

# On the Value of Modesty: How Signals of Status Undermine Cooperation

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The widespread demand for luxury is best understood by the social advantages of signaling status (i.e., conspicuous consumption; Veblen, 1899). In the present research, we examine the limits of this perspective by studying the implications of status signaling for cooperation. Cooperation is principally about caring for others, which is fundamentally at odds with the self-promotional nature of signaling status. Across behaviorally consequential Prisoner's Dilemma (PD) games and naturalistic scenario studies, we investigate both sides of the relationship between signaling and cooperation: (a) how people respond to others who signal status, as well as (b) the strategic choices people make about whether to signal status. In each case, we find that people recognize the relative advantage of modesty (i.e., the inverse of signaling status) and behave strategically to enable cooperation. That is, people are less likely to cooperate with partners who signal status compared to those who are modest (Studies 1 and 2), and more likely to select a modest person when cooperation is desirable (Study 3). These behaviors are consistent with inferences that status signalers are less prosocial and less prone to cooperate. Importantly, people also refrain from signaling status themselves when it is strategically beneficial to appear cooperative (Studies 4–6). Together, our findings contribute to a better understanding of the conditions under which the reputational costs of conspicuous consumption outweigh its benefits, helping integrate theoretical perspectives on strategic interpersonal dynamics, cooperation, and status signaling.

**Keywords:** status, signaling, cooperation, conspicuous consumption, modesty

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A recent field experiment in Indonesia found that individuals were more likely to purchase a credit card marketed as “the platinum card” than a nondescript card with identical benefits (Bursztyn et al., 2018). The only difference was that the platinum card, which was purple and contained the word “Platinum” in fancy script, allowed people to display their wealth as a way to confer status and prestige. This is just one of the countless examples of *conspicuous consumption*. Indeed, the demand for luxury is ubiquitous and has been documented across many cultures and locations (Bursztyn et al., 2018; Godoy et al., 2007; Goenka & Thomas, 2020; Kim & Drolet, 2009). This is unsurprising given the myriad social benefits associated with being perceived as well-off and high status (Frank, 1999; Nelissen & Meijers, 2011; Sundie et al., 2011).

Yet such displays of wealth and status may not be universally advantageous across situations. In this article, we take a social signaling perspective to understand the relationship between signaling status and cooperation. We argue that, when cooperation between individuals is a central goal, modesty (i.e., the inverse of signaling status) is a better approach. That is, even though conspicuous consumption is a strategic behavior with assumed positive signal value (i.e., from conveying high status), it also conveys a boastful self-interest, which is incompatible, in people's minds, with prosociality (Barasch et al., 2016; Critcher & Dunning, 2013; Lin-Healy & Small, 2013; Newman & Cain, 2014). Because prosociality is critical for cooperation, the signal value of conspicuous consumption flips from positive to negative in this situation. In other words, showcasing one's wealth and status is counterproductive for the interpersonal dynamics of cooperation.

The current article takes a comprehensive view of status signaling and cooperation. First, we examine people's responses to others' signaling, where it is strategically useful to assess their prosociality. We find that people cooperate less with those who signal status (compared to those who are modest) and are less likely to select status signalers when they desire a cooperative person for a group. Second, we examine people's strategic choices of whether to display status. Here, we find that people eschew status signals when their chief aim is to appear cooperative. Taken together, our work provides a broad picture of how inferences about status signalers shape strategic behavior to facilitate or undermine cooperation.

## Conspicuous Consumption

In *The Theory of the Leisure Class: An Economic Study in the Evolution of Institutions* (1899), Thorstein Veblen first characterized

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the public display of economic status via the acquisition of luxury goods and services. Such purchases provide utility beyond any hedonic or utilitarian value by enabling individuals to signal their status to others and thus improve their social standing. The high monetary cost and visibility of luxury convey economic status to others, thus enabling the social advantages of having status (Frank, 1999; Miller, 2009; Nelissen & Meijers, 2011; Saad, 2007; Sundie et al., 2011).

Although the prototype of conspicuous consumption is luxury (i.e., displaying wealth), it can extend to “any signaling behaviors intended to impress others through possessions or behavior” (Goenka & Thomas, 2020, p. 564). Therefore, we use *conspicuous consumption* synonymously with *status signaling*. For example, people also signal status in culturally specific ways, such as “going green” (Griskevicius et al., 2010), altruistic behaviors (Berman et al., 2015), prestigious occupations, and other signs of achievement (e.g., business suits; Bouska & Beatty, 1978; Kraus & Mendes, 2014). In other words, individuals strategically signal status in different ways, depending on their expectations about the meaning of particular symbols to different groups.

What exactly are the social advantages of signaling status? Research on person perception finds that perceived status is associated with competence (Fiske et al., 2002), and that affluence is positively associated with desirable qualities such as intelligence, self-discipline, and sophistication (Christopher & Schlenker, 2000). Related to these positive inferences, signaling status can be an effective strategy for social influence. For example, people who wear upper-class clothing achieve better negotiation outcomes (Kraus & Mendes, 2014). Likewise, people are more likely to comply with others’ requests, such as taking a few minutes to answer questions (Nelissen & Meijers, 2011) or contributing to a charitable cause (Lee et al., 2015), when the requester is wearing clothing with high-status logos. Relatedly, lower status individuals are inclined to defer to the preferences of higher status individuals (De Kwaadsteniet & Van Dijk, 2010) and are more likely to accept low offers in an economic game when their partner has higher status (Blue et al., 2016). Finally, at least in the short run, men who purchase luxury goods are perceived as more desirable to potential mates (Sundie et al., 2011).

Whether the status signal conveys wealth or another dimension of social importance, the Veblen perspective assumes that it is advantageous to do so, and the evidence described above is consistent with this. In the present article, however, we argue for an important caveat to this view within the critical context of cooperation.

### Cooperation as a Paradigmatic Case of the Limitations of the Veblen Perspective

Cooperation is an essential social behavior that entails forgoing one’s narrow self-interest for the greater social good (Axelrod & Hamilton, 1981; Rand & Nowak, 2013; Van Lange, 1999). People are better off interacting with others who are likely to cooperate and avoiding those who probably will not. As the Prisoner’s Dilemma (PD) game illustrates, cooperation is a “sucker move” if others act in their own self-interest (i.e., defect; Rapoport et al., 1965); however, the best joint outcome occurs when both parties cooperate.

Thus, it helps to be able to predict whether others will cooperate or not. At the same time, people must consider how others perceive *them*

and do what they can to portray themselves as prosocial, and therefore someone likely to cooperate with others. If either party doubts another’s prosociality, then cooperation may breakdown: That is, people tend to cooperate when they predict that others are going to cooperate and are more likely to behave in their own self-interest when they expect that others will do so too (Levine et al., 2018; Rand & Nowak, 2013). To be sure, people are often quite sensitive to any indication that others are selfish (Berman et al., 2015; Chen et al., 2012; Ham & Vonk, 2011). Therefore, signals that convey either prosociality or self-interest are critical, both in terms of forming impressions and as an impression management strategy. Yet, there is little evidence about what cues signal cooperation, and whether and how people act strategically to signal their cooperativeness.

In the present research, we take a comprehensive lens and examine both the responses to others’ signals, as well as the strategic considerations that determine whether people choose to signal status themselves in the context of cooperation. In the next two sections, we delve into each side of this cooperation equation in turn. That is, first we discuss how people determine whether others are likely to cooperate as a function of status signals (or lack thereof). Then, we turn to discuss people’s impression management strategy regarding status signals when aiming to appear cooperative.

### Predicting Who Will Cooperate

In the context of cooperation, what is the relevant information value of conspicuous consumption? It is possible that the advantages of signaling status also apply here. After all, individuals with high status are perceived as more competent (Fiske et al., 2002), which leads people to engage in “passive facilitation” behaviors toward them (e.g., attempts to associate or unite with them; Cuddy et al., 2007).

Yet importantly, signaling status conveys more than just the *presence* of status. It also suggests that a person is *trying to boost* their own social value or status above the social value or status of others. By definition, status is a zero-sum, relative distinction; that is, if a person has high status, others must have less of it (Heffetz & Frank, 2011; Ordabayeva & Chandon, 2011). As such, signaling status may imply that an individual is self-interested—inclined to sacrifice others’ welfare for their own benefit.

Consistent with this more negative view, status signalers are seen as more arrogant (McFerran et al., 2014), less warm (Cannon & Rucker, 2019; Scott et al., 2013), and in some cultures less moral (Goenka & Thomas, 2020). Moreover, people judge status signalers as less desirable for friendship (Garcia et al., 2019), even though one might expect that having status would be an attractive feature in a friend. Relatedly, people stigmatize materialistic individuals and prefer not to interact with them (Van Boven et al., 2010), and express more negative attitudes toward those who conspicuously flaunt high-status brands (Ferraro et al., 2013). Even beyond these intentional signals, Chen et al. (2012) find that uncontrollable cues of status, such as one’s facial appearance, can lead to judgments that an individual is less cooperative (as well as higher offers to these individuals in negotiations). Thus, a host of inferences about those who “signal” status is broadly in the domain of selfishness or low warmth.

More generally, conspicuous consumption is a form of impression management, which can lead to disliking of an individual who does it. Individuals who are overly concerned with their appearance are viewed as less moral because people believe that those individuals are trying to misrepresent their true selves (Samper et al., 2018) and because vanity is seen as diagnostic of a person's underlying immoral character (Tannenbaum et al., 2011). Further, people tend not to like braggarts very much (Godfrey et al., 1986; Holtgraves et al., 1989; Powers & Zuroff, 1988; Rudman, 1998; Scopelliti et al., 2015; Sezer et al., 2018; Tal-Or, 2010). Although braggarts have the intention of making others value them more, bragging may also be detrimental for how they are perceived and expected to act.

Taken together, the findings described above chip away at the classic Veblen perspective that conspicuous consumption makes a positive impression. That is, the findings illustrate that, in spite of the positive inferences associated with having status, there are also negative inferences associated with signaling it. Yet, no past research has studied how such inferences affect strategic behavior in response to status signalers. We argue that in contexts where appearing prosocial is paramount (e.g., Berman et al., 2015) the cost of conspicuous consumption (appearing selfish) looms larger than the benefits (appearing high status). We suggest that cooperation is the paradigmatic case where the signal value of conspicuous consumption flips. In other words, when deciding whether to cooperate, assessing if others are prosocial is critical for determining a strategic response and to avoid being a "sucker" (i.e., cooperating when the other person does not; Kelley & Stahelski, 1970; Yamagishi & Sato, 1986). We predict and show that people judge status signalers as less prosocial and expect them to behave less cooperatively compared to those who do not signal status. As a result, people forego cooperating with status signalers and seek out more modest types when cooperation is the objective.

### Are People Strategically Modest?

To understand the full picture of conspicuous consumption in cooperation, we also need to examine how people present themselves to others when their objective is to elicit cooperation. Generally speaking, people aim to be evaluated favorably and reap the benefits of making a good impression (e.g., Leary & Kowalski, 1990; Schlenker & Leary, 1982). Thus, it is unsurprising that people often engage in conspicuous consumption to realize the advantages that come from being perceived as high-status (Bursztyn et al., 2018; Veblen, 1899).

However, there is little evidence about whether people *refrain* from conspicuous consumption as an impression management strategy. For this to be effective, they must have reasonably accurate beliefs about when signaling status will be disadvantageous for a given social goal. Evidence that people are attuned to potential negative consequences of signaling status is mixed and inconclusive. On the one hand, Arnett and Sidanius (2018) find that people tend to conceal high-status identities, such as attending a prestigious college, when they are motivated to maintain social harmony because they view such disclosures as a threat to achieving this end. On the other hand, Garcia et al. (2019) find that when people are given the objective to make friends, they believe that luxury displays will be beneficial. In the case of friendship, people may be more

focused on the attractiveness of appearing well-off and high status than the attractiveness of appearing cooperative.

In the current work, we focus on the social goal of cooperation. Cooperation principally entails caring about others, so appearing prosocial (i.e., not self-interested) should be central for impression management. As discussed above, we argue that conspicuous consumption is understood by others not only as a revelation of status, but also as an indication that the signaler is promoting themselves. To the extent that people recognize this, then they will be "strategically modest" and refrain from signaling status when it behooves them to appear cooperative.

### Summary of Predictions

Based on the logic outlined above, we propose that conspicuous consumption conveys self-interest—a damaging signal whenever cooperation is a salient objective. That is, for cooperation in particular, individuals should be quite sensitive to cues of self-interest, and their primary impression management goal should be to appear prosocial. This notion leads to two key predictions. The first prediction is that people will respond negatively to conspicuous consumption in the context of cooperation. This includes both (a) strategically cooperating less with status signalers than with those who present themselves modestly, and (b) strategically avoiding status signalers for cooperative tasks. This prediction stems from people's inferences about who status signalers are and how they will behave (i.e., that they are less prosocial and are less likely to cooperate). Beyond reactions to others, we further expect that people draw on the inferences they make about status signalers when electing how to present themselves. As such, the second prediction is that people strategically refrain from signaling status in social interactions where appearing cooperative dominates other social goals. In sum, our findings show how the mutual understanding that conspicuous consumption implies self-interest can shape behavior to facilitate or undermine cooperation.

### Overview of Studies

We test both of the predictions described above in a series of experiments using two complementary paradigms: (a) incentive-compatible PD games, which model cooperative decision-making and entail real pay-offs, and (b) tightly controlled scenarios that describe interactions on social network platforms, where people curate their identities through profile photos and posts. We begin by examining responses to those who signal status in cooperative contexts. Studies 1 and 2 examine behavior in a PD game, where participants observe whether their partner signals status or opts to be more modest. Study 3 turns to a naturalistic online setting, where participants observe an individual's social media profile and then decide whether to recommend them for a group that is seeking cooperative members.

Next, we investigate whether people avoid displaying status cues when the context demands cooperation. Study 4 examines this in the PD game. Studies 5 and 6 return to the naturalistic online setting and examine people's choice of what to include in their social network profile when their chief aim is to appear cooperative.

We drew on pilot data to determine sample sizes. In the studies using a PD game (Studies 1, 2, and 4), we planned to collect 100–150 participants per cell. In the scenario-based studies where the key

prediction was a main effect (Studies 3 and 5), we planned to collect 200 participants per cell, and increased this sample size (based on a power calculation of pilot tests) in Study 6 where the key prediction was an interaction. In all studies, we report all measures assessed, and no conditions or participants were dropped from any of the analyses. We recruited participants from online panels, including Amazon Mechanical Turk (AMT) and Prolific, that included participants from 27 different countries, and from university behavioral labs in the Midwest and Northeast U.S. that were diverse both in terms of age and gender. Of note, all studies conducted after September 2018 (Studies 1, 3, 5, and 6) were preregistered at [aspredicted.org](https://aspredicted.org). Complete materials are available in the Supplemental Materials, and data for all studies can be accessed at <https://researchbox.org/560>.

### Study 1

In this study, we investigate whether people cooperate less with a partner who signals status in the PD game compared to a modest partner. The PD game is the principle stylized model of cooperation, and serves as a reasonable representation of conflicts people face between their own self-interest and the greater good (Halevy et al., 2012). In this game, the dominant strategy is to act in one's own self-interest (e.g., to defect, regardless of what their partner does). However, the best joint outcome occurs when both partners cooperate. When tested with real behavior, the PD game has an incentive-compatible design and high internal validity (Murnighan & Wang, 2016; Van Lange et al., 2013; Wichman, 1970).

In this and subsequent studies, the game is akin to a sequential PD game where Person A makes their decision first, followed by Person B. Previous research finds that in sequential PD games, participants tend to reciprocate the decision of the previous participant (i.e., tit-for-tat): If Person A cooperates, then Person B tends to cooperate; if Person A defects, then Person B tends to defect (Andreoni & Miller, 1993; Rand & Nowak, 2013; Sheldon, 1999). Although the PD game herein is technically "sequential," informationally it is not so because Person B does not observe the decision of Person A. Instead, Person B may use other information they have about Person A to make their best guess about what Person A's decision was (Levine et al., 2018). Thus, to the extent that Person B infers that Person A acted cooperatively, then Person B will be more likely to reciprocate with cooperation, even in the absence of knowing Person A's decision with certainty. Accordingly, to the extent that Person B infers that Person A acted selfishly (i.e., defected), then Person B will be more likely to reciprocate with defection.

In this study, before deciding whether to cooperate or defect in the PD game, participants observed whether their partner signaled status. Specifically, they viewed an avatar designed by their partner, which sometimes included a luxury logo on the avatar's clothing. The avatars were meant to be a representation of the self (and also mimic the way people sometimes present themselves virtually, such as they do with the popular Bitmoji app). The use of luxury logos as an operationalization of conspicuous consumption is consistent with past research (Garcia et al., 2019; Griskevicius et al., 2007; Sundie et al., 2011).

Based on our theory, we predicted that Person As who signal status would be seen as less prosocial and less likely to cooperate in the PD game. As a consequence, we expected that Person Bs would behave less cooperatively toward them.

### Method

Three hundred three paid online participants from Prolific (40% female; mean age = 25.73) were recruited with the sole demographic requirement being that they were fluent in English. Thus, participants in the recruited sample were born in 40 different countries and currently reside in 27 different countries. Participants were first instructed that they would have to complete a tedious task. The task required them to solve captchas by typing the correct letters of seven-letter words that were visually obscured.

Participants were then given instructions regarding the PD game. Specifically, they were told they would be working on this captcha-solving task with a partner, and that the number of captchas that each of them would complete depended on a decision that both of them would make. In this variation of a PD game, participants could choose how to allocate work by deciding whether to transfer units of work (i.e., captchas) to their partner.<sup>1</sup> In this game, transferring work to one's partner represents the self-interested choice (i.e., defection; less work is preferable). If both participants decided to cooperate, they each had to complete only 30 units of work. If they both defected, the amount of work doubled, and they each had to complete 60 units of work. If only one person defected, the participant who cooperated had to complete 90 units of work, while the participant who defected did not have to complete any (0) units.

After passing a comprehension check about the game instructions but before playing, participants were randomly assigned to one of two between-subjects conditions.<sup>2</sup> All participants read that their partner designed an avatar to represent themselves, including selecting their avatar's hairstyle, skin tone, and clothing. Their partner could also display a luxury logo on the avatar's clothing. Participants viewed a list of luxury fashion brands from which their partner ostensibly chose (Prada, Gucci, Salvatore Ferragamo, Dior, Louis Vuitton, Hermès, Burberry, and Polo Ralph Lauren). Their partner could also select an option that said: "I choose unbranded clothing."

Next, all participants saw an image of their partner's avatar. In the *status signal* condition, the avatar was wearing a shirt containing one of three luxury logos (Gucci, Louis Vuitton, or Burberry), randomly selected. In the *modesty* condition, the partner's avatar was otherwise identical, but did not contain a logo. We planned the sample size to have sufficient power to detect the effect of the partner's signal. We used one male and one female avatar and matched the gender of the participant to the gender of the avatar.

The key outcome measure in this study was participant's decision about whether to defect or cooperate in the PD game. After making their decision, participants indicated their belief about whether their partner would cooperate or not, and judged them on several items that we expected to relate to perceptions of prosociality based on previous research (Cannon & Rucker, 2019; Van Boven et al., 2010). Specifically, participants rated the extent to which their partner was nice, generous, sincere, and good (adapted from Barasch et al., 2014), and whether they thought their partner believes that everyone should be treated with dignity and respect, tries to imagine themselves in other

<sup>1</sup> We used units of work rather than money as the currency for our PD game because the manipulation of status signaling could affect beliefs about who wants and needs money.

<sup>2</sup> In Studies 1 and 2, participants who failed the comprehension check were not permitted to continue with the study (Study 1: 129/432 failed; Study 2: 60/259 failed). In Study 4, participants could answer the comprehension check items until they were correct, so no one "failed."

people's shoes so they can understand them, and would rather be kind than getting revenge when someone hurts them (adapted from Cloninger et al., 1993). All items were measured from 1 = "Not at all" to 7 = "Extremely." While these two sets of measures were based on separate scales, the sets of measures were highly correlated ( $r = .72$ ,  $p < .001$ ) and all of the items loaded onto a single factor in a factor analysis (loadings  $> .64$ ). Thus, we averaged the seven items into a composite *judged prosociality* measure ( $\alpha = .90$ ) for all of our analyses, and in accordance with our preregistration.

For an avatar with a luxury logo to serve as an effective operationalization of conspicuous consumption, two key assumptions need to be met. First, participants must see a partner who adorns their avatar with a luxury logo as someone who is *signaling status*. Second, participants must view such behavior as a face-valid indicator of *having status*.

To validate these assumptions, we included the following measures. First, as a manipulation check of their partner's motive to *signal status*, participants indicated to what extent the individual likes to show off when they get the chance, likes to impress others, is trying to signal their status, and is trying to signal their wealth (from 1 = "Not at all" to 7 = "Extremely";  $\alpha = .92$ ). Second, as a check of whether participants perceived the avatar as a valid indication of their partner *having status*, we asked participants: (a) "To what extent do you think that this person is high status?" and (b) "To what extent do you think that this person is wealthy?" (both items measured from 1 = "Not at all" to 7 = "Extremely"). At the end of the survey, participants learned the outcome of the PD game and completed the amount of work dictated by that outcome.<sup>3</sup>

We preregistered the methods and analysis plan for this study (<https://aspredicted.org/r5u85.pdf>).

## Results

As preregistered, we aggregated the results across the three different luxury logos in the *status signal* condition for the main analyses below. "Supplemental Table 1" in the Supplemental Materials displays the results broken down by logo.

### Manipulation Check and Measures of Judged Status and Wealth

A *t*-test revealed that participants evaluated their partner as more motivated to signal status when the partner displayed a luxury logo on their avatar ( $M = 4.80$ ,  $SD = 1.33$ ) compared to when they did not ( $M = 3.34$ ,  $SD = 1.19$ ),  $t(301) = 10.01$ ,  $p < .001$ ,  $d = 1.16$ . In addition, participants indicated that the status signaling partner was higher in status ( $M = 4.47$ ,  $SD = 1.26$ ) than the modest partner ( $M = 3.83$ ,  $SD = 1.06$ ),  $t(301) = 4.82$ ,  $p < .001$ ,  $d = .55$ . Similarly, participants indicated that the status signaling partner was wealthier ( $M = 4.55$ ,  $SD = 1.28$ ) than the modest partner ( $M = 4.05$ ,  $SD = 1.10$ ),  $t(301) = 3.60$ ,  $p < .001$ ,  $d = .42$ . Thus, when the partner's avatar contained a luxury logo, the person was perceived as trying more to signal status, and as having higher status and wealth, compared to when the avatar did not contain such a logo.

### Cooperation Decision

We next examined participants' decisions of whether to cooperate with their partner in the PD game. When their partner signaled

status, 45% of participants cooperated with them, which was significantly lower than the 57% who cooperated when their partner was modest,  $\chi^2(1, N = 303) = 4.52$ ,  $p = .033$ ,  $d = .25$ .

### Prediction of Partner's Cooperation Decision

When their partner signaled status, participants predicted that their partner would cooperate less often (42%) than when their partner was modest, 57%;  $\chi^2(1, N = 303) = 6.68$ ,  $p = .010$ ,  $d = .30$ .

### Judged Prosociality

We further observed that a partner who signaled status was evaluated as less prosocial ( $M = 4.34$ ,  $SD = 0.99$ ) than a modest partner ( $M = 4.54$ ,  $SD = 0.85$ ), although the *p* value is marginally significant for this measure,  $t(301) = -1.89$ ,  $p = .060$ ,  $d = -.22$ .<sup>4</sup>

### Ancillary Analyses

Below we report a series of ancillary analyses that further explore the relationships between the experimental manipulation, judgments of the partner's status and wealth, and the dependent measures. These analyses were not part of the preregistered plan, but allowed us to examine the effects in a few distinct ways. For simplicity, we averaged judgments of the partner's status and wealth, which were highly correlated ( $r = .68$ ,  $p < .001$ ). First, we repeated the key analyses above while also controlling for judgments of the partner's status/wealth. This helps us to isolate the effect of status signaling from the effect of being perceived as having status. Second, we examined whether judgments of the partner's status/wealth mediate the relationship between status signaling and cooperation. This allows us to test whether judgments that a person has status (in addition to the signaling of that status) explain the effects. Third, we examined whether judgments of the partner's status/wealth interacted with the status signaling manipulation. This allows us to examine whether the choice of a luxury-branded avatar means something different as a function of whether it is perceived to reflect someone's actual status/wealth.

**Analyses Controlling for Judged Status/Wealth.** First, we mean-centered judged status/wealth, and then regressed the status signaling manipulation (*status signal* = 1, *modesty* = 0) and judged status/wealth on the decision to cooperate (*cooperate* = 1, *defect* = 0). The effect of status signaling on cooperation remained when controlling for judged status/wealth (status signaling manipulation:  $B = -0.49$ ,  $SE = 0.24$ , Wald- $\chi^2 = 4.20$ ,  $p = .040$ ; mean-centered judged status/wealth:  $B = 0.00$ ,  $SE = 0.11$ , Wald- $\chi^2 = 0.00$ ,  $p = .996$ ; constant:  $B = 0.28$ ,  $SE = 0.17$ , Wald- $\chi^2 = 2.80$ ,  $p = .094$ ). Next, we did the same for predictions of the partner's cooperation decision. For this measure, the effect of status signaling was still

<sup>3</sup> For simplicity of payment administration in this study (as well as Studies 2 and 4), all participants were matched with a partner who had cooperated.

<sup>4</sup> We also conducted an (exploratory) sequential mediation analysis to examine the following pathway: status signaling → judged prosociality → participant's predictions of partner's cooperation decision → participant's cooperation decision. This analysis revealed marginal support for this sequential pattern, with the 90% confidence interval excluding 0, Indirect effect =  $-0.07$ ,  $SE = .04$ , 90% CI  $[-0.13, -0.01]$ . See Supplemental Materials for preregistered analyses that test mediation models with either judged prosociality or predictions of partner's cooperation as the sole mediator.

significant when controlling for judged status/wealth (status signaling manipulation:  $B = -0.63$ ,  $SE = 0.24$ ,  $\text{Wald-}\chi^2 = 6.88$ ,  $p = .009$ ; mean-centered judged status/wealth:  $B = 0.06$ ,  $SE = 0.11$ ,  $\text{Wald-}\chi^2 = 0.29$ ,  $p = .588$ ; constant:  $B = 0.30$ ,  $SE = 0.17$ ,  $\text{Wald-}\chi^2 = 3.15$ ,  $p = .076$ ). Third, we conducted an analysis of covariance (ANCOVA) examining the effect of status signaling on judged prosociality, controlling for judged status/wealth. Judged status/wealth was a significant covariate in this model,  $F(1, 300) = 24.63$ ,  $p < .001$ ,  $d = .57$ , such that being judged as high status/wealthy was positively correlated with judged prosociality ( $r = .24$ ,  $p < .001$ ). Yet, we still observed a significant effect of status signaling on judged prosociality when judged status/wealth was included in the model,  $F(1, 300) = 10.03$ ,  $p = .002$ ,  $d = .36$ . Interestingly, controlling for judged status/wealth actually increased the significance (i.e., reduced the  $p$  value) for the effect of status signaling on judged prosociality.

**Judged Status/Wealth as a Mediator.** Next, we examined whether the measure of judged status/wealth mediated the effect of status signaling on participant's cooperation decision. We found no evidence of mediation (Indirect effect =  $-0.00$ ,  $SE = 0.07$ , 95% CI [ $-0.13$ ,  $0.13$ ], PROCESS Model 4 with 10,000 bootstrapped samples, Hayes, 2013).

**Judged Status/Wealth as a Moderator.** Finally, we examined whether judgments about the partner's status/wealth moderated the key results for cooperation decisions. In particular, we regressed the status signaling manipulation (*status signal* = 1, *modesty* = 0), mean-centered judged status/wealth, and their interaction on participant's decision to cooperate (*cooperate* = 1, *defect* = 0). We still observed a significant effect of status signaling on the decision to cooperate when including the interaction term in the model ( $B = -0.49$ ,  $SE = 0.24$ ,  $\text{Wald-}\chi^2 = 4.10$ ,  $p = .043$ ). There was no effect of judged status/wealth on the decision to cooperate ( $B = -0.06$ ,  $SE = 0.17$ ,  $\text{Wald-}\chi^2 = 0.11$ ,  $p = .746$ ), nor did this measure interact with the status signaling manipulation ( $B = 0.09$ ,  $SE = 0.22$ ,  $\text{Wald-}\chi^2 = 0.17$ ,  $p = .681$ ; constant:  $B = 0.26$ ,  $SE = 0.17$ ,  $\text{Wald-}\chi^2 = 2.38$ ,  $p = .123$ ).

## Discussion

In this study, participants played a PD game with a partner who had ostensibly created an avatar, sometimes adorned with a luxury logo. When their partner signaled status, participants responded with lower rates of cooperation compared to when their partner appeared more modest. Furthermore, the results of the ancillary analyses imply that it is "status signaling" in partner, not merely "having status," that undermines cooperation.

## Study 2

In Study 2, we again examine behavior in the PD game as a function of whether a partner adorns an avatar representation of themselves with a high-status logo. However, this study is different in a few noteworthy ways. First, while participants in Study 1 did not create their own avatars, all participants in this study do so (before learning about the PD game). This permits us to test any alternative explanations that hinge on a mismatch between the participant and their partner. For example, perhaps participants are less cooperative with status signalers because they feel distant or dissimilar from those who choose to adorn their avatar with high-status brands. If an explanation based on a mismatch between the participant's and the

partner's choice to signal status is driving the effects, then participants who choose a luxury logo for their own avatar should be less likely to penalize others who do so as well. However, if our theory is correct, then regardless of whether participants signal status themselves, they should still infer that status signaling partners will not cooperate, and thus will be less prone to cooperate themselves.

Second, unlike Study 1 where participants saw their partner's avatar, in this study participants simply learn whether their partner selected a luxury logo or not. Albeit less "natural" than the operationalization in Study 1, the current approach is useful for isolating the effect of status signaling from other associations with particular brands and features. That is, it reveals the partner's intention to signal status without confounding it with specific brand meanings.

## Method

One hundred ninety-nine paid online participants from AMT (47% female; mean age = 34.88) were instructed to create an avatar in a web application. All participants were told that they could create their avatar to look any way that they wanted, and that their avatar would be displayed to another participant. First, participants indicated the gender, hair color, hair length, and skin tone they wanted their avatar to have. Participants then navigated to another page where they could dress their avatar by selecting one of six different outfits and one of six different pairs of shoes.

Finally, participants could choose to put a luxury logo on the clothing of their avatar, similar to the choice they observed their partner make in Study 1. The brands included: Prada, Gucci, Salvatore Ferragamo, Dior, Louis Vuitton, Hermès, Burberry, and Polo Ralph Lauren, or they could select "I choose unbranded clothing." This served as a measure of participant's own decision to signal status. Overall, 26% of participants ( $n = 52$ ) chose to put a luxury logo on their avatar's clothing. This decision preceded the experimental manipulation and thus could not have been affected by it (and indeed was unrelated,  $p = .97$ ).

After creating their avatar, all participants navigated to the second part of the survey and read instructions for the same PD game as Study 1. Then, participants were randomly assigned to one of two between-subjects conditions. In each of the two conditions, participants read that their partner also created an avatar: "... just like you, Person A chose whether their avatar would wear BRANDED or UNBRANDED clothing. They were told that their partner (Person B) would see whether they chose to put a brand on their avatar's clothing ..." Participants also saw the same list of luxury brands that they had selected from earlier. In the *status signal* condition, participants learned that the partner chose to dress their avatar in luxury-branded clothing (i.e., that they selected one of the fashion brands): "Your partner chose to wear BRANDED clothing." In the *modesty* condition, they learned that their partner opted for no logo on their clothing: "Your partner chose to wear UNBRANDED clothing." Again, the key outcome measure in this study was participant's decision about whether to cooperate or defect. After making their decision, participants indicated their belief about whether their partner would cooperate or not, and judged them on the same judged prosociality measure as the previous study ( $\alpha = .94$ ).

Finally, as a manipulation check of the target individual's motive to signal status, participants indicated to what extent the individual likes to show off when they get the chance, likes to impress others, and is trying to signal their status (from 1 = "Not at all" to 7 = "Extremely");

$\alpha = .97$ ). At the end of the survey, participants learned the outcome of the PD game and completed the amount of work dictated by that outcome.

## Results

### Manipulation Check

A *t*-test revealed that participants evaluated their partner as more motivated to signal status when the partner chose a luxury logo for their avatar ( $M = 5.51$ ,  $SD = 1.09$ ) compared to when they did not ( $M = 2.48$ ,  $SD = 1.28$ ),  $t(197) = 17.98$ ,  $p < .001$ ,  $d = 2.56$ .

### Cooperation Decision

We regressed the participant's decision of whether to cooperate (*cooperate* = 1, *defect* = 0) on the status signaling manipulation (*status signal* = 1, *modesty* = -1), participant's own choice of whether to signal status (*status signal* = 1, *modesty* = -1), and the interaction.

We found that people cooperated to a lesser extent when their partner signaled status (38%) than when their partner did not, 54%;  $B = -0.44$ ,  $SE = 0.19$ ; Wald- $\chi^2(1, N = 199) = 5.41$ ,  $p = .020$ . In addition, we found that participants who chose to signal status were less likely to cooperate (27%) than those who did not (53%;  $B = -0.61$ ,  $SE = 0.19$ ; Wald- $\chi^2 = 10.30$ ,  $p = .001$ ). However, the interaction between participant's own choice to signal status and their partner's choice was not significant ( $B = -0.18$ ,  $SE = 0.19$ ; Wald- $\chi^2 = 0.90$ ,  $p = .344$ ; see Figure 1). The absence of an interaction for this outcome suggests that the effect of status signaling on cooperation is not driven by something related to a mismatch between the partners.

### Prediction of Partner's Cooperation Decision

Next, we replaced the dependent measure with predictions of the partner's cooperation decision (*cooperate* = 1, *defect* = 0). When their partner signaled status, participants predicted that their partner would cooperate less often (40%) than when their partner was modest, 62%;  $B = -0.42$ ,  $SE = 0.17$ ; Wald- $\chi^2 = 5.97$ ,  $p = .015$ . Furthermore, 35% of participants who chose to signal status predicted that their partner would cooperate, compared to 57% of participants who chose to be modest ( $B = -0.48$ ,  $SE = 0.17$ ; Wald- $\chi^2 = 7.76$ ,  $p = .005$ ). Partner's status signaling and participant's own choice to signal status did not interact for this measure ( $B = 0.08$ ,  $SE = 0.17$ ; Wald- $\chi^2 = 0.19$ ,  $p = .662$ ).

### Judged Prosociality

In an analysis of variance (ANOVA) with judged prosociality as the outcome measure, we observed an effect of partner's choice, such that a status signaling partner was evaluated as less prosocial ( $M = 4.35$ ,  $SD = 1.02$ ) than a modest partner ( $M = 5.05$ ,  $SD = 0.92$ ),  $F(1, 195) = 11.62$ ,  $p = .001$ ,  $d = .49$ . We did not observe an effect of participant's own choice on these judgments (participants who chose to signal status:  $M = 4.79$ ,  $SD = 1.02$ ; participants who chose modest attire:  $M = 4.67$ ,  $SD = 1.04$ ),  $F(1, 195) = 0.66$ ,  $p = .419$ ;  $d = .11$ . These results were qualified by an interaction between the two independent variables,  $F(1, 195) = 5.50$ ,  $p = .020$ . Specifically, participants who chose modest attire judged the status signaling partner as less prosocial ( $M = 4.22$ ,  $SD = 0.96$ ) than they judged

the modest partner ( $M = 5.11$ ,  $SD = 0.91$ ),  $t(145) = -5.76$ ,  $p < .001$ ,  $d = .96$ . However, this effect was attenuated for participants who chose to signal status themselves (status signaling partner:  $M = 4.71$ ,  $SD = 1.11$ ; modest partner:  $M = 4.87$ ,  $SD = 0.93$ ),  $t(50) = -0.58$ ,  $p = .564$ ,  $d = .17$ .<sup>5</sup>

## Discussion

As in Study 1, participants were less likely to cooperate in the PD game when their partner signaled status compared to when their partner eschewed status signals. In addition, this effect holds regardless of whether participants themselves choose a luxury logo for their avatar, suggesting that participants are not less cooperative with status signalers because of a mismatch between their choice of luxury logo and their partner's choice. If that were true, then we would expect participants who choose to signal status themselves to be less punitive toward other status signalers. Finally, because participants only learned whether their partner chose to signal status, but did not observe the specific brand selected, we isolate the choice to signal status from other brand associations and inferences.

Interestingly, the pattern for the measure of judged prosociality was different from the other key dependent measures. In this case, status signalers, compared to those who chose modest attire, were less sensitive to whether their partner signaled status or not. Thus, people may be motivated to judge others less harshly for conspicuous consumption that matches their own. Nonetheless, this does not explain participants' cooperation decisions.

## Study 3

Studies 1 and 2 revealed that participants cooperate less with status signalers than with modest partners in a PD game capturing real behavior. Study 3 complements the first two studies by examining another consequence of status signaling in a more naturalistic setting. Many social networks, from Facebook to Meetup.com, involve meeting new people virtually and creating communities around common interests. In these environments, people curate their image through photos and posts on their profile (e.g., Park et al., 2015; Sezer et al., 2018). In this study, we ask participants to imagine that they are part of a group seeking cooperative new members, and to recommend whether another individual should be invited to join their community. We predicted that participants would be less likely to recommend an individual who included status signals in their profile compared to an individual who did not.

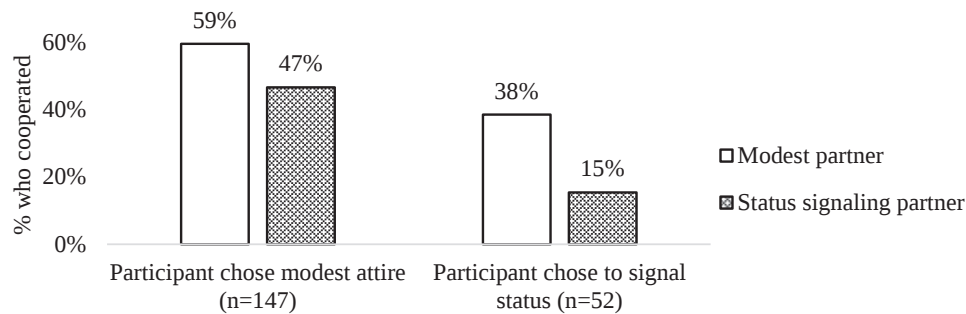
## Method

Three hundred ninety-five paid online participants from AMT<sup>6</sup> (41% female; mean age = 36.03) were asked to imagine that they were part of a social group that works as a team. All participants

<sup>5</sup> As in Study 1, we conducted an (exploratory) sequential mediation model to examine the following pathway: status signaling → judged prosociality → participant's predictions of partner's cooperation decision → participant's cooperation decision. This analyses supported this sequential pattern, with the 95% confidence interval excluding 0, indirect effect =  $-0.18$ ,  $SE = .05$ , 95% CI  $[-0.28, -.08]$ .

<sup>6</sup> In Studies 3 and 5, participants had to complete a captcha verification and answer an attention check to proceed (prior to random assignment; see the studies' materials for exact wording). These checks led to 128/523 exclusions in Study 3 and 134/520 exclusions in Study 5.

**Figure 1**  
*Cooperation Decision in Study 2*



were told that they had been tasked by the group to find cooperative, selfless, and generous people to join their community, and that they would evaluate the social network profile of one individual who they were considering for their group.

Participants were then randomly assigned into one of two profile type conditions (*status signal* vs. *neutral*). Everyone saw a profile for John Thompson, which contained his hometown (Philadelphia, PA), his favorite things, and his recent posts. In both conditions, John shared the same neutral information under “favorite things” (e.g., “dogs”) and “recent posts” (e.g., “I saw the cutest puppy today! #goldenretrievers”). Participants in the *status signal* condition saw the exact same profile (with the same neutral information in these sections), except the “favorite things” and “recent posts” also included posts about status signals (e.g., favorite things: “The Ritz Carlton, Four Seasons”; recent posts: “Heading to Madrid! #firstclass #luxury”). In addition, we manipulated the topic of the post included in these sections, such that participants saw a post from one of four domains (attire, cars, travel, or food; see “Study 3 Materials” in the Supplemental Materials for stimuli). We preregistered and planned the sample size to have sufficient power to detect the main effect of profile type.

The key outcome measure in this study was whether participants recommended the target individual to be admitted into their social group (from 1 = “I would definitely NOT recommend” to 7 = “I would definitely recommend”). In addition, participants evaluated the target individual’s prosociality ( $\alpha = .93$ ) using the same items as the previous study. As in Study 1, we also asked participants to judge how wealthy the target individual was (from 1 = “Not at all” to 7 = “Extremely”), so we could test whether the key analysis was robust to controlling for this judgment.

Finally, participants responded to the same four manipulation check questions from Study 1 intended to capture perceptions of the target individual’s motive to signal status ( $\alpha = .96$ ).<sup>7</sup>

We preregistered the methods and analysis plan for this study (<https://aspredicted.org/re4bt.pdf>).

## Results

This study was a 2 (profile type: *status signal* vs. *neutral*)  $\times$  4 (topic of the post: Attire, cars, travel, food) between-subjects design. The key test of our prediction was the main effect of profile type. As preregistered, we also included the topic of the post and the interaction as factors in all of the analyses.

## Manipulation Check and Measure of Judged Wealth

The results of an ANOVA revealed that the target individual was perceived as more motivated to signal status in the *status signal* condition ( $M = 5.88$ ,  $SD = 1.26$ ) than in the *neutral* condition ( $M = 3.36$ ,  $SD = 1.48$ ),  $F(1, 387) = 348.93$ ,  $p < .001$ ,  $d = 1.90$ . There was also an unexpected main effect of topic of the post,  $F(3, 387) = 2.94$ ,  $p = .033$ , as well as an interaction between profile type and topic,  $F(3, 387) = 3.09$ ,  $p = .027$ . This interaction was due to the fact that the simple effects were larger in some topics than others (see “Supplemental Figure 1” Panel A in the Supplemental Materials). However, the individual who signaled status was judged as more motivated to signal status than the neutral individual across all four topics.

An ANOVA on judged wealth revealed that the target individual was judged as wealthier in the *status signal* condition ( $M = 5.66$ ,  $SD = 1.16$ ) than in the *neutral* condition ( $M = 4.00$ ,  $SD = 1.22$ ),  $F(1, 387) = 202.84$ ,  $p < .001$ ,  $d = 1.45$ . There was also a marginally significant main effect of topic of the post,  $F(3, 387) = 2.43$ ,  $p = .065$ , and an interaction between profile type and topic,  $F(3, 387) = 5.74$ ,  $p < .001$ . Importantly, the status signaling individual was judged as wealthier than the neutral individual across all four topics (see “Supplemental Figure 1” Panel B in the Supplemental Materials).

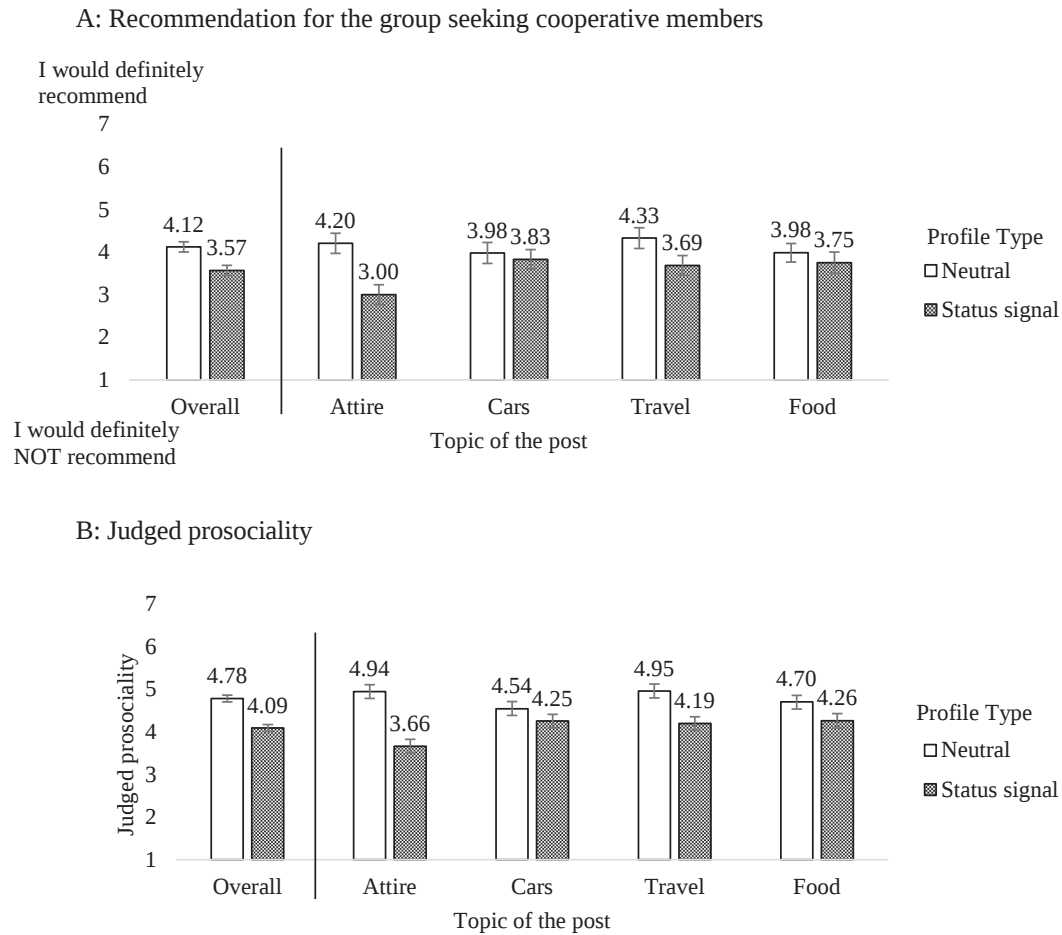
## Recommendation for Group

Consistent with our prediction, an ANOVA revealed that participants were less likely to recommend the target individual to be part of their group when the individual’s profile included status signals ( $M = 3.57$ ,  $SD = 1.83$ ) than when it did not ( $M = 4.12$ ,  $SD = 1.46$ ),  $F(1, 387) = 11.15$ ,  $p = .001$ ,  $d = .34$  (see Figure 2, Panel A). There was no difference in recommendation for the group based on the topic of the post,  $F(3, 387) = 1.07$ ,  $p = .361$ , nor was there an interaction between profile type and topic of the post,  $F(3, 387) = 2.11$ ,  $p = .098$ .

As a robustness check similar to Study 1, and in accordance with our preregistration, we conducted an ANCOVA with the same variables plus a covariate of judged wealth. Judged wealth was a significant covariate of recommendation for the group,  $F(1, 386) = 7.25$ ,

<sup>7</sup> Study 3 also included exploratory measures of judged likability and judged competitiveness (1 = “Not at all” to 7 = “Extremely”). See “Additional Analyses” in the Supplemental Materials for results.

**Figure 2**  
Study 3 Results



$p = .007$ ,  $d = .27$ .<sup>8</sup> Yet, as predicted, we still observed a significant effect of profile type when judged wealth was included in the model,  $F(1, 386) = 18.53$ ,  $p < .001$ ,  $d = .44$ . As in the ANOVA described just above, there was no effect of topic,  $F(3, 386) = 1.36$ ,  $p = .255$ , nor was the interaction significant in this model,  $F(3, 386) = 1.62$ ,  $p = .184$ .

### Judged Prosociality

As predicted, we found the same pattern of results when the dependent measure was judged prosociality. Specifically, an ANOVA revealed that participants perceived the individual whose profile displayed status signals as less prosocial ( $M = 4.09$ ,  $SD = 1.33$ ) than the individual whose profile did not ( $M = 4.78$ ,  $SD = 0.92$ ),  $F(1, 387) = 36.63$ ,  $p < .001$ ,  $d = .61$  (see Figure 2, Panel B). There was no difference in judged prosociality based on the topic of the post,  $F(3, 387) = 1.02$ ,  $p = .383$ . There was an unpredicted interaction between profile type and topic,  $F(3, 387) = 3.66$ ,  $p = .013$ , as certain contrasts were unexpectedly larger than others.<sup>9</sup>

As a robustness check, we conducted an ANCOVA with the same variables plus a covariate of judged wealth. Here, judged

wealth was a significant covariate of judged prosociality,  $F(1, 386) = 12.12$ ,  $p = .001$ ,  $d = .35$ . However, as predicted, we still observed a significant effect of profile type,  $F(1, 386) = 49.20$ ,  $p < .001$ ,  $d = .71$ . The effect of topic was not significant,  $F(3, 386) = 1.18$ ,  $p = .317$ , and interaction between profile type and topic was significant when judged wealth was included in the model,  $F(3, 386) = 2.76$ ,  $p = .042$ .

### Discussion

Using a naturalistic social media setting, Study 3 builds on the first two studies by showing that status signaling can have negative consequences in contexts where it is advantageous to appear

<sup>8</sup> Using regression to examine the direction of this significant covariate, we found that judged wealth was a positive predictor of recommendation for the group ( $B = 0.20$ ,  $SE = 0.07$ ,  $t = 2.80$ ,  $p = .005$ ), and the effect of profile type on recommendation for the group was still significant and negative ( $B = -0.88$ ,  $SE = 0.20$ ,  $t = -4.34$ ,  $p < .001$ ).

<sup>9</sup> Judgments of the target individual's prosociality mediated the effect of status signaling ( $status\ signal = 1$ ,  $neutral = 0$ ) on recommendations for the group. Indirect effect =  $-0.74$ ,  $SE = 0.12$ , 95% CI  $[-0.98, -0.50]$ , PROCESS Model 4 with 10,000 bootstrapped samples, Hayes, 2013.

cooperative. In particular, people were less likely to recommend an individual who signals status in their posts (compared to one who does not) when their group was seeking cooperative individuals.<sup>10</sup>

### Study 4

In the studies thus far, we have focused on how people *respond to* those who signal status compared to those who are more modest. In the remaining studies, we turn to examine whether the meaning people ascribe to conspicuous consumption also affects their *choice of whether to signal status* (vs. be modest)—that is, whether people act strategically when it is beneficial to appear cooperative.

In Study 4, we return to the PD game used in Study 1; however, only half the participants anticipate playing the game. These participants have an opportunity to design an avatar that their partner will view *before* making a cooperation decision. Because participants will receive a higher pay-off if their partner cooperates, it is advantageous for them to appear cooperative in order to induce their partner to reciprocate with cooperation. Given that people perceive a negative relationship between signaling status and prosociality, we predicted that participants will be less likely to signal status when they anticipate a PD game, compared to when they do not.

### Method

Two hundred fourteen paid participants (63% female; mean age = 28.48) from a behavioral lab at a northeastern university were instructed to create an avatar in a web application that would be shown to a partner. First, like in Study 2, participants selected gender, hair, skin tone, and an outfit for their avatar. Next, participants chose whether to put a luxury brand (Prada, Gucci, Salvatore Ferragamo, Dior, Louis Vuitton, Hermès, Burberry, or Polo Ralph Lauren) on their avatar's clothing, or to wear unbranded clothing.

Participants were randomly assigned to one of two between-subjects conditions. In the *display only* condition, participants were told that their avatar would be shown to a partner, but that their partner would not make any decisions with regard to them. In the *cooperative task* condition, prior to making their avatar, participants read the instructions describing the PD game used in Studies 1 and 2. All participants in this condition were assigned to be Person A in the PD game, and told that while their decision of whether to cooperate would *not* be observable to Person B, their avatar would be observable to Person B before s/he made a decision in the game. Therefore, in both conditions, the participant's avatar would be observable to their partner, but only in the *cooperative task* condition would their partner subsequently decide whether to cooperate or defect.

This design allows us to examine whether people are strategic about their choice to signal status when they are playing the PD game, over and above their baseline preference for creating a luxury-branded avatar that others will see. Presumably, in the *cooperative task* condition, participants would strategically consider how their avatar's appearance might affect their partner's willingness to cooperate. The primary dependent variable in this study is whether participants chose to put a luxury logo on their avatar's clothing.<sup>11</sup>

At the end of the study, as a manipulation check we asked participants to indicate "Did another participant in this study make a decision that affected you?" ("Yes"; "No").

### Results

#### Manipulation Check

Eighty-four percent of participants correctly indicated whether their partner made a decision that affected them.

#### Choice of Whether to Signal Status

When participants only displayed their avatar with no expectation of a cooperative task, 50% of participants chose a luxury logo for their avatar. However, when participants anticipated a cooperative task, only 33% chose a luxury logo for their avatar,  $\chi^2(1, N = 214) = 6.59, p = .010, d = .36$ .

### Discussion

The results of Study 4 provide initial support for strategic modesty in an incentive-compatible setting with consequential outcomes for participants. In the PD game, participants earn a higher pay-off if their partner cooperates; thus, it is beneficial in this context to appear cooperative. The results suggest that participants are aware that signaling status might be disadvantageous, and thus strategically avoid luxury logos to make a better impression when prosociality is valued.

It is noteworthy that many participants chose a luxury logo for their avatar absent any social incentive. At the very end of this study, we asked participants an open-ended question to examine how they interpreted these avatars, and subsequently coded their responses. The most frequent comment was that luxury logos signified the individual's wealth and status, but participants gave a range of responses, including mentions of fashion/style, snobbishness, showing off, materialism, and respect. See "Study 4 Coding of Judgments of Avatars with Luxury Logos" in the Supplemental Materials for a descriptive summary of these coded responses.

### Study 5

In this study, we further examine whether people are strategically modest, but we return to the more naturalistic setting used in Study 3 where people decide whether to post signals of status on social media. However, in this study, participants' objective is to be selected for a social group based on their social media profile (rather than to select other members for the group). We test whether people strategically change the content they post as a function of the type of group they want to join. We expect that participants will avoid posting about status

<sup>10</sup> A similar study reported in the Supplemental Materials (Supplemental Study 1) examines whether participants' responses toward status signalers depend on whether prosociality is desirable for their group. This study replicates the results of Study 3 (people were less likely to recommend status signalers for a group seeking cooperative members), while also showing that people were *more* likely to recommend status signalers when tasked with finding competitive members for their group.

<sup>11</sup> In the *cooperative task* condition, participants ended the survey by choosing whether to cooperate or defect, and predicted their partner's choice. Fifty percent cooperated and 50% predicted that their partner would cooperate. These were highly correlated ( $r = .69, p < .001$ ).

signals when striving to join a group that is looking for cooperative members, compared to when the group does not highlight cooperation.

## Method

This study was a 2 (cooperation emphasized: yes vs. no)  $\times$  4 (topic of the post: Attire, car, travel, or food) fully between-subjects design. Three hundred eighty-seven paid participants (43% female; mean age = 36.71) from AMT were asked to imagine they were creating a profile on a social network website. When cooperation was *not* emphasized, participants were told that this website connects individuals for group activities. When cooperation was emphasized, participants were given the same information but also told that the social group they were hoping to join works as a team, and was specifically looking for extremely cooperative, selfless, and generous people to join their community.

All participants were then told that they had engaged in two activities over the weekend and needed to decide whether to post about those activities on their profile. Participants each saw two prewritten posts that described their activities: One post was about a neutral activity, while the other post included a signal of status (posts presented in random order). Like in Study 3, we used four different topics of posts (attire, car, travel, and food). For example, on the topic of attire, the participant could choose to post something neutral (“Running in the spring is the best!”), something related to status (“Went shopping this weekend. #Prada”), neither, or both. See “Study 5 Materials” in Supplemental Materials for participants’ options of what to post across topic conditions. We preregistered and planned the sample size to have sufficient power to detect the effect of whether cooperation was emphasized or not across all four post topics. The dependent variable in this study was participant’s choice of whether to post status signals or not. Thus, we coded anyone who chose to post status signals as 1 (and all else as 0).

At the end of the study, as a manipulation check we asked participants to rate how important it was for the group they were trying to join to find cooperative members (1 = “Not at all important” to 5 = “Extremely important”).

We preregistered the methods and analysis plan for this study (<https://aspredicted.org/9ry5q.pdf>).

## Results

### Manipulation Check

When cooperation was emphasized, participants rated it more important for the group to find cooperative members ( $M = 4.45$ ,  $SD = 0.73$ ) compared to when cooperation was not emphasized ( $M = 3.93$ ,  $SD = 0.90$ ),  $t(385) = 6.27$ ,  $p < .001$ ,  $d = .64$ .

### Choice of Whether to Signal Status

We employed logistic regression to examine participants’ choice to post a status signal (*status signal* = 1, *modesty* = 0). The independent variables were whether cooperation was emphasized (*yes* = 1, *no* = -1), topic of the post, and their interaction. For topic, we used three effects-coded variables (V1, V2, and V3; Keppel & Wickens, 2004; Rosenthal & Rosnow, 1985).<sup>12</sup> Using this model, we can test whether emphasizing cooperation affects the choice to post a status signal, on average, across all topics. Our key prediction

**Table 1**

*Regression on Participant’s Choice to Signal Status in Study 5*

| Variable                           | <i>B</i> ( <i>SE</i> ) | Wald- $\chi^2$ test           |
|------------------------------------|------------------------|-------------------------------|
| Constant                           | -0.82 (0.12)           | $\chi^2 = 44.50$ , $p < .001$ |
| Cooperation emphasized             | -0.28 (0.12)           | $\chi^2 = 5.18$ , $p = .023$  |
| V1                                 | -0.06 (0.20)           | $\chi^2 = 0.10$ , $p = .756$  |
| V2                                 | 0.95 (0.19)            | $\chi^2 = 24.13$ , $p < .001$ |
| V3                                 | 0.33 (0.19)            | $\chi^2 = 2.83$ , $p = .093$  |
| Cooperation emphasized $\times$ V1 | 0.20 (0.20)            | $\chi^2 = 0.95$ , $p = .331$  |
| Cooperation emphasized $\times$ V2 | -0.10 (0.19)           | $\chi^2 = 0.26$ , $p = .611$  |
| Cooperation emphasized $\times$ V3 | -0.11 (0.19)           | $\chi^2 = 0.31$ , $p = .578$  |

was supported: Overall, participants chose to post status signals less when cooperation was emphasized (27%) compared to when it was not (39%;  $B = -0.28$ ,  $SE = 0.12$ , Wald- $\chi^2 = 5.18$ ,  $p = .023$ ). For full regression results see Table 1. Figure 3 displays the percentage of participants choosing to post status signals overall and by topic.

## Discussion

This study further demonstrated that people are strategically modest when it is useful to appear cooperative. We found this pattern across four topics in a naturalistic scenario involving social media posts.

## Study 6

In the previous two studies, we hypothesized and found that people refrain from signaling status when it behooves them to appear cooperative. Yet it could be the case that people avoid displaying luxury logos for reasons other than the fact that they signal status. That is, it is possible that people infer something else about logo-wearers (e.g., they prefer eye-catching or flashy clothing over plain clothing), which makes them reluctant to choose luxury logos in cooperative contexts. In the final study, in addition to manipulating whether the context emphasizes cooperation as in Study 5, we also manipulate whether the logos that can be selected for one’s clothing represent luxury brands or more accessible, nonluxury brands. We theorized that accessible, nonluxury brands would not signal that one is self-interested in the same way that luxury brands would. Thus, we predicted that, when cooperation is emphasized, people would eschew logos only when the set of logos represents luxury brands, and that this effect will be attenuated when people are choosing whether to display a nonluxury brand. Put differently, there is no strategic reason for people to refrain from choosing a logo for their clothing in cooperative contexts, except when the logo is a conspicuous signal of status.

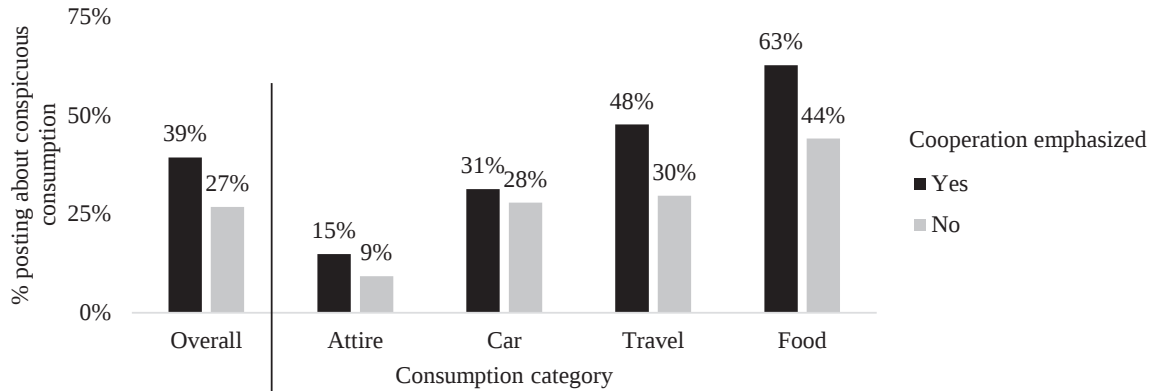
## Method

One thousand three hundred forty-five participants (57% female; mean age = 20.68) sampled from behavioral labs at three U.S. universities (School A:  $n = 588$ , School B:  $n = 177$ , School C:  $n = 580$ ) were asked to imagine they were creating a profile on a

<sup>12</sup> Variable coding—attire: V1 = -1, V2 = -1, V3 = -1; food: V1 = 1, V2 = 0, V3 = 0; car: V1 = 0, V2 = 1, V3 = 0; travel: V1 = 0, V2 = 0, V3 = 1. Since the randomization led to an uneven number of participants per cell, we mean-centered each new effects-coded variable so that each one’s average across all participants equaled zero.

**Figure 3**

Percentage of Participants Choosing to Post Status Signals by Topic and Whether the Group Emphasized Cooperation in Study 5



social network website. This experiment was a 2 (cooperation emphasized: yes vs. no)  $\times$  2 (brand choice set: Luxury vs. non-luxury) fully between-subjects design.

We instructed participants to imagine that they hoped to be selected for an online group and their task was to choose what to wear for their social media profile picture. Like in Study 5, we manipulated whether (or not) cooperation was emphasized as desirable for selection of individuals in this group. In addition, we manipulated the choice set of brand logos that participants could wear. In the *luxury brand* condition, participants saw a set of luxury logos that included Prada, Gucci, Dior, Louis Vuitton, Hermès, and Burberry. In the *nonluxury brand* condition, participants saw a set of accessible brands that included Skechers, Old Navy, Lee, Gap, Levi's, and Disney.<sup>13</sup> Each participant chose whether to wear one of the brands in their profile photo, or to forego brands by choosing the option "I choose unbranded clothing." The choice to include a logo or not served as the primary dependent measure in this study.

As a manipulation check, we asked participants at the end of the study to rate how important it was for the group they were trying to join to find cooperative members (from 1 = "Not at all important" to 5 = "Extremely important").

We preregistered the methods and analysis plan for this study (<https://aspredicted.org/3k3vf.pdf>).

## Results

### Manipulation Check

When cooperation was emphasized, participants rated it more important for the group to find cooperative members ( $M = 4.59$ ,  $SD = 0.59$ ) compared to when it was not ( $M = 4.23$ ,  $SD = 0.73$ ),  $t(1343) = 10.06$ ,  $p < .001$ ,  $d = .55$ .

### Choice of Whether to Display Logo

Using a logistic regression, we regressed participant's choice to wear a logo or not (*chose a logo* = 1, *chose no logo* = 0) on whether the group emphasized cooperation (*yes* = 1, *no* = -1), brand choice set (*luxury* = 1, *nonluxury* = -1), and their interaction. We observed an effect of whether cooperation was emphasized on the choice

to display a logo ( $B = -0.20$ ,  $SE = 0.06$ , Wald- $\chi^2 = 11.87$ ,  $p = .001$ ) and no effect of brand choice set ( $B = 0.07$ ,  $SE = 0.06$ , Wald- $\chi^2 = 1.30$ ,  $p = .254$ ). However, this was qualified by an interaction ( $B = -0.16$ ,  $SE = 0.06$ , Wald- $\chi^2 = 7.74$ ,  $p = .005$ ). Specifically, replicating the previous study, among those who could choose a luxury logo, participants were less likely to choose to display a logo on their clothing when the group they hoped to join emphasized cooperation (27%) compared to when the group did not, 43%;  $\chi^2(1, N = 673) = 19.78$ ,  $p < .001$ ,  $d = .35$ . However, among those who could choose an accessible, nonluxury brand, this same contrast was not significant: Participants were no less likely to choose a logo for their profile picture when the group emphasized cooperation (31%) compared to when it did not, 33%;  $\chi^2(1, N = 672) = 0.22$ ,  $p = .640$ ,  $d = .04$ .<sup>14</sup>

Although we did not predict it, it is worthwhile to note that significantly more participants chose a luxury brand than a non-luxury brand when cooperation was *not* emphasized,  $\chi^2(1, N = 670) = 8.22$ ,  $p = .004$ ,  $d = .22$ ; yet when cooperation was emphasized, there is no significant difference,  $\chi^2(1, N = 675) = 1.27$ ,  $p = .259$ ,  $d = .09$ . We believe that this pattern emerged because the luxury logos are generally more appealing (perhaps due to the many advantages that come from being perceived as having status). In spite of their appeal, when cooperation is emphasized, people recognize their disadvantages.

## Discussion

This study again showed that people are less likely to display luxury logos when they want to appear cooperative; however, people are no less likely to display accessible, nonluxury logos. These results demonstrate the unique meaning conveyed by luxury logos: When aiming to appear cooperative, people do not eschew

<sup>13</sup> We chose these brands based on the results of a pretest where participants judged people who wore the luxury brands to be higher status and wealthier than people who wore the nonluxury brands (for full details about the pretest, see Supplemental Materials).

<sup>14</sup> See "Additional Analyses" in the Supplemental Materials for the results controlling for the different behavioral labs from which the data were collected. The key findings remain unchanged with these controls.

logos as a general rule, but strategically avoid them only when those logos signal status in particular. That is, people's strategic response is to refrain from signaling *status*, rather than refrain from signaling more generally.

### General Discussion

The current article takes a comprehensive view of status signaling and cooperation by examining both (a) responses to others who signal status, as well as (b) the strategic choices people make about whether to engage in such signaling when their chief aim is to appear cooperative. In the PD game, we find that people are less likely to cooperate with others who signal status compared to those who are modest (Studies 1 and 2). This reflects the belief that status signalers are self-interested and unlikely to cooperate. That is, cooperation is desirable, but only when others are expected to cooperate; no one wants to be a "sucker." Furthermore, in a scenario study, we find that people are less likely to recommend status signalers for a group seeking cooperative members (Study 3). On the other side of the cooperation equation, we find that people are less likely to signal status themselves when their goal is to appear cooperative (Studies 4–6), but are not less likely to display other signals which do not convey status (Study 6). Thus, people seem to be aware of when modesty is advantageous and strategically refrain from conspicuous consumption when aiming to signal that they are likely to cooperate.

We test these predictions in complementary paradigms. First, we use the PD game, a tightly controlled and consequential game that models cooperative decision-making (Murnighan & Wang, 2016). Second, we designed scenarios that mimic common social network platforms, where people frequently interact online and curate their image through profile photos and posts. In each environment, we test how people respond to status signaling, and also whether people elect to share conspicuous signals of status. Across both of these paradigms, we operationalize conspicuous consumption in several ways, such as luxury logos included on the clothing of an avatar created to represent the self, as well as hashtags of luxury brands or product names. Taken together, these studies present robust evidence for our predictions.

### Theoretical Contributions

This research makes unique contributions to the literatures on conspicuous consumption and impression management. In contrast to the Veblen perspective (1899) that conspicuous consumption contains positive signal value, only recently has research started to explore the negative social inferences from signaling status (e.g., Cannon & Rucker, 2019; Ferraro et al., 2013; Garcia et al., 2019; McFerran et al., 2014; Scott et al., 2013). The current studies build on this work by demonstrating the implications of status signaling for cooperation. As such, our work helps to paint a broader picture of how inferences about status signalers shape strategic behavior, demonstrating a critical context where the costs of conspicuous consumption (i.e., appearing selfish) outweigh the benefits (i.e., appearing high status).

Moreover, past research has explored when people choose to display their status and wealth as a means of making a favorable impression (Garcia et al., 2019; cf. Veblen, 1899). Our research

demonstrates that people also strategically *avoid* conspicuous consumption at times, when their goal is to appear cooperative. Thus, impression management concerns can encourage people to increase or decrease their status signaling depending on what is desirable in a given situation.

Additionally, the current article bridges the topic of conspicuous consumption with cooperation, a fundamental behavior for social life (e.g., Dawes et al., 1977; Orbell et al., 1988; Rand et al., 2009, 2012). In particular, this work contributes to research on the determinants of cooperation (e.g., Danheiser & Graziano, 1982; Rand & Nowak, 2013; Swingle & Santi, 1972; Wichman, 1970). While past research has studied what influences cooperation (e.g., individual differences, motivational, and contextual factors), there is far less work on what people choose to signal and the impact of those signals on cooperative behavior (but see Levine et al., 2018). We identify an important signal, frequently used by individuals, which can harm cooperation. Furthermore, we find these detrimental effects of signaling status using a novel version of the PD game where people can transfer work as opposed to money, and signal various traits and preferences through an avatar. These tools may be useful to future researchers studying the effects of signaling on cooperation or other actions and outcomes, especially in contexts where monetary outcomes may have special significance (as with conspicuous consumption).

More broadly, this research connects to social psychological research on social class (e.g., Belmi et al., 2020; Bjornsdottir & Rule, 2017; Kraus et al., 2009) and the relationship between wealth/social class and various ethical and prosocial behaviors (Dubois et al., 2015; Kraus & Keltner, 2013; Piff et al., 2010, 2012; Van Doesum et al., 2017). We add to this literature by highlighting how the choice to signal status is also meaningful for prosocial behavior.

### Implications

The high demand for luxury goods is typically explained by the social advantages of status signaling (Veblen, 1899). We do not dispute that status signaling is beneficial in many contexts. Indeed, we find that status signaling helps a person gain acceptance into a group that is seeking competitive members (see Supplemental Study 1). However, our research suggests a more nuanced view regarding the social effects of status signaling. Specifically, the findings caution against using this strategy indiscriminately. Individuals should consider how important it is for them to appear prosocial, and strategically choose modesty when the goal to achieve cooperation is more important than other social goals (e.g., to appear wealthy or successful).

These strategic concerns are particularly important in the era of social media, where people can easily broadcast their consumption choices to large audiences. Many people show off their status through posts on Instagram, Twitter, and Facebook (e.g., Sekhon et al., 2015). Such posts may be beneficial for communicating one's wealth and status, but as we have shown, they can also have negative effects. A boastful post could wind up on social media accounts such as "Rich Kids of the Internet," which highlights extreme acts of status signaling and has over 350,000 followers and countless angry comments (Hoffower, 2020). Celebrities and other public figures also risk their reputations when they post about their status. For

instance, when Louise Linton, wife of the U.S. Secretary of the Treasury, posted a photo of herself from an official government visit with many luxury-branded hashtags, she was vilified on social media and in the press (Calfas, 2017).

### Limitations and Future Directions

In terms of the studies herein, it is important to note that we examined our predictions in a controlled environment that manipulated status displays within a single interaction. Such an experimental design improved the internal validity of our studies by allowing us to isolate the effect of status signaling while controlling for other knowledge. However, in the real world, the same individual might send a mix of signals, and observers might interpret conspicuous consumption differently if they have other beliefs about the individual or have accumulated information across repeated interactions with them.

It is also possible that participants in our experiments perceived the status signals as “cheap talk” (i.e., costless and thus inauthentic signals of status). Yet the evidence suggests otherwise. That is, participants judged targets as wealthier and higher status when they displayed such cues, even without evidence of costliness. Beyond signal costliness, signal deservingness may also matter. For example, people may soften their view of status signalers when they perceive that the status is earned. In addition, acting “humble” while signaling status might mitigate the negative effect, or it could make it worse (cf. Sezer et al., 2018). Future research can explore how such contextual factors influence cooperation and other social behaviors.

Moreover, we focus herein on cooperation. However, social goals are often complex and competing (e.g., Cillessen & Rose, 2005), and people may at times want to appear cooperative while also signaling other traits as well. In these situations, they will need to consider trade-offs (e.g., modesty may signal cooperativeness, which is beneficial, but also low status, which is detrimental). Recent evidence finds that people’s lay beliefs about these trade-offs can be miscalibrated. Specifically, Garcia et al. (2019) demonstrate that when attempting to make friends, individuals opt to signal status; however, when seeking friends, people prefer those who are more modest. Thus, in the context of friendship, it appears that people overweight the benefits of signaling status and underweight its disadvantages. In addition, the effects of status signaling might also be weaker if the signal itself contains greater nuance. For example, a shirt with an Ivy League logo could convey wealth but also intelligence, competence, and hard work, and a Tesla logo may show off status while also communicating concern for the environment. Finally, the effects of status signaling could depend on who is observing the signal. While Study 2 did not detect moderation based on people’s own decisions to conspicuously consume, it could be the case that “relative” status matters (e.g., being close in standing makes people feel threatened or envious) and would thus lead to even less cooperative responses (cf. Garcia et al., 2006; Poortvliet et al., 2009). Future research might examine how more complex sets of signals and goals shape impressions and drive cooperative behavior.

In this article, we have conceptualized status signaling and modesty as opposite ends of a continuum, and we operationalized the contrast between them in different ways. In Studies 1 and 2,

modesty was the deliberate choice to avoid a luxury logo, whereas in Study 3, it was the absence of conspicuous consumption. Future research should more deeply explore other points along this continuum, from being extremely modest to egregious status signaling. For example, the effects of signaling status might be greater when the signal (e.g., a logo) is larger or flashier, and likely also depends on the context and surrounding cues (e.g., audience size).

Furthermore, we focus on modesty about wealth/economic status and find it to be advantageous for cooperation. However, insofar as modesty manifests as hiding information about particular achievements, there may at times be disadvantages. Roberts et al. (2021) find that sharing success can benefit relationship closeness and that hiding such success can be viewed as insulting. To be sure, future research would benefit from a broader conceptualization of the nuances of modesty and self-promotion for social inference, behaviors, and relationships.

Finally, in the studies herein, we relied on online participants predominately from Western countries. Although conspicuous consumption has been documented across many different cultures and locations (Bursztyn et al., 2018; Godoy et al., 2007; Goenka & Thomas, 2020; Kim & Drolet, 2009), our research questions would benefit from exploration in less “WEIRD” samples. For instance, it could be the case that cooperation no longer hinges on status signaling within cultures that perceive luxury consumption as less immoral (Goenka & Thomas, 2020).

In summary, although there are myriad advantages of status signaling, there are also disadvantages. We highlight how status signaling can have detrimental effects on cooperation due to its association with self-interest. Thus, when the goal is cooperation, it pays to be modest.

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