

Who sees what as fair?

Mapping individual differences in fairness values

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Abstract

When scarce resources are allocated, different criteria may be considered: impartial or impersonal allocation, the needs of specific individuals as in the case of charity, or the relational ties between individuals as in the case of reciprocity. The present research investigated how different people's perspectives on fairness relate to individual differences in interpersonal orientations. Participants evaluated allocators on their fairness; allocators operated based on (a) impartiality (b) charity, and (c) reciprocity. Participants also completed measures of dispositional empathy and Machiavellianism. Across two studies, Machiavellianism correlated with higher ratings of reciprocity as fair, and empathic concern and perspective-taking correlated with higher ratings of charity as fair. We discuss these findings in relation to recent neuroscientific research on empathy, fairness, and the moral judgment of resource allocators.

Keywords: fairness, reciprocity, charity, impartiality, empathy, Machiavellianism

Introduction

“I’d hope Tom [...the leading transplant surgeon at Presbyterian-University Hospital] would take care of my daughter and vice versa” ... “That’s a natural inclination.”

– Dr. Harvey Bahnson, chief of surgery, Presbyterian-University Hospital, Pittsburgh, Pennsylvania, in response to allegations that surgeons at Presby bypassed organ transplant policy in order to prioritize organs to other doctors and family members, as well as wealthy foreign donors in the early 1980’s (May 12, 1985, *The Pittsburgh Press*, “Favoritism shrouds Presby transplants”, pg. 1)

Principles that guide scarce resource allocation are often in conflict: *reciprocity* – returning favors, *charity* – helping those in need, and *impartiality* – remaining blind to personal attributes (Rasinski, 1987; Wolff, 2007). These competing principles are often reflected in dilemmas people face when aiming for fairness and justice across public and private situations. “*Should we allocate to those we owe?* (reciprocity); “*Should we allocate to those most in need?*” (charity); “*Should we allocate the same amount to everyone, or use an impersonal procedure, like a lottery?*” (impartiality). Reciprocity and charity involve personal considerations – the attributes of specific individuals – and as such can be thought of as “person-based” forms of fairness (Deutsch, 1975; Tyler, 1994). By contrast, impartial allocations rely on standardized impersonal criteria; impartiality constitutes “person-blind” fairness.

The chief of surgery at Presbyterian-University Hospital deemed it “appropriate” to follow social norms of reciprocity in surgical practice, yet conceded that his view might not be “universally accepted” (Schneider & Flaherty, 1985, pg.1). In prior work, we have found that people consider reciprocity-based allocations to be less fair than charity-based allocations, and

substantially less fair than impartial allocations (Niemi & Young, submitted). The current research examines how individual differences in interpersonal orientations map onto evaluations of allocators operating based on reciprocity, charity and impartiality, as fair.

Prior research has revealed greater variability in the endorsement of moral values that “build and bind”, in other words, that serve to protect close social ties – including loyalty to the ingroup and deference to (or respect for) authority – compared to the endorsement of moral values that prescribe impartial extension of care and concern across relational boundaries (e.g., Graham et al., 2011). Notably, our past work has shown that greater moral valuation of deference to authority and reduced moral valuation of universal caring reliably predicts a particular orientation toward interpersonal relations involving self-interested manipulation: Machiavellianism (Niemi & Young, 2013). These findings align with other recent work showing that decreased universal caring and impartiality values are linked to increased willingness to inflict harm on another without any apparent direct benefit (Zeigler-Hill, Noser, Roof, Vonk, Marcus, 2015), and heightened antagonism and disinhibition (Noser et al., 2015). Given these findings, the authors suggested: “individuals who show these tendencies may be less likely to condemn acts that cause pain or admire those acts that alleviate or prevent harm” (Noser et al., 2015, p.33). Indeed, a Machiavellian moral worldview may involve greater endorsement of harm, alongside an interest in protecting close personal relationships, given that Machiavellian individuals exploit close social relationships to get ahead (Dahling, Whitaker & Levy, 2009; Niemi & Young, 2013; Wilson, Near & Miller, 1996). Thus, in the present work, we expected more Machiavellian individuals to be especially likely to endorse *reciprocity* as fair given that it is the “person-based” form of fairness aimed at protecting close social ties and conferring benefits to the self.

The research demonstrating connections between “dark” traits like Machiavellianism, antagonism, and spitefulness and reduced moral condemnation of harm (Niemi & Young, 2013; Noser et al., 2015; Zeigler-Hill et al., 2015) suggests that the presence of moral valuation of compassion extending *beyond* close personal ties may be crucial to normative moral behavior. Indeed, even the chief of surgery was careful to remark that surgeons at Presbyterian-University Hospital only ever bypassed policy for “compassionate” reasons, whatever those might have been (Schneider & Flaherty, 1985, pg.1; Childress, 1987). Apparently, despite his own view of *reciprocity* as “natural” and “appropriate,” the chief of surgery was unwilling to state that surgeons might have been motivated by anything other than compassion when overriding standard hospital policy.

The chief’s careful highlighting of the surgeons’ compassionate motives during the investigation aligns with research in psychology connecting empathy, fairness, and prosociality (e.g., Blader & Rothman, 2013; Eisenberg et al., 1989; Singer et al., 2006; 2007). People who report more empathic concern for others are more willing to help them (Eisenberg et al., 1989); other work indicates that people must not only feel empathy for the target but also construe what they are doing as fair (Blader & Rothman, 2013). Singer (2006), in turn, has shown that neural responses indicative of empathy (e.g., activation in anterior insula; anterior cingulate cortex) were more likely when men observed a cue indicating that a fair versus an unfair player in an economic game received an electric shock. Charity, “person-based” fairness based on identifying the neediest recipient(s), ostensibly requires empathic processing. We expected people higher in dispositional empathy (and lower in Machiavellianism, likely co-occurring tendencies) to be more likely to endorse *charity* as fair.

In the current research, using a series of vignettes about everyday situations, we examined the relationship between participants’ ratings of (1) the fairness of allocators

operating based on (a) reciprocity, (b) impartiality, and (c) charity; (2) Machiavellianism; (3) dispositional empathy. We measured Machiavellianism with the Machiavellian Personality Scale (MPS; Dahling et al., 2009) and dispositional empathy with the Interpersonal Reactivity Index (IRI; Davis, 1980).

Study 1

Study 1: Method

Participants were 96 individuals on Amazon Mechanical Turk ($M(SD)_{age}=37.55(12.90)$; 54 female, 43 male, 1 chose other) who read 24 vignettes drawn from 96 total stories (see Supplementary Material for full text of vignettes; and Niemi & Young, submitted). The vignettes involving protagonists who allocated resources in range of contexts based on (i) reciprocity, (ii) impartiality, (iii) charity, or (iv) unspecified criteria (6 per condition; in one of eight counterbalanced orders). After each vignette¹, participants were asked: “Did [protagonist] act fairly?” on a scale from 1 = “Not At All” to 7 = “Very Much”. Participants then completed measures of Machiavellianism (MPS: Machiavellian Personality Scale; Dahling et al., 2009), dispositional empathy (IRI: Interpersonal Reactivity Index; Davis, 1980) in randomized order.

Machiavellianism. The Machiavellianism Personality Scale (MPS; Dahling et al., 2009) contains four subscales: (1) amorality (endorsement of lying, cheating, e.g., “I believe that lying is necessary to maintain a competitive advantage over others”), (2) control (e.g., “I enjoy having control over other people”), (3) status (e.g., “I want to be rich and powerful someday”), and (4) distrust (e.g., “Other people are always planning ways to take advantage of the situation at my

¹ Two participants were excluded for answering “1=Strongly Disagree” or “2=Disagree” in response to the attention check question embedded in the Machiavellian scale: “I dislike forgetting to bring money when I go out to buy something.” We also administered items assessing how much participants judged the action of the protagonist to be morally blameworthy or praiseworthy, liked the protagonist, wanted to be friends with the protagonist, thought they’d get along with the protagonist, and would make the same decision as the protagonist, not discussed here. Additionally, we administered the Autism Quotient and the Social Values Orientation task (Van Lange, Otten, De Bruin, Joireman, 1997; see Supplementary Material “Allocation Task”).

expense”). An overall Machiavellianism score for each participant was created by averaging subscale scores.

Dispositional empathy. The Interpersonal Reactivity Index (IRI; Davis, 1980, 1983) contains four subscales related to dispositional empathy, two of which are relevant to perceptions of fairness: (1) empathic concern (e.g., “I often have tender, concerned feelings for people less fortunate than me.”); and (2) perspective-taking (e.g., “I try to look at everybody's side of a disagreement before I make a decision.”). The dimensions of empathic concern and perspective-taking have been linked to higher levels of sensitivity to and awareness of other people without particular concern about implications for the self, and lower endorsement of interpersonal attributes including dictatorialness and arrogance (Davis, 1983). Men and women higher in empathic concern report being more emotionally sensitive – they disagree more with statements like “never cries” and “feelings not easily hurt”, compared to men and women lower in this dimension (Davis, 1983).

Study 1: Results

First, replicating our prior work (Niemi & Young, submitted), participants rated the allocators in the *impartiality* vignettes to be the most fair, significantly more than allocators in the *charity* and *reciprocity* vignettes, both of which significantly differed from each other ($F(2, 190)=130.74, p<.001$; see means in Figure 1, error bars indicate standard deviation). As in prior work, the allocators in the neutral vignettes (the control condition in which allocation criteria were unspecified) received fairly high ratings as fair, (e.g., in Study 1: $M= 5.37, SD=.92$) possibly because people inferred that allocators used standardized (impartial) procedures, which they rated as fair.

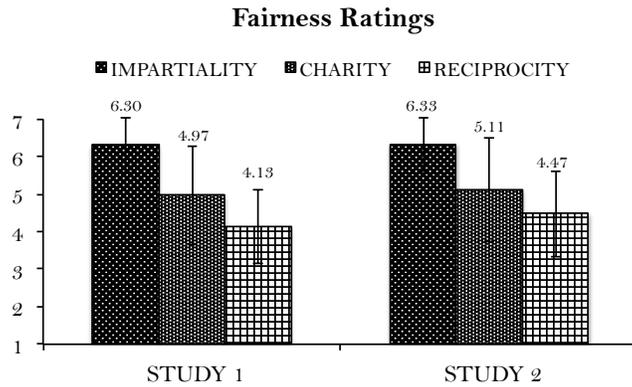


Figure 1. Fairness ratings for allocators in the impartiality, charity, reciprocity vignettes.

Correlations among fairness ratings for *impartiality*, *reciprocity*, and *charity* and Machiavellianism (Mach), the IRI dimensions empathic concern (EC) and perspective-taking (PT), and the allocation task scores (prosocial, individualistic, and competitive choices) are reported in Table 1 (* $p < .05$, ** $p < .01$, *** $p < .001$).

Table 1. Zero-order correlations among fairness ratings for *impartiality*, *reciprocity*, and *charity* and Machiavellianism, empathic concern and perspective-taking in Studies 1-2.

	Recip	Impart	Charity	Mach	EC	PT
Recip		.152	.259*	.281**	-.084	-.209*
Impart	.152		.238***	.185**	-.004	-.094
Charity	.259*	.267**		.082	.076	.081
Mach	.281**	.082	-.019		.144*	.072
EC	-.084	.076	.303**	-.496***		.574***
PT	-.209*	.081	.234*	-.409***	.574***	
	-.094	.072	.174**	-.258***	.517***	.517***

Note. **Mach** = Machiavellianism Scale Score. Fairness (**Recip** = Reciprocity; **Impart** = Impartiality). **EC** = Empathic Concern; **PT** = Perspective Taking.
 *** $p < .001$, ** $p < .01$, $p < .05$. Top line: Study 1; bottom line: Study 2.

As shown in Table 1 (zero-order correlations uncorrected for multiple comparisons, top row: Study 1), first, unsurprisingly, Machiavellianism was strongly negatively correlated with empathic concern ($r = -.496, p < .001$) and perspective-taking ($r = -.409, p < .001$). Second, and crucial to the present research, the more that participants rated reciprocity as fair, the higher they scored in Machiavellianism ($r = .281, p < .01$). By contrast, the more that participants rated charity as fair, the higher they scored in both empathic concern ($r = .303, p < .01$) and perspective-taking ($r = .234, p < .05$). A negative relationship was also observed between perspective-taking and ratings of reciprocity as fair ($r = -.209, p < .05$). Partial correlational analysis revealed that the relationship between perspective-taking and ratings of reciprocity as fair was reduced to non-significant when controlling for Machiavellianism; Machiavellianism remained correlated with rating reciprocity as fair when controlling for perspective-taking ($r = .219, p < .03$).

We also explored intercorrelations among fairness ratings. Considering reciprocity to be fair was linked with considering charity to be fair ($r = .259, p < .05$), and considering charity to be fair was linked with considering impartiality to be fair ($r = .267, p < .01$), but reciprocity and impartiality did not correlate with each other.

Study 2: Method

Study 2 provides a direct replication of Study 1. We tested 251 participants on Amazon Mechanical Turk, with a final sample of 233 participants² ($M(SD)$ age = 37.58 (11.94); 144 female, 87 male, 2 chose other). We relied on a larger sample to determine whether order of

² Exclusions for Studies 2-3 were based on participants' failure on either of two catch questions embedded in the MPS (answering "1" or "2" to "Humans need food and water in order to survive," or "4" or "5" to "I believe the human race has only existed for about 100 years total"), or completion of the MPS in under 30 seconds.

tasks (i.e., completing fairness ratings before the individual differences measures) affected results; it did not.

Study 2: Results

First, as in Study 1 and prior work (Niemi & Young, submitted), participants rated the allocators in the *impartiality* vignettes to be the most fair, significantly more so than the allocators in the *charity* and *reciprocity* vignettes, which also significantly differed from each other ($F(2, 464)=199.61, p<.001$; see means in Figure 1, error bars indicate standard deviation). Correlations among fairness ratings for *impartiality*, *reciprocity*, and *charity* and Machiavellianism (Mach), and the IRI dimensions empathic concern (EC) and perspective-taking (PT) are reported in Table 1.

As shown in Table 1 (zero-order correlations uncorrected for multiple comparisons, bottom row: Study 2), replicating the results of Study 1, first, Machiavellianism was strongly negatively correlated with empathic concern ($r=-.387, p<.001$) and perspective-taking ($p<.001$). Second, the more that participants rated reciprocity as fair, the higher they scored in Machiavellianism ($r=.185, p<.01$). By contrast, the more that participants rated charity as fair, the higher they scored in empathic concern ($r=.175, p<.01$) and perspective-taking ($r=.174, p<.01$). Unlike Study 1, rating reciprocity as fair was not significantly negatively associated with perspective-taking.

Regarding intercorrelations among fairness ratings, as in Study 1, reciprocity was linked with considering charity to be fair ($r=.238, p<.001$). This time however, charity was not linked with considering impartiality to be fair, and reciprocity and impartiality weakly positively correlated with each other ($r=.130, p<.05$).

Discussion

Controversy about what is fair abounds. In this research, we investigated whether and how people's approaches to interpersonal relations (Machiavellianism and dispositional empathy) related to their views on the fairness of "person-based" allocations – *reciprocity* and *charity* – versus "person-blind" allocations – *impartiality* to be fair. Across both studies, we found that Machiavellianism, an interpersonal orientation involving self-interested pursuit of one's own personal goals by sometimes amoral means (Dahling et al., 2009), to be associated with rating reciprocity as more fair, and dispositional empathy to be associated with rating charity as more fair. We do not mean to claim that highly Machiavellian individuals will always and only see reciprocity as fair or that highly empathic individuals will always and only see charity as fair. Nevertheless, our findings suggest that these individual dispositions and perhaps even organizations that promote these tendencies may take systematically different perspectives on fairness. Importantly, these results help clarify the moral landscape by underscoring important distinctions between "person-based" forms of fairness, reciprocity and charity, and how each differs from "person-blind" impartiality.

In our neuroimaging work, evaluation of the allocators in the same reciprocity and charity vignettes, compared to the impartiality vignettes, elicited greater activity in regions for social cognition and theory of mind (Niemi & Young, submitted). These findings suggest that, when participants evaluated allocations based on reciprocity and charity, they may have attended to allocators' mental states, i.e., internal motivations, to a greater extent. Consistent with this neural pattern, reciprocity and charity were rated more motivated by allocators' emotions and the unique states of individuals, and less by standard procedures, compared to impartiality. Interestingly, however, although reciprocity and charity alike elicited greater

activity in social cognitive brain regions, compared to impartiality, reciprocity and charity also elicited distinct neural and behavioral patterns. Multivoxel pattern analyses revealed reliably distinct spatial patterns of activity for reciprocity and charity in dorsal medial prefrontal cortex, a key node within the neural network for social cognition. Furthermore, participants rated reciprocity as even more motivated by allocators' personal goals, less fair, and less morally praiseworthy, compared to both charity and impartiality. This prior work suggests that on average people consider fairness to be a matter of maintaining a "person-blind" approach.

The current work affords a number of additional neural predictions. Machiavellian individuals who consider reciprocity to be more fair might show reduced or disrupted representations of others' pain, reflected in reduced activity in anterior insula (AI), posterior anterior and anterior medial cingulate cortex (pACC/aMCC) (Engen & Singer, 2012). Conversely, we might expect people who rate charity to be more fair and who are higher in empathic concern and perspective-taking, to exhibit enhanced activation in core empathy-related regions in response to others' distress.

The present results also help draw the boundary lines between the "person-based" forms of fairness, reciprocity and charity, and how each differs from "person-blind" impartiality. Prior research has underscored the crucial role of reciprocity for many different relationships (e.g., Axelrod & Hamilton, 1981; Baumard, André & Sperber, 2013; Gurven, 2006; Hill & Kaplan, 1993; Rand & Novak, 2013; Trivers, 1971; Wedekind & Milinski, 2000). Returning favors is not only expected as part of typical dyadic social behavior (e.g., friendships and partnerships); it is built into most major religious tenets (e.g., The Golden Rule: "Do unto other as you would have them do unto you.") and drives the design of criminal justice programs (e.g., victim compensation). However, when multiple recipients may have a stake in resources, allocations

guided by the tenet “you scratch my back, I scratch yours” require bypassing the interests of other potential recipients and may strike people as unfair (Elster, 2006; Gurven, 2006). That participants rated allocators in the reciprocity vignettes as significantly more motivated by their own personal goals, compared to allocators in the charity and impartiality vignettes (Niemi & Young, submitted), suggests participants inferred that allocators in the reciprocity condition had potentially selfish motivations. Including reciprocity in one’s definition of “fairness” may be part of a Machiavellian moral worldview aimed at securing close relationships in order to have people nearby available to exploit or to aid in the exploitation of third parties (Cf. Niemi & Young, 2013).

Charity shares features with both reciprocity and impartiality. Like impartiality, charity may be derived from and ultimately serve preferences for equality (Shaw & Olson, 2012). All else being equal, charity provides a means to equality without triggering loss aversion (i.e., appealing to the *do-no-harm* principle; Baron, 1995; Kahneman & Tversky, 1979; Van Beest, Van Dijk, De Dreu, Wilke, 2005). However, charitable allocations meant to “level the playing field” in service of social justice (e.g., to correct for historical exploitation as in the case of affirmative action) may be deemed by some to be unfair to the extent that they are viewed as “preferential treatment”. According to Trivers (1971), giving specifically to the recipient most in need may in some cases be the *most* personally advantageous – the recipient, in this case, is maximally grateful and therefore most tightly bound to reciprocity norms that favor the allocator in the future. The implication is that charitable allocations do not necessarily stem from a preference for equality, as is the case for “person-blind” impartiality, but instead from a desire to build ties with exchange partners, as is the case for “person-based” reciprocity. In addition to the work showing that charity dissociates from reciprocity neurally, described above (Niemi & Young, submitted), we showed in the two present studies that charity and

reciprocity are associated with divergent approaches to interpersonal relations. Participants who rated charity as more fair were higher in empathic concern and perspective-taking, both conspicuously low in people high in Machiavellianism, who rated reciprocity as more fair.

According to Hume, questions of justice are less likely to arise at the tails of a normal distribution of resources: extreme plenty or extreme scarcity (Wolff, 2006). In conditions of plenty, allocation concerns are less pressing. In conditions of extreme scarcity, it is hard to fault someone for doing what they can to survive. When people face life or death circumstances (e.g., due to genocide, enslavement) adopting a definition of fairness that prioritizes close relationships might be crucial to escaping exploitation and abuse. One could argue that these findings – in particular the association between a view of reciprocity as fair and a disposition toward Machiavellianism – should have normative implications only for people in positions of relative social privilege or who are not being systematically exploited.

We have examined fairness values as if they should be expected to be relevant to humans in the same way across the lifespan and across many different sizes of groups; however, we might expect, for example, that charity becomes more salient when we consider humans at the beginning or end of their lives. In spite of their correlations with fundamentally divergent individual differences factors, both “person-blind” and “person-based” fairness values likely allow people to manage the problem of resource allocation as it presents itself across many crucial kinds of relationships — from friendships and partnerships to child and elder care to the community and global economy.

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SUPPLEMENTARY MATERIAL

Who sees what as fair?

Individual differences in fairness values

Appendix: Vignettes

Participants received one version of each of the 24 vignettes in all studies; each condition -- *Reciprocity*, *Impartiality*, *Charity*, *Unspecified* -- was represented by 6 vignettes. Condition was varied in part C. Alterations in part D for *Unspecified* condition are indicated in brackets.

VIGNETTE 1

- (A) Sasha is a manager at a large factory. She is in charge of scheduling shifts for all the managers to complete safety trainings.
- (B) Today Sasha has to assign shifts, and she knows afternoon shifts are always preferred to morning shifts.
- (C) *Reciprocity*: Sasha thinks about some managers who recently were a great help to her during the planning of the safety training curriculum.
Impartiality: Sasha thinks about which managers had the morning shifts last week, since she trades off shifts week to week.
Charity: Sasha thinks about a couple managers who were struggling to adjust to having newborns at home.
Unspecified: Sasha thinks about the managers and the available shifts. She opens the scheduling document and selects some managers' names.
- (D) Sasha assigns those managers the better afternoon shifts.

VIGNETTE 2

- (A) Dan referees street hockey games in a small city. He is responsible for making calls during the games.
- (B) In one game, Dan is unsure whether a player may have just committed a penalty.
- (C) *Reciprocity*: Dan thinks about the player and how he had recently helped Dan clear out a large mess from his basement.
Impartiality: Dan thinks about the technical rules of the game and determines that the player's move was not illegal.
Charity: Dan thinks about the player and how he had just recently returned to hockey after recovering from a major car accident.
Unspecified: Dan thinks about the player's movements in relation to the other player, and the location of the hockey stick.
- (D) Dan decides to not call out this penalty.

VIGNETTE 3

- (A) Carol is asked to judge a contest at her company's annual picnic. The winner will receive a large gift certificate to a home improvement store.
- (B) Carol watches her fellow employees participating in the contest.
- (C) *Reciprocity*: One co-worker had recently put in a lot of overtime helping Carol complete a project at work.
Impartiality: One co-worker met all the judging criteria Carol had been given.
Charity: One co-worker was part of a department that had just been downsized and would soon be laid off.
Unspecified: One co-worker from the shipping department got on stage and performed an interesting juggling act.
- (D) She decides to give this co-worker the highest score.

VIGNETTE 4

- (A) Katie is part of a work group at school with two other students. The other students each have a different idea about the best way to present the project.

- (B) They ask Katie to pick which idea she likes best. Katie gives it some thought.
- (C) *Reciprocity*: One of the other students had recently picked Katie's idea for another part of the project.
Impartiality: One of the other students had presented an idea that fit all the requirements laid out in the syllabus.
Charity: One of the other students had just received her first chemotherapy treatment after being diagnosed with lymphoma.
Unspecified: She gets up to take a short break. She buys a soda from the vending machine and returns to the group.
- (D) Katie decides to choose that student's idea [which student's idea to choose].

VIGNETTE 5

- (A) Jon is the instructor of an engineering course at a small college. The students of the class have just finished designing an electric car for a competition.
- (B) Jon must decide which student will be chosen to drive the car for the judges at the competition.
- (C) *Reciprocity*: Jon thinks about the students. One student had recently helped Jon raise money for the project at a fundraiser outside of school.
Impartiality: Jon thinks about the rules of the competition. The driver of the car is required to have certain qualifications, and only one student qualifies.
Charity: Jon thinks about the students. One student had recently lost his home to a devastating tornado.
Unspecified: Jon thinks about the students and the dates of the competition. He pulls up the competition schedule on his computer.
- (D) Jon chooses this [a] student to drive the car.

VIGNETTE 6

- (A) Craig is part of a team of catering staff who pool all the tips they receive in an evening. All the employees have slightly different jobs and some serve more tables than others.
- (B) Tonight, Craig must distribute the tips among them.
- (C) *Reciprocity*: Craig thinks about a couple team members who had made his night a lot easier by running an extra errand that usually took Craig a long time to do.
Impartiality: Craig thinks about the catering company's rule that tips should be allocated based on how many tables employees served. Some employees served a lot of tables that evening.
Charity: Craig thinks about a couple of employees whose spouses were recently laid off from their jobs and who were on the verge of home foreclosure.
Unspecified: The evening had gone smoothly, and the client had written a check to pay for the catering at the end of the night. Craig thinks about some employees who worked that evening.
- (D) He gives the largest portions of the tip money to them.

VIGNETTE 7

- (A) Janice delivers a presentation at an important meeting at work. After she finishes, her co-workers praise the presentation and her achievements.
- (B) Janice thinks about the help she received on the presentation.
- (C) *Reciprocity*: One co-worker had recently located an important document that Janice had lost and which was critical for the presentation.
Impartiality: One co-worker had coordinated the meetings related to the presentation, and it was standard for the presenter to thank the coordinator.
Charity: One co-worker who helped had recently found out that her husband, a pilot in the Air Force, was being deployed for the third time.
Unspecified: She notices a few notes she had added to the end of her presentation. She returns to the podium.
- (D) Janice acknowledges this [a] co-worker aloud.

VIGNETTE 8

- (A) Jim coaches a soccer team at a local elementary school in a small city. There are twenty children on the team and they have gathered on the field for practice.
- (B) Today, Jim is teaching the kids how to kick a goal.
- (C) *Reciprocity*: Jim thinks about the children on the team. One child had recently come over and tutored Jim's own son in math.
Impartiality: Jim thinks about the soccer league's guideline that all the kids should be able to kick a goal. One child is not able to do it.
Charity: Jim thinks about the children on the team. One child's parents were recently evicted and were now facing homelessness.
Unspecified: Jim demonstrates kicking to the children and they practice. One child is very enthusiastic and won't stop kicking goals, even during the breaks.
- (D) He lets this child have the most kicks.

VIGNETTE 9

- (A) Brian is a landscaper who tends several lawns and gardens in the town of Fairfield. One day, he is short on time and can only make it to some of his clients.
- (B) He looks at his client list and tries to figure out where he will go.
- (C) *Reciprocity*: One of his clients had recently given him a valuable new referral for a large landscaping design job.
Impartiality: He checks the contracts for his clients and notices that the contract for one client specifically stipulates daily visits.
Charity: One of his clients recently had surgery and was unable to clear the leaves off his front stairs in order to safely use them.
Unspecified: He notices that several clients are about to receive large shipments of tulip bulbs. He checks the shipping status and looks at his map.
- (D) Brian makes a plan to go to that [a] client.

VIGNETTE 10

- (A) Naomi has a popular blog that she uses to discuss issues on children's education. Many people in several districts in her city regularly access the blog for tips.
- (B) Naomi is writing a post on tutoring companies and wants to include links to tutors.
- (C) *Reciprocity*: Naomi thinks about one tutoring company with several different locations, which recently sent Naomi a packet of information on math learning that she used to write a well-liked post.
Impartiality: Naomi has a rule to include links that are helpful for her readers all over the city. She figures out the locations of tutoring companies in different districts across the city.
Charity: Naomi thinks about her readers in one part of the city who recently lost funding for their in-school tutoring program. She figures out the locations of tutors that would be accessible and affordable for them.
Unspecified: Naomi spends the afternoon making phone calls, checking things online, and writing some notes in a document. She opens the blog program and begins to draft her post.
- (D) Naomi includes these [some] links on her blog.

VIGNETTE 11

- (A) Jessica recently graduated from college and moved to a major metropolitan area. Several acquaintances from college are in the city for a conference.
- (B) Jessica has only enough room in her small apartment to provide one person with a place to stay.
- (C) *Reciprocity*: She thinks about her acquaintances. One of them had recently helped Jessica at a different conference by connecting her with a contact who had a job opening.
Impartiality: She thinks about her acquaintances. She emails them all and lets them know the first person to reply can stay at her apartment. She receives a reply that evening.

Charity: She thinks about her acquaintances. One of them had recently been overwhelmed by very expensive student loan payments and was barely able to pay them.

Unspecified: She thinks about her acquaintances. They had all moved far from the college they attended in the middle of the country. Jessica receives a phone call.

(D) Jessica offers this [an] acquaintance a place to stay.

VIGNETTE 12

(A) Carla is a medical director at a dermatology clinic that employs several physicians. Recently, a new surgical technology had been demonstrated to the group.

(B) Several of the physicians come to Carla and request time off to obtain training in this new technique.

(C) *Reciprocity:* One of the physicians had recently covered several of Carla's duties when she took time off to attend a business development seminar in Germany.

Impartiality: It is a clinic policy that training leaves are granted based on the number of years physicians have been employed with the group. Only one had completed the required number of years.

Charity: One of the physicians had recently gone through a messy divorce after surviving a domestic assault, and her finances had been largely wiped out.

Unspecified: Carla consults the website of the company that trains physicians in the new surgical technique. She notes the dates and locations of the training sessions.

(D) Carla lets this [a] physician take time off for the training.

VIGNETTE 13

(A) Rick manages the purchasing department for an online retailer. Around the holidays, many companies and manufacturers send Rick holiday gifts.

(B) Today, Rick is deciding what to do with a basket full of chocolates.

(C) *Reciprocity:* One employee had recently come in on his day off to organize Rick's messy filing system.

Impartiality: He has a rule that a different employee will receive whatever gift was sent to Rick that day. He checks his list for the name of the next employee in line.

Charity: One employee's husband was a police officer who had recently been seriously injured in the line of duty.

Unspecified: He puts the basket on his desk. He checks his calendar and realizes he has a meeting in five minutes.

(D) Rick gives the chocolates to this [an] employee.

VIGNETTE 14

(A) Al teaches a creative writing course at a bookstore downtown. At the end of each course, he collects each student's favorite poem and prints it in his popular literary journal.

(B) Today he is laying out the poems. One must be placed on the "feature" page at the beginning.

(C) *Reciprocity:* One student had recently placed a new ad for Al's creative writing course at the coffee shop she owns.

Impartiality: Al had the students vote for their favorite out of all the students' poems. One poem received the majority of the votes.

Charity: One student had recently returned from Afghanistan, and was dealing with post-traumatic stress disorder.

Unspecified: Al opens his email program and downloads all the files that the students sent to him.

(D) Al puts this [a] student's poem in the featured spot.

VIGNETTE 15

(A) Gary is the driver of a large tour bus that takes hundreds of passengers to a casino. The huge crowd tends to get impatient as they wait to board the bus.

(B) Gary is about to begin the boarding process for the passengers.

- (C) *Reciprocity*: Gary recognizes several passengers from a previous trip. They had won big payouts at the blackjack table at the casino, and had given Gary a large tip.
Impartiality: Passengers assigned to the seats in the back are to board first. Gary consults his passenger list and identifies those seated in the back rows.
Charity: Gary recognizes several passengers from a previous trip. They were a group of breast cancer survivors who had undergone difficult treatments.
Unspecified: Gary locates the passenger list for the trip. He checks the date and time that it was last updated. He determines how many empty seats would be available on the bus.
- (D) Gary lets these passengers board the bus first [some passengers board the bus].

VIGNETTE 16

- (A) Brenda works at a farm stand. There is a large selection of plants, fruits, and vegetables for sale.
(B) Today the farm stand is busy with many customers, and Brenda is ringing up sales at the counter.
(C) *Reciprocity*: Brenda recognizes a couple buying fruit and several potted plants. They had recently given her a discount at the hardware store that they own.
Impartiality: A couple is purchasing some fruit and several potted plants. They hand Brenda a coupon they had cut out of the paper for a discount.
Charity: Brenda recognizes a couple buying fruit and several potted plants. They had recently lost their son, who was away at college, in a terrible car accident.
Unspecified: A couple places several potted plants and a few pounds of fruits and vegetables on the counter. Brenda weighs the fruits and vegetables.
- (D) Brenda gives them the three plants for the price of one.

VIGNETTE 17

- (A) Jackson is a music teacher at an elementary school. The students are learning about percussion, and one instrument, the snare drum, is always the class favorite.
(B) Today Jackson is preparing his lesson plan for music class and must assign the instruments.
(C) *Reciprocity*: One student had stayed after class last week to help Jackson put away all the instruments in the storage closet, a task that usually takes him a long time to do.
Impartiality: Jackson trades off who gets the snare drum each class. He looks at the class roster and determines who was next in line for it.
Charity: One student was going through very difficult times at home and was barely able to stay engaged in the classroom.
Unspecified: Jackson pulls down the boxes of percussion instruments from the storage closets and makes sure all the pieces are there. He consults the class list.
- (D) Jackson assigns the snare drum to this [a] student in his lesson plan.

VIGNETTE 18

- (A) Mario is a cardiologist who runs a clinic for patients who are at risk of having a heart attack. A famous nutritionist is visiting Mario's clinic and offers to give two patients personalized diet advice.
(B) Mario must select which patients will receive the free consultations.
(C) *Reciprocity*: Two patients had recently helped Mario find an excellent assisted living facility for his mother.
Impartiality: The diet requires patients to have certain cholesterol levels and two patients fit the requirements.
Charity: Two patients had recently moved to the area because they were displaced from their home after flooding.
Unspecified: Mario notes the dates that the nutritionist is available to give the consultations on his calendar. He opens the patient records program.
- (D) Mario invites these [some] patients to come in for the nutritionist's consultations.

VIGNETTE 19

- (A) Max is a photographer who is expanding his business to include weddings. In order to build a wedding portfolio, he invites couples to submit their names to be considered for free wedding photography.
- (B) Today he needs to choose who will receive the offer.
- (C) *Reciprocity*: One couple had recently recommended Max to a new hotel who needed photography for their website.
Impartiality: Max enters all the couples' names into a computer program and has the program randomly select one couple.
Charity: The father of the bride-to-be in one couple had recently been killed in a sudden workplace accident.
Unspecified: Max begins to sort through the emails of the couples who contacted him. He notes their names and contact information.
- (D) Max offers this [a] couple the free wedding photography services.

VIGNETTE 20

- (A) Michelle is an intern at the White House. Several students from the high school she attended in her hometown are part of mentorship program for young people interested in a career in politics.
- (B) Michelle is deciding which of these students to bring to an event at the White House.
- (C) *Reciprocity*: One of the students had volunteered for several years in a row at an annual fundraiser that Michelle coordinated.
Impartiality: The program has a policy that seniors should be given priority to attend White House events. One student in the program is a senior.
Charity: One of the students in the program had been raised in foster care since the age of twelve after losing both of his parents in a shooting.
Unspecified: Michelle locates the phone number of the director of the mentorship program and gives her a call.
- (D) Michelle decides to bring this student to the event [which student to bring to the event].

VIGNETTE 21

- (A) Anne is the director of an emergency response team in a small town in New England. After a major storm, the town is in need of clean drinking water.
- (B) A major shipment of water arrives in town and Anne must decide how to distribute it.
- (C) *Reciprocity*: The company who sent the shipment has a large warehouse located in the center of Anne's town. A group of their employees was working to repair that warehouse.
Impartiality: Anne consults the list of emergency zones given to her by the response team. The team has organized the list in order to facilitate the fastest distribution. One zone is at the top of the list.
Charity: Some residents of the town had their homes completely destroyed in the storm. They were all displaced to a shelter without electricity or running water in one area of the town.
Unspecified: Anne helps the emergency response team unload the massive shipment into smaller delivery trucks and boats. She selects an emergency zone from her list.
- (D) Anne sends the first portion of the shipment out to them.

VIGNETTE 22

- (A) Sara collects book donations for a nonprofit organization in a major city. Thousands of children throughout the city receive free books through the program.
- (B) Sara has received a huge donation of brand new books from a popular publisher, which she will send out today.
- (C) *Reciprocity*: Sara thinks of a school in one borough that often sends teachers to help out with the organization's fundraisers.
Impartiality: Sara opens the master list of the schools that receive book donations. She notes which school is next in line for a donation.

Charity: Sara thinks of a school in one borough that was very poorly funded and was recently labeled 'underperforming' by the state.

Unspecified: Sara sorts the books by level of reading difficulty. She repackages the books, labels them, and prints the addresses of the recipients.

(D) Sara ships the donation out to them.

VIGNETTE 23

(A) Tania is an executive assistant for a design company in Los Angeles. One afternoon, she is asked to make several deliveries in the city.

(B) Tania is not sure she'll be able to get all the deliveries out in time. She begins to plan her route.

(C) *Reciprocity:* One delivery was for a designer in the lighting department who recently gave Tania an enthusiastic recommendation for a raise.

Impartiality: Tania plots out what appears to be the most direct route to all the delivery locations on her map. One location is just next door.

Charity: One delivery was for a designer whose son was in the hospital and who was clearly very stressed out at work.

Unspecified: Tania picks up the outgoing delivery packages and makes sure she can fit them all in her car. She types in an address on her GPS.

(D) Tania makes this delivery first.

VIGNETTE 24

(A) Bill is a fisherman who catches lobsters in the town of Rockport. When he gets back to shore one afternoon, there is a mixup with some orders.

(B) Bill notices there is an extra lot of 6 lobsters.

(C) *Reciprocity:* The owner of the business next door to the dock had recently given Bill his extra set of tickets to a baseball game.

Impartiality: Whenever there are extra lobsters, the fishermen give them to the manager who redistributes them to another order.

Charity: A family that lived close by was struggling through tough financial circumstances and Bill often saw the father returning from the food bank.

Unspecified: Bill looks over the order forms closely, checks the orders he already packed, and speaks to his co-worker.

(D) Bill packs up the lobsters and brings them over to him.

Study 3

Study 3: Method

To test the robustness of the replicability of the relationship between ratings of the fairness of reciprocity and Machiavellianism, and their connections to allocation behavior, we ran these measures in a new study ($n=132$) on Amazon Mechanical Turk. Participants rated the fairness vignettes and then completed the allocation task and Machiavellianism scale (order of presentation of allocation task and scale counterbalanced between-subjects. The final sample included 119 individuals ($M(SD)age=36.87(10.61)$; 63 female, 56 male). The identical exclusion criteria were used as in Study 2 reported in the main text.

Study 3: Results

First, as in Studies 1-2, and prior work (Niemi & Young, submitted), participants rated the allocators in the *impartiality* vignettes to be the most fair, significantly more than allocators in the *charity*, and *reciprocity* vignettes, which also significantly differed from each other ($F(2, 236)=113.21, p<.001$; see means in Figure S1, error bars indicate standard deviation).

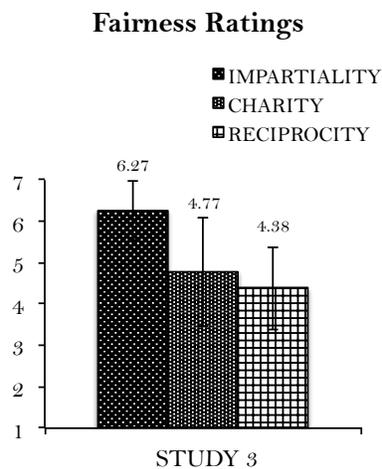


Figure S1. Fairness ratings for allocators in the impartiality, charity, reciprocity vignettes.

We found a correlation between Machiavellianism and reduced ratings of impartiality as “fair” (see Table S1 for correlations). This represents a conceptual replication of the link between Machiavellianism and higher rating of “person-based” fairness (reciprocity) in Studies 1-2. People higher in Machiavellianism may be less likely to endorse *impartiality* as “fair”, as impartiality might strike them as prohibitively restrictive (Bereczkei, 2015).

We did not find a correlation between ratings of reciprocity as “fair” and higher Machiavellianism. Reduced ratings of impartiality as “fair” and Machiavellianism also each both correlated with more competitive choices in the allocation task. Machiavellianism also correlated with fewer prosocial choices in the allocation task. Finally, as in Studies 1-2, fairness ratings of reciprocity were more strongly correlated with fairness ratings of charity than with fairness ratings of impartiality ($p=.05$, based on results of a test of the difference between these dependent correlations, Lee & Preacher, 2103, September).

Table S1. Correlations among Machiavellianism, Allocation Behavior, Fairness of Reciprocity, Impartiality and Charity.

<i>n</i> =119	Mach	Pro	Ind	Comp	Reciprocity	Impartiality	Charity
Mach		-.20*	.15	.27**	-.01	-.18*	-.09
Pro	-.20*		-.99	-.13	.18	.14	.07
Ind	.15	-.99		-.04	-.13	-.07	-.06
Comp	.27**	-.13	-.04		.07	-.45***	-.06
Reciprocity	-.01	.12	-.13	.07		.20*	.39***
Impartiality	-.18*	.14	-.07	-.45***	.20*		.09
Charity	-.09	.07	-.06	-.06	.39***	.09	

Note. Mach = Machiavellianism Scale Score. Pros= Prosocial (50-50 egalitarian) allocations, Ind= Individualistic (self-serving) allocations, Comp=Competitive allocations; Recip=Fairness ratings for reciprocity, Impart=Fairness ratings for Impartiality, Charity=Fairness ratings for charity.

Additional Analysis

Table S2. Correlations among Machiavellianism, Allocation Behavior, Fairness of Reciprocity, Impartiality and Charity, and Empathy by Condition in Study 2.

	Mach	Pro	Ind	Comp	Recip	Impart	Charity	EC	PT
1. Mach		-.293**	.248**	.187	.171	-.089	.076	-.298***	-.210*
		-.189*	.155	.089	.199*	-.093	-.06	-.473***	-.284***
2. Pro	-.293***		-.959***	-.245**	-.113	.060	-.246**	.136	.135
	-.189*		-.881***	-.349***	.001	.063	-.014	.149	.079
3. Ind	.248**	-.959***		-.038	.089	-.064	.229**	-.132	-.142
	.155	-.881***		-.137	.002	-.06	.042	-.151	-.093
4. Comp	.187	-.245**	-.038		.096	.007	.083	-.027	.012
	.089	-.349***	-.137		-.007	-.013	-.054	-.011	.020
5. Recip	.171	-.113	.089	.096		.095	.266**	.100	.046
	.199*	.001	.002	-.007		.171	.218*	-.091	.132
6. Impart	-.089	.060	-.064	.007	.095		.109	.154	.148
	-.093	.063	-.06	-.013	.171		.072	.136	.008
7. Charity	.076	-.246*	.229*	.083	.266**	.109		.167	.110
	-.06	-.014	.042	-.054	.218*	.072		.182*	.228*
8. EC	-.298**	.136	-.132	-.027	.100	.154	.167		.611***
	-.473***	.149	-.151	-.011	-.091	.136	.182*		.425***
9. PT	-.210*	.135	-.142	.012	.046	.148	.110	.611***	
	-.284***	.079	-.093	.020	.132	.008	.228*	.425***	

Note. Mach = Machiavellianism Scale Score. Pros= Prosocial (50-50 egalitarian) allocations, Ind= Individualistic (self-serving) allocations, Comp=Competitive allocations; Recip=Fairness ratings for reciprocity, Impart=Fairness ratings for Impartiality, Charity=Fairness ratings for charity, EC=Empathic concern, PT=Perspective taking, PD=Personal distress. (EC, PT, PD subscales of IRI: Interpersonal Reactivity Index).

Allocation Task

Instructions

“In this task we ask you to imagine that you have been randomly paired with another person, whom we will refer to simply as the "Other." This other person is someone you do not know and that you will not knowingly meet in the future. Both you and the "Other" person will be making choices by choosing either the letter A, B, or C. Your own choices will produce points for both yourself and the "Other" person. Likewise, the other's choice will produce points for him/her and for you. Every point has value: the more points you receive, the better for you, and the more points the "Other" receives, the better for him/her.

Here's an example of how this task works:

A

You get: 500

Other gets: 100

B

You get: 500

Other gets: 500

C

You get: 550

Other gets: 300

In this example, if you choose A you would receive 500 points and the others would receive 100 points; if you chose B you would receive 500 points and the other 500, and if you chose C, you would receive 500 points and the other 300.

So, you see that your choice influences both the number of points you receive and the number of points the other receives. Before you begin making choices, please keep in mind that there are no right or wrong answers -- choose the option that you, for whatever reason, prefer most. Also, remember that the points have value: the more of them you accumulate the better for you. Likewise, from the "other's" point of view, the more points s/he accumulates, the better for him/her.”

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