moral trial, children were told:

> Some Blues are really nice, which means that they are helpful to other people in town and always try to be super helpful to others. Other Blues can be nice, but are not as helpful to the others in town and don't do as many nice things.

In each trial, the exclusive system (expert or moral) was contrasted with the universalist system, and it was emphasized that both the exclusive and universal voting towns contained expert or especially moral individuals. Importantly, this meant that the only difference between the towns in each trial was who was permitted to vote.

We included attention checks in which children were asked to confirm in which town everyone got to vote and to confirm whether those who did get to vote in the exclusive group were experts or more moral, respectively. Children were then given the same measures as Study 1, in which they were asked to indicate which way of deciding was more fair, which way of making decisions was better (which we took as an overall evaluation of the decisions process), which town they would rather live in, which way of deciding worked faster. Responses were binary, with the universal vote coded as 1 and the exclusive vote coded as 0.

A third change from Study 1 is that at the end of each trial, children were presented with additional information about a decision the towns must make, namely, how to take care of the fruit trees in the town (coconut trees or apple trees). It was emphasized that the "right decisions" needed to be made to ensure a successful crop:

> One of the things these towns have to decide is how to take care of the apple trees in town. If they make the right decisions and the apple trees get a lot of sunlight and water, the town can get a lot of apples! If they don't make the right decisions, the apple trees don't get enough sunlight and water, and the town can't get that many apples.

After hearing this, children were then told that only one of the towns had a lot of fruit on their tree because they made the smartest decision. We then reminded children of the towns' different voting methods and asked them to choose which town they thought ended

Figure 4
Example Updated Testing Stimuli in Study 2
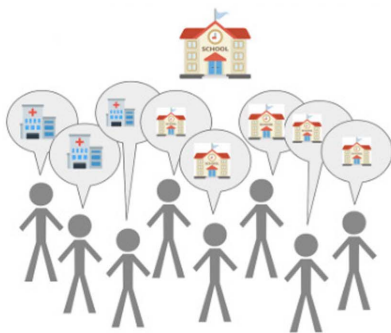
But if MOST of the people say to build a school (point), then the entire group will help build the school (point). See? Just like this! Does that make sense?
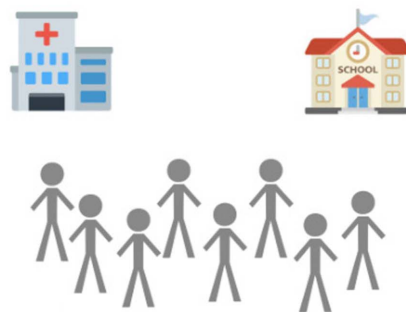
See, when people vote, they have to make all sorts of decisions -- especially decisions that are important to the group! These decisions can be good for everyone, or they can even be bad for everyone.

Note. See the online article for the color version of this figure.

up with the most fruit. We call this our "outcome" measure, and it was added to probe whether children see a relationship between expertise (in the form of competence or morality) and better outcomes (i.e., more fruit production). They were given the option to respond either the universal vote (coded as 1) or the exclusive vote (coded as 0). After the study, children were asked why they answered the way they did and were given the opportunity to say whatever they thought.

Results

For both adults and children, we analyzed their responses to the expert trial and the moral trial separately. We first conducted a mixed-effects logistic regression using R's generalized linear model function using question type (fair, better, rather, faster, outcome) to predict their likelihood of selecting the universalist system over the exclusive system in response to the questions, with participant ID included as a random effect. We used the "drop 1" function in R to examine if question type significantly improved model fit. Given the number of pairwise comparisons and questions present in the study, we present all pairwise comparisons in table form (Tables 1–4).

For each trial, we followed similar analysis strategies as in Study 1. We conducted binomial sign tests to see selection of system for each question separately from chance. For children, we additionally ran age interactions and separate models when relevant (described in the sections specific to children below).

Adults

Expert. For our generalized linear mixed-effects model, we found that question type significantly improved model fit, $\chi^2(4) = 140.01$, $p < .001$. Pairwise comparisons with Tukey's adjustment examined how adults' responses to these measures compared to one another; pairwise comparisons appear in Table 1.

We conducted binomial sign tests to see if adult selection of system differed from chance across each measure. We found that adults were significantly likely to select the universalist system for fair (82 out of 104, 79%, $p < .001$), better (72 out of 104, 69%, $p < .001$), and rather (76 out of 104, 73%, $p < .001$), but significantly less likely to select the universal system for faster (24 out of 104, 23%, $p < .001$) and outcome (30 out of 104, 29%, $p < .001$).

Table 1
Pairwise Model Comparisons for Adults' Selection of System for Expert-Led Exclusive Systems

Contrast	Estimate	SE	z ratio	p
Better–fair	−0.62	0.36	−1.73	.414
Better–faster	2.52	0.38	6.69	<.001
Better–outcome	2.16	0.36	6.00	<.001
Better–rather	−0.23	0.34	−0.68	.961
Fair–faster	3.14	0.41	7.70	<.001
Fair–outcome	2.77	0.39	7.11	<.001
Fair–rather	0.38	0.36	1.07	.823
Faster–outcome	−0.36	0.35	−1.04	.837
Faster–rather	−2.75	0.39	−7.12	<.001
Outcome–rather	−2.39	0.37	−6.46	<.001

Note. SE = standard error.

Table 2
Pairwise Model Comparisons for Adults' Selection of System for Moral-Led Exclusive Systems

Contrast	Estimate	SE	z ratio	p
Better–fair	−0.08	0.39	−0.20	1
Better–faster	3.18	0.42	7.67	<.001
Better–outcome	1.40	0.37	3.81	.001
Better–rather	0.42	0.38	1.11	.8
Fair–faster	3.26	0.42	7.76	<.001
Fair–outcome	1.47	0.37	3.97	.001
Fair–rather	0.50	0.38	1.30	.688
Faster–outcome	−1.78	0.35	−5.04	<.001
Faster–rather	−2.76	0.39	−7.08	<.001
Outcome–rather	−0.98	0.35	−2.83	.038

Note. SE = standard error.

Moral. For our generalized linear mixed-effects model, we found that question type significantly improved model fit, $\chi^2(4) = 117.74$, $p < .001$. Pairwise comparisons with Tukey's adjustment examined how adult responses to these measures compared to one another; pairwise comparisons appear in Table 2.

We conducted binomial sign tests to see if adult selection of system differed from chance across each measure. We found that adults were significantly likely to select the universalist system for fair (85 out of 104, 82%, $p < .001$), better (84 out of 104, 81%, $p < .001$), and rather (78 out of 104, 75%, $p < .001$), but significantly less likely to select the universal system for fast (27 out of 104, 26%, $p < .001$). Adults were at chance in their selection of system for outcome (60 out of 103, 58%, $p < .001$).

Children

Expert. For our generalized linear mixed-effects model, we found that question type significantly improved model fit, $\chi^2(4) = 87.40$, $p < .001$. Pairwise comparisons with Tukey's adjustment examined how children's responses to these measures compared to one another; pairwise comparisons appear in Table 3.

To investigate potential age-related effects, we included an interaction between measure and age (as a continuous variable). This interaction term significantly contributed to model fit, $\chi^2(4) = 24.70$, $p < .001$. To further examine age effects, we conducted separate logistic regressions using age to predict responses for each question type. With increasing age, children were significantly less likely to think the universal system was faster ($B = −0.53$, $Z = −3.42$, $p < .001$) but more likely to think it was fair ($B = 0.37$, $Z = 130.30$, $p < .001$). Age also significantly affected perceptions of outcome, with older children less likely to view the universal system as favorable in terms of outcomes ($B = −0.46$, $Z = −3.28$, $p = .001$)—that is, they thought the exclusive system produced better outcomes. Age did not have a significant effect on ratings of "better" ($p = .44$) or "rather" ($p = .17$); see Figure 5.

We next analyzed younger (4- to 6-year-olds) and older children's (7- to 9-year-olds) responses and conducted binomial tests comparing responses to each question at chance level (as we did in Study 1). Younger children showed a significant preference for the universal voting system in terms of which system they would rather live in (33 out of 44, 75%, $p = .001$) and which system was fairer (35 out of 44, 80%, $p < .001$). Younger children's selection of the

Table 3
Pairwise Model Comparisons for Children's Selection of System for Expert-Led Exclusive Systems

Contrast	Estimate	SE	z ratio	p
Better–fair	−1.78	0.40	−4.48	<.001
Better–faster	1.52	0.35	4.36	<.001
Better–outcome	0.64	0.33	1.93	.301
Better–rather	−0.22	0.33	−0.66	.965
Fair–faster	3.30	0.44	7.58	<.001
Fair–outcome	2.42	0.41	5.93	<.001
Fair–rather	1.56	0.40	3.95	.001
Faster–outcome	−0.89	0.34	−2.61	.069
Faster–rather	−1.74	0.36	−4.90	<.001
Outcome–rather	−0.85	0.33	−2.56	.077

Note. SE = standard error.

universal system as "better" (28 out of 44, 64%, p = .096), "faster" (20 out of 44, 46%, p = .652), and as yielding favorable outcomes (28 out of 44, 64%, p = .096) showed no significant difference from chance rates (and for outcomes were directionally showing the opposite pattern of adults). Similarly, older children were significantly more likely to say the universal system was fairer (51 out of 57, 90%, p < .001). Further, older children's responses were at chance for selection of system for "better" (31 out of 57, 54%, p = .597) and "rather" (30 out of 57, 53%, p = .791). However, unlike younger children, older children rated the universal system as less fast at a significant level (11 out of 57, 19%, p < .001) and rated the universal system as less likely to yield better outcomes (19 out of 57, 33%, p = .016).

Moral. For our generalized linear mixed-effects model, we found that question type significantly improved model fit, $\chi^2(5) = 207.14$, $p < .001$. Pairwise comparisons with Tukey's adjustment examined how children's responses to these measures compared to one another; pairwise comparisons appear in Table 4.

To investigate potential age-related effects, we included an interaction between measure and age (as a continuous variable). This interaction term significantly contributed to model fit, $\chi^2(5) = 50.90$, $p < .001$. Follow-up logistic regressions indicated that with increasing age, children were significantly less likely to think the universal system was faster ($B = -0.41$, $Z = -2.88$, $p = .004$) and were more likely to think it was fair ($B = 0.47$, $Z = 2.42$, $p = .016$).

Table 4
Pairwise Model Comparisons for Children's Selection of System for Moral-Led Exclusive Systems

Contrast	Estimate	SE	z ratio	p
Better–fair	−1.03	0.34	−3.055	.019
Better–faster	1.059	0.32	3.26	.01
Better–outcome	p <.001	0.31	p <.001	1
Better–rather	0.595	0.32	1.883	.327
Fair–faster	2.09	0.36	5.889	<.001
Fair–outcome	1.03	0.34	3.055	.019
Fair–rather	1.625	0.34	4.733	<.001
Faster–outcome	−1.059	0.32	−3.26	.01
Faster–rather	−0.464	0.32	−1.443	.6
Outcome–rather	0.595	0.32	1.883	.327

Note. SE = standard error.

Age also significantly affected perceptions of outcome, with older children being less likely to view the universal system as favorable in terms of outcomes ($B = -0.31$, $Z = -2.21$, $p = .027$). Age did not have a significant effect on children's choice for "better" ($p = .93$) or "rather" ($p = .10$).

We next analyzed younger (4- to 6-year-olds) and older children's (7- to 9-year-olds) responses separately and conducted binomial tests comparing responses to each question at chance level. Among younger children, only responses for the "Outcome" question significantly favored the universal voting system (31 out of 44, 71%, p = .010). Younger children did not show a significant preference for a system when asked which was "better" (26 out of 44, 59%, p = .291), "faster" (22 out of 44, 50%, p = 1.00), "rather" (17 out of 44, 39%, p = .174), or "fair" (28 out of 44, 64%, p = .096). In contrast, older children showed a significant preference for the universal voting system as more fair (47 out of 57, 83%, p < .001) and significantly favored the exclusive system as faster (13 out of 57, 23%, p < .001). Older children's selection of system for "better" (30 out of 57, 53%, p = .791), "rather" (27 out of 57, 47%, p = .791), and "outcome" (25 out of 57, 44%, p = .427) were not significantly different from chance.

Discussion

Overall, these results replicated and extended the findings from Study 1. Adults predominantly favored the universalist voting system, choosing it as the better, fairer, and preferable system for where they would rather live. However, they acknowledged that exclusive systems could be faster. Interestingly, adults differentiated between exclusive systems led by experts versus those led by moral authorities when considering outcomes. Adults believed expert-led systems would yield better practical outcomes, whereas they were more at chance for the moral-led exclusive systems. This distinction highlights that adults are clearly differentiating between types of exclusive systems—moral leaders may not necessarily make better decisions broadly, such as on practical issues like how to yield the most fruit.

Older children's (7- to 9-year-olds) responses were largely consistent with those of adults, particularly on the fairness, fastness, and outcome measures—our main areas of interest. Older children, in particular, showed a clear ability to differentiate and make trade-offs between systems, preferring universalist systems for fairness but selecting exclusive systems on outcome and fastness measures (see age binomial results). This replicates and extends findings from Study 1. Younger children (4- to 6-year-olds) showed weaker but similar patterns that strengthened with age, particularly for the fairness dependent variable (Figure 6). It is worth noting that younger children did not believe that the exclusive system was faster or yielded better outcomes here for either competence experts or moral experts. Still, all children here regarded the universal system as more fair, even with the added emphasis on the importance of decision making in this study. Further, at least older children showed an impressive sophistication in their reasoning about these systems, believing that one could be faster and lead to better outcomes but be less fair.

For the "better" and "rather" measures, even older children did not express a strong preference in this design, which was different than the adult response and what we found in Study 1. We interpret this as a response to the study's clearer emphasis on the importance of outcomes, suggesting that children recognize the potential

Figure 5

Children's Responses (1 = Universalist System, 0 = Exclusive System) by Age, Measure (Fair, Faster, and Outcome Only for Readability), and Exclusive System (Expert-Led or Moral-Led) Type in Study 2
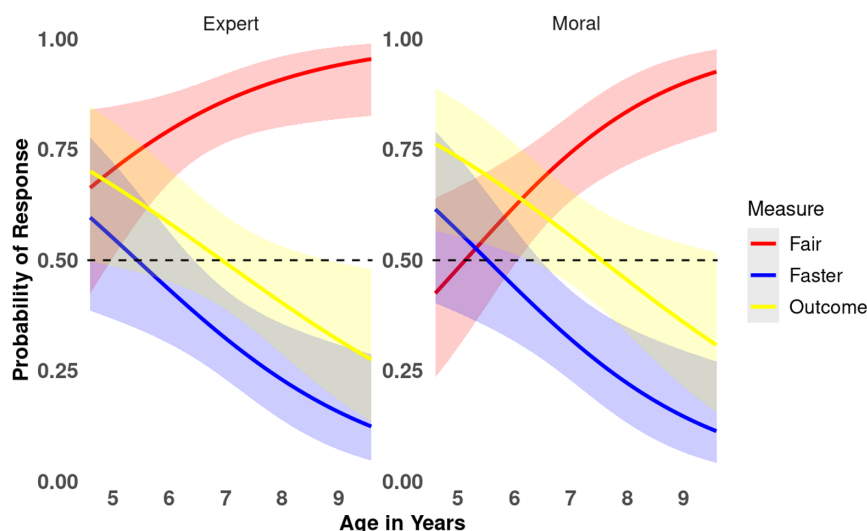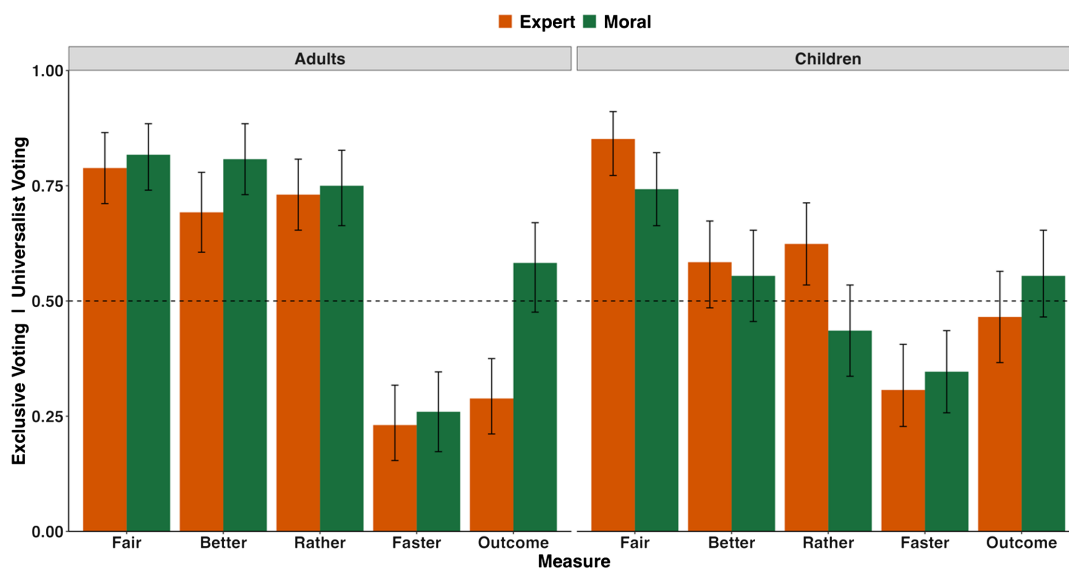

Note. See the online article for the color version of this figure.

practical advantages of exclusive systems in specific contexts, even if they continue to value fairness highly. This measure aimed at assessing their general impression, which likely integrated information on the fairness of the decision (which would have pushed them toward universal systems) and the potential outcomes and efficiency of that decision (which would have pushed

them toward the more exclusive systems). How children integrate this information to form these judgments is an interesting question for future research but not the focus here. In Study 3, we further probe children's fairness evaluations based on making exclusions for different reasons—excluding the "bad" rather than including the "good."

Figure 6

Proportion of Adult and Children's Forced Choice Responses (1 = Universalist System, 0 = Exclusive System) by Measure (Fair, Better, Rather, Faster, Outcome) and Exclusive System (Expert-Led or Moral-Led) Type in Study 2

Note. See the online article for the color version of this figure.

Study 3

Studies 1 and 2 provided evidence that while children saw the efficiency advantage of exclusive voting systems (they are faster and can lead to better outcomes), they nevertheless endorsed universalist voting systems as more fair. In modern political systems, a more prevalent practice of achieving greater effectiveness and efficiency is not by confining decision-making power to the most competent and moral individuals (e.g., the elite and experts) but by excluding the most *incompetent or immoral* individuals. Given that the previous focused on systems that empowered elites alone to make decisions, it is possible that we stacked the deck against the exclusive voting systems because participants may have reasoned we were not only excluding incompetence but also regular people with regular levels of competence. Screening against incompetence might be very different from screening in favor of exceptional competence. Therefore, Study 3 focused specifically on evaluations of voting systems where specific groups are *excluded* from participating.

To investigate this, we compared adult and children's evaluations of different voting systems that involved incompetence-based exclusions ("They don't know how to make good decisions"), immorality-based exclusions ("They are mean to others in town"), or arbitrary-based exclusions ("They wear purple shoes"). Children evaluated the fairness of the three types of exclusive voting systems on a Likert scale of 1–4. We used this continuous measure, rather than forced choice, to allow for more nuance in children's fairness evaluations across exclusion type. Specifically, they could say that all decisions' rules were very fair or very unfair, for example, which is information we could not get from a forced choice measure that only allows us to probe children's relative preferences. We also included forced choice measures so that each exclusive voting system was also directly compared to the type of universalist voting system as in Studies 1 and 2, and children indicated which system they thought was more fair and more efficient.

We predicted differences in how children endorsed these varied reasons for exclusion. First, we predicted that arbitrary exclusion should be seen as less legitimate than nonarbitrary features, so children and adults should endorse those procedures less than our other two. Further, we predicted that children may increasingly reject such arbitrary procedures with age (for evidence from resource sharing contexts, see Schmidt, Svetlova, et al., 2016; Shaw & Olson, 2014); this would also be consistent with children's responses in Study 2. As for making predictions about how children would regard the merits of the other two reasons for exclusion, there was some reason to suspect that children may think these were more legitimate. Given our results from Studies 1 and 2, we thought it was possible that children might not think it was fair to exclude based on competence but that they might think it is more fair than excluding for arbitrary reasons based on some of the ideas and findings we outlined in our intro (based on notions of expertise).

We did not have strong predictions about exclusions based on moral violations. However, in our Study 2, we found that younger children were more permissive about a moral-led exclusive system than a competence-based system (unlike older children, they showed no preference between the exclusive and universalist voting systems in the domain of competence). These results suggest that children—or at least young children—may think morality is a more justifiable criterion than competence for excluding others. Further,

previous research suggests that children are more permissive about excluding individuals who are morally deviant than those who are only conventionally deviant (e.g., Hitti et al., 2014) and there is a dense literature suggesting that children think it is ok to punish others for wrongdoing (e.g., Marshall & McAuliffe, 2022; McAuliffe et al., 2015, 2017). Therefore, it seems possible that children would think it was fair to exclude others based on wrongdoing even if they do not think it is especially fair to exclude others based on competence. However, given the strength of preference for universal voting overall seen in Studies 1 and 2, it also seemed possible they may favor universalist voting over exclusions based on morality. Therefore, we did not make a strong prediction here.

Method

Participants

We preregistered to recruit 120 children (preregistration link: https://aspredicted.org/F6S_MKY). Data collection stopped when this goal was met and when the median split age cells had 60 participants each. The final sample included 127 4- to 9-year-old children (M_{age} = 7.01 years, SD = 1.55 years, range = 4.49–9.98, boys = 52%, girls = 48%). Participants were recruited through a database of families in a Midwestern city in the United States. Among these participants, 66% were White, 6% were Black, 5% were Hispanic, 11% were Asian, and 12% were of another identity. We also recruited a sample of 121 adults from CloudResearch (M_{age} = 42.26 years, SD = 12.18 years, boys = 52%, girls = 48%). Adult participants were all located in the United States, had previously completed 50 studies or more, and had an approval rate of 97%; 73% reported being White, 11% were Black, 7% were Asian, 7% were Hispanic or Latino, and 7% were of another identity.

Design and Procedure

We followed a similar online testing procedure as Study 1 (where the example included painting a fence). After the initial introduction about the voting process, children responded to three trials (i.e., *incompetence*, *immorality*, *arbitrary*) in a random order each featuring a different group of people—Blueville, Orangeville, and Greenville. As in the first study, the towns, as well as their modes of decision making, were represented by cartoon clip art images. Each town had a green square surrounding a group of people to represent who was permitted to vote and a red square with an X through it representing individuals not permitted to vote. Blueville, Orangeville, and Greenville, respectively, adopted exclusions based on incompetence, immorality, or an arbitrary reason. Each group of people was introduced as having a smaller fraction of citizens who were either incompetent or immoral; these individuals were circled in gray (see Supplemental Materials for testing stimuli in this study).

In the *incompetence* trial, participants were told about a smaller group of citizens in the town who were excluded from the vote for incompetence: "Look here! These people in Blueville aren't very smart. They don't know very much about the town and don't know how to make good decisions. They are very bad at making decisions!" In the *immorality* trial, children were told: "Look here! These people in Orangeville are NOT nice. They are mean to other people in the town and they hurt others. They are bad people!" In the

arbitrary trial, the individuals were excluded from voting for an arbitrary reason: "Look here! These people in Greenville like to wear purple shoes. They like their purple shoes and wear them a lot." Children were asked to rate the fairness of the exclusion on a 4-point scale (1 = *really unfair*, 2 = *a little unfair*, 3 = *a little fair*, 4 = *really fair*) in each trial. Given that some work suggests that children are particularly sensitive to interpersonal harm within the moral domain (e.g., Smetana, 1983), this seemed an appropriate manipulation.

After completing the ratings trials, children responded to three forced choice trials in a random order. In each trial, a town with a *universalist* voting system was compared to a town that excluded some citizens from voting based on *incompetency*, *immorality*, or *arbitrary* reasons. After hearing each story, children were asked to indicate (a) which way of voting was more *fair* and (b) which way of deciding works *faster*. They were given the option to respond to either the universal vote, the exclusionary vote, or neither. We analyzed the data without including "neither" responses (though these responses were slightly more frequent for adults than children; interested readers can see the tables and counts in Supplemental Materials). Both trials (ratings and forced choice) were randomized in order, but they were not matched (e.g., rating trials were randomized, and then forced choice trials were randomized separately). Data and analyses are available at https://osf.io/nx3fu/?view_only=f7e9709d1beb43aca4009cbef8cee6fd.

Results

Adults

Fairness Evaluations of the Three Exclusive Voting Systems. We first conducted a linear mixed-effects model using trial (immoral, incompetent, and arbitrary) to predict adults' evaluations, with participant ID included as a random effect and the incompetence trial set as the reference level. We found a significant difference between adults' fairness evaluations to the *immorality* trial and *incompetence* trial, such that adults were significantly more likely to think that excluding based off of moral badness ($M = 2.25$, $SD = 1.02$) was more fair than excluding based off of incompetence ($M = 1.93$, $SD = 1.03$), $B = 0.09$, $SE = 0.09$, $t = 3.50$, $p < .001$, 95% CI [0.51, 0.86]. There was also a significant difference between *arbitrary* and *incompetence* trials, such that adults evaluated excluding based of incompetence ($M = 1.93$, $SD = 1.03$) was more fair than excluding based off of arbitrary cues ($M = 1.56$, $SD = 0.93$), $B = -0.38$, $SE = 0.09$, $t = -4.24$, $p < .001$, 95% CI [−0.55, −0.20]. Similar analysis comparing the arbitrary and immorality trials revealed that adults evaluated excluding based off of moral badness ($M = 2.25$, $SD = 1.02$) as more fair than excluding based off of arbitrary cues ($M = 1.56$, $SD = 0.93$), $B = 0.69$, $SE = 0.09$, $t = 7.73$, $p < .001$, 95% CI [0.51, 0.86]. Further, analysis comparing the arbitrary and incompetence trials revealed that children evaluated exclusion based on incompetence ($M = 1.93$, $SD = 1.03$) as more fair than exclusion based on arbitrary cues ($M = 1.56$, $SD = .93$), $B = 0.38$, $SE = 0.09$, $t = 4.23$, $p < .001$, 95% CI [0.20, 0.55].

Children

Fairness Evaluations of the Three Exclusive Voting Systems. As preregistered, we first conducted a linear mixed-effects model using trial (immoral, incompetent, and arbitrary) to predict children's fairness ratings, with participant ID included as a random effect and the incompetence trial set as the reference level. We found a significant difference between children's fairness evaluations to the *immorality* trial and *incompetence* trial, such that children were significantly more likely to think that excluding based off of moral badness ($M = 2.83$, $SD = 1.17$) was more fair than excluding based off of incompetence ($M = 2.17$, $SD = 1.09$), $B = 0.66$, $SE = 0.12$, $t = 5.43$, $p < .001$, 95% CI [0.01, 1.32]. There was also a significant difference between *arbitrary* and *incompetence* trials, such that children evaluated excluding based of incompetence ($M = 2.17$, $SD = 1.09$) was more fair than excluding based off of arbitrary cues ($M = 1.51$, $SD = 0.93$), $B = -0.66$, $SE = 0.12$, $t = -5.43$, $p < .001$, 95% CI [−0.42, −0.90]. Similar analysis comparing arbitrary trial and the immorality trial revealed that children evaluated excluding based off of moral badness ($M = 2.83$, $SD = 1.17$) was more fair than excluding based off of arbitrary cues ($M = 1.51$, $SD = 0.93$), $B = 1.32$, $SE = 0.12$, $t = 10.86$, $p < .001$, 95% CI [1.08, 1.56]. Next, the "drop 1" function in R revealed the interaction between response and question significantly improved the model fit, $\chi^2(2) = 6.02$, $p < .001$.

Next, to explore potential age changes, we conducted a preregistered linear mixe-effects model, using trial, age in years, and their interaction to predict children's fairness ratings, with participant ID included as a random intercept. According to the "drop 1" function in R, the interaction between trial and age in years significantly improved the model fit, $\chi^2(2) = 3.62$, $p = .028$. To further understand the interaction, we conducted a separate linear model using age to predict each measure. With age, children became less likely to evaluate *arbitrary-based* exclusions as fair, $B = -0.14$, $t = -2.85$, $p = .005$, 95% CI [−0.25, −0.05]. Age did not have a significant effect on children's fairness ratings for excluding based off incompetence ($B = -0.04$, $t = -0.59$, $p = .557$, 95% CI [−0.16, −0.09]) or immorality ($B = 0.06$, $t = 0.90$, $p = .37$, 95% CI [−0.07, 0.19]; Figure 7).
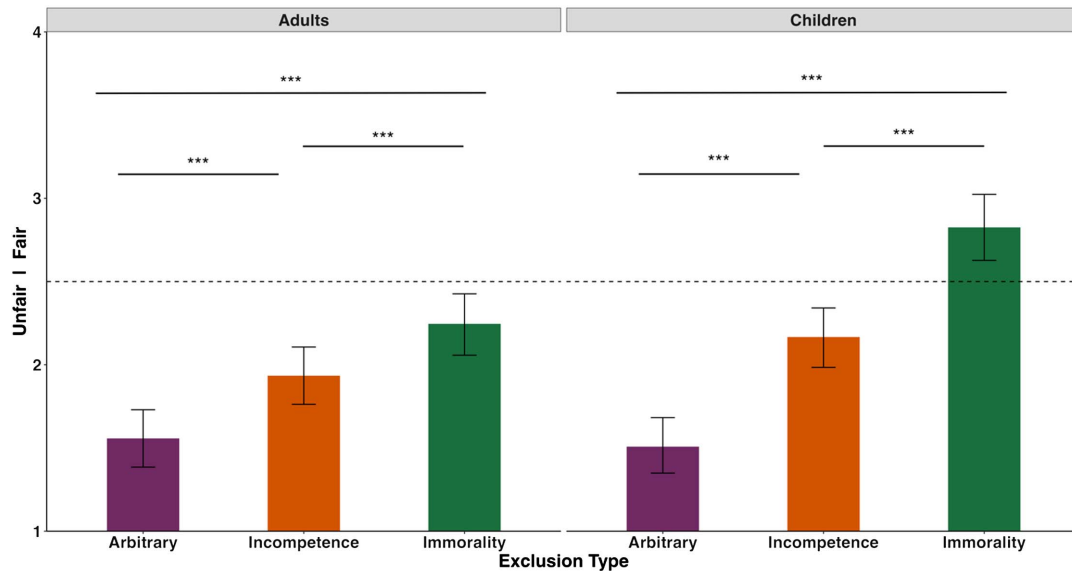
Adults

Forced Choice Measures.
Fair. We conducted a mixed-effects logistic regression using R's generalized linear model function using trial (universalist vs. competence, morality, or arbitrary exclusions) to predict adults' choices between universalist voting (coded as 1) and exclusive voting (coded as 0), with participant ID included as a random effect and the competence trial as the reference level. Participants who responded "neither" were excluded from the analysis. Adults were significantly more likely to select universal voting as more fair in the competence trial compared to the morality trial, with a marginally significant difference, $B = -1.47$, $SE = 0.75$, $Z = -1.96$, $p = .05$. There was no significant difference between choices in the competence trial and the arbitrary trial, $B = 0.53$, $SE = 0.76$, $Z = 0.70$, $p = .49$.

We conducted binomial sign tests to evaluate whether adults preferred the universal voting system over the exclusive voting system as differently than chance. Adults were significantly more likely to select the universal voting system over the exclusive system in the arbitrary exclusion condition (95 out of 106, 90%, $p < .001$), the competence exclusion condition (90 out of 103, 87%, $p < .001$), and the morality exclusion condition (83 out of 103, 81%, $p < .001$).

Figure 7

Adult and Children's Fairness Evaluations Rated on a Scale of 1 (Very Unfair) to 4 (Very Fair) of the Three Types of Exclusive Voting Systems (Arbitrary, Incompetence, and Immorality) in Study 3

Note. See the online article for the color version of this figure.
*** $p < .001$.

Fast. We conducted a mixed-effects logistic regression using R's generalized linear model function using trial (universalist voting vs. competence, morality, or arbitrary exclusions) to predict adults' choices on which voting system was faster (universalist = 1, exclusive = 0), with participant ID included as a random effect, and the competence trial as the reference level. Participants who responded "neither" were excluded from the analysis. We will say that we found a particularly high rate of "neither" responses for this measure but opted to exclude them as we did for previous measures. Full counts are available in Supplemental Materials. We found no significant difference in adults' choices in the competence trial compared to either the morality trial, $B = 0.57$, $SE = 0.52$, $Z = 1.09$, $p = .28$, or the arbitrary trial ($M = 0.90$), $B = 0.94$, $SE = 0.54$, $Z = 1.75$, $p = .08$. We found no difference in adults' choices in the arbitrary trial and morality trial, $B = -0.38$, $SE = 0.53$, $Z = -0.71$, $p = .48$.

We conducted binomial sign tests to evaluate whether adults preferred the universal voting system over the exclusive voting system as differently than chance. Adults did not show a significant preference for the universal voting system in the arbitrary exclusion condition (32 out of 61, 52%, $p = .80$), the competence exclusion condition (26 out of 65, 40%, $p = .14$), or the morality exclusion condition (30 out of 63, 48%, $p = .80$).

Children

Fair. As preregistered, we first conducted a generalized mixed-effects linear model (setting the family as binomial) using trial (universalist vs. incompetence, immorality, or arbitrary exclusions) to predict children's choices between *universalist voting* (coded as 1) and *exclusive voting* (coded as 0), with participant ID included as

a random effect and the incompetence versus universal trial as the reference level. In order to analyze these data, we removed any children who responded "neither" in response (see Supplemental Tables for the count of children who responded this way). We found that children were significantly more likely to evaluate universal voting as more fair in the incompetence trial ($M = 0.87$) compared to the immorality trial ($M = 0.52$), $B = -1.96$, $SE = 0.42$, $Z = -4.71$, $p < .001$, 95% CI [-2.77, -1.14]. We found no difference in children's choices in the incompetence trial ($M = 0.87$) compared to the arbitrary trial ($M = 0.85$), $B = -0.23$, $SE = 0.41$, $Z = -0.56$, $p = .577$, 95% CI [-1.04, 0.58] (Figures 7 and 8).

As per our preregistration, we added age as a moderator to the model above to examine an interaction with age. According to the "drop 1" function in R, the interaction between condition and age in years significantly improved the model fit, $\chi^2(2) = 9.71$, $p = .008$. To further understand the interaction, we conducted a separate model using age to predict each response by trial. In the *arbitrary* versus *universal* trial, with age, children were significantly more likely to choose universal voting over exclusionary voting based on *arbitrary* cues, $B = 0.65$, $SE = 0.22$, $Z = 2.93$, $p = .003$, 95% CI [0.22, 1.09] (Figure 7). We also conducted binomial tests to compare younger and older children's responses to chance by a median split of age. We found that younger children ($M = 0.75$, $p < .001$) and older children ($M = 0.98$, $p < .001$) evaluated universal voting as more fair than exclusionary voting based on arbitrary cues. Note, higher means here correspond to a larger preference for universalist rule.

In contrast, we did not find a significant effect of age for the *incompetence* versus *universal* trial, $B = -0.40$, $SE = 0.19$, $Z = -0.21$, $p = .83$, 95% CI [-0.41, 0.33]. Similar to the *arbitrary* versus *universal* trial, children evaluated universal voting as more fair than exclusionary voting based on *incompetence* ($M = 0.84$,

Figure 8

Proportion of Children's Forced Choice Responses (1 = Universalist System, 0 = Exclusive System) on Which System Was More Fair by Age and Exclusion Type (Arbitrary, Incompetence, or Immorality) in Study 3
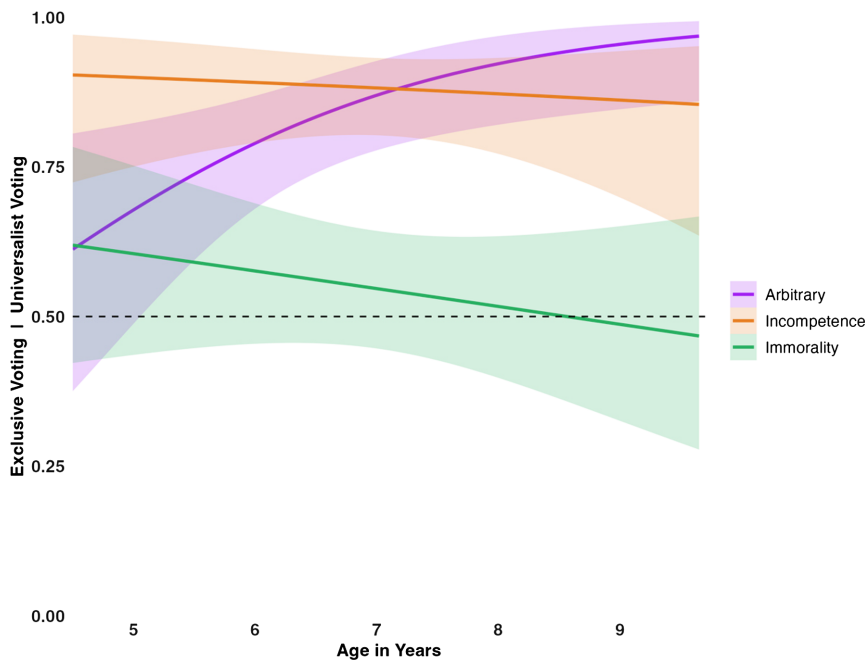
Note. See the online article for the color version of this figure.

$p < .001$, binomial test). We also did not find a significant effect of age for the *immorality versus universal* trial, $B = -0.02$, $SE = 0.13$, $Z = -0.13$, $p = .90$, 95% CI [−0.27, 0.24]. Children across ages evaluated universal voting and exclusionary voting based on immorality as similarly fair ($M = 0.54$, $p = .43$, binomial test; Figure 9).

Fast. We conducted a similar generalized linear mixed-effects model (setting the family as binomial) using trial (universalist voting vs. incompetence, immorality, arbitrary-based exclusive voting) to predict children's fastness judgments (universalist = 1, exclusive = 0), with participant ID included as a random effect, with the incompetence exclusive versus universal trial as the reference level. We found no significant difference between children's responses in the incompetence trial ($M = 0.45$), compared to the immorality trial ($M = 0.37$), $B = -0.60$, $SE = 0.43$, $Z = -1.40$, $p = .16$, 95% CI [−0.911, 0.283], and the arbitrary trial ($M = 0.53$), $B = 0.64$, $SE = 0.42$, $Z = 1.52$, $p = .13$, 95% CI [0.38, 0.89] (Figures 10 and 11).

To explore potential age changes, we added age as a moderator in the model above to examine an interaction by age. According to the "drop 1" function in R, the interaction between trial and age in years did not significantly improve the model fit, $\chi^2(2) = 3.67$, $p = .16$. But we found a significant main effect of age, $\chi^2(2) = 11.37$, $p < .001$, such that children were significantly less likely to believe universalist voting as faster than exclusive voting across all trials, $B = -0.61$, $SE = 0.19$, $Z = -3.17$, $p = .002$, 95% CI [−0.23, −0.99] (Figure 10).

We also conducted binomial tests to examine younger children and older children separately by a median split of age. Younger children viewed incompetence-based exclusive voting (31 out of

50, 62%, $p = .50$) and immorality-based voting (27 out of 50, 54%, $p = .67$) as similarly fast as universalist voting, whereas arbitrary-based exclusive voting (34 out of 51, 67%, $p = .024$) as less fast than universalist voting. In contrast, older children viewed incompetence-based exclusive voting (14 out of 51, 27%, $p = .002$) and immorality-based exclusive voting (10 out of 50, 20%, $p < .001$) as faster than universalist voting and arbitrary-based exclusive voting as similarly fast (20 out of 51, 39%, $p = .16$).

Discussion

Building upon the findings from Studies 1 and 2, we found that adults and children regarded universal systems as more fair than systems that exclude incompetent individuals, despite recognizing that exclusive procedures can be more efficient. Extending our results from the previous studies, we also found that children and adults differentiated which types of exclusions from voting were more fair. They believed exclusions based on immorality were more fair than exclusions based on incompetence and arbitrary cues. It is also worth noting that although children did evaluate moral exclusion as more fair than excluding based on incompetence, children and adults still rated exclusion based on incompetence as significantly more fair than arbitrary exclusion. This demonstrates that children were able to differentiate between arbitrary reasons for exclusion and exclusion based on a more ostensibly "justifiable" reason like competence.

Despite these similarities, adults and children diverged somewhat in their patterns of selecting universalist over exclusive systems.

Figure 9

Proportion of Adult and Children's Forced Choice Responses (1 = Universalist System, 0 = Exclusive System) by Measure (Fair or Faster) and Exclusion Type (Arbitrary, Incompetence, or Immorality) in Study 3
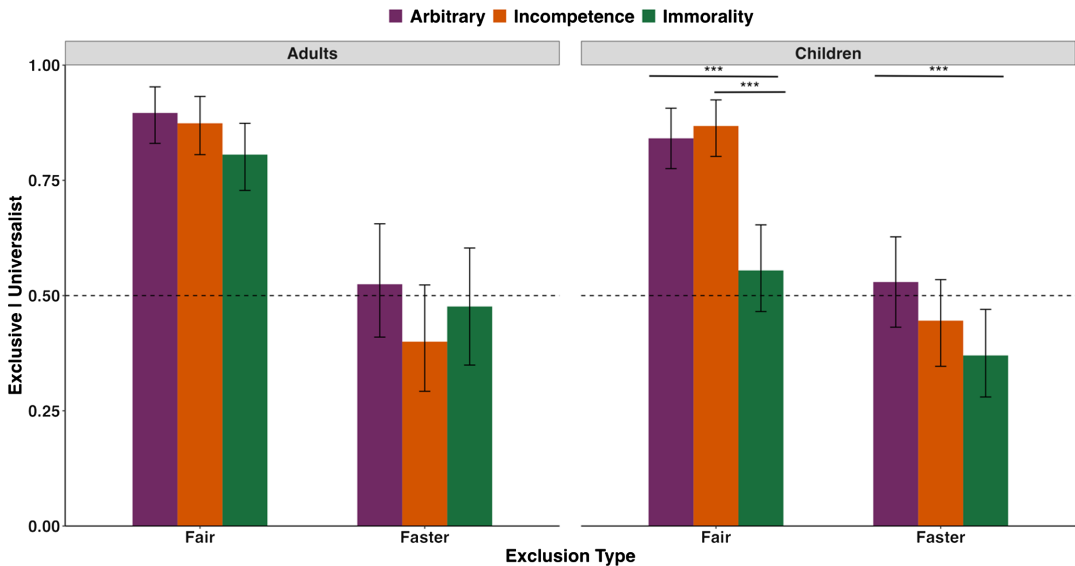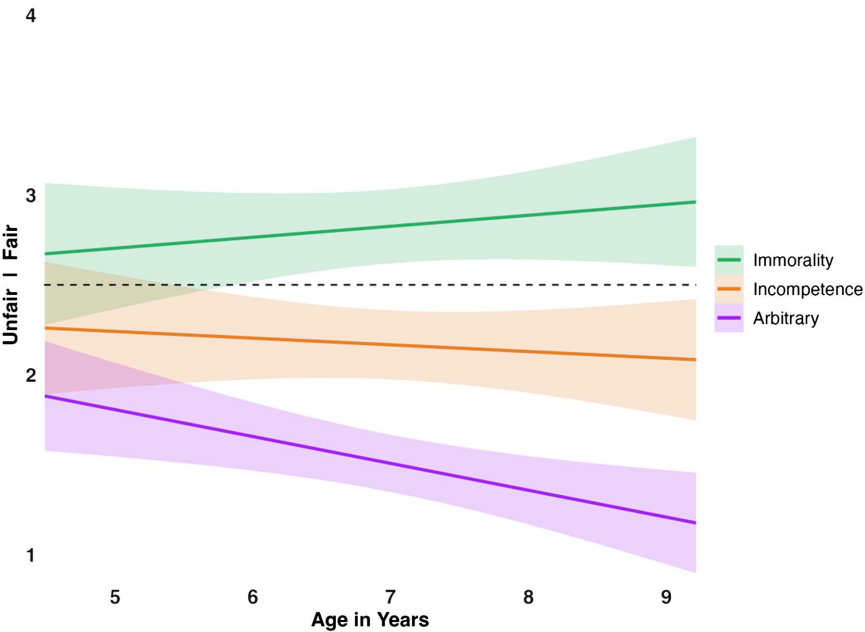

Note. See the online article for the color version of this figure.
*** $p < .001$.

Although both children and adults overwhelmingly preferred universalist solutions to exclusions based on incompetence or arbitrary factors, children were more at chance when it came to exclusions bases on immorality. This also came out a bit in our fairness measures: Adults regarded excluding based on immorality as unfair, whereas children regarded it as slightly fair. This somewhat aligns with the previous finding from Study 2, in which younger children did not show a clear preference for universalist
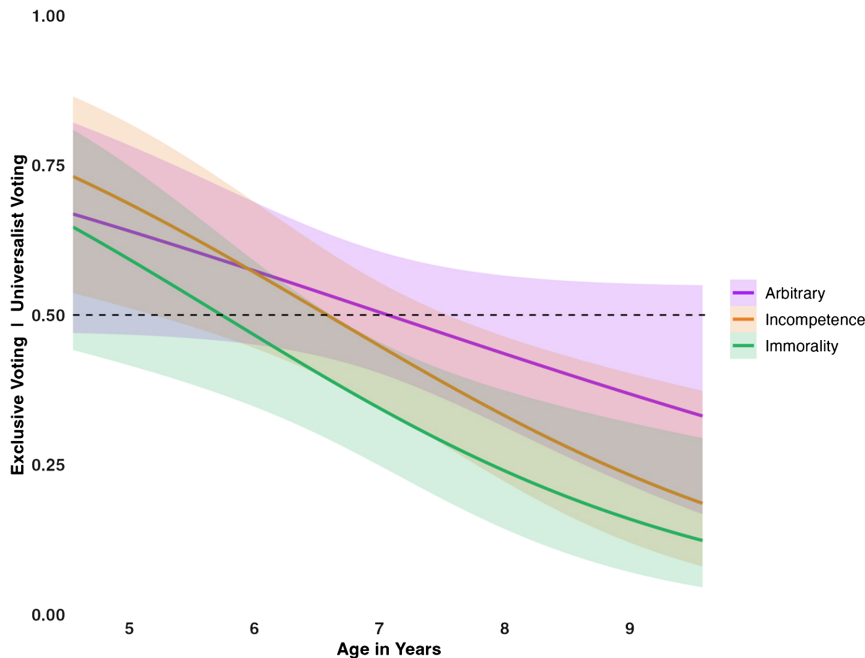
Figure 10

Children's Fairness Evaluations on a Scale of 1 (Very Unfair) to 4 (Very Fair) by Exclusion Type (Immorality, Incompetence, and Arbitrary) and Age in Study 3

Note. See the online article for the color version of this figure.

Figure 11

Proportion of Children's Forced Choice Responses (1 = Universalist System, 0 = Exclusive Voting) on Which System Was Faster by Age and Exclusion Type in Study 3

Note. See the online article for the color version of this figure.

voting systems when the other option was a moral-led exclusive system. Further, adults were not likely to differentiate in their selections of exclusive versus universal systems across exclusion type, whereas children were. We discuss this point briefly in the General Discussion section.

One interesting incidental finding that may warrant future research is that with age, children increasingly believed that excluding based on arbitrary reasons was less fair. There are a number of reasons why this could be the case. One possibility is that kids are just getting better at following the details of the vignettes. However, another possibility is that children are just becoming better at tracking what cues can and cannot be used for exclusion broadly. We know that children become increasingly good at differentiating good and bad rules for unequal treatment around these ages (Schmidt, Svetlova, et al., 2016; Shaw & Olson, 2014), and so this result would fit with that general pattern. However, future work will be needed to further probe this question. We also again found that with age children increasingly believed that exclusive systems made decisions more quickly, suggesting increasing recognition about the efficiency cost associated with the universalist system.

General Discussion

The findings across three studies suggest a strong and early emerging endorsement of universalist voting systems as more fair over exclusive ones, despite the fact that children recognized the latter leads to more efficient (i.e., faster) decisions. Children across ages viewed universalist voting systems as more fair than exclusive systems that only included experts (Studies 1 and 2) or that

excluded incompetent individuals (Study 3). Furthermore, they differentiated between reasons for excluding others from voting: They thought excluding based on incompetence was more fair than excluding for arbitrary reasons, but less fair than excluding based on immorality.

These results contribute to a deeper understanding of children's intuitions about group decision-making systems and procedural justice more broadly. While both universalist and exclusive voting systems have been advocated by political philosophers and adopted by policymakers (e.g., Ferrari, 1990; Irvin & Stansbury, 2004; Teorell, 2006), our findings suggest that children more readily view universalist system as more fair than exclusive systems, even though they acknowledge some benefits to such exclusive voting systems (e.g., they make decisions faster and produce better decision outcomes). These results are consistent with children's valuation of equality (e.g., Blake & McAuliffe, 2011; Hook & Cook, 1979; Schmidt, Svetlova, et al., 2016; Shaw & Olson, 2012, 2014; Sloane et al., 2012) and preferences for egalitarian decision-making structures (Thomas et al., 2022). It also may suggest that, at least in this population, they use an equality matching rule (Fiske, 1992) for voting—believing that every person should get a vote. The only exclusionary rule that appeared to be a legitimate motivation for deviating from such universalist intuitions was exclusion based on immorality (see further discussion on this below). It is informative to observe that long before children become active participants in large-scale decision-making processes, they already hold views about the appropriateness and fairness of different voting systems.

Importantly, our findings do not suggest that children have a positive view of universalist voting systems across *all* metrics. If

children were merely using a heuristic that universal systems were better in all regards, we might have observed children select the universalist system across all measures. Instead, we found that children did discriminate between fairness and efficiency and outcome quality, and with age, they increasingly recognized that expert-based exclusive systems were faster and more likely to yield better outcomes than universalist systems. Building upon existing literature on children's sensitivity to efficiency trade-offs in decision making (e.g., Leonard et al., 2019; Richardson et al., 2023; Richardson & Keil, 2022), our findings illuminate how children evaluate the efficiency of different voting structures and distinguish it from legitimacy. Interestingly, among the measures tested, the most "consistent" response that the youngest children in our sample gave was in thinking that universalist systems were more fair than exclusivist systems. This may suggest that young children highly value inclusion as a fair component of decision making from quite early on. However, children's responses differ when *justifications* for exclusion are given. Specifically, it seems that children are more likely than adults to believe exclusion based on some sort of justification (e.g., immorality) is fair. We return to this point later in the general discussion.

It is worth emphasizing that our findings do not suggest any sort of universal or innate tendency for children to prefer universalist voting systems or that preference for such systems is built in. Historical and sociological work clearly demonstrates that formal democracies were an important cultural invention and that these democracies were far from truly democratic in advent (e.g., Moore, 1966). We also see clear developments in children's endorsement of exclusions in the age ranges we tested. Still, we think these results suggest that some of these basic intuitions around fairness may be present early on, and they give us a shape of these concerns in middle childhood. Further, some of these basic evaluations could potentially undergird the way people reason about more formal or concrete systems later in life.

Although adults and older children had an overall similar pattern of responses, one notable difference between adults and children was their responses to moral-led exclusive systems versus universalist systems (particularly for our youngest children). Across Studies 2 and 3, we found an interesting pattern in which the only exception to when children would not overwhelmingly select the universalist as fair was when it was compared to moral-led exclusive systems. While adults (like children) evaluated excluding immoral people as more fair than excluding incompetent or arbitrary people, the adults always selected universalist as the more fair system, no matter the justification of exclusion in the exclusive system.

What accounts for why adults endorse moral-based exclusions less than children? First, adults in our sample may have, in general, a stronger preference for universalist systems regardless, and this preference might be weaker overall in children. Indeed, we see that in Study 2 in contexts involving important decisions, adults select universalist systems as better and "where they would rather live"—a pattern that is not true in children: Although children select universalist systems as better and where they would rather live in Study 1, these rates drop to chance in Study 2 when we introduce more concrete pressures as to why exclusive systems may be better. That is, children may have less strong intuitions that universalist systems are always preferable. There are several reasons why this may be the

case. Among them, one possibility is that adults have been socialized into thinking universalist systems are especially preferable, given the common rhetoric about universalist systems within western thought and political systems (and in particular within the contemporary American democratic setting in which most of our participants live, though we later note that the American past was much more exclusionary).

In addition to adults having stronger preferences for universalist systems, children too may have especially strong preference for exclusions based on immorality. There are at least two possibilities as to why children may have this preference. One is that children might believe moral character matters for decision quality. We do not think this is particularly likely. In Study 2, adults and older children were more likely to believe the expert-led exclusive system as yielding outcomes over the universalist system than the moral-led exclusive system over the universalist system. This at least suggests that older children do not think that particularly moral people make better decisions. Furthermore, it is worth noting that the age effect on outcomes moved in the opposite direction to fairness: Young children thought exclusive voting was less likely to yield good outcomes but viewed it as more fair than other types of exclusive voting. This is the opposite of what one would predict if children's fairness judgments were driven by inferences of decision quality—outcomes and fairness should have moved in a similar direction. There may be many contexts in which we think immoral people make bad decisions (such as prioritizing personal gain over group welfare), but this does not appear to be what was driving children's fairness judgments explored in Study 2.

Another possibility is that children view excluding immoral individuals from voting as a form of punishment, making this exclusion seem fair to them. Research shows that adults' support for felony disenfranchisement (i.e., disallowing convicted individuals from voting while they are serving time) is linked with public punitiveness (Chouhy et al., 2023). Relatedly, children readily expect punishment of moral transgressions (e.g., Gummerum & Chu, 2014; Marshall & McAuliffe, 2022) and permit excluding immoral deviants more than those who violate conventional norms (Hitti et al., 2014). Supporting this possibility, we found initial evidence that children were willing to exclude immoral people from getting water—an action that has nothing to do with voting or the group decision outcome—to the same extent as excluding them from voting, viewing both as more fair than excluding people from arbitrary reasons (see Supplemental Study S1). One interesting question for future research is whether children think that once someone has "served their time," they again deserve the right to vote (e.g., see Dunlea et al., 2022, for further discussion on how children's evaluations of punishment as restorative). It will be fruitful to directly test whether children conceptualize voting exclusion as punishment and how it differs from other forms of punishment, such as taking away material resources.

Our present studies focused on children's third-party evaluations, but future research could examine children's first-party preferences as group members, especially how contexts can potentially influence their preferences for different systems. For example, introducing contextual constraints and incentives for their group to reach optimal decisions might sway children toward preferring exclusive systems over universalist ones. When you have all the time in the world,

universalist decisions may be ideal, but when faced with a firm and hard deadline, perhaps this idealistic vision will collapse under the pragmatic constraints of the situation. Given that research suggests reasoning about fairness can be flexible and often follow what benefits the self (e.g., DeScioli et al., 2014; Gonzalez et al., 2022; Messick & Sentis, 1979), adding these incentives for children to come to more optimal decisions might push around children's preferences for either system—much like the constraints that exist in real-world political systems. In addition, it would be interesting to examine whether children's preferences may depend on their own status within the group, such as when they themselves are the more or less competent members. Thinking about how such self-interested incentives interact with concerns around fairness and with coordinating other decision-makers is a fascinating topic for future research.

Further, exploring other rules for exclusion that might be considered "fair" should also be examined. For example, some research has examined children's emerging understandings of bias and bribery in judges and authority figures (e.g., Reyes-Jaquez & Koenig, 2021). This research has suggested that by late childhood, children give harsher evaluations to judges who accept or request gifts before selecting winners in a contest. They additionally understand that those who accept gifts may be more biased in their evaluations. Thus, it may be possible that children would consider excluding biased individuals who accept bribery and that this type of exclusion may also be considered fair. Indeed, they might differentiate between general moral turpitude and violations that explicitly undermine a democratic process. Relatedly, it would be fascinating to examine if children differentiate someone trying to lobby people to vote for their side from cases where someone provides a bribe for the same purpose. That is, different types of exclusion and different justifications for swaying the vote may be more aligned with the "legitimacy" or fairness of a process and thus could be further examined in future research.

Our findings suggest that children and adults believe that most individuals have the right to vote. One could also explore whether there are cases where children not only endorse a rule that says all should be able to vote, but actually that all should vote: Do children or adults ever see voting not just as a right, but as an important obligation? Some countries have rules that make voting almost obligatory (e.g., Australia); how do children outside of that country think about such rules? Does one's culture alone guide these intuitions? There is much future work needed to uncover the ways that children think about group decision making and voting.

Finally, the present findings may have relevance to broader discussions on representation, leadership, and the current political landscape, particularly within the United States, where the data were collected. A key aspect of the U.S. (and many other) democratic systems is between direct participation and mediated decision making (e.g., electing officials who represent interests of the electorate). Understanding how children intuitively reason about these systems and how their reasoning may differ from adult populations may provide insight into the development of political cognition. Additionally, the question of justifications for excluding real-world groups, such as migrants, is particularly relevant. Recent work by Santhanagopalan et al. (2025) has explored children's early emerging beliefs about migrants' and their political power. Future work should aim to integrate between these lines of research and the current political landscape more clearly.

Constraints on Generality

One limitation of our research is that while our samples involved children from varied demographic backgrounds, we did not test the effects outside of the United States (which, as we have noted, might explain why we obtained such a strong universalist bias). Indeed, much previous work has stressed the importance of testing across different contexts and samples, given that cultural values may influence reasoning about social groups and expertise (Henrich et al., 2010). While there is some evidence suggesting similar endorsement for majority rules voting in Han Chinese and American children (Hok et al., 2025), it is important to examine whether views about exclusive systems and the different criteria might differ depending on the various political systems (e.g., authoritarian vs. democratic) and cultural orientations (e.g., individualistic vs. collectivistic; for a review, see Triandis & Suh, 2002) in which children grow up. For example, common norms or rules around exclusion in a child's social environment may additionally inform their basic intuitions on group decision making. It may even be the case that growing up in classrooms that allow for more exclusionary practices (e.g., making a child sit in the corner) inclines one to be more accepting of some forms of exclusion.

Historically, the United States (as well as many other countries, but we highlight the United States here as our data were collected with an American sample) has a fraught history with disenfranchisement based on grounds of gender, race, and owning property, among others (Clayton, 2004). Future research should aim to examine different rhetoric or messaging children may receive around participation and exclusion broadly, in examining how they evaluate different universalist versus exclusive systems. Indeed, doing so may also demonstrate some within-culture variation among individuals, which may affect how children begin to reason about different ways that their social world is organized (as an example, see Heck, Bas, & Kinzler, 2022).

In conclusion, our research provides evidence of early emerging intuitions surrounding universal versus exclusive decision-making systems among 4- to 9-year-old children from the United States. Children view universalist systems that allow maximum participation as fair, albeit at the expense of being less efficient than exclusive systems. These findings are consistent with the egalitarian political ideal that individual group members should be naturally granted decision rights instead of earning them based on elite status. Simultaneously, children also viewed immorality as a legitimate reason for individuals to be excluded and lose their decision-making power. These findings collectively suggest that as future citizens and potential leaders, children form and integrate their moral intuitions into decision-making frameworks long before they formally engage in political activities. By understanding these early moral conceptualizations concerning group decision-making systems, we not only gain insights into the origins of ordinary political thinking but also seize the opportunity to shape the creation and evolution of political systems toward the cultivation of more just societies.

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