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Supplementary Information for
Pivotal voting: The opportunity to tip group decisions skews juries and other voting outcomes

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This PDF file includes:

Supplementary text
Supplemental Study S1 to S2
Figures S1 to S5
Tables S1 to S16

Table of Contents

Study 2a Additional Details

Data Quality and Comprehension Checks

Attention check

Participants view an attention check, which asks, "Is the sky green?" (Forced choice: *Yes; The question says is the sky green*). Most participants (98.48%, 259 of 263) passed the attention check, suggesting that generally, participants were paying attention.

Comprehension check 1

Participants completed a comprehension check which asks, "Imagine that Player 1 is deciding whether or not to share with Player 2. Which choice leaves Player 1 with the most money?" (*Give 40 cents to Player 2; Give 0 cents to Player 2; Player 1 will end up with the same amount of money no matter what*). Most participants (249 of 263, 95%) answered correctly, suggesting that participants understood how the dictator's decisions could negatively affect the financial outcomes of the other player in the dictator game.

Comprehension check 2

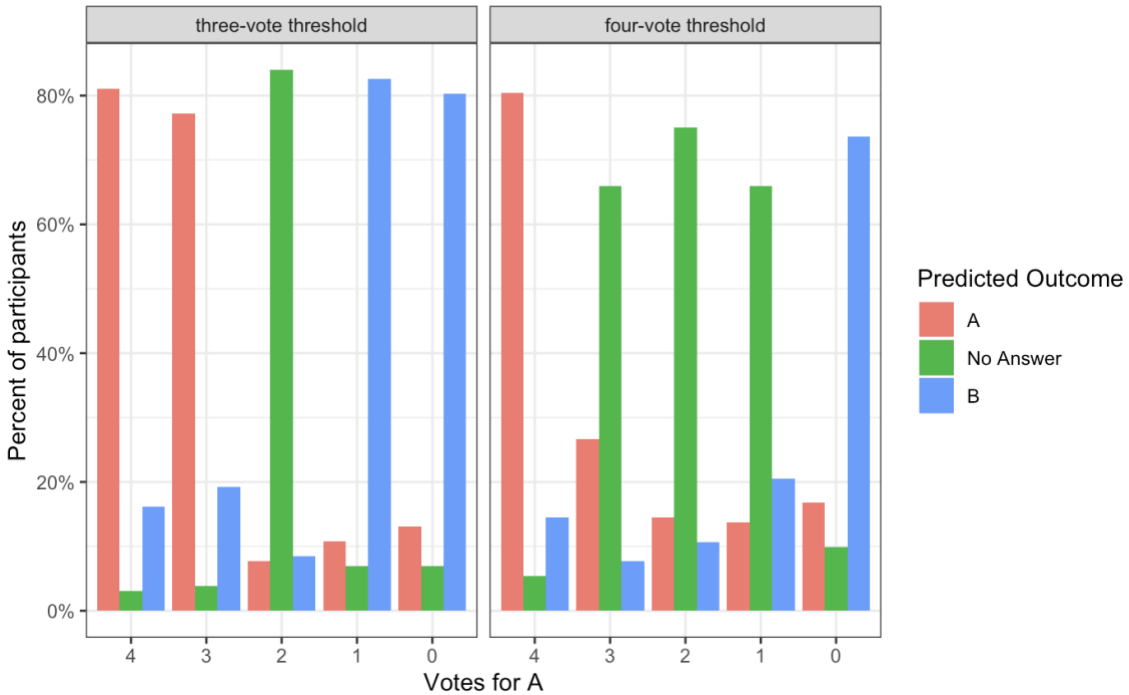


Fig. S1. This figure shows the percentage of participants who passed a comprehension check in which they reported which group vote outcomes (e.g., A = Punish, B = Do not punish, or No Answer) would result from each possible voting distribution (i.e., 4 votes for A and 0 votes for B; 3 votes for A and 1 vote

for B; 2 votes for A and 2 votes for B; 1 vote for A and 3 votes for B; and 0 votes for A and 4 votes for B). Whether option A represented a punishment outcome and option B represented a non-punishment outcome, was counterbalanced. For participants in the three-vote threshold condition, the correct answers, respectively, are A, A, No Answer, B, and B. In the four-vote threshold condition, the correct answers, respectively, are A, No Answer, No Answer, No Answer, and B. The results show that most participants understood the threshold process for their respective condition, suggesting that participants generally understood how the assigned thresholds and group voting distributions would result in different punishment outcomes.

Comprehension check 3

Participants answered a comprehension check asking, "What happens if your group cannot reach an answer?" (*The decision will be made by a different group of judges (instead of my group)*; *The decision will automatically default to punishing Player 1*; *The decision will automatically default to not punishing Player 1*). Most participants answered correctly (82.51%, 217 of 263), suggesting most participants understood that the consequences of a failure to reach a group decision would be that their decision to punish or not punish would be deferred to another group.

Imagined gender of dictator

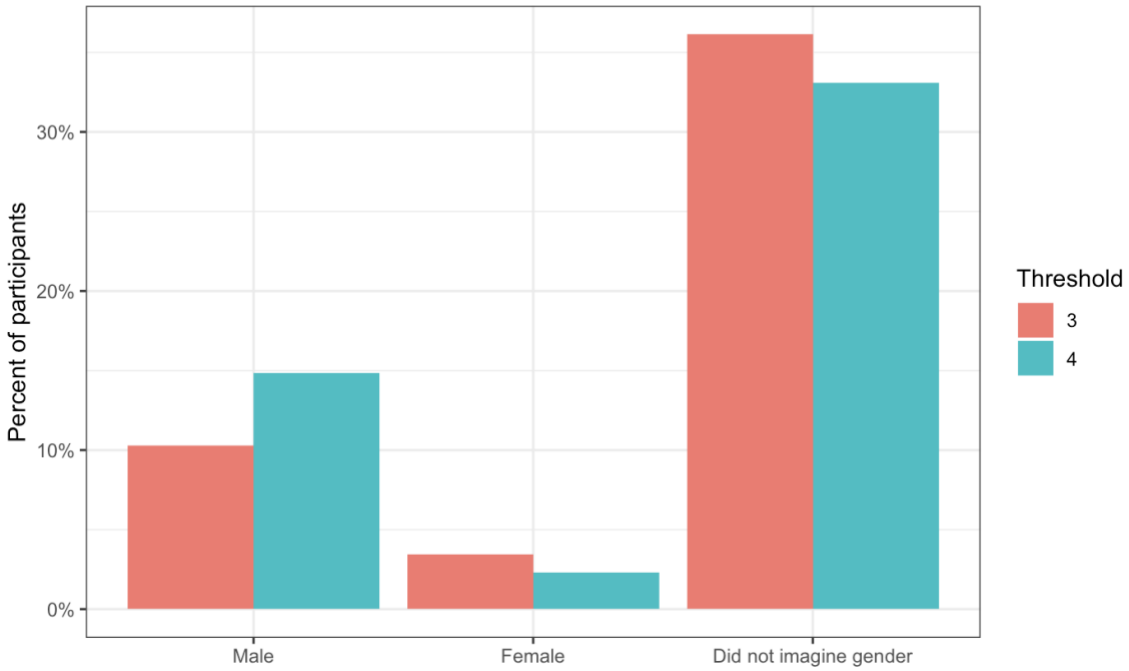


Fig. S2. This figure depicts participants' answers to a question about the imagined gender of the dictator: "When you were making your choice, what gender were

you imagining Player 1?" (*Male*; *Female*; *Other*; I was not imagining any particular gender). Most participants report not imagining any particular gender (69.20%, 182 of 263), while fewer imagined the dictator as male (25.10%, 66 of 263), and even fewer imagined the dictator as female (5.70%, 15 of 263). No participants imagined the dictator as "other."

Interestingly, by examining this measure as a function of whether the participant was a pivotal voter or not, we find an unexpected difference: Participants who were pivotal voters (vs. non-pivotal voters) were marginally less likely to imagine the dictator as male (pivotal: 20.61%, 27 of 131; non-pivotal: 29.55%, 39 of 132). OLS estimates obtained by regressing imagined gender (1 = imagined male, 0 = did not imagine male) against a dummy variable for whether the voter was pivotal reveal a marginally significant result: $\beta = 0.089$, SE = 0.053, $p = .095$.

Table S1: Subjective Measures

	Dependent Variable		
	Model 1: Satisfaction with Group Decision	**Model 2: Perceived Influence of Group**	**Model 3: Ease of Decision**
Threshold (4 votes)	–0.262 (0.257)	–0.020 (0.331)	0.312 (0.261)
Individual Voted to Punish	0.725** (0.257)	1.752*** (0.331)	–0.321 (0.262)
*Threshold (4 votes)*Individual Voted to Punish*	–0.184 (0.362)	–0.800 (0.467)	0.002 (0.369)
Constant	4.212*** (0.199)	2.577*** (0.257)	5.346*** (0.203)
Observations	263	263	262
Adjusted R^2	0.061	0.140	0.016

Table S1. This table depicts the results of OLS regression models that include threshold condition, participants' decision of whether or not to punish, and the interaction of those two variables, as predictors of three different subjective experience outcome variables: satisfaction with the group's decision, perceived influence by the group on one's own decision, and ease of making one's own decision.

For the satisfaction variable, participants were asked, "How satisfied are you with the group's decision?" (1 = *Not at all satisfied*, 7 = *Very satisfied*). The

results show no effect of threshold condition, but did show a positive effect of having voted to punish the dictator. This suggests that participants who chose to punish felt more satisfied with the group's decision overall.

For the influence variable, participants were asked, "How much were you influenced by the other group members' votes?" (1 = *Not at all influenced*, 7 = *Very strongly influenced*). Here, we again find no effect of threshold condition, but did find a large positive effect of having voted to punish the dictator. This suggests that participants who chose to punish felt more influenced by other members of their group when making their own decision.

For the ease variable, participants were asked, "How easy was it for you personally to decide on your vote?" (1 = *Not easy at all*, 7 = *Very easy*). Here we found no effect of threshold condition or decision to punish, suggesting that participants felt their decision was similarly easy regardless of whether they were a pivotal voter and whether or not they ultimately decided to punish the dictator.

Statistical significance is denoted by *, **, and *** for $p < .05$, $p < .01$, and $p < .001$, respectively.

Study 2b Additional Details

Data Quality and Comprehension Checks

Attention check

Participants view an attention check, which asks, "Is the sky green?" (Forced choice: *Yes; The question says is the sky green*). Most participants (98.99%%, 295 of 298) passed the attention check, suggesting that generally, participants were paying attention.

Comprehension check 1

Participants completed a comprehension check which asks, "Imagine that Player 1 is deciding whether or not to share with Player 2. Which choice leaves Player 1 with the most money?" (*Give 40 cents to Player 2; Give 0 cents to Player 2; Player 1 will end up with the same amount of money no matter what*). Most participants (95.64%, 285 of 298) answered correctly, suggesting that participants understood how the dictator's decisions could negatively affect the financial outcomes of the other player in the dictator game.

Comprehension check 2

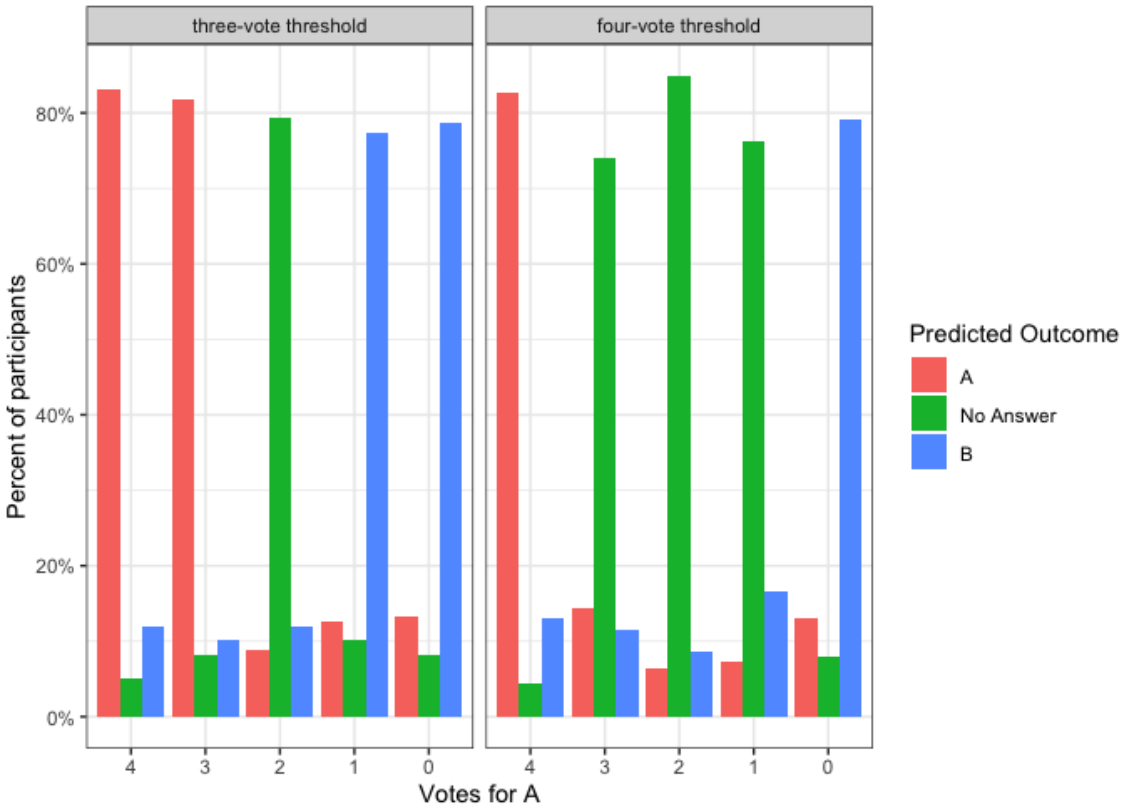


Fig. S1. This figure shows the percentage of participants who passed a comprehension check in which they reported which group vote outcomes (e.g., A = Punish, B = Do not punish, or No Answer) would result from each possible voting distribution (i.e., 4 votes for A and 0 votes for B; 3 votes for A and 1 vote for B; 2 votes for A and 2 votes for B; 1 vote for A and 3 votes for B; and 0 votes for A and 4 votes for B). Whether option A represented a punishment outcome and option B represented a non-punishment outcome, was counterbalanced. For participants in the three-vote threshold condition, the correct answers, respectively, are A, A, No Answer, B, and B. In the four-vote threshold condition, the correct answers, respectively, are A, No Answer, No Answer, No Answer, and B. The results show that most participants understood the threshold process for their respective condition, suggesting that participants generally understood how the assigned thresholds and group voting distributions would result in different punishment outcomes.

Comprehension check 3

Participants answered a comprehension check asking, "What happens if your group cannot reach an answer?" (*The decision will be made by a different group of judges (instead of my group)*; *The decision will automatically default to punishing Player 1*; *The decision will automatically default to not punishing Player 1*). Most participants answered correctly (83.22%, 248 of 298), suggesting most participants understood that the consequences of a failure to reach a group decision would be that their decision to punish or not punish would be deferred to another group.

Imagined gender of dictator

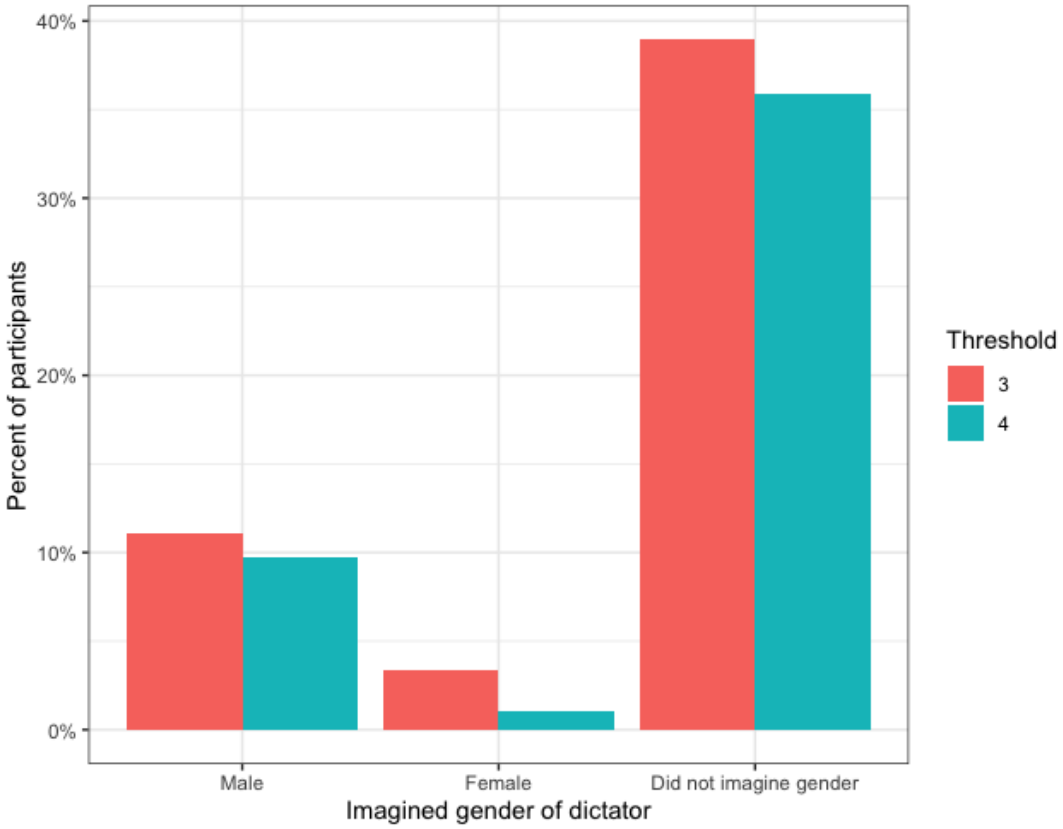


Fig. S2. This figure depicts participants' answers to a question about the imagined gender of the dictator: "When you were making your choice, what gender were you imagining Player 1?" (*Male*; *Female*; *Other*; I was not imagining any particular gender). Most participants report not imagining any particular gender (74.83%, 223 of 298), while fewer imagined the dictator as male (20.81%, 62 of 298), and even fewer imagined the dictator as female (4.36%, 13 of 298). No participants imagined the dictator as "other."

Interestingly, by examining this measure as a function of whether the participant was a pivotal voter or not, we find an unexpected difference: Participants who were pivotal voters (vs. non-pivotal voters) were marginally more likely to imagine the dictator as female (pivotal: 3.36%, 10 of 159; non-pivotal: 1.01%, 3 of 139). OLS estimates obtained by regressing imagined gender (1 = imagined female, 0 = did not imagine female) against a dummy variable for whether the voter was pivotal reveal a marginally significant result: $\beta = -0.04$, SE = 0.02, $p = .082$.

Table S2: Subjective Measures

	Dependent Variable		
	Model 1: Satisfaction with Group Decision	**Model 2: Perceived Influence of Group**	**Model 3: Ease of Decision**
Threshold (4 votes)	–0.483 (0.331)	–0.530 (0.420)	0.453 (0.295)
Individual Voted to Acquit	0.769** (0.264)	0.002 (0.337)	0.264 (0.236)
*Threshold (4 votes)*Individual Voted to Acquit*	–0.283 (0.385)	–0.097 (0.488)	–0.117 (0.344)
Constant	4.537*** (0.228)	3.125** (0.291)	5.439*** (0.204)
Observations	298	298	298
Adjusted R^2	0.079	0.017	0.015

Table S2. This table depicts the results of OLS regression models that include threshold condition, participants' decision of whether or not to punish, and the interaction of those two variables, as predictors of three different subjective experience outcome variables: satisfaction with the group's decision, perceived influence by the group on one's own decision, and ease of making one's own decision.

For the satisfaction variable, participants were asked, "How satisfied are you with the group's decision?" (1 = *Not at all satisfied*, 7 = *Very satisfied*). The results show no effect of threshold condition, but did show a positive effect of having voted to punish the dictator. This suggests that participants who chose to punish felt more satisfied with the group's decision overall.

For the influence variable, participants were asked, "How much were you influenced by the other group members' votes?" (1 = *Not at all influenced*, 7 = *Very strongly influenced*). Here, we again find no effect of threshold condition, but did find a large positive effect of having voted to punish the dictator. This suggests that participants who chose to punish felt more influenced by other members of their group when making their own decision.

For the ease variable, participants were asked, "How easy was it for you personally to decide on your vote?" (1 = *Not easy at all*, 7 = *Very easy*). Here we found no effect of threshold condition or decision to punish, suggesting that participants felt their decision was similarly easy regardless of whether they were a pivotal voter and whether or not they ultimately decided to punish the dictator.

Statistical significance is denoted by *, **, and *** for $p < .05$, $p < .01$, and $p < .001$, respectively.

Study 4 Additional Details

Table S3: Regression estimates for target deservingness

	Estimate	Standard Error	t value	p value
Intercept	4.20	0.09	48.054	<.001***
Threshold (Unanimous)	-0.17	0.12	-1.389	0.165
Voting Decision Outcome (Not Punish)	0.286	0.12	2.309	0.021*
*Threshold (Unanimous)*Voting Decision Outcome (Not Punish)*	1.53	0.17	8.791	<.001***

Supplemental Study S1

In Supplemental Study S1, we conduct a nearly identical study as Study 2a in the main text, except that we include a blinding manipulation. Participants in the *non-blinded* conditions view the same study materials as in the conditions in Study 2a; participants in the *blinded* conditions have participants view the same study materials as in Study 2a, except that they do not learn how the other votes/points are allocated (i.e., how the other players voted) and what the final group decision was before they cast their own vote. Participants in these conditions instead learn how the other votes/points were allocated only after reporting ease of deciding their own vote and before reporting satisfaction with the group's decision (they do not answer the question about how influenced they felt by the other group members' votes). All data and survey materials are available on OSF and we retain details of the analysis for interested researchers.

Sample and data quality/attention and comprehension checks

We recruited 400 US residents through Prolific Academic (M_{age} = 36.12; SD_{age} = 12.14; 48% female), who participated in return for $1.00)

Table S4: Probability of Voting to Punish

	Dependent Variable: Choosing to Punish
Threshold (4 votes)	–0.131 (0.069)
Blinded Votes/Points	–0.120 (0.073)
*Threshold (4 votes)*Blinded Votes/Points*	0.040 (0.099)
Constant	0.571*** (0.048)
Observations	401
Adjusted R^2	0.018

Table S4. We conduct an OLS regression of the participant's choice (vote for punishment = 1; vote for no punishment = 0) against a dummy for whether the participant is in a pivotal position (3-threshold = 0; 4-threshold = 1), a dummy for whether the votes were blinded (not blinded = 0; blinded = 1), and an interaction between the two. Our hypothesis predicts that blinding votes would be an effective way to neutralize the pivotal voter effect in practice. We find that blinding votes reduces punishment rates by 12 percentage points (p = .10). Our data directionally suggest that blinding reduces the pivotal voter effect by 4 percentage points, but the results are not significant (p = .69). We suspect this null

effect is due to low power and future research should replicate this effect either in the field or the lab.

Supplemental Study S2

In Supplemental Study S2, we used a 2 (assigned votes: two vs. three, within-subjects) × 2 (voting threshold: three vs. four, between-subjects) × 2 (affiliation: high vs. low, between-subjects) design. Here, we tested our hypothesis in a less morally-laden context than our other studies, using an incentive-compatible paradigm with objectively correct answers and a manipulation of affiliation to demonstrate the generality of the effect and to investigate underlying mechanisms. All participants learned that they would play a group trivia game along with three other voters, which would provide payment for correct answers. Participants answered 30 trivia questions on a variety of topics. Each question had two answer choices (A and B). We implemented a 4 (assigned votes for A: 0 vs 1 vs 2 vs. 3; within-subjects) x 2 (threshold: 3 vs. 4; between-subjects) x 2 (affiliation: high vs. low; between-subjects) design. Said differently, participants learned that the current group vote for each question was either 0-3, 1-2, 2-1 or 3-0 in favor of option A[1]; they learned that the threshold for a group decision was either 3 or 4 votes; and participants were either told that the other votes came from current, fellow group members with whom they had a chance to affiliate, or from a set of votes cast by past participants (collected through a computerized process) with whom they had no chance to affiliate. We find that subjects are more likely to vote for an answer choice when they are in a position to tip the group answer, especially when they are in high affiliation conditions, suggesting that the desire to be decisive is magnified by social pressure.

Participants and Procedure. We requested 900 participants through Amazon's Mechanical Turk, which returned 896 participants (M_{age} = 36.8; SD_{age} = 10.9; 35% female) who participated in return for $1.40.

Trivia Game. Participants learned they would play a trivia game with 30 questions across six categories (e.g., history, environmental science, etc.; 1). Each question had two answer choices (i.e., A or B). To discourage looking up answers, participants read that cursor-tracking software would be used to identify and withhold payment from cheaters.

Voting and Payment Scheme. Participants learned that they would cast individual votes for each question, but that official answers (that would affect scores and payouts) also depended on three other votes—official answers would be submitted only if a minimum voting threshold was reached for a given answer. Participants were randomly assigned a voting threshold of three or four votes. Participants read that if the voting threshold was not met, no official answer choice was submitted. Correct official answers earned participants one credit, incorrect ones lost one credit, and non-answers earned/lost zero credits. Participants learned that they would be paid $0.10 for each credit they had at the end of the game.

For each question, participants saw the question itself, the answer choices for A and B, the number of votes already assigned to a given answer choice (fully randomized for each question) and the official answers that would be submitted if the participant chose either A or B.

[1] The correct answer was randomly assigned to option A or B. Because the correct answer is arbitrarily assigned, we focus on option A for simplicity, but all results are symmetric. Full details are discussed in SI.

Affiliation Manipulation. Participants were randomly assigned to either a high- or low-affiliation condition. In the high-affiliation condition, participants played as one of four group members. In the low-affiliation condition, they played by themselves. All participants spent two minutes getting to know three other participants on an online chat platform (2). In the high-affiliation condition, the other participants were ostensibly their teammates and in the low-affiliation conditions they were simply fellow individual players. We collected two checks to ensure the chat function worked as intended.

Participants were led to believe the other votes they observed on a given question were either cast by their own teammates (high-affiliation conditions) or were the votes cast by randomly-selected past participants, with a new set of votes being drawn from a different set of past participants for each question (low-affiliation conditions). In fact, the three votes were randomly assigned for every question.

To strengthen the affiliation manipulation, in the low-affiliation conditions, all votes and rules governing votes were described in terms of "points," rather than "votes." Additionally, participants in the high-affiliation conditions were asked to imagine that they would be required to justify their decisions to their teammates after the game, while those in the low-affiliation conditions learned that no other players would see their answers.

Before beginning the trivia game, participants completed five comprehension checks to ensure they understood the rules of voting, scoring, payment, disclosure of their answers, and the source of votes/points assigned to answers.

Confidence Ratings. Immediately after making their choice on every question, participants reported their confidence in their own personal/unofficial answer being correct.

Subjective Experience. After answering all questions, participants rated their subjective experience during the game. Specifically, they rated the perceived importance of submitting an official/group answer (versus submitting no answer), how much submitting no answer would have felt like a missed opportunity, and the enjoyability of being a pivotal voter. Participants were also asked to describe the experience of being a pivotal voter. Additionally, participants in the high-affiliation condition reported how favorably they believed they would be perceived by their group mates after learning about the group members' votes and the group's score. As a manipulation check, all participants reported how connected they felt to their group (in the high-affiliation condition) or the people whose answers were used to assign points (in the low-affiliation condition).

Performance Predictions. Next, participants also reported the number of questions they believed their group had officially answered correctly, and the number of questions they believed they had personally (or unofficially) answered correctly.

Lastly, participants reported demographic information and whether they experienced technical issues.

Main Results

Figure S3 shows that the rate at which participants vote for answer choice A dramatically changes between those situations where the participants are pivotal for that choice (70.9%) and when they are not (43.2%). However, to conduct formal hypothesis

testing, it is important to unpack all the ways in which a participant can be not pivotal for A and to control for the effect of classic conformity.

Accordingly, we first conduct an OLS regression of the participant's choice (vote for A = 1; vote for B = 0) against dummies for whether the participant is in a pivotal position for A (pivotal = 1; not pivotal = 0), a pivotal position for B, an already-decided position for A (decided = 1; not decided = 0), or an already-decided position for B, all of which are interacted with a dummy for the affiliation condition of the participant (high affiliation = 1; low affiliation = 0). Therefore, all coefficients can be interpreted as changes in the probability of voting for A relative to the situation in which indecision is guaranteed. The parameters of interest are the coefficients on the pivotal voter dummies and their interactions. We find strong evidence that pivotal voters are more likely to vote for a given answer choice in the low affiliation condition ($\beta_{pivotal\ for\ A} = .167$, $p < .001$; $\beta_{pivotal\ for\ B} = -.165$, $p < .001$) and even more likely to vote for an answer choice in the high affiliation condition ($\beta_{affiliation*pivotal\ for\ A} = .077$, $p < .001$; $\beta_{affiliation*pivotal\ for\ B} = -.096$, $p < .001$).

In a second specification, we explicitly control for the number of votes assigned to answer choice A, which allows us to test our effect above and beyond the effect of classic conformity and hold constant the social information available to the voter. We again estimate the regression using an OLS model. Though the effects from the first specification are attenuated, we find persistent evidence of the pivotal voter effect distinct from Asch-conformity. Pivotal voters are more likely to vote for a given answer choice in the low affiliation condition ($\beta_{pivotal\ for\ A} = .048$, $p < .001$; $\beta_{pivotal\ for\ B} = -.054$, $p < .001$) and even more likely to vote for an answer choice in the high affiliation condition ($\beta_{affiliation*pivotal\ for\ A} = .067$, $p < .001$; $\beta_{affiliation*pivotal\ for\ B} = -.078$, $p < .001$). We report all regression results in Table S3.

Probability of Choosing Option A by Pivotality and Affiliation Condition

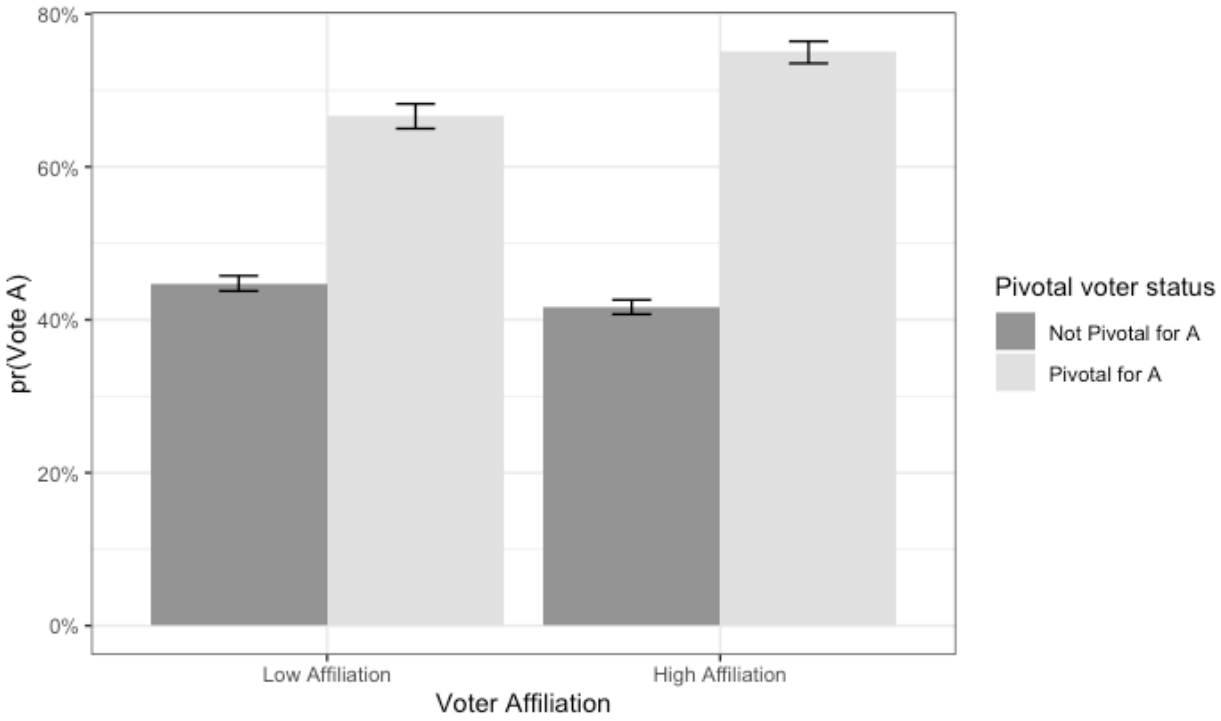


Fig. S3. Probability of voting for answer choice A by pivotal voter status and desire for affiliation. Error bars show 95% confidence intervals.

Example trivia question

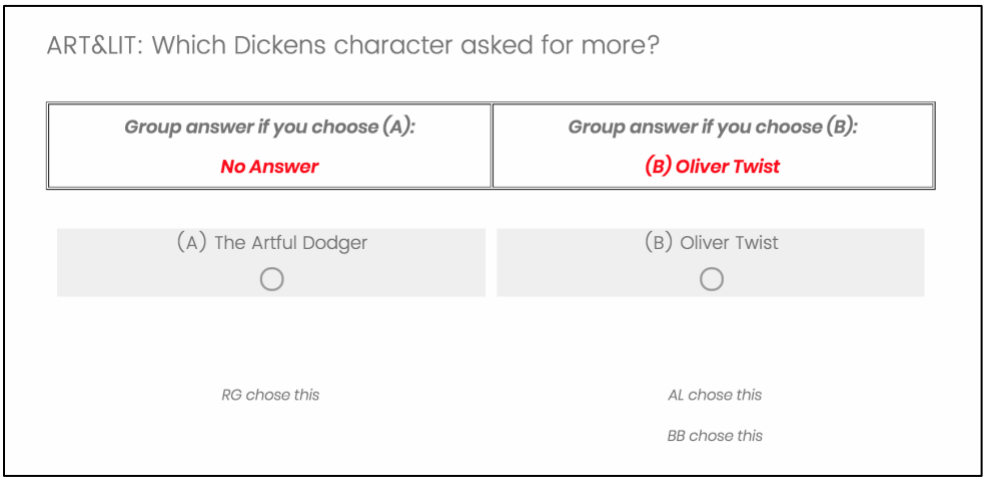


Fig. S4. An example trivia question showing what participants saw in a pivotal voting context. Here, the voting threshold is three votes, with two votes having been assigned to answer choice B. If the participant chooses A, the official group answer will be "No Answer," and if the participant chooses B, the official group answer will be "(B) Oliver Twist."

Table S5. Regression models showing effects of pivotal voter status, desire for affiliation and conformity on the probability of voting for a given answer

	Dependent Variable: Choosing Option A	
	Model 1: Not Controlling for Assigned Votes	**Model 2: Controlling for Assigned Votes**
Assigned Votes (for Option A)	--	0.122*** (0.006)
High Affiliation	0.007 (0.011)	0.004 (0.011)
Situation Decided for A	0.198*** (0.014)	0.011 (0.017)
Situation Pivotal for A	0.167*** (0.012)	0.048*** (0.013)
Situation Decided for B	–0.196*** (0.014)	–0.015 (0.017)
Situation Pivotal for B	–0.165*** (0.012)	–0.054*** (0.013)
*Situation Decided for A*High Affiliation*	0.094*** (0.020)	0.097*** (0.019)
*Situation Pivotal for A*High Affiliation*	0.077*** (0.016)	0.067*** (0.016)
*Situation Decided for B*High Affiliation*	–0.091*** (0.019)	–0.088*** (0.019)
*Situation Pivotal for B*High Affiliation*	–0.096*** (0.016)	–0.078*** (0.016)
Constant	0.499*** (0.009)	0.318*** (0.013)
Observations	26,880	26,880
Adjusted R^2	0.152	0.163

Table S5. This table depicts an OLS model with the pivotal and decided voting situations for option A and option B as predictor variables, and choosing option A as the dependent variable. Here, we find that the likelihood of voting for option A

was positively predicted by the voting situation being pivotal and by being decided for A, and negatively predicted by the voting situation being pivotal and by being decided for B. Significance is denoted by *, **, and *** for p-values below .05, .01 and .001, respectively.

Data Quality, Comprehension, and Manipulation Checks

Table S6: Measures of Data Quality

	Dependent Variable		
	Model 1: Able to Chat	**Model 2: No Chat Errors**	**Model 3: Experienced Technical Issues**
High Affiliation	–0.012 (0.030)	0.007 (0.016)	–0.024 (0.013)
Threshold (4 votes)	0.14 (0.031)	0.035* (0.017)	–0.007 (0.014)
*High Affiliation *Threshold (4 votes)*	–0.016 (0.042)	–0.024 (0.023)	0.009 (0.019)
Constant	0.892*** (0.020)	0.954*** (0.011)	0.033*** (0.009)
Observations	896	896	896
Adjusted R^2	–0.002	0.002	0.002

Table S6. This table depicts the results of OLS regression models that include affiliation condition, threshold condition, and their interaction, as predictors of each of three self-reported measures of participants' experiences of errors during the survey: Whether they were able to chat effectively with other participants, whether they experienced errors in the chat function, and whether they experienced technical issues overall. Most participants were able to chat effectively (88.83%, 796 of 896), did not experience errors in the chat function (96.88%, 868 of 896), and did not experience technical issues overall (97.99%, 878 of 896).

With the exception of an effect of threshold on the experience of errors during the chat that was significant at the $p < .05$ level, there were no effects of our manipulations on participants' experiences of any of the three measures. While we do find an effect of threshold on chat errors, this effect is significant at the least stringent level—due to the large number of analyses being run across these supplemental materials, we caution readers when interpreting any effects at

this level of significance given that no Bonferroni corrections have been conducted.

Statistical significance is denoted by *, **, and *** for $p < .05$, $p < .01$, and $p < .001$, respectively.

Table S7: Probability of Choosing Option A by Number of Failed Checks

	Dependent Variable: Choosing Option A					
	Model 1: 0 Failed Checks	**Model 2: 1 Failed Check**	**Model 3: 2 Failed Checks**	**Model 4: 3 Failed Checks**	**Model 5: 4 Failed Checks**	**Model 6: 5 Failed Checks**
Pivotal Voter (for Option A)	–0.043 (0.029)	0.001 (0.018)	0.018 (0.020)	0.019 (0.023)	0.05* (0.029)	0.175*** (0.052)
High Affiliation	–0.018 (0.017)	–0.032** (0.012)	–0.050*** (0.013)	0.004 (0.016)	–0.015 (0.020)	0.098* (0.042)
Current Votes (for Option A)	0.193*** (0.007)	0.183*** (0.005)	0.183*** (0.006)	0.129*** (0.007)	0.116*** (0.009)	0.060*** (0.017)
Pivotal Voter (for Option A) High Affiliation*	0.104** (0.033)	0.086*** (0.024)	0.112*** (0.027)	0.109*** (0.031)	0.034 (0.039)	–0.117 (0.085)
Constant	0.224*** (0.016)	0.251*** (0.011)	0.235*** (0.012)	0.265*** (0.014)	0.298*** (0.017)	0.313*** (0.033)
Observations	4,650	7,380	6,030	4,860	3,180	780
Adjusted R^2	0.196	0.190	0.201	0.107	0.091	0.045

Table S7. This table depicts the results of OLS regression models that include the current number of votes for answer choice A, being a pivotal voter for answer choice A, being in the high-affiliation condition, and an interaction term for being a pivotal voter and being in the high-affiliation condition, as predictors of whether the participant voted for option A (voted for option A = 1; voted for option B = 0). Further, the data were broken down by the number of attention and comprehension check participants failed (i.e., the data were divided into six mutually exclusive subsets—one for each possible number of failures). Put another way, this table serves as a demonstration of robustness at different levels of data quality by showing the effects of each predictor on the likelihood of having answered anywhere from zero to all five checks correctly. In interpreting this table, one would expect that results on the fewer-failures end (i.e., 0, 1 failures) would most accurately speak to any true effects, with each subsequent increase in failures increasing the noise in the data such that the results on the

most-failures end (i.e., 4, 5 failures) would least accurately speak to any true effects.

Comparing across predictors, the most consistent general pattern we find is a strong effect of the current number of votes for option A, which reflects the well-documented effect of conformity: When there were more votes for option A, participants were more likely to vote for option A. This effect was highly significant across all check-failure amounts.

The effect of affiliation is sporadic across check-failures, yet a predictable pattern emerges with its interaction with being a pivotal voter: We find the pivotal voter effect consistently in the high-affiliation condition for participants who tended to passed these checks (i.e., for participants who failed 0–3 out of 5 checks), yet for participants who tended to fail these checks (i.e., for participants who failed 4–5 out of 5 checks), we find the pivotal voter effect with no interaction with affiliation condition. We take this as evidence for the pivotal voter effect being a social phenomenon—one that is largely a function of being in a high-affiliation context.

The other predictors are less consistent across check-failure amounts, though appear to shift in predictable patterns. For instance, the effect of affiliation is sporadic across check-failures. Of note, we find that there is no effect of being a pivotal voter in the low-affiliation condition among participants who failed fewer checks (i.e., 0, 1, 2, or 3), but did find an effect for participants who failed more checks (i.e., 4 or 5). By contrast, we *do* find a significant effect of the pivotal voter status X high-affiliation condition interaction term among participants who failed fewer checks (i.e., 0, 1, 2, or 3), but *not* among those who failed more checks (i.e., 4 or 5). These results suggest that the pivotal voter effect is largely (and perhaps exclusively) a social one—when participants demonstrated a clearer understanding of the task, they were more likely to vote for answer choice A specifically when they were both a pivotal voter and were in a social context that encouraged a stronger desire to affiliate with their group mates (than when they were pivotal in a context that did not encourage affiliation). Yet, for participants who tended to fail these checks, we find the pivotal voter effect was no stronger in the high-affiliation condition than in the low-affiliation condition.

These patterns are understandable when taking into account that the salience of the affiliation manipulation is dependent on reading and clearly understanding instructions presented in the introduction to the task (e.g., by chatting with one's ostensible group mates), but less so during the task itself; by contrast, the pivotal voter manipulation is salient throughout the task itself (i.e., by clearly illustrating on every question how one's personal votes will lead to given group votes). Put another way: When data quality is at its highest, we find a clear interaction between affiliation and being a pivotal voter, with no independent effect of being a pivotal voter. From these patterns, we conclude that the pivotal voter effect is largely a social phenomenon, and yet may also influence voting when a desire to affiliate is less salient.

Statistical significance is denoted by *, **, and *** for $p < .05$, $p < .01$, and $p < .001$, respectively.

Table S8: Probability of Choosing Option A by Which Specific Comprehension Check Items were Passed

	Dependent Variable: Choosing Option A				
	Model 1: Passed Threshold Check	**Model 2: Passed Credits Check**	**Model 3: Passed Earnings Check**	**Model 4: Passed Answer-Visibility Check**	**Model 5: Passed Vote/Point Assignment Check**
Pivotal Voter (for Option A)	–0.044*	0.019	0.010	0.004	–0.010
	(0.018)	(0.013)	(0.011)	(0.012)	(0.013)
High Affiliation	–0.034***	–0.011	–0.022**	–0.031***	–0.034***
	(0.010)	(0.008)	(0.007)	(0.008)	(0.008)
Current Votes (for Option A)	0.196***	0.170***	0.172***	0.170***	0.184***
	(0.005)	(0.004)	(0.003)	(0.003)	(0.004)
*Pivotal Voter (for Option A)*High Affiliation*	0.126***	0.045**	0.103***	0.091***	0.107***
	(0.021)	(0.017)	(0.015)	(0.015)	(0.016)
Constant	0.229***	0.245***	0.242***	0.259***	0.238***
	(0.010)	(0.007)	(0.007)	(0.007)	(0.008)
Observations	10,920	15,960	20,490	18,930	17,460
Adjusted R^2	0.213	0.159	0.174	0.166	0.194

Table S8. To supplement the previous table, this table depicts the same OLS models with the same predictors on the same choice dependent variable, but instead is divided into five subdivisions, one for having correctly answered each specific attention and comprehension check independent of each other (i.e., non-cumulatively). Put another way, this model shows which predictors predicted participants' likelihood of choosing answer choice A as a function of whether they passed a given individual check.

The first check shows participants an example question: "How many states are in the United States of America?" (A = 50, B = 43), then asks participants to report the group's final voting outcome for each given possible voting distribution (e.g., 4 votes for A, 0 votes for B), as a function of their assigned voting threshold condition. The second check asks, "Imagine your group gets 3 questions right, 1 question wrong, and answered "No Answer" for 2 questions. How many credits would you have?" (*2 credits*; *3 credits*; *1 credit*). The third check asks, "How much money does 1 credit translate to?" (*$0.10*; *$0.05*; *$0.20*). The fourth check asks, "Will other participants see your answers?" (*Yes*; *No*; *Yes, but only for certain answers).* The fifth check asks, "How will the points be assigned for any given question?" (*Every question will show answers from a different group of past participants*; *Every question will show answers from the same group of past participants*; *Every question will show answers from an intelligent algorithm*;

Every question will show answers from the same group of participants who are currently participating on your team).

As in the Table S3, we find a consistent effect of current votes for A, replicating the well-documented conformity effect. Crucially, we also find a consistent effect across all checks of the interaction between high affiliation condition and being a pivotal voter—given the participant passed any given individual check, the likelihood that they voted for answer choice A was predicted by being a pivotal voter and being in a context that encouraged affiliation with group mates. Again, we find no effect of being a pivotal voter in the low-affiliation condition, except here we find that participants who failed the first attention check were less likely to vote for answer choice A. We also find a mostly consistent effect of affiliation, such that participants who were assigned to a context that encouraged affiliation with group mates were generally less likely to vote for answer choice A.

Lastly, we note that there are different numbers of observations for each check-failure subdivision due to heterogeneity of treatment of effects by data quality—because participants may fail different attention checks in any number of combinations, the total number of observations across all checks does not sum to a meaningful quantity.

Statistical significance is denoted by *, **, and *** for $p < .05$, $p < .01$, and $p < .001$, respectively.

Table S9: Manipulation Checks

	Dependent Variable	
	Model 1: Behavioral Manipulation Check	**Model 2: Self-reported Manipulation Check**
High Affiliation	–0.097***	0.212
	(0.009)	(0.134)
Current Votes (for Option A)	0.141***	
	(0.004)	
*High Affiliation*Current Votes (for Option A)*	0.066***	
	(0.005)	
Constant	0.289***	4.183***
	(0.007)	(0.096)
Observations	26,880	896
Adjusted R^2	0.159	0.002

Table S9. This table depicts the results of two OLS regression models. One model includes affiliation condition, the current number of votes for answer choice A, and their interaction term, as predictors of a behavioral manipulation check. The other model includes only affiliation condition as a predictor of the self-reported manipulation check.

The behavioral manipulation check consists of participants' likelihood of having voted for answer choice A, which serves as an affiliation manipulation check because past work on conformity would predict that when more of their group mates also voted for that answer choice, a stronger desire to affiliate would be especially likely to increase voting for that answer choice. Indeed, this is what we find: There is a significant interaction between our affiliation conditions and the number of current votes on a given question such that participants were especially likely to vote for answer choice A when there were more votes for A and were in the high affiliation condition.

When we examine the self-reported manipulation check, which asks participants in the high-affiliation condition, "Across the entire trivia game, how connected did you feel with the people in your group?" and participants in the low-affiliation condition, "Across the entire trivia game, how connected did you feel with the people whose answers were used to assign points?" (1 = *Not at all*, 7 = *Very much*), we find that the effect of affiliation is not significant. These results are in contrast to our behavioral manipulation check, and may be explained by the affiliation manipulation operating at a subconscious level. While this could

suggest that our affiliation manipulation manipulated something that was not affiliation, we further decomposed the data by which checks they passed and determined whether affiliation predicted the self-reported sense of affiliation. Crucially, we found that for participants who correctly answered the two comprehension checks about the affiliation manipulation (which indicate that these were participants who understood crucial details that could induce a desire for affiliation), there was a significant effect of affiliation condition on sense of affiliation (see Table S6). This result suggests that the affiliation manipulation did, in fact, manipulate a sense of affiliation.

Statistical significance is denoted by *, **, and *** for $p < .05$, $p < .01$, and $p < .001$, respectively.

Table S10: Self-reported Affiliation Manipulation Check by Passed Attention Checks

	Dependent Variable: Affiliation Manipulation Check				
	Model 1: Passed Threshold Check	**Model 2: Passed Credits Check**	**Model 3: Passed Earnings Check**	**Model 4: Passed Answer-Visibility Check**	**Model 5: Passed Vote/Point Assignment Check**
High Affiliation	0.205 (0.211)	0.303 (0.177)	0.200 (0.153)	0.416** (0.158)	0.537** (0.166)
Constant	3.333*** (0.174)	3.686*** (0.126)	4.063*** (0.107)	3.788*** (0.144)	3.458*** (0.128)
Observations	364	532	683	631	582
Adjusted R^2	–0.0002	0.004	0.001	0.009	0.016

Table S10. This table depicts the results of five OLS regression models, each with affiliation condition as the predictor variable, and passing the self-reported affiliation manipulation check as the dependent variable. Crucially, each model is subdivided by whether each of the five comprehension checks had been passed. Two of these checks are crucial to the affiliation manipulation: The answer-visibility check and the vote/point assignment check. Importantly, we find that for participants who passed these two comprehension checks, our affiliation manipulation significantly predicted passing the self-reported affiliation manipulation check. These results suggest that our affiliation manipulation was indeed effective (particularly for participants who comprehended the details of the high-affiliation condition).

Statistical significance is denoted by *, **, and *** for $p < .05$, $p < .01$, and $p < .001$, respectively.

Analysis of Subjective Experience Ratings

Table S11: Ratings of Subjective Experiences

	Dependent Variable		
	Model 1: Importance of Reaching a Group Decision	**Model 2: Non-Answers as Missed Opportunities**	**Model 3: Enjoyability of Being the Deciding Vote**
High Affiliation	–0.051 (0.116)	0.199 (0.121)	0.015 (0.107)
Constant	4.965*** (0.084)	4.951*** (0.087)	4.727*** (0.077)
Observations	896	896	896
Adjusted R^2	–0.001	0.002	–0.001

Table S11. This table depicts the results of three OLS regression models, each with Affiliation condition as the sole predictor variable and a different subjective rating as the outcome variable. The results of all models showed no effects of affiliation condition.

The first model uses a rating of the perceived importance of reaching a group decision (versus a group non-answer) as the outcome variable. Participants were asked, “How important was it to you that your group submitted an answer [you submitted an official answer] (as opposed to submitting "No Answer")?” (1 = *not important at all*, 7 = *very important*).

The second model uses a rating of the perception that group non-answers would constitute missed opportunities to earn credits. Participants were asked, “How much did submitting "No Answer" as a group [as your official answer] feel like a missed opportunity to earn credits?” (1 = *not at all*, 7 = *very much*).

The third model uses a rating of the enjoyability of being the deciding vote. Participants were asked, “What was your experience of being the deciding vote (i.e., between submitting a group answer [an official answer] vs. "No Answer")?” (1 = *unenjoyable*, 7 = *enjoyable*).

Statistical significance is denoted by *, **, and *** for $p < .05$, $p < .01$, and $p < .001$, respectively.

Analysis of Confidence, Accuracy Predictions, and Actual Accuracy

Table S12: Predictions of Accuracy of Unofficial/Personal and Official/Group Answers by Affiliation Condition

	Dependent Variable	
	Model 1: Predicted Unofficial/Personal Score	**Model 2: Predicted Official/Group Score**
High Affiliation	2.269***	1.068*
	(0.478)	(0.456)
Constant	15.664***	16.757***
	(0.344)	(0.329)
Observations	896	896
Adjusted R^2	0.023	0.005

Table S12. This table depicts the results of two OLS regression models, each with Affiliation condition as a predictor variable, with the dependent variable for Model 1 being predicted unofficial (low-affiliation condition) or personal (high-affiliation condition) score and the dependent variable for Model 2 being predicted official (low-affiliation condition) or group (high-affiliation condition) score.

These results show that participants in the high-affiliation condition predict having both, higher unofficial/personal scores and higher official/group scores, though this pattern is more significant for the former than the latter. This pattern suggests that our affiliation manipulation increases participants' confidence that they are choosing correct answers in general, especially when personally choosing answers, but also for their group choosing answers.

There are different potential explanations for why the effect is stronger for unofficial/personal answers than official/group answers. For example, perhaps an increased desire to affiliate led participants to place more confidence in the votes of their group mates (versus assigned points), specifically for questions that participants felt unsure about. That is, participants may have felt more confident in answers they were surer about, independent of how their group mates voted, but when participants were less sure about a given answer, their attentiveness to their group mates led them to be more confident in voting with the group. Further examining this possibility and other potential explanations could be a fruitful avenue for future research.

Statistical significance is denoted by *, **, and *** for $p < .05$, $p < .01$, and $p < .001$, respectively.

Table S13: Confidence in Unofficial/Personal Answers by Affiliation Condition and Voting Situation

	Dependent Variable
	Confidence in Unofficial/Personal Answer Choices
High Affiliation	0.024 (0.045)
Hopeless Voting Situation	–0.392*** (0.046)
Pivotal Voting Situation	–0.164*** (0.038)
Current Votes (for Option A)	0.001 (0.010)
*High Affiliation*Hopeless Voting Situation*	0.122 (0.063)
*High Affiliation*Pivotal Voting Situation*	0.081 (0.055)
Constant	4.965 (0.034)
Observations	26,880
Adjusted R^2	0.005

Table S13. This table shows the results of an OLS model with current votes for option A, affiliation condition, pivotal voter status, hopeless voter status, an interaction term for affiliation and pivotal voter status, and an interaction term for affiliation and hopeless voter status, as predictor variables, and reported confidence in unofficial/personal answers as the dependent variable. The reference situation is when the situation was already decided, meaning that for a given question, the group decision was already set regardless of what the participant choose. Being in a pivotal voting situation meant that, for a given question, the participant's vote could tip the official/group answer from being a non-answer to being a conclusive answer. Being in a hopeless voting situation meant that, for a given question, the official/group answer would inevitably be "No Answer" because the minimum voting threshold could not be reached regardless of what the participant chose.

The results show that there were significant effects of the situation: Participants were less confident in their own answers both when they were in a pivotal voting situation and when they were in a hopeless voting situation. These effects were not qualified by an interaction with affiliation, nor were there main effects of affiliation or current votes. These results suggest that when the official/group vote exists in a state of indecision, this reduces participants' confidence in the answers they choose, even when their own vote could bring the official/group vote to a conclusive answer, and even independently of a desire to affiliate or conform. Future research may do well to further test why this pattern emerged.

Statistical significance is denoted by *, **, and *** for $p < .05$, $p < .01$, and $p < .001$, respectively.

Table S14: Accuracy of Unofficial/Personal Answer Choices by Question Domain

	Dependent Variable: Correctly Chosen Unofficial/Personal Answers in Each Question Domain						
	Model 1: All Domains	**Model 2: Art**	**Model 3: Entertain-ment**	**Model 4: Environ-mental**	**Model 5: Geography**	**Model 6: History**	**Model 7: Sports**
High Affiliation	–0.014 (0.008)	–0.001 (0.020)	–0.019 (0.020)	–0.038* (0.019)	–0.007 (0.020)	–0.027 (0.021)	–0.005 (0.020)
Pivotal Voting Situation	0.002 (0.009)	0.024 (0.021)	0.024 (0.021)	–0.016 (0.020)	0.003 (0.021)	–0.032 (0021.)	0.010 (0.021)
Current Votes (for Option A)	0.010*** (0.003)	0.043*** (0.006)	0.128*** (0.006)	0.076*** (0.006)	–0.103*** (0.006)	0.033*** (0.007)	–0.118*** (0.006)
*Pivotal Voting Situation*High Affiliation*	–0.010 (0.012)	–0.037 (0.029)	0.004 (0.029)	–0.003 (0.027)	–0.024 (0.029)	0.017 (0.030)	–0.020 (0.029)
Constant	0.588*** (0.007)	0.562*** (0.018)	0.322*** (0.017)	0.606*** (0.016)	0.753*** (0.017)	0.541*** (0.018)	0.752*** (0.018)
Observations	26,880	4,480	4,480	4,480	4,480	4,480	4,480
Adjusted R^2	0.001	0.010	0.082	0.036	0.054	0.006	0.071

Table S14. This table depicts seven OLS regression models, each with affiliation condition, pivotal voter status, current votes for option A, and an interaction term between pivotal voter status and affiliation condition, as predictor variables, with actual accuracy of chosen answers in a given question domain as the dependent variable. Model 1 includes all domains, whereas Model 2 uses accuracy exclusively for art domain questions as the dependent variable, Model 3 does so for the entertainment domain, Model 4 uses the environmental domain, Model 5 uses geography, Model 6 uses history, and Model 7 uses sports.

The results show that there is a largely consistent pattern of no effects of affiliation condition across question domains (with the exception of the environmental domain), no effects of pivotal voter status, significant effects of current votes (in both positive and negative directions), and no interaction effects between pivotal voter status and affiliation condition. These findings suggest that actual accuracy was unaffected by any of these predictor variables, except for current votes.

Statistical significance is denoted by *, **, and *** for $p < .05$, $p < .01$, and $p < .001$, respectively.

Table S15: Likelihood of Choosing Answer Choice A by Question Domain

	Dependent Variable: Choosing Answer Choice A in Each Question Domain						
	Model 1: All Domains	**Model 2: Art**	**Model 3: Entertain-ment**	**Model 4: Environ-mental**	**Model 5: Geography**	**Model 6: History**	**Model 7: Sports**
High Affiliation	–0.019**	0.003	–0.054***	–0.037*	–0.010	–0.004	–0.012
	(0.006)	(0.016)	(0.015)	(0.016)	(0.016)	(0.016)	(0.016)
Pivotal Voting Situation	0.016	–0.003	0.001	0.053*	–0.014	0.023	0.042
	(0.010)	(0.025)	(0.024)	(0.025)	(0.024)	(0.024)	(0.024)
Current Votes (for Option A)	0.163***	0.157***	0.186***	0.121***	0.162***	0.178***	0.175***
	(0.003)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
*Pivotal Voting Situation*High Affiliation*	0.085***	0.070*	0.126***	0.047	0.140***	0.076*	0.050
	(0.013)	(0.032)	(0.031)	(0.032)	(0.031)	(0.031)	(0.031)
Constant	0.251***	0.222***	0.267***	0.424***	0.175***	0.205***	0.213***
	(0.006)	(0.015)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)
Observations	26,880	4,480	4,480	4,480	4,480	4,480	4,480
Adjusted R^2	0.157	0.135	0.205	0.103	0.160	0.185	0.181

Table S15. This table depicts seven OLS models with the same setup as the previous table (Table S9), except with choosing option A as the dependent variable (and the same breakdown by question domain).

The results of Model 1 replicate our findings from Table 1 in the main text. By examining Models 2–7, we are able to uncover potential variation in the likelihood of voting for a particular option (option A) across individual domains.

We find a large effect of affiliation condition, particularly in two domains: Entertainment and Environment—meanwhile we find small nonsignificant effects in each of the other domains. This suggests that the main effect of affiliation condition that appears when combining all domains was driven by two domains in particular, rather than by all domains together.

As in Table S9, we find no effect of pivotal voter status in any domain, and again we find significant effects of current votes (for option A) in all domains. These results suggest that being a pivotal voter alone does not predict voting for a particular answer, but that people appear to be sensitive to the effects of conformity.

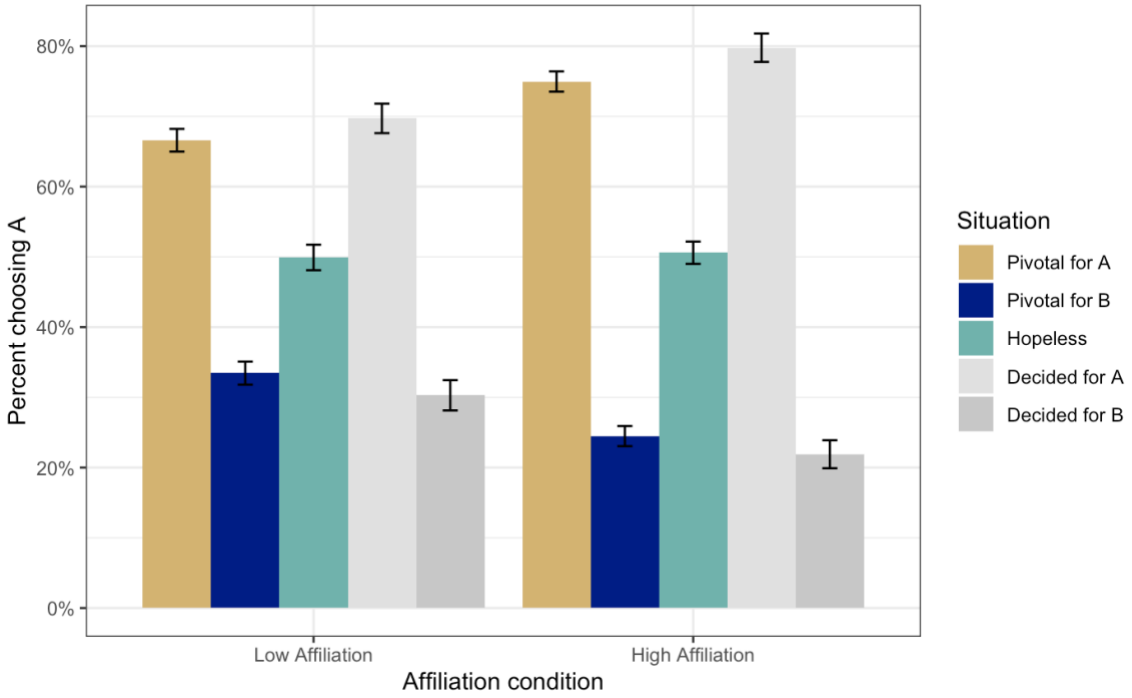
Crucially, we find a significant interaction between being a pivotal voter and being in the high affiliation condition for all domains except for the Environmental and Sports domains. This result suggests that our effect is largely consistent across domains, though future research may benefit from exploring when the effect appears in a given domain versus when it will not.

Statistical significance is denoted by *, **, and *** for $p < .05$, $p < .01$, and $p < .001$, respectively.

Additional Analyses

Probability of Voting for Answer Choice A Across All Possible Voting Situations

(Panel A)



(Panel B)

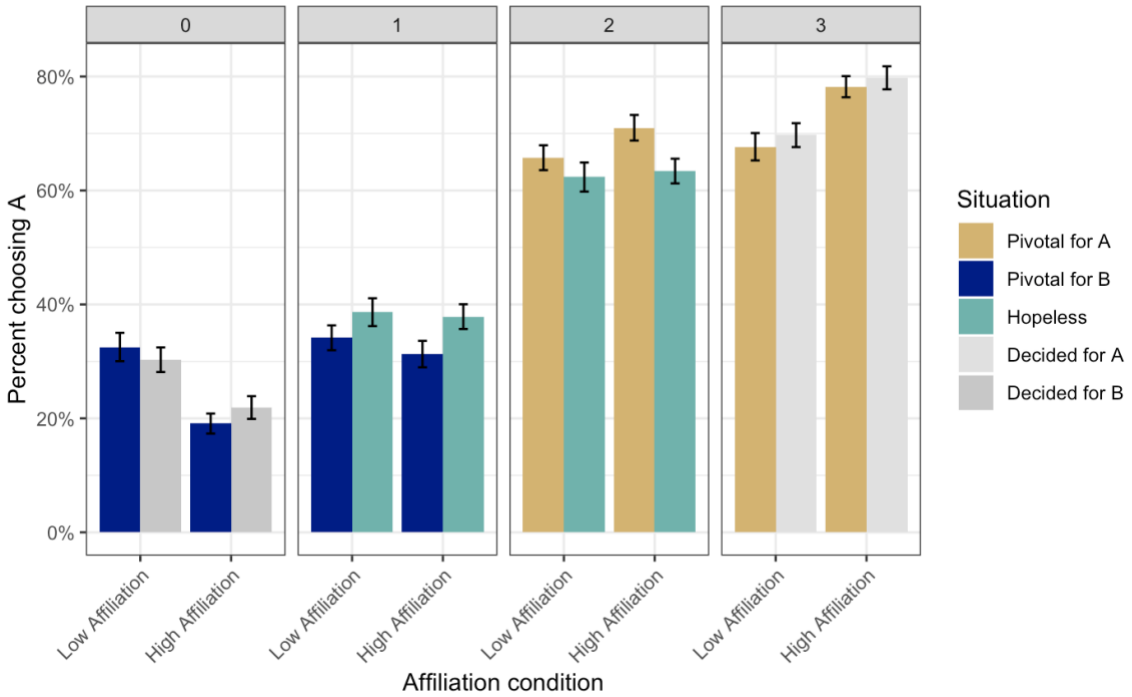


Fig. S5. This figure (Panels A and B) is a graphical representation of Table 1 in the main text, which illustrates the probability with which participants voted for answer choice A in all possible situations, as a function of affiliation condition. These situations include a pivotal voting situation (because the participant's vote could tip the group vote from "No Answer" to a conclusive given answer), a hopeless voting situation (because the participant's vote could not tip the group vote from "No Answer" to a conclusive given answer), and a decided voting situation (because the group vote already tipped to a conclusive given answer and the participant's vote could not tip the group vote to "No Answer" or another answer). The key comparison in this research is between pivotal voting situations and hopeless voting situations—how participants vote in already-decided voting situations could reflect a number of other values or motivations that are not of direct interest to this research (e.g., a desire to reduce cognitive dissonance by voting for what the group has already decided). Panel A shows that the likelihood of voting for Option A is higher when voters are pivotal for Option A (gold bars) than when the situation is hopeless (cyan bars), and more likely to vote for Option B (i.e., less likely to vote for Option A) when they are pivotal for Option B (dark blue bars) than when the situation is hopeless (cyan bars). This is consistent with our results; however, this figure does not account for the influence of classical conformity pressure. Thus, in Panel B, we further break down the data by number of assigned votes (for Option A), which holds constant the level of classical conformity pressure. The key comparisons occur when the assigned votes for Option A were 2 or 1, because it is in these situations that we are able to manipulate the voting threshold, in a way that makes the participant either a pivotal voter or a hopeless voter. Error bars here and throughout this document represent 95% confidence intervals.

Table S16: Binary Logistic Regression Model by Voting Situation

	Dependent Variable: Choosing Option A
Current Votes (for Option A)	0.563***
	(0.031)
High Affiliation	0.015
	(0.050)
Situation Decided for A	–0.021
	(0.078)
Situation Pivotal for A	0.161**
	(0.060)
Situation Decided for B	0.001
	(0.078)
Situation Pivotal for B	–0.189**
	(0.059)
*Situation Decided for A*High Affiliation*	0.524***
	(0.095)
*Situation Pivotal for A*High Affiliation*	0.339***
	(0.074)
*Situation Decided for B*High Affiliation*	–0.453***
	(0.093)
*Situation Pivotal for B*High Affiliation*	–0.387***
	(0.074)
Constant	–0.834***
	(0.059)
Observations	26,880
Log Likelihood	–16,321.380
Akaike Inf. Criteria	32,664.750

Table S16. This table depicts similar analysis results as Table 1, except that it uses binary logistic regression instead of ordinary least squares (OLS) for estimation. Both of these analyses have all the same qualitative conclusions. Here again, we regress the number of votes assigned to answer choice A, a dummy for high affiliation condition, dummies for the voting situation (i.e., decided for A or B, pivotal for A or B), and the interactions between the affiliation dummy and dummies for the voting situation as predictors of the likelihood of voting for

answer choice A. We again find that, controlling for social information, pivotal voters are more likely to vote for a decisive answer in the low affiliation condition ($\beta_{pivotal\ for\ A}$ = .161, $p < .01$; $\beta_{pivotal\ for\ B}$ = -.189, $p < .01$) and even more likely to vote for such an answer choice in the high affiliation condition ($\beta_{affiliation*pivotal\ for\ A}$ = .339, $p < .001$; $\beta_{affiliation*pivotal\ for\ B}$ = -.387, $p < .001$). These results support the findings in our previous OLS regression models, suggesting that being a pivotal voter for a given answer makes people more likely to vote for that answer, particularly in high-affiliation (vs. low-affiliation) contexts, over and above standard conformity pressures.

Statistical significance is denoted by *, **, and *** for $p < .05$, $p < .01$, and $p < .001$, respectively.

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