Supporting Information

C Model of in-group biased behavior

Below we describe an equilibrium profile in a model of in-group biased behavior that captures some of the key behavioral elements we report in the paper. The purpose of the model is to flesh out in more precise formal language some of the incentives we informally described in the paper. We do not offer it as a calibration of the results, and, indeed, abstract away from a key behavioral feature we observe in both the baseline and the identity (out-group match) treatments – the effort-type substitution – in order to focus attention on behavioral elements more closely related to the behavioral manifestations of in-group bias.

Assume that the model is the one specified in the paper, but with the following amendments. For simplicity, assume $t, e \in \mathbb{R}_+$, and that the noise terms ω are distributed uniformly over an arbitrarily large interval with mean 0. This allows us to abstract away from tedious boundary problems and keep this appendix brief.

Let $I = 1$ indicate in-group and $I = 0$ an out-group match and $k(e, I, g, s)$ be the (dis-)utility for the representative from making an effort e,

$$k(e, I, g, s) = -(e - (gI + s))^2,$$

where:

- $g > 0$ is the magnitude of *warm glow* utility that a representative gets for making efforts on behalf of a voter who shares her group identity;
- $s > 0$ is the magnitude of *other-regardingness* experienced by a representative independent of whether the match is in- or -out-group; and
- s, g, and t are independently and uniformly distributed.

Let $r = 1$ indicate that the voter retains the representative and $r = 0$ that she does not. Then representative's utility is

$$B + k(e_1, I, g, s) + r(B + k(e_2, I, g, s).$$

The voter's utility is

$$e_1 + t + \omega_1 + r(e_2 + t + \omega_2 + Ib - (1 - I)b) + (1 - r)(E[t] + \underline{e} + \omega^*),$$

where b is a measure of the voter's intrinsic benefit from retaining a representative from his own identity group, or his cost of retaining a representative from the other group.

By backward induction, $e_2^* = gI + s$.

The Voter retains the representative if

$$E[e_2 + t + \omega_2 | e_1, t + \omega_1] + Ib - (1 - I)b \geq E[t] + \underline{e} + E[\omega^*]. \tag{1}$$

We will construct an equilibrium in which e_1 is independent of t, so by assumption, condition (1) is equivalent to

$$E[e_2|e_1] + E[t+\omega_2|t+\omega_1] + Ib - (1-I)b \geq E[t] + \underline{e} + E[\omega^*].$$

Substituting the equilibrium value of e_2^*, we have

$$E[gI+s|e_1] + t + \omega_1 + Ib - (1-I)b \geq E[t] + \underline{e}.$$

Thus, the voter will retain iff

$$\omega_1 \geq E[t] + \underline{e} - t - E[gI+s|e_1] - Ib + (1-I)b.$$

Note then that the ex ante probability that the representative will be retained, given t and e_1, is

$$\begin{aligned} \Pr(\omega_1 &\geq E[t] + \underline{e} - t - E[gI+s|e_1] - Ib + (1-I)b) \\ &= 1 - P_\omega(E[t] + \underline{e} - t - E[gI+s|e_1] - Ib + (1-I)b). \end{aligned}$$

Given this probability of retention, the representative chooses e_1 to maximize her expected utility

$$B - (e_1 - (gI+s))^2 + (1 - P_\omega(E[t] + \underline{e} - t - E[gI+s|e_1] - Ib + (1-I)b))B.$$

The FOC is

$$\frac{\partial E[u_R(\cdot)]}{\partial e_1} = -2(e_1 - (gI+s)) + p_\omega(\cdot)\frac{\partial E[gI+s|e_1]}{\partial e_1}B.$$

Because noise is uniformly distributed on $\mathbb{R}$, $p_\omega(\cdot)$ is constant. We have, then

$$e_1 = gI + s + \frac{B}{2}p_\omega(\cdot)\frac{\partial E[gI+s|e_1]}{\partial e_1}.$$

From the Implicit Function Theorem, $\frac{\partial e_1}{\partial s} = 1$; thus, $\frac{\partial s}{\partial e_1} = 1$ and $\frac{\partial E[gI+s|e_1]}{\partial e_1} = 1$. Hence, e_1 is linear in s with slope 1 and intercept $\frac{B}{2}p_\omega(\cdot) + gI$, and s can always be recovered from e_1(i.e., e_1^* is a one-to-one mapping of s). Note that e_1 is greater for in-group matches than for out-group matches by g.[1] We have the following equilibrium probability of retention as a function of t, I, and observable e_1 (which is a function of the underlying unobservable s):

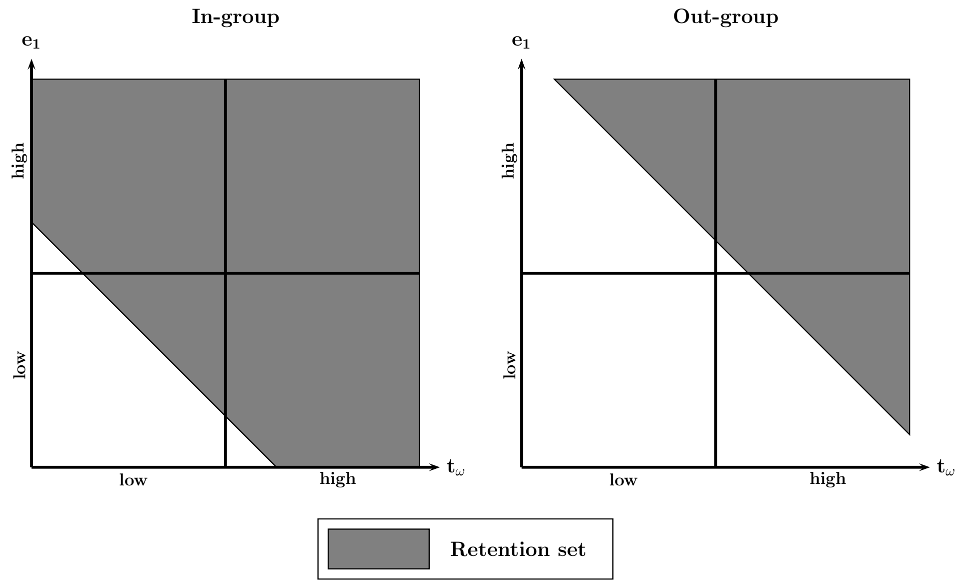
$$1 - P_\omega(E[t] + \underline{e} - t_\omega - gI - S(e_1) - Ib + (1-I)b).$$

Because $P_\omega(\cdot)$ is increasing in its argument, $1 - P_\omega(\cdot)$ is decreasing. Thus, the probability of retention is increasing in e_1, in t, and in I. On average, the retention rate is higher in-group, holding constant e_1 and t.

Bear in mind that in this equilibrium, e_1 is driven by s but not by t. Thus, e_1 is uniformly distributed and independently distributed with respect to t. So, imagine representatives are evenly spread over (e_1, t_ω)-space. And because of the $(-Ib + (1-I)b))$ term, the in-group biased voters' threshold in (e_1, t_ω)-space for retention is lower for in-group matches than for out-group matches. See Figure C.1 for an example of thresholds in in-group and out-group matches that are consistent with the derived equilibrium. Note that the retention sets in the figure are also consistent with the evidence from the experiment that for the high t_ω (the right half of each panel), the increase in the probability of retention that comes with an increase from low to high effort is greater in out-group than in in-group matches.

[1] This prediction would be affected if we incorporated into the setup some motivation to effect the effort-type substitution by the low types, which we see in the baseline and the out-group matches but not in the in-group matches. We can think of this prediction, then, as corresponding to the high-type part of the type-range, where in fact, it holds true.

Figure C.1: Example of thresholds in (e_1, t_ω)-space for retention in in- and out-group matches



$$\mathbf{Pr}(\textbf{retention} \,|\, \textbf{low}\, \mathbf{t}_\omega, \textbf{low}\, \mathbf{e_1}) \begin{array}{l} < \mathbf{Pr}(\textbf{retention} \,|\, \textbf{high}\, \mathbf{t}_\omega, \textbf{low}\, \mathbf{e_1}) \\ < \mathbf{Pr}(\textbf{retention} \,|\, \textbf{low}\, \mathbf{t}_\omega, \textbf{high}\, \mathbf{e_1}) \end{array} < \mathbf{Pr}(\textbf{retention} \,|\, \textbf{high}\, \mathbf{t}_\omega, \textbf{high}\, \mathbf{e_1})$$

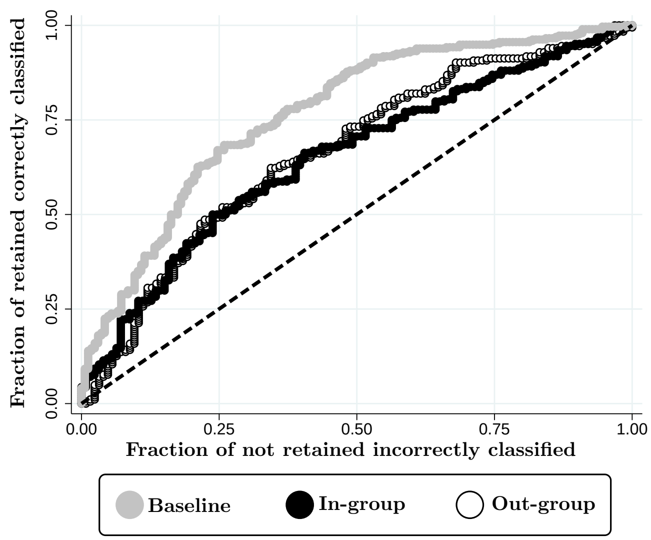
The fact that in-group matched representatives also put forth g more effort reinforces this effect. Fix a threshold $\hat{e}(t)$. Because representatives' effort is greater in-group, for any given t, a greater proportion of representatives exert effort at or above $\hat{e}(t)$ in in-group matches than in out-group matches. This reinforces the result that shows a bigger difference in proportion retained between high and low effort among high types in out-group matches than in in-group matches.

D Robustness of average treatment effects

We consider the significance of the average treatment effect for the full range of ($type_\omega$)-values. The receiver operating curve (ROC) provides an appropriate non-parametric goodness of classification test to determine whether $type_\omega$ is a good predictor for retention decisions. The proximity of the curve to the top-left corner of the coordinate field measures how well the classification variable categorizes observations into binary groups. In our case, the ROC and aligned tests can indicate which treatment does better at categorizing representatives into groups of retained and not retained when using type as a classification device.

Figure D.1 shows the ROCs associated with the baseline and the identity treatments. The area under the ROC in the baseline treatment is significantly larger than in either in-group or out-group pairings in the identity treatment. The average treatment effect amounts to .12 (or 12%) of the feasible size of the area under the ROC when contrasting baseline and in-group matches and .10 (or 10%) of the area when comparing baseline and out-group matches (90% bootstrapped confidence intervals are $(.02, .23)$ and $(.00, .23)$, and p-values are estimated at .00 and .01, respectively). There is no difference in areas for in-group vs. out-group matches (p-value= .77).[2]

Figure D.1: ROC of retention decision over $type_\omega$.

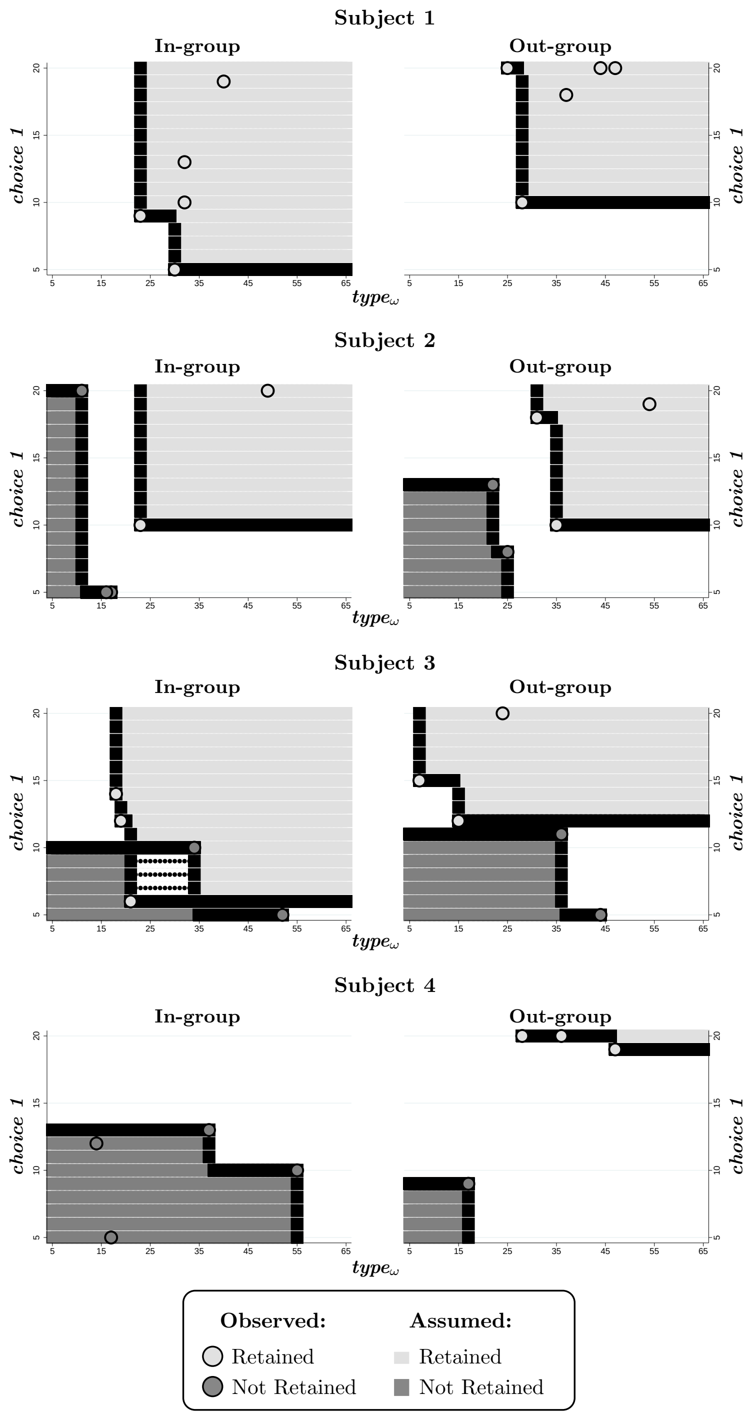


Similar estimates for the predictive power of the interaction $type_\omega \times$ *choice 1* in explaining retention choices further demonstrates that baseline and in-group differ to this respect with more predictive power in the baseline ($ATE = .08(-.03, .21)), \ p = .05$) but no treatment effect is visible associated with out-group matches ($ATE = .03(-.07, .15), \ p = .41$) where substitution of type with *choice 1* occurs as frequent as in the baseline.

[2]Confidence intervals are bootstrapped adjusted for clustering at the subject-level and p-values indicate the probability that the χ^2-distributed test-statistic exceeds the critical value; here and in all other comparisons of areas under the ROC-curve, the test-statistic is based on De Long, De Long, and Clarke-Pearson (1988).

E Examples and robustness of the group bias measure

Figure E.1: Examples of four subjects illustrating the construction of the group bias measure: observed and inferred ($type_\omega$, *choice 1*)-pairs are shown by identity match.



E.1 Examples

Figure E.1 shows retention and on-retention sets of four subjects in the role of a voter from our data. (*type*$_\omega$, *choice 1*)-pairs for the actually observed decisions are drawn as circles and colored in light gray when a corresponding representative would be retained and in dark gray if she would not be retained. The light gray area is the (induced) retention set – pairs for which monotone retention choices consistent with the actually observed choices imply that representatives would be kept in office – and the dark gray area is the similarly determined non-retention set.

Subject 1 in the Figure E.1 retains all representatives she is matched with, independent of group membership; her retention sets are, nonetheless, bounded below away from the lower bounds on (type, *choice 1*)-space. Subject 2 displays clearly separated retention and non-retention sets; the light gray and dark gray areas are delineated apart from each other. Subject 3 is not fully consistent in her retention decisions with respect to the in-group matches, as indicated by the dark dots; quantifying that overlap and the areas of the retention and non-retention sets enables controlled comparison of retention behavior in in- and out-group matches. Finally, Subject 4 does not retain a single representative when matched in-group, but, given the structure of pairs this subject actually faced, her non-retention set is bounded above away from the upper bounds on the (type, *choice 1*) space.

E.2 Robustness of bias measure

First, it is possible that the structure we identify in retention choices is related to the treatment of experiencing an in- or out-group match but is an artifact of the particular (*type*$_\omega$, *choice 1*)-pairs a voter encounters. If that is, indeed, the case, retention choices in the identity treatment should not differ from those observed in the baseline. Computing D_i based on the average retention choice at a given (*type*$_\omega$, *choice 1*)-pair in the baseline instead of on the observed retention choices at that pair in the identity treatment yields a systematically smaller degree of bias. Greater variation in D_i across subjects in the identity treatment indicates that the observed structure is due to the effect of sharing vs. not sharing an identity and not to the retention choices based solely on the competence and effort of the associated representative. D_i computed based on the actual observations of retention choices in the identity treatment and D_i calculated using retention choices as inferred from behavior in the baseline differ systematically in distribution with $p = .05$ in the appropriate Wilcoxon-test; this result is robust to the usual refinements.[3]

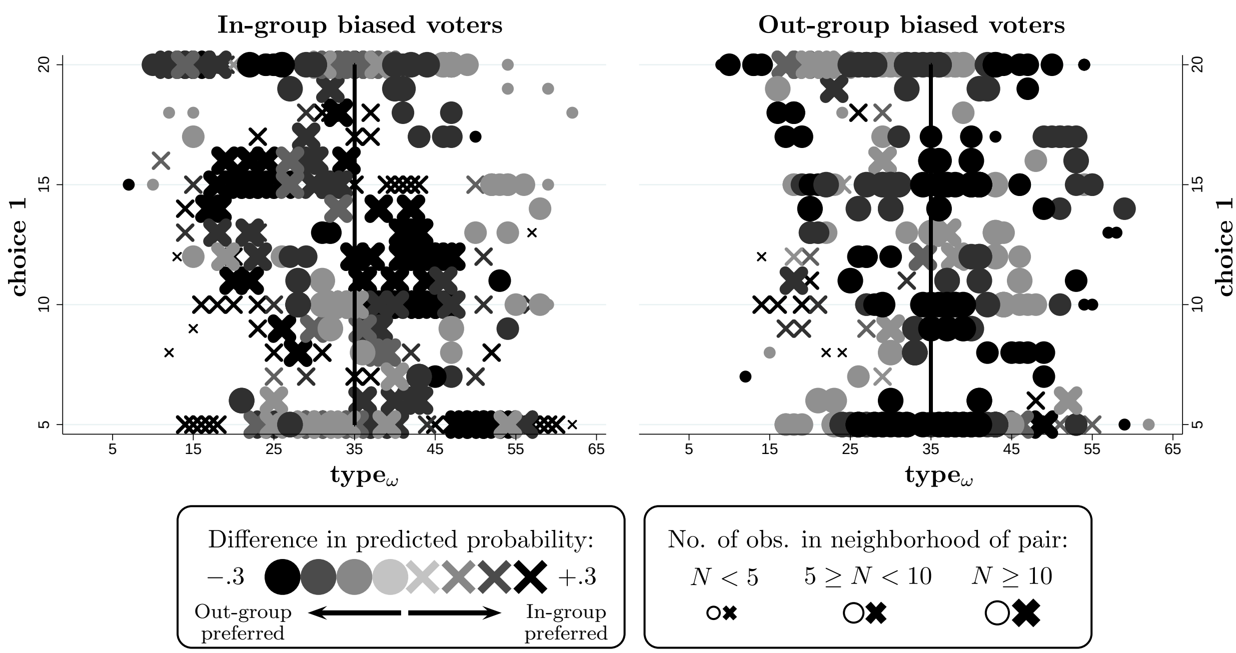
Second, we consider the possibility that we may be reading structured behavior into behavior that might be, in fact, purely random. To do this, we generate our measure of bias for voting profiles based on 10,000 randomly drawn values of retention choices and extract observations on overlap of the sets of retained and not retained pairs; every subject displaying no overlap shows monotonic retention behavior. If our classification is capturing underlying systematic behavioral differences, then random retention decisions should produce significantly higher levels of non-monotonicity for each subject than observed in our data. Our 10,000 draws generate normally distributed random variables with a mean of .46 and a standard deviation of .05 in in-group matches and a mean of .49 and a standard deviation of .05 in out-group matches representing the proportion of subjects behaving monotonically. The actually observed values of .70 and .73 exceed the critical value for a

[3]Predicted probabilities of retention choices in the baseline are estimated from a pooled probit regression of retention choices on type + noise, *choice 1*, and *type*$_\omega \times$ *choice 1* from 460 subject-round observations. Model fit criteria suggest that individual- and temporal effects are of less concern in the baseline suggesting only small bias in the resulting parameter estimates. To compute D_i, retention choices in the identity treatment at a given (*type*$_\omega$, *choice 1*)-pair and in- or out-group match are replaced with *retained* when predicted probabilities from the baseline at that pair are estimated to be larger than .5 and *not retained* when they are estimated to be smaller than .5.

one-sided test at the 99%-level by far ($p = .00$ in both cases); these observations give us confidence that our measure of bias captures the systematic tendencies that are, in fact, present in the subject behavior in lab sample. The actually observed monotonicity is systematically higher than what we would see if retention behavior were purely random.

Third, we look at the difference in rate of retention (retention choices) for voters in in-group vs out-group matches (see Figure E.2). The Figure makes clear that voters with in-group bias do, indeed, retain representatives in in-group matches more often than the comparable representatives in out-group matches; predicted probabilities for such representatives are higher for most of the pairs as shown by the agglomeration of cross marks in the left panel. Similarly, out-group biased voters re-elect representatives in out-group matches more often than they do comparable representatives in in-group matches, as evinced by circle marks outnumbering cross marks in the right panel. The conjunction of these findings shows that our classification of subjects as voters with in- and with out-group biases, respectively, does well in capturing average tendencies in voting behavior.

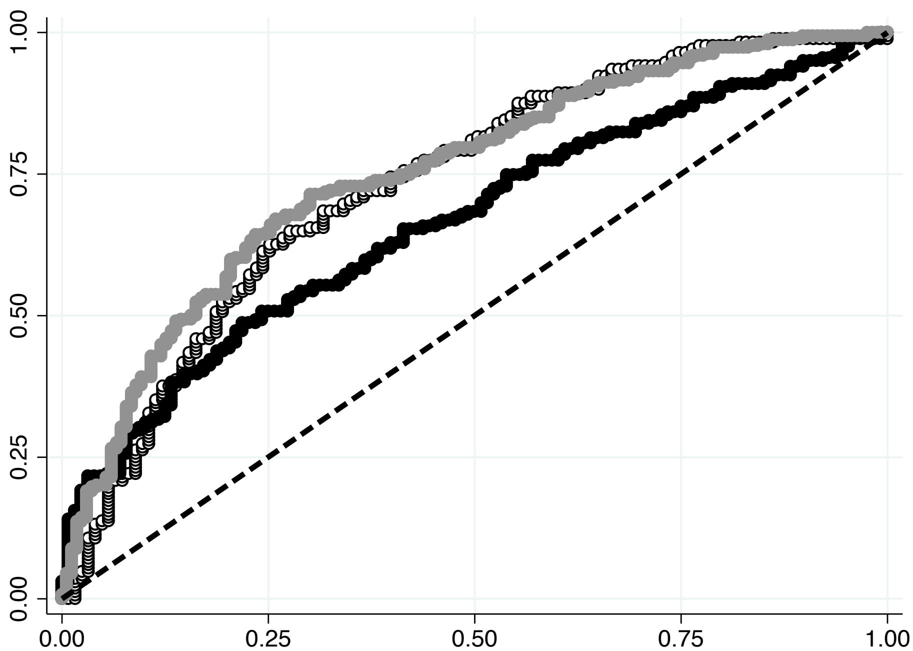
Figure E.2: Difference in rate of retention in in- vs out-group matches for smoothed ($type_\omega$, *choice 1*)-pairs; every colored circle or cross represents the average difference in the means of retention choices for all observations at that pair and the surrounding values within the interval of *choice 1* ± 1 and $type_\omega \pm 4$. A smoothed comparison is necessary since only few observations exist at each pair, which sometimes hinders the computation of a difference between in- and out-group matches.



E.3 Robustness of findings on manifestations of bias

We begin with a non-parametric test of how well the difference in kinds of bias tracks the explanatory power of, *choice 1* and $type_\omega$. Recall that we observed confounding effects of type on *choice 1* (and vice versa) in out-group matches but not in-group matches (see Section 5), leading us to expect those factors to explain retention decisions only when type and *choice 1* interact. Indeed we do not find a systematic difference in areas under the ROCs when type or *choice 1* are the predicting variables, but we do when the relevant predictor is the interaction. Figure D.3 shows the ROCs for the baseline, voters with in-group bias in in-group matches, and voters with out-group bias in out-group matches; this also makes clear that the observed patters in in-group matches are driven by in-group biased voters and those in out-group matches by out-group biased voters.

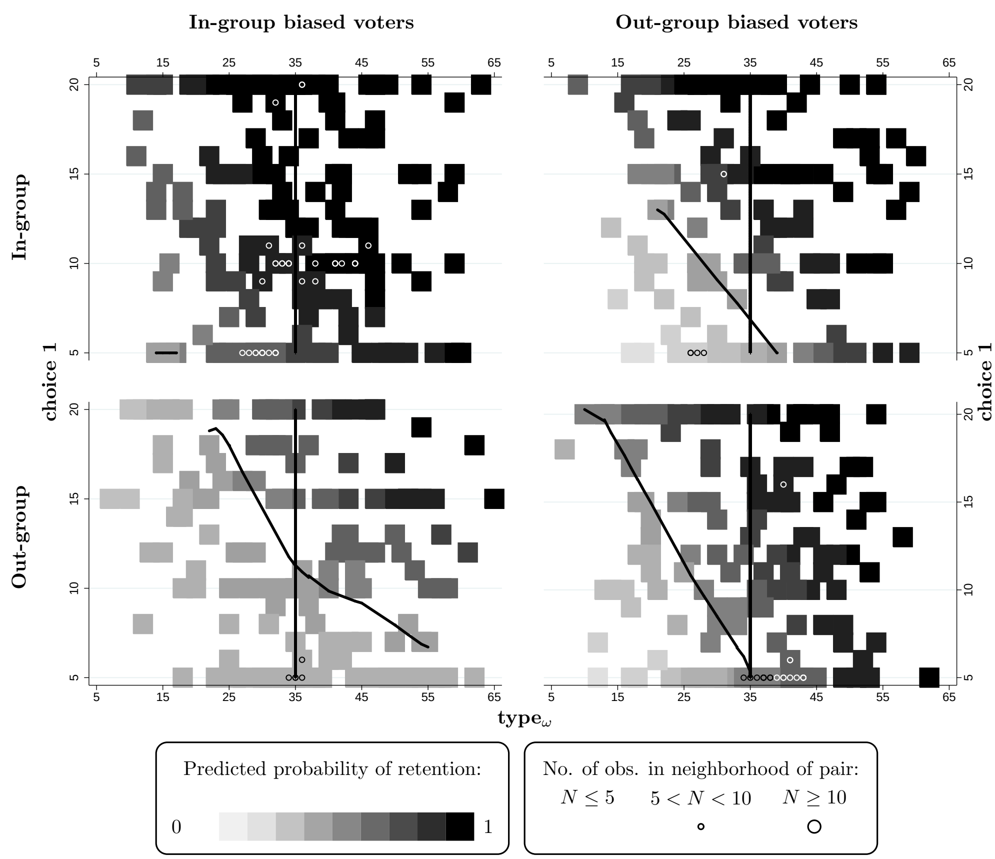
Figure D.3: ROC of retention choices over type + noise × *choice 1*.



The difference in area under the ROC-curve associated with out-group biased voters and the one associated with voters with in-group bias amounts to .12 (.01, .23) or 12% of the feasible size of areas ($p = .05$).

This analysis is broadly consistent with the evidence from the probit regression of retention decisions. Figure D.4 shows levels of *choice 1* and type above which out-group biased voters are willing to retain representatives in out-group matches. The predicted probabilities for those representatives show a clear *choice 1* and type-dependency in predictions of substantially higher probabilities of retention at the high end of the range of both variables than at the lower end. The solid line fits a lowess-curve through the ($type_\omega$, *choice 1*)-pairs for predicted probabilities estimated between .45 and .55 and gives a monotonic and linearly decreasing separation of retention from non-retention; retention decisions in this panel are contingent on representatives' characteristics everywhere – unlike in any of the other panels. In particular, the difference in average retention rate in the top-left quadrant (high $type_\omega$, high *choice 1*) and average proportion retained in the bottom right quadrant (low type, low *choice 1*) amounts to .57 (.73,.40) when out-group biased voters are matched with out-group representatives; the same quantity for voters with in-group bias when in in-group matches is only .34 (.51,.16). The *choice 1* and $type_\omega$-dependency is generally weaker for voters with in-group bias and weaker still when those voters are matched with a representative in an in-group match (top right panel). Voters with in-group bias retain representatives in in-group matches most of the time and for most of the type- and *choice 1*-range indicated by the wide-spread dark colored markers.

Figure E.3: Predicted probability of retention for smoothed (*choice 1*, $type_\omega$)-pairs for in-group biased and out-group biased voters; every colored circle or cross represents the mean of predicted probabilities for all observations with *choice 1* ± 1 and type ± 4. Estimates are based on a probit regression of retention choices on type, *choice 1*, a dummy for in-group match, a dummy for in-group bias, the interactions of those four variables, round, and a dummy for low intensity of bias (D_i is smaller than 10% of the ($type_\omega$, *choice 1*)-space). The black solid line is the lowess curve fitted for the (*choice 1*, type)-pairs with predicted probabilities of .45 to .55.



Excluding subjects with low levels of bias (less than 10% of the ($type_\omega$, *choice 1*)-space) has no significant effect on the statistics presented in Section 6 or their interpretations. Comparing areas under ROC in Figure E.3 yields a difference of .12 (-.03,.29) when considering "high"-bias subjects only. Average retention rates in (high $type_\omega$, high *choice 1*)-quadrant and (low $type_\omega$, low *choice 1*)-quadrant for out-group biased voters in out-group matches vs. voters with in-group bias in in-group matches are still quite distinct: .52 (.28,.76) for out-group biased voters and .26 (.08,.44) for voters with in-group bias. For voters with in-group bias acting as representatives, *choice 2* in in- and out-group matches remains indistinguishable ($p = .54$), and there is still no evidence that in-group bias classification is driven by the history of experiencing favorable retention choice as low type in in-group matches (D_i does not increase, given such an experience ($p = .80$)). Finally, out-group biased voters in the role of a representative still have lower *choice 2* than voters with in-group bias in the role of a representative (6.98 vs. 8.90, $p = .00$ for difference in means and $p = .02$ for difference in distribution); same patterns emerge when we split the sample in low and high types.

F Robustness of findings: motivational rationales for behavioral bias

"out-group bias" could stem from what may, in fact, be a version of (potential) in-group favoritism manifesting in higher expectations for fellow group members. When such expectations are disappointed, subjects could react by punishing in-group members more than out-group members. We consider two possible sources of such disappointment: (1) low effort exerted by low type representatives (akin to the findings in Mcleish/Oxoby (2007) and (2) negative epistemic experience in the quiz portion of the identity treatment, and show that neither of them plausibly accounts for the observed behavioral bias. With respect to (1), we find that the difference in retention rate between in- and out-group representatives is the same (.20, $p = .00$) whether "out-group biased" voters observed high or low *choice 1*. Regarding (2), we find that subjects whose "correct" guess of the artist was overridden by an incorrect group choice are no more likely to develop a more negative attitude towards their group than the subjects whose guesses were not so overridden. Comparing the extent of bias (D_i) between those two groups reveals a difference of only 4% of the (choice 1,type$_\omega$)- space ($p = .34$ in the difference-in-means test).

G Robustness of bias measure to role-switch

The basic patterns of subjects' retention decisions in both halves of the sessions also remains the same: in each half, (1) voters with in-group bias are systematically more willing to retain representatives in in- rather than in out-group matches (.70 to .48, $p = .00$ in the first half and .69 to .55, $p = .10$ in the second half); (2) bias-resisting voters systematically show the opposite preference, for out- over in-group matches (.64 to .45, $p = .00$ in the first half and .70 to .49, $p = .00$ in the second half).

H Experimental design

H.1 Basics

Experimental sessions were carried out in an experimental social science lab at a large American university. Participants signed up via a web-based recruitment system that draws on a large, pre-existing pool of potential subjects. Subjects were not recruited from the authors's courses. The recruitment system contains a filter that blocked subjects from participating in more than one session of a given experiment. The subject pool consists almost entirely of undergraduates from around the university.

Subjects interacted anonymously via networked computers. The experiments were programmed and conducted with the software z-Tree (**?**). After giving informed consent according to standard human subjects protocols, subjects received written instructions that were subsequently read aloud in order to promote understanding and induce common knowledge of the experimental protocol. Following the reading of the instructions, subjects engaged in a practice run of the experiment. The paid ("official") session commenced following the practice rounds. No deception was employed at any point in the experiment, in accordance with the long-standing norms of the lab in which the experiment was carried out.

H.2 Instructions

Instructions: Part 1

Introduction

During the following experiment, we require your complete undivided attention and ask that you follow instructions carefully. Please turn off your cell phones and, for the duration of the experiment, do not take actions that could distract you or other participants, including opening other applications on your computer, reading books, newspapers, and doing homework.

This is an experiment on group decision-making. In this experiment you will make a series of choices. At the end of the experiment, you will be paid depending on the specific choices that you made during the experiment and the choices made by other participants. If you follow the instructions and make appropriate decisions, you may make an appreciable amount of money.

This experiment has 2 parts. Your total earnings will be the sum of your payoffs in each part plus the show-up fee. We will start with a brief instruction period, followed by Part 1 of the experiment. We will then pause to receive instructions for Part 2.

If you have questions during the instruction period, please raise your hand after I have completed reading the instructions and your questions will be answered out loud so everyone can hear. Please restrict these questions to clarifications about the instructions only. If you have any questions after the paid session of the experiment has begun, raise your hand, and an experimenter will come and assist you.

Part 1

In Part 1 of the experiment, everyone will be shown 5 pairs of paintings by two artists, Paul Klee and Wassily Kandinsky. You will be asked to choose which painting in each pair you prefer. You will then be classified as “a Klee” or “a Kandinsky”, based on which artist you prefer most and informed privately about that classification. Everyone’s identity as a Klee or a Kandinsky will stay fixed for the rest of the experiment, that is, in both Part 1 and Part 2 of the experiment.

You will then be asked to identify the painter (Klee or Kandinsky) of three other paintings. For each of those paintings, you will be asked to submit two answers your initial guess and your final answer. After submitting your initial guess, you will have an opportunity to see the initial guesses of your fellow “Klees” if you are a Klee or “Kandinskys”if you are a Kandinsky, and then, you would like, change your answer when you are submitting your final answer.

If you are a Klee and a half or more of Klees give a correct final answer then regardless of whether your own final answer was correct or incorrect, you and each of your fellow Klees will receive 100 tokens. Similarly, if you are a Kandinsky and a half or more of Kandinskys give a correct final answer then regardless of your own final answer, each of the Kandinskys, including you, will receive 100 tokens. However, if you are a Klee and more than a half of Klees give an incorrect final answer, then, regardless of whether your own final answer was correct or incorrect, you and each of the Klees will receive 0 tokens. And similarly, if you are a Kandinsky and the final answers from more than a half of Kandinskys were incorrect, then you and each of your fellow Kandinskys will receive 0 tokens regardless of what answer he or a she gave personally.

At the end of the experiment, the sum of payoffs you will have received for each part of the experiment will be converted into dollars at the rate of

100 tokens = $1

We will now run Part 1 of the experiment. After Part 1 has finished, we will give you instructions for Part 2.

Instructions: Part 2

We will now move on to Part 2 of the experiment. This part of the experiment will have a short practice session followed by the paid session. The paid session will consist of X different rounds. At the beginning of the first round, you will be randomly assigned a role as either a representative or a voter. You will keep that role for the first half of the session that is, the first X/2 rounds of the experiment. In the second half of the session, your role will be reversed that is, if you were a representative in the first half, then you will be a voter in the second half, and vice versa. Throughout this part of the experiment, you will retain your identity as a Klee or a Kandinsky, as assigned in Part 1 of the experiment.

Matched group

In each round, all participants in the experiment will be randomly matched into groups of two participants, each consisting of one representative and one voter. Because every participant will be randomly re-matched with other participants into a different group in each round of the experiment, the composition of groups will vary from one round to the next. All of participants interactions will take place anonymously through a computer terminal, so your true personal identity will never be revealed to others and you will not know who is in your pair in any round of the experiment. However, every time you are matched with another participant (a voter or a representative), you will be told whether that participant is a Klee or a Kandinsky.

In each round, a member of the group who takes on the role of the representative in that round will be randomly assigned a number, which we will refer to as that representatives true number. That number will be shown only to that participant and never to other participants in the experiment. You should know, however, that any given representatives true number is an integer between 20 and 50 and is chosen by the computer for assigning to the representative so that any integer between 20 and 50 is equally likely to be picked. In each round, a representative is assigned a new true number, which stays fixed until the round ends, at which point a new number is assigned. As with all other players, her identity as a Klee or a Kandinsky does not change from one round to the next.

Choices within each round of the experiment

At the beginning of each round, in each group, the member who is designated as a representative will make what we will call group choice 1. That choice will consist of an integer number from 5 to 20. The group choice will have what we will refer to as the group choice 1 consequence, which will depend on three different things: the representatives true number, group choice 1, and random bump 1, which we will describe in further detail in a moment. The group choice 1 consequence will be computed exactly as

group choice 1 consequence = the representatives true number
+ group choice 1
+ random bump 1

The highest possible value of random bump 1 will be 15 – that is, given the group choice 1 made by a representative with a particular true number, such a bump will increase the group choice 1 consequence by 15. The lowest possible value of random bump 1 will be -15; thus, given the group choice 1 made by a representative with a particular true number, such a bump will decrease the group choice 1 consequence by 15. In fact, however, any bump between -15 and 15 will be possible and equally likely to occur.

For example, suppose that a given representatives true number is 32, he or she chooses a value of group choice 1 equal to 12, and a random bump of 8 is realized. Then the group choice 1 consequence is 12+32+8 = 52.

Once the representative makes the group choice 1, both that choice and its consequence (group choice 1 consequence) will be made available to the voter matched with that representative. However, neither the representative when he or she is making her choice nor the voter when he or she is presented with the information about the representatives choice and its consequence, will be told the value of the realized random bump 1.

Once the voter in the matched pair is shown the information about group choice 1 and its consequence, he or she will determine whether to re-elect the representative or to vote him or her out. If the voter chooses to re-elect the representative, then the representative makes another group choice, again consisting of an integer number between 5 and 20. This second group choice we will refer to it as group choice 2 – will be accompanied by its own random bump 2, which will be determined exactly the same way as random bump 1, but because it is a random value, need not be equal to random bump 1.

The consequence of group choice 2 will be group choice 2 consequence, which will be determined in the same way as was group choice 1 consequence:

group choice 2 consequence = the representatives true number
+ group choice 2
+ random bump 2

Note that, unlike the newly determined values of group choice 2 and random bump 2, the representatives true number here is the same number after the elections as it was before the elections. (As explained above, that number stays fixed for the duration of the given round; each representative is assigned a new true number at the beginning of the next round.)

As before, the group choice made by the representative and its consequence to the voter matched with that representative will be shown to both the voter and the representative, while neither will be shown the value of the realized random bump 1.

If the voter chooses to vote the representative out, then there is no second group choice and the round ends immediately following the voters decision.

This completes the description of a single round of play. I will now describe how your payoff for the experiment will be calculated.

Payoffs

How much money you receive for participating in this experiment will depend on the choice that you and the participants you are matched with make in each round of the experiment. For convenience, your payoff for each round of Part 2 of the experiment will be initially calculated in tokens and reported to you at the end of each round. At the end of the session, the sum of payoffs you will have received for each round will be converted into dollars at the rate of

100 tokens = $1

You will receive that amount plus the sum of your payoffs from Part 1of the experiment plus the show-up fee of **$7**.

For each round in which you are participating in the role of a representative, you will receive a payoff that will depend on the group choice(s) you make and on whether the voter you are matched with re-elects you after you make group choice 1. In particular, if you are re-elected in a given round, you will receive a payoff for that round equal to

160 - group choice 1 - group choice 2.

If you are not re-elected after you made group choice 1, you will receive a payoff for that round equal to

80 - group choice 1.

For example, if, in a given round, your group choice 1 was 15, and you were re-elected, and then made a group choice 2 equal to 20, your payoff for that round will be 160 - 15 - 20 = 125 tokens. If, however, your group choice 1 was 15 and then you were voted out, your payoff for that round will be 80 - 15 = 65 tokens.

For each round in which you are participating in the role of a voter, you will receive a payoff that will, similarly, depend on both your choices and the choices by your representative. In particular, if you chose to re-elect your representative in a given round, then your payoff for that round will equal to

group choice 1 consequence + group choice 2 consequence.

However, if you chose to not re-elect the representative after his or her group choice 1, then instead of the additional payoff for the group choice 2 consequence, you will receive the number of tokens equal to

40 + random bump*

where the value of random bump* will be determined exactly the same way as the values of random bump 1 and random bump 2 described earlier. That is, its highest possible value will be 15 and lowest possible value 15; and any bump between 15 and 15 will be possible and equally likely to occur. The value of random bump* will not depend on the value of random bump 1 or on what the value of random bump 2 would have been had you chosen to re-elect your representative after group choice 1. It will be determined anew if and after you make a decision not to re-elect the representative in that round.

Thus, if you chose to not re-elect the representative after his or her group choice 1, you receive in that round an amount equal to

group choice 1 consequence + 40 + random bump*.

For example, if in a given round, the representative's group choice 1 consequence was 60 and you chose to re-elect him, and then the representative's group choice 2 consequence was 70, then your payoff in that round will be 60 + 70 = 130 tokens. If, however, you chose to not re-elect the representative and the value of random bump* was -5, then your payoff in that round will be 60 + 40 - 5 = 95 tokens.

Again, your total payoff for the experiment will be the sum of your payoffs for each round, that is, for each round in which you participated as a representative and for each round in which you participated as a voter plus the sum of payoffs your obtained in Part 1of the experiment plus your show-up fee.

We will now do a two-round practice session. In one of these rounds, you will participate as a representative; in the other, as a voter. Remember, you will not be paid for these practice rounds. You will receive payment only for the paid session, which will begin after the practice rounds.

If you have any questions, please ask them now.