

Social inferences from choice context: Dominated options can engender distrust

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ABSTRACT

The details of a decision context — including the set of alternatives being offered — can considerably influence the judgments and choices that people make. For instance, people's decisions are often influenced by the presence of a dominated option (one that is objectively inferior to one of the alternatives) in a choice set. In studying such “context effects,” previous research has focused on how the composition of a choice set affects people's choices and the way they attend to options and weigh attributes. We take a complementary approach. Here, we propose that the composition of a choice set may be interpreted as signaling information about the choice architect who curated the choice set. Further, we hypothesize that these social inferences can systematically influence decisions. Across seven experiments ($N = 3328$) using vignette studies and incentive-compatible economic games, we focus on one example of this more general phenomenon, showing that the inclusion of a dominated option can engender distrust in the choice architect. This distrust in turn leads to greater preference for other choice providers. By investigating the social implications of dominated options, we uncover novel psychological and behavioral consequences of choice set composition. We close by considering broader theoretical and practical implications regarding social inferences from choice context.

1. Introduction

Imagine you move to a new city and need to purchase new internet services from one of the two major internet service providers in the area. One telecom company offers a standard menu of internet options, and the other company offers a similar set while also including an obviously bad additional option, one that has slower speeds for more money. (For an example, see [Fig. 6](#)). Consider how the presence of this poor alternative might affect your attitude toward the telecom company and the services they offer, and how these impressions might in turn affect your preference between the two providers. Rational choice theory suggests that bad options ought to be ignored and you should simply choose among the best available internet plans; in practice, however, offering the poor option may send a meaningful signal about how much you should trust the telecom company.

Choice sets like these that include dominated options — options that are unequivocally inferior to another alternative — are offered across industries ([Bhargava et al., 2017](#); [Doyle et al., 1999](#); [Lunn et al., 2018](#); [Rabin & Weizsäcker, 2009](#); [Wu & Cosguner, 2020](#)). For instance, among

health insurance companies offering high- and low-deductible plan options, approximately half of all firms include a dominated healthcare plan among their menu of options (i.e., plans that cost more with no better coverage, at any level of healthcare utilization; [Liu & Sydnor, 2022](#)). To understand the effects of dominated options on choice, previous work has largely focused on how preferences between alternatives within a choice set shift with the introduction of a dominated option ([Huber et al., 1982](#)). In this project, we take a complementary approach by investigating an unexplored consequence of dominated options. We show that inclusion of dominated options can signal information about the choice set curator (the “choice architect”). In doing so, we uncover a novel mechanism and pattern of choices that would otherwise go unexplained. That is, we theorize and show that the presence of dominated options can erode trust in the choice architect and, consequently, increases preference for other choice architects. We conjecture that the effects we document represent a more general tendency for choice makers to use details from the choice context to make social inferences about the choice architect. We close by drawing general lessons concerning decision-making theory and choice architecture in practice.

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2. Theoretical development

2.1. Dominance and the attraction effect

Context effects occur when preferences between two options shift with the introduction of a third alternative (Huber et al., 1982; Simonson, 1989; Tversky, 1972). One such context effect, the “attraction effect,” examines how preference between alternatives changes with the introduction of a dominated, “decoy” option. A dominated option is one that, compared to at least one other option in the choice set (i.e., the dominating option), is worse on at least one attribute and is no better on any other attribute. Put differently, dominated options are objectively inferior to at least one other alternative in the choice set. According to rational choice theory, dominated options should be normatively irrelevant to people’s preferences. Specifically, the independence of irrelevant alternatives (IIA) choice axiom entails that, because the dominated option should never be preferred to the dominating alternative in the choice set, the introduction of a dominated option normatively should never influence preferences among the other alternatives (Arrow, 1951; Luce, 1959). Rationally, by IIA, people should ignore dominated options, acting as if the dominated option simply were not part of the choice set.

Yet previous work has shown that the inclusion of a dominated option within a choice set can cause an “attraction effect,” increasing preferences for otherwise similar dominating options (Huber et al., 1982, 2014). Thus, the attraction effect ostensibly represents a violation of IIA (Ratneshwar et al., 1987). In past work on the attraction effect, researchers have primarily focused on how dominated options affect tradeoffs between options’ attributes and people’s choices among the options. It is perhaps for this reason that most investigations of the effect of dominated options on choice have focused on purely cognitive (non-social) mechanisms such as attention (Król & Król, 2019; Marini et al., 2020), perceived attribute variance (Reich et al., 2021), regulatory focus (Mourali et al., 2007), heuristic or biased processing (Bateson et al., 2003; Kouroux & Bauer, 2019; Tsuzuki et al., 2019), and even neurological explanations such as the suppression of brain regions associated with negative affect (Hedgcock & Rao, 2009). Further, researchers have developed cognitive models of decision making to predict the attraction effect (and other context effects) using only principles of basic perception (Mohr et al., 2017; Trueblood et al., 2013).

Our research takes a complementary approach. We argue that decision makers draw social inferences from the presence of dominated options about the person who constructed the choice set, and these inferences may have important downstream consequences on choice. To be clear: The current research does not present an alternative explanation of the attraction effect; instead, we uncover a novel consequence of dominated options (beyond their effect on choice share). To understand this process, we draw from literature on social inferences.

2.2. Social sensemaking

Research has shown that people engage in “social sensemaking,” the process of interpreting signals from social context — the incentives, structures, options, hierarchies, descriptions, and so on — to make meaning of a situation (Weick, 1995). These contextual features may “leak information” about the underlying beliefs, intentions, or characteristics of the choice architect who designed the choice environment (Kamenica, 2008; Mckenzie et al., 2006; McKenzie & Nelson, 2003; Sher & McKenzie, 2006; Weick et al., 2005; Wernerfelt, 1995). Analogous to the way that people use cues from speech to make social inferences about the speakers (Gilbert et al., 1988; Grice, 1975; Johnson-Laird, 1968a, 1968b; Schwarz, 1994), decision makers may use features of the choice environment as meaningful signals about the choice architect’s beliefs, intentions, and characteristics (Krijnen et al., 2017). For example, employees make different inferences about their employers’ attitudes toward overweight employees when a company benefit is

framed as a credit for healthy-weight employees versus a premium for overweight employees (Tannenbaum et al., 2013).

Research in marketing has provided related evidence that consumers have “marketplace metacognition”; that is, consumers are often aware that a firm’s actions and messages within the marketplace may be deliberate tactics for achieving their own profit goals (Friestad & Wright, 1994; Kirmani & Campbell, 2004; Wright, 2002). For example, offering expensive pre-selected default options can lead consumers to infer that the firm has manipulative intent (Brown & Krishna, 2004). In the domain of context effects, choice makers often realize that choice sets are intentionally designed by choice architects to nudge them towards selecting certain alternatives (Hamilton, 2003). And when uncertainty exists about the true value of various options in a choice set, consumers may be especially likely to draw negative inferences based on the presence of suboptimal options (Bhui & Xiang, 2021). Further still, the composition of a choice set can provide useful information to people as they make inferences about the match between their own price-versus-quality preferences and a firm’s set of options (Prelec et al., 1997). This work demonstrates that choice set composition can serve as a basis for broader inferences about unobserved features. These findings from consumer contexts represent a broader psychological tendency to treat features of a choice environment as diagnostic of the beliefs, intentions, and characteristics of the agent who designed the choice context.

Building on this literature, we predict that people who encounter dominated options may make negative trust-based inferences about the choice architect who offered the choice set. Our psychological account follows from the theorizing that choice makers are especially likely to engage in social sensemaking when encountering something that is unusual or inexplicable (Krijnen et al., 2017). Dominated options are, on their face, perplexing. Why would anyone offer – let alone expect someone to choose – an objectively inferior alternative? Thus, when people encounter a choice set that contains a (hard-to-justify) dominated option, they may be prone to wondering about why the dominated option was included or what kind of organization would offer such a choice. In particular, the uncanniness of dominated options may make people especially likely to make dispositional (e.g., trust-based) attributions about the choice architect (Pyszczynski & Greenberg, 1981). To understand the content of the negative dispositional inferences that ensue, we next draw from research on organizational trust.

2.3. Trust in organizations

Organizational trust comprises three components (Mayer et al., 1995): (1) benevolence (belief that the organization is acting on behalf of the target individual’s best interests), (2) ability (belief that the organization is competent or skilled), and (3) integrity (belief that the organization holds itself to an acceptable set of ethical standards). Offering dominated options may impugn any combinations of the three components of trust. More explicitly, dominated options can signal that (1) the firm is trying to benefit at the individual’s expense (e.g., selling lower quality products for higher prices), (2) the firm incompetently designed a nonsensical choice set (thereby lowering overall confidence in the firm), or (3) the firm is unethically obfuscating the dominance relationship. When individuals draw any of these negative inferences from the presence of a dominated option—about the firm’s benevolence, competence, or integrity—it directly follows that they will view the organization offering the choice set as less trustworthy.

These negative trust inferences could thus cause people to be less interested in choosing *any* option offered by that choice architect, reasoning that untrustworthy choice architects may engage in other sordid practices, which may raise concerns about unobserved attributes of the non-dominated alternatives. Moreover, people may avoid untrustworthy firms as a form of punishment (Darley, 2009; Radkani & Saxe, 2023) or negative reciprocity (Fehr & Gächter, 2000). Therefore we further hypothesize that the presence of a dominated option in a

choice set can lead choice makers to defer their choice (i.e., prefer to not choose any of the options offered by the distrusted choice architect) and instead prefer to choose from a different firm. In this sense, our work adds to existing demonstrations that including an inferior option in a bundle can lower the overall appraisal of that bundle (Spektor et al., 2018; Weaver et al., 2012).

Across seven studies ($N = 3,328$), we show that the inclusion of a dominated option in a choice set can lead people to make negative inferences about the trustworthiness of the choice architect who curated the set of options. As a behavioral indication of this inference, we show that dominated options can reduce the likelihood of selecting *any* option from that choice architect. In Study 1, we offer evidence that people make negative trust inferences about choice architects who include dominated options in choice sets. We further show that these inferences mediate the effect on decisions to avoid choice architects who offer dominated options. In Study 2A, we provide corroborating behavioral evidence of this preference to avoid agents who offer dominated options using an incentivized economic game. Study 2B uses a similar design as Study 2A to demonstrate an incentive-compatible judgment of the trustworthiness of people who offer dominated options. In Study 3, we show that negative trust inferences are made spontaneously, we document the specific inferences that people make in response to dominated options, and we rule out an alternative explanation for our results (that the effects are merely driven by the number of options in the choice set). In Study 4, we show that the trust effects of including dominated options in a choice set depend on the specific inferences people make about the reason those dominated options were included. Finally, in Study 5, we provide convergent evidence for our trust-based account by showing that the effect of dominated options on choice is moderated by the presence of other, more direct evidence of the choice architect's trustworthiness.

All studies were pre-registered, and all pre-registrations, survey materials, data, and code are available online at <https://researchbox.org/1598>. All studies, measures, manipulations, and data (including participant exclusions) are reported in the manuscript or the Supplementary Material.

3. Empirical Investigation

3.1. Study 1: Context effects and deferral

Study 1 examines how people perceive and respond to dominated options in the context of consumer choice, a typical domain for studying context effects (for a review of products studied see Frederick et al., 2014). Importantly, in order to study social inferences from choice composition effects, we embed the decision within a vivid social context, attempting to mimic what a decision maker would experience if they were browsing and purchasing on Amazon.

Methods

We pre-registered to recruit 500 American participants on Amazon's Mechanical Turk. We pre-registered that participants had to pass four attention checks to be included in our final analysis; 402 participants met these criteria (43.8 % female, $M_{\text{age}} = 44.5$, $SD_{\text{age}} = 13.5$). Note that one of the embedded attention checks was particularly difficult for participants (accounting for all 98 participants who were excluded); if we include these participants, the primary results have qualitatively similar magnitudes and greater statistical significance. Below, as in the rest of the paper, the study methods are described in the order in which information was presented to participants unless otherwise stated.

All participants were first asked to imagine that they were interested in purchasing a new pair of binoculars. They search Amazon and open a link from a vendor called "Silchin Co Ltd." Participants then saw a page of binocular options similar to how they would appear if shopping online. Participants were randomly assigned to one of two conditions in a between-subjects experiment. In the No Dominance (Control) condition, participants saw two options: one with better magnifying power and one

with a cheaper price. In the Dominance condition, participants saw a three-option choice set that included both options from the No Dominance condition as well as an asymmetrically dominated alternative (with slightly worse magnifying power but a higher price). The choice set is displayed in Fig. 1. Participants were told that the binoculars differ only in price and magnifying power but were otherwise identical.

Participants next completed a single-item measure of distrust, rating how much they agree with the following statement: "I distrust Silchin Co. Ltd" (1 – *Do not agree at all* to 9 – *Completely agree*). We also asked about choice deferral: "If you were in this situation while shopping on Amazon, what would you choose to do?" They could either choose "Keep looking at other vendors" (i.e., deferral) or "Choose one of the options from Silchin Co. Ltd." They were then asked which option would they choose if they were to purchase binoculars from Silchin.

Participants then completed an attention check and two comprehension checks about the binoculars.¹ As an exploratory measure, we wanted to see if distrust engendered by offering a dominated option may cause people to draw inferences about the unobserved quality of the options in the choice set. Specifically, we asked: "How do you think the quality of Silchin's binoculars compares to other binocular vendors on Amazon?" (1 – *Much worse* to 9 – *Much better*). To gain deeper insight into participants' decision-making process, we also asked, "Which of the following best describes your thoughts as you considered the options?" and they could either select "I thought about what type of company would offer such a choice" or "I only thought about which set of binoculars would be best for me." The survey ended with participants indicating their age and gender.

Results and discussion

Our primary hypotheses were that the presence of a dominated option would reduce choice and increase distrust. To test these hypotheses, we used Ordinary Least Squares (OLS) regressions to estimate a model with an indicator for whether participants were in the Dominance (vs. No Dominance) condition as the primary independent variable with the respective outcome measure as the dependent variable. Participants who were offered the dominated option were more likely to defer and keep searching for other binocular vendors than participants who were not offered the dominated option (83.0 % versus 74.5 %; $B = .09$, 95 % CI = [.01, .17], $p = .037$). Furthermore, participants who were offered the dominated option distrusted the binoculars seller significantly more than participants who were not offered the dominated option ($M = 4.57$, $SD = 2.14$ versus $M = 3.41$, $SD = 2.04$; $B = 1.16$, 95 % CI = [.75, 1.56], $p < .001$). The results are depicted in Fig. 2. Using mediation analysis with 5,000 bootstrapped samples, we confirmed that the Dominance (vs. No Dominance) manipulation had a positive indirect effect on deferral via distrust (indirect effect = .07, 95 % CI = [.04, .10]). Approximately 79 % of the effect of the dominated option on deferral is explained by variation in distrust. As an aside, we replicated the classic attraction effect; the inclusion of the dominated option increased the share of people selecting the dominating option from 72 % to 84 %.

We also conducted a series of exploratory analyses to gain deeper insight into the processes underlying our findings. We first wanted to better understand why distrust could lead to deferral. One plausible explanation is that participants infer that the unobserved quality of products is lower from untrustworthy (versus trustworthy) firms. Consistent with this account, we found that the presence of the dominated option in the choice set caused people to infer that the firm offers

¹ The comprehension checks asked about the choice set of binoculars. The first check tested for basic comprehension (True or False: The most expensive option cost \$499.99) and the second check assessed whether they noticed the dominance relationship (True or False: The most expensive option had the highest magnifying power). The attention check presented participants with a new choice set (of vitamins) resembling the presentation of the binoculars. For this set, rather than reporting their preference, participants were explicitly instructed to select the third option.

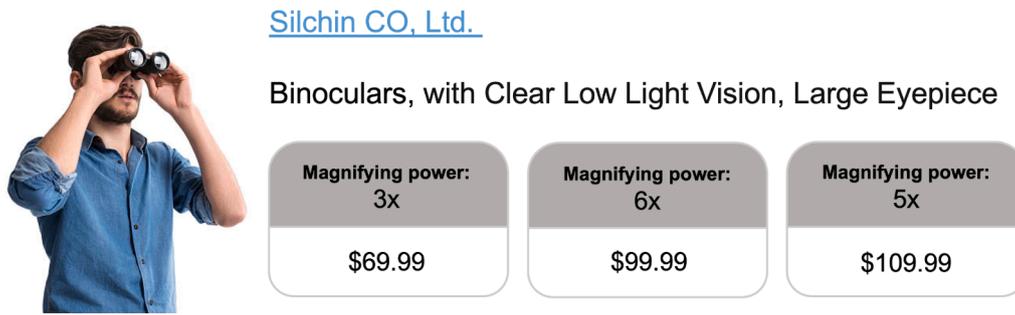


Fig. 1. Choice Set for Binoculars (Study 1). This is the choice set participants responded to in the Dominance condition. Participants in the No Dominance condition responded to an identical choice set, except the third option (Magnifying power 5x, \$109.99) was not included.

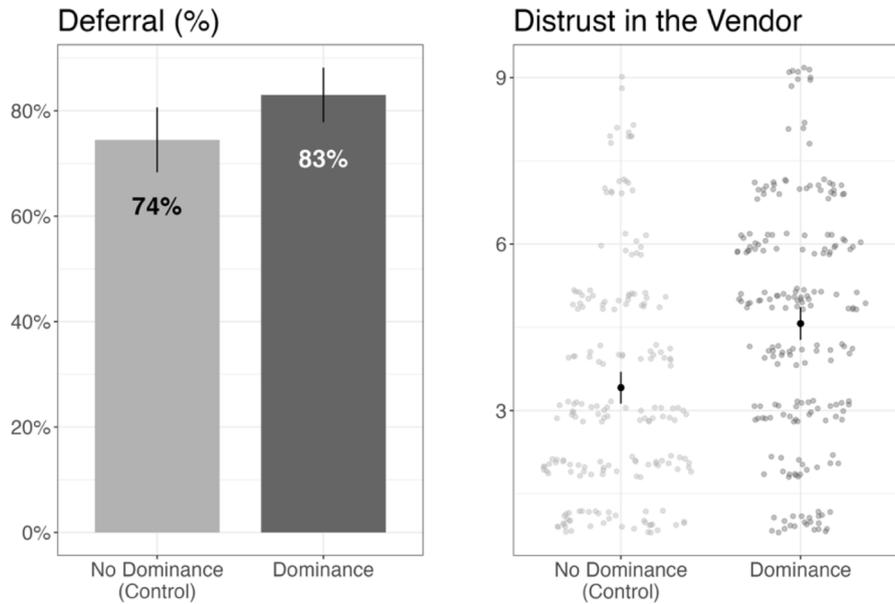


Fig. 2. The Effects of Dominated Options on Deferral and Distrust (Study 1). The left panel of the figure shows the rate of deferral (%) in the No Dominance (Control) condition and the Dominance Condition. The right panel of figure shows the levels of distrust in each condition. Note that the jittered points show the density of the distributions at each scale point. The single black points reflect means and the error bars reflect 95% confidence intervals.

lower quality binoculars than other firms on Amazon ($B = -.41$, 95 % CI = $[-.62, -.20]$, $p < .001$). This negative spillover is consistent with our prediction that people make negative, competence-based trust inferences when they encounter dominated options.

Our theory that offering dominated options can lead to distrust and deferral should only apply if certain criteria are met: Participants must (1) notice the dominance relationship and (2) make attributions about the firm offering the choice. Consistent with the first criterion, when we exclude the 43 participants who failed the comprehension check about the dominance relationship (i.e., whether the most expensive option had the highest magnifying power), the treatment effects of dominated options on deferral and distrust become directionally stronger (effect on deferral, $B = .15$, 95 % CI = $[.07, .23]$, $p < .001$; effect on distrust, $B = 1.37$, 95 % CI = $[.94, 1.79]$, $p < .001$). In support of the second criterion, participants who were offered a dominated option were far more likely to report thinking about the firm (“what type of company would offer such a choice”) compared to participants who were not offered a dominated option (45.2 % vs. 14.8 %; $B = .30$, 95 % CI = $[.22, .39]$, $p < .001$).

In Study 1, we leveraged a typical paradigm for studying context effects but embedded the choice in a vivid, naturalistic context in which other considerations besides just the option attributes—namely, the trustworthiness of the vendor—might be implicated. We found evidence consistent with our theorizing that the presence of a dominated option

may increase deferral. Mediating this effect, we found that including a dominated option increased distrust in the company offering the choice set. Shedding light on why distrust may lead to deferral, we found that the presence of a dominated option can lead people to infer lower unobserved quality of the firm’s products. Recent evidence suggests that the effects of dominated options on deferral may be less stable than previously theorized (Dhar & Simonson, 2003; Evangelidis et al., 2023); our results suggest that to reliably predict the effects of dominated options on choice, researchers should account for the social inferences people draw from choice set composition.

3.2. Studies 2A & 2B. Dominated options reduce Incentive-Compatible trust

Studies 2A and 2B use a novel paradigm involving sequential economic games to examine how the inclusion of a dominated option affects incentive-compatible judgments of trust. The primary purpose of Studies 2A and 2B is to test the theory when real money is on the line, ensuring the findings from Study 1 are not merely “cheap talk” or induced by the hypothetical nature of the study. The study also tests our theory using joint, rather than separate, evaluation of choice architects. In both studies, participants are exposed to one counterpart who offers them a dominated option and one counterpart who does not. Each study includes a different incentive-compatible, behavioral measure of trust.

3.2.1. Study 2A. Selection of counterpart for trust Game

In Study 2a, participants first received offers from two other people in a modified dictator game—one person offered participants a dominated option and the other did not. Then participants selected one of these counterparts as a partner in a trust game with real financial stakes. We hypothesize that participants would avoid playing a trust game with people who had previously offered them a dominated option.

Methods

We pre-registered to recruit 150 American participants on Amazon's Mechanical Turk to participate in this study. After pre-registered exclusions, 149 participants were included in the final analysis (50.3 % female, $M_{\text{age}} = 39.5$, $SD_{\text{age}} = 10.9$).

Participants were matched with two other people online to complete a modified dictator game (the "Task Master") and then a standard trust game. Participants were told that they would first choose which of the two people they wanted to be partnered with for the Trust Game and, afterwards, would complete the Task Master activity.

We explained that the Task Master activity involves two roles: the Task Master and the Worker. We told participants that they were assigned to the role of the Worker and their counterparts to the Task Master role. The Task Master's job was to provide offers to the Worker, and the worker would eventually select one of the Task Masters' offers. Specifically, the role of the Task Master was explained as follows:

The Task Master gets to make two choices when making offers:

- (1) **Time Spent Working:** For 8 min of this survey, your Task Master gets to decide how much time you spend working & how much time you spend not having to work (you can watch YouTube videos, stretch your legs, etc). We will pay the Task Master a bonus of 10 cents for every minute of work you complete during that time.
- (2) **How the Bonus is Split:** The Task Master gets to decide how much of your bonus earnings to keep for themselves and how much to give to you. The Task Master can choose to keep the whole bonus, give you the whole bonus, or split it between you two however they'd like.

We then explained that the Task Masters had each created offers that the participants could select from. Participants saw two choice sets – presented side-by-side on the same page – and were told that they would get to select which Task Master to work with and which of their offers to accept. As shown in Fig. 3, one Task Master created a choice set with two offers (2 min of work for 10 cents or 5 min of work for 25 cents) and the other Task Master created a choice set with three offers (2 min of work for 10 cents, 5 min of work for 25 cents, or 6 min of work for 20 cents). The order of choice sets was randomized between participants. Participants had to complete two comprehension check questions about the offers, which they were required to answer correctly before proceeding.²

Next, participants learned about the rules of the Trust Game. They were told that they were assigned to the role of Sender and their partners to the role of Returner. We explained that the Sender starts with an endowment of 10 cents and the Returner starts with nothing. The Sender chooses how much money (x) to contribute to the multiplier pot, where anything that gets put into the pot gets multiplied by 10 and given to the Returner ($10x$). The Returner then chooses how much of the money they received from the multiplier pot to give back to the Sender (z). The Sender ends with a payout of $10 - x + z$ and the Returner ends with a payout of $10x - z$. We explained that we will actually send these bonuses

² The two comprehension checks about the Task Master game are: "If you were to choose Offer #3, how much of the bonus earnings would you and your task master each keep?" and "Which of the offers requires the most work?"

to the participants within 24 h of making a selection. They had to correctly answer a single comprehension check question about the Trust Game before proceeding.³

As our primary pre-registered outcome, participants indicated which of the two Task Masters they wanted to select as their partner for the Trust Game. After selecting their partner, participants then indicated their allocation in the Trust Game with their preferred partner. While not of theoretical interest, to avoid any deception and to keep the study completely incentive compatible, participants then selected their partner for the Task Master game and selected an offer from their Task Master's choice set. Participants then completed their preferred work task (as indicated in their selected offer). The sequence of the key events in this study is illustrated in Fig. 4. Participants reported their age and gender at the end of the survey. Participants received the respective bonuses from the economic games shortly after the surveys concluded.

Note that before designing and running this experiment, we ran a pre-test in which a separate sample of participants completed the Task Master game in the role of Task Master. In the pre-test, participants created choice sets that they would offer Workers in the Task Master game. We then selected two of these pre-test participants who had offered the set of options represented in Fig. 3 and presented their offers to participants in Study 2A. In the same pre-test, participants also indicated how they would play the Trust Game in the role of Returner; they indicated how much they would return (z) in response to every possible initial selection by a Sender ($x = 0$ through 10) in the Trust Game. Thus, in Study 2A all choice sets were in fact constructed by real individuals, and bonus payouts were in fact based on those individuals' responses in the Trust Game.

Results and discussion

Consistent with our predictions, relatively few participants (28.9 %) preferred to complete the Trust Game with someone who had offered them a dominated option, which is significantly less than 50 % ($\chi^2 = 25.8$, $p < .001$). The remaining 71.9 % preferred to complete the Trust Game with the person who had not offered them a dominated option. People exhibit a desire to avoid working with people who offer dominated options. People allocated an average of 6.8 cents ($SD = 3.2$) of their 10-cent budget to their chosen counterpart.

We confirmed that very few (4) participants selected to complete the dominated work contract (6 min for 20 cents), suggesting that, at least upon further deliberation, the dominance relationship was comprehensible to the vast majority of participants. As an exploratory analysis, we found that only 23.5 % of participants preferred to complete the Task Master game with someone who had offered them a dominated option, which is significantly less than 50 % ($\chi^2 = 40.8$, $p < .001$). Finally, we confirmed that participants' choice of counterpart in the Trust Game and Task Master game were highly correlated ($\phi = .55$, $p < .001$).⁴ Together, these results offer evidence that participants distrusted the counterpart who offered the dominated option and, likely as a result, avoided interacting with that counterpart in the subsequent situation.

Study 2A provides evidence that participants choose to avoid interacting with individuals who had offered them a dominated option. Given that the Trust Game involves real bonus payouts, participants' choices are not simply cheap talk. They are making decisions presumably because they expect worse outcomes from interacting with people

³ The comprehension check about the Trust Game was: "Suppose you put 8 cents into the multiplier pot. That would leave your partner with 80 cents and you with 2 cents. What is the lowest amount that they could give back to you?"

⁴ For this study, we were most theoretically interested in people's behavior in the Trust Game. Of course, we additionally observed people's choices of work contract for their end-of-survey bonus. Among participants who chose the Task Master who did not (did) offer a dominated option when selecting their work contract, 43% (34%) chose the lower-time-and-lower-bonus task contract, whereas 57% (54%) chose the higher-time-and-higher-bonus contract (and 11% chose the dominated contract).

<i>Task Master #1</i>	Offer 1	Offer 2	
You work:	2 minutes	5 minutes	
You keep:	10 cents	25 cents	

<i>Task Master #2</i>	Offer 1	Offer 2	Offer 3
You work:	2 minutes	5 minutes	6 minutes
You keep:	10 cents	25 cents	20 cents

Fig. 3. The Task Masters and their Work Offers.

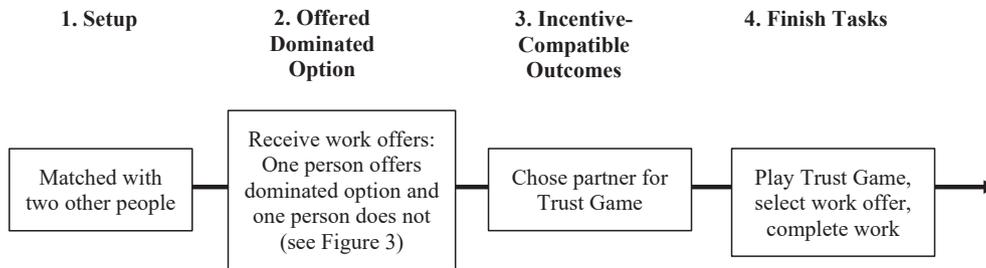


Fig. 4. Timeline of Economic Games in Study 2A. This figure depicts the sequence of events experienced by participants in Study 2A.

who offer dominated options. Instead, or perhaps in addition, participants' choices may have reflected a symbolic punishment—reducing real financial payouts of the counterpart who included the dominated option.

3.2.2. Study 2B. Trust Game behavior with each counterpart

Study 2B employed a similar design as Study 2A to show the effects of dominated options on another trust-based behavioral outcome. As before, participants were offered a dominated option embedded within a series of economic games played with a real counterpart. Unlike in Study 2A, participants in Study 2B did not select a single partner for a trust game but instead played the trust game with both counterparts. We were primarily interested in how much people would allocate in the trust game to counterparts who did (versus did not) offer a dominated option.

Methods

As pre-registered, 150 American participants on Amazon's Mechanical Turk were included in this study, all of whom passed three

attention screeners (50.0 % female, $M_{age} = 43.0$, $SD_{age} = 13.7$).

Similar to Study 2A, participants learned that they were matched with two other people and were assigned to the roles of Worker for the Task Master game and Sender for the Trust Game. Participants were matched with the same pre-test participants, offering the same choice sets, as in Study 2A (Fig. 3). The only difference between Studies 2A and 2B is that in Study 2B participants played the Trust Game with both Task Masters. As our primary pre-registered outcome, participants indicated their initial allocations in the Trust Game (x) to each of the two people they were matched with.

As in Study 2A, participants then selected which person they wanted to partner with for the Task Master game, chose an offer from their Task Master's choice set, and completed their preferred work task. Fig. 5 displays the sequence of events in Study 2B. The critical differences from Study 2A (Fig. 4) are represented in Step 3 and Step 4 of Fig. 5. The survey ended with participants reporting their age and gender. Participants received the respective bonuses from the two economic games

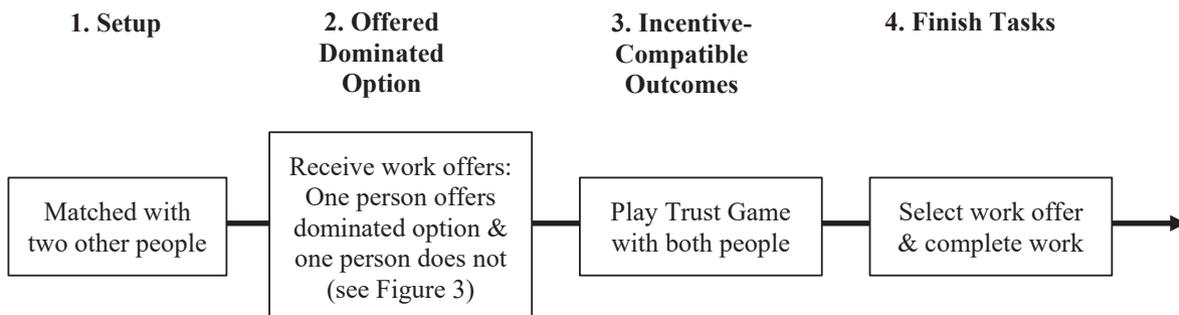


Fig. 5. Timeline of Economic Games in Study 2B. This figure depicts the sequence of events experienced by participants in Study 2B.

shortly after the surveys concluded.

Results and discussion

Our key dependent measure was the amount of money allocated to each counterpart in the Trust Game. Across all Trust Games, people allocated an average of 5.7 cents ($SD = 3.6$). To test our primary hypothesis, we analyzed the data with two observations per participant (corresponding to their allocation to the counterpart who offered a dominated option and the counterpart who did not offer a dominated option). In our analyses, we used OLS regressions to estimate a model with participant fixed effects and standard errors clustered by participant. As predicted, participants allocated less money in the Trust Game to the person who had offered them a dominated option (5.4 of 10 cents) compared to the person who had not offered them a dominated option (6.1 of 10 cents; $B = -.71$, 95 % CI = $[-1.10, -.31]$, $p = .001$).

As an exploratory analysis, we also found that relatively few (28.7 %) people preferred to complete the Task Master activity with the person who had offered the dominated option, which is significantly less than 50 % ($\chi^2 = 26.4$, $p < .001$). We take this as further evidence of distrusting agents who offer dominated options. We additionally confirmed that the larger the difference in Trust Game allocations between the counterparts who did versus did not offer a dominated option, the less likely participants were to select a work contract from the counterpart offering the dominated option ($B = .05$, 95 % CI = $[-.03, .08]$, $p < .001$). Of note, only three participants chose to complete the dominated offer from the Task Master's choice set, suggesting that participants typically understood the dominance relationship in the choice set.

In Study 2B, with real money on the line, people were less trusting of individuals who had previously offered a dominated option. The results suggest that dominated options can diminish interpersonal trust, extending our findings in Study 1 to judgments with real economic stakes.

3.3. Study 3. Spontaneous inferences in response to various choice sets

Studies 1 and 2 showed that, when asked, people rate firms that offer dominated options as less trustworthy than firms that do not. Consistent with our theory, the studies further provided evidence that people avoid choice architects who offer dominated options, even when real money is on the line. The primary goal of Study 3 was to provide convergent evidence for our theory using spontaneous inferences in reaction to the choice set as our measure of trust (rather than considering a question specifically about trust). The thought-listing method we employ allows us to probe the specific nature of the distrust caused by the presence of dominated options. Additionally, of note, in all of the studies presented so far, the firm offering a dominated option always offered three options whereas the alternative firm only offered two options. A secondary goal of Study 3 was thus to test whether the increased distrust caused by the inclusion of the dominated option was indeed caused by the dominance relationship itself rather than the mere presence of a third option. We note that the third option we introduced in this condition is more expensive than the other two, allowing us to rule out the concern that the effects we have observed thus far are due simply to the introduction of a more costly third option.

Methods

We pre-registered to recruit 600 American participants on Amazon's Mechanical Turk. To be included in the analysis, participants had to pass two initial attention checks, pass one attention check, and pass a test-retest of their age at the start and end of the survey. 552 participants met the pre-registered inclusion criteria (46 % female, $M_{age} = 43.7$, $SD_{age} = 13.1$).

After reading a consent to participate and some preliminary instructions, all participants were first asked to imagine that they had just moved homes and received a flyer in the mail from the area's main internet provider, SwiftCom. Participants were told that the available plans differed only in their cost and their speed (where higher mbps plans were faster). We next asked participants to answer two

comprehension check questions with accuracy required, so if an incorrect answer was given, participants had to correct it before advancing.⁵ Participants then saw a fictional promotional letter from SwiftCom offering a menu of options. Participants were randomly assigned to one of three conditions, each with a different menu of options. In the No Dominance condition, participants saw two options: one with better speed and one with a cheaper price. In the Dominance condition, participants saw a three-option choice set that included both options from the No Dominance condition as well as an asymmetrically dominated alternative (with slightly worse speed but a higher price). In the Compromise condition, participants saw a three-option choice set that included both options from the No Dominance condition as well as a high-quality option (with better speed and a higher price). Note that we refer to this condition as the "Compromise" condition because the third option – one that is more expensive and faster than both options in the No Dominance condition – may create the impression that the intermediate level is a reasonable "compromise" between the two extremes (Simonson, 1989). The three choice sets are presented in Fig. 6.

Next participants were asked to list any thoughts that came to mind when considering the offer from SwiftCom using a procedure common to the study of Query Theory (Johnson et al., 2007). They were able to enter as few or as many inferences as spontaneously occurred, with a new text box appearing after each thought was entered. After writing all their thoughts, participants saw each of their responses, one at a time, and self-categorized each thought into any of the following categories that fit best (if any):

- SwiftCom is trying to get customers to choose bad options.
- SwiftCom made a mistake when deciding which options to offer.
- SwiftCom is trying to fool consumers.
- SwiftCom is offering a good spread of options to cater to consumers with different preferences.
- SwiftCom is offering high-value options for consumers.
- I must be confused about these options.
- None of the above describe my thought.

Participants also coded each thought based on whether it reflected an inference about SwiftCom's persuasive intent. Specifically, they categorized the thought into whichever of the following categories fit best (if any):

- SwiftCom is trying to get people to choose plan B
- SwiftCom is trying to get people to choose plan S
- SwiftCom is trying to get people to choose plan G [only displayed to people in conditions with an Option G]

Next, participant responded to a single-item measure of distrust: "Given the plan menu that you received, how much do you distrust SwiftCom?" using a unipolar scale from 1 (*No distrust at all*) to 11 (*Completely distrust*). Importantly, this question came after the thought-listing task in order to keep participants' spontaneously generated reactions completely unguided. Immediately after this, participants were asked an attention-check question that resembled the format of the key trust measure from the previous page. The survey ended with measures of gender, age, and optional open-ended feedback.

Results and discussion

Our primary pre-registered hypothesis was that people would distrust an internet provider that offers a three-option choice set

⁵ The comprehension checks both start with the prompt, "Which of the following statements is true?" The first check includes the options: *300 mbps is faster internet than 200 mbps, Download speeds and upload speeds are identical for internet plans, or All internet plans have the same speed.* The second check includes the options: *The plans cost the same amount, The plans have the same internet speed, or The plans are identical except their monthly cost and internet speed.*

No Dominance (Control)		Dominance		Compromise	
	Monthly Price		Monthly Price		Monthly Price
Plan B (150 mbps)	\$30	Plan B (150 mbps)	\$30	Plan B (150 mbps)	\$30
Plan S (300 mbps)	\$40	Plan S (300 mbps)	\$40	Plan S (300 mbps)	\$40
		Plan G (275 mbps)	\$50	Plan G (450 mbps)	\$50

Fig. 6. Choice Sets with for Internet Plans (Study 3). This is the set of plan menus participants saw (between-participants). These plan menus were embedded in a fictional letter from the choice architect, SwiftCom.

containing a dominated option more than a provider that offers a two-option choice set without the dominated option. To test this hypothesis, we used OLS regression to estimate a model with distrust as the dependent variable and independent variables of two dummy-coded variables for the Dominance and Compromise conditions (with the No Dominance condition as the reference group). In support of our primary hypothesis, participants in the Dominance condition ($M = 6.22, SD = 2.60$) distrusted SwiftCom significantly more than those in the No Dominance condition ($M = 4.46, SD = 2.50; B = 1.76, 95\% CI = [1.24, 2.27], p < .001$). We did not find a statistically significant difference in distrust between the Compromise ($M = 4.17, SD = 2.49$) and No Dominance conditions ($B = -.29, 95\% CI = [-.81, .23], p = .278 NS$). When estimating an identical regression except including dummy-coded variables for the No Dominance and Compromise conditions (thus setting the Dominance condition as the reference group), we found that participants in Compromise condition distrusted SwiftCom significantly less than participants in the Dominance condition ($B = -2.05, SE = .26, p < .001$). See the distrust results in Fig. 7. We take this to be evidence that the previously observed effects on trust were due to the dominance relationship and not merely the presence of any third alternative. Moreover, this study demonstrates that our previously observed results were not explained by the third option being more expensive but, rather, because the third option was dominated.

We also explored how the participants' self-coded spontaneous

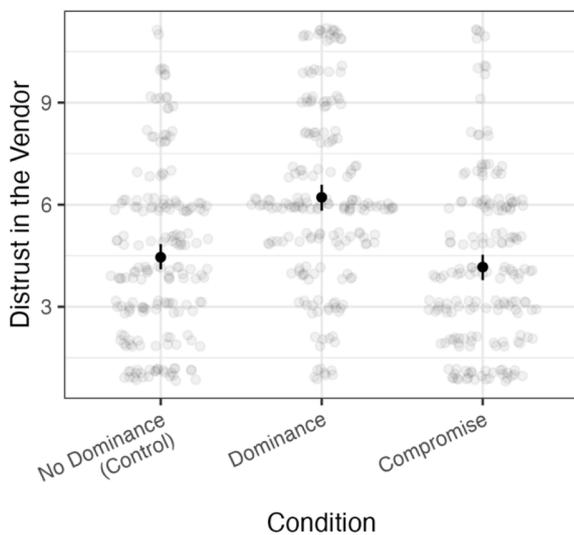


Fig. 7. The Effect of Dominated Options on Distrust (Study 3). This figure shows distrust ratings of the company by experimental condition. Note that the jittered points show the density of the distributions at each scale point. The single black points reflect means and the error bars reflect 95% confidence intervals.

reactions to the plan menus differed between conditions. We created binary variables that reflect whether participants coded any of their thoughts in the respective categories. For instance, the variable representing the inference “SwiftCom is trying to get customers to choose bad options” would be coded as a “1” if participants coded any of their reactions in this category and a “0” otherwise. Consistent with our theorizing that dominated option cause participants to draw trust-based inferences about the firm, we found that, relative to participants in the No Dominance and Compromise conditions, participants in the Dominance condition were more likely to spontaneously infer firm malevolence (*SwiftCom is trying to get customers to choose bad options*; $B_{\text{dominance vs. no dominance}} = .11, 95\% CI = [.04, .19], p = .003$; $B_{\text{dominance vs. compromise}} = .13, 95\% CI = [.06, .21], p < .001$), incompetence (*SwiftCom made a mistake when deciding which options to offer*; $B_{\text{dominance vs. no dominance}} = .34, 95\% CI = [.27, .41], p < .001$; $B_{\text{dominance vs. compromise}} = .35, 95\% CI = [.28, .42], p < .001$), and low integrity (*SwiftCom is trying to fool customers*; $B_{\text{dominance vs. no dominance}} = .21, 95\% CI = [.12, .29], p < .001$; $B_{\text{dominance vs. compromise}} = .25, 95\% CI = [.16, .33], p < .001$). See the distribution of trust-based inferences by condition in Fig. 8. This suggests that the negative trust-based inferences we have documented so far occur to people spontaneously, not just when they are prompted to reflect on trust.

Finally, we explored the inferences participants' drew about the persuasive intent of the vendor. These data allow us to adjudicate between two interpretations of our distrust results. On one hand, participants may distrust the firm because they think the firm is trying to get people to choose the dominated option. On the other hand, participants may distrust the firm because of a negative reaction to the firm's persuasion attempt in using a marketing tactic (namely, the attraction effect) to nudge people toward choosing the dominating option (see also Hamilton, 2003). We found evidence consistent with both interpretations. In the Dominance condition, 25 % of participants inferred SwiftCom was trying to get people to choose the dominated option (consistent with the first interpretation), and 63 % of participants inferred that SwiftCom was trying to get people to choose the dominating option (consistent with the second interpretation). See more results regarding the distributions of spontaneous inferences by condition in the Supplemental Materials.

3.4. Study 4: Various ways of introducing a dominated option

In all the studies presented thus far, we have introduced a dominated option by including an alternative that is simultaneously much worse on one dimension (e.g., price) while also being obviously worse on another dimension (e.g., magnification). However, this sort of option represents only one way that a dominated option might be included in a choice set. The chief purpose of Study 4 was to introduce dominated options in different ways and compare their effects on trust. The second purpose of Study 4 was to verify the robustness of the phenomenon we have

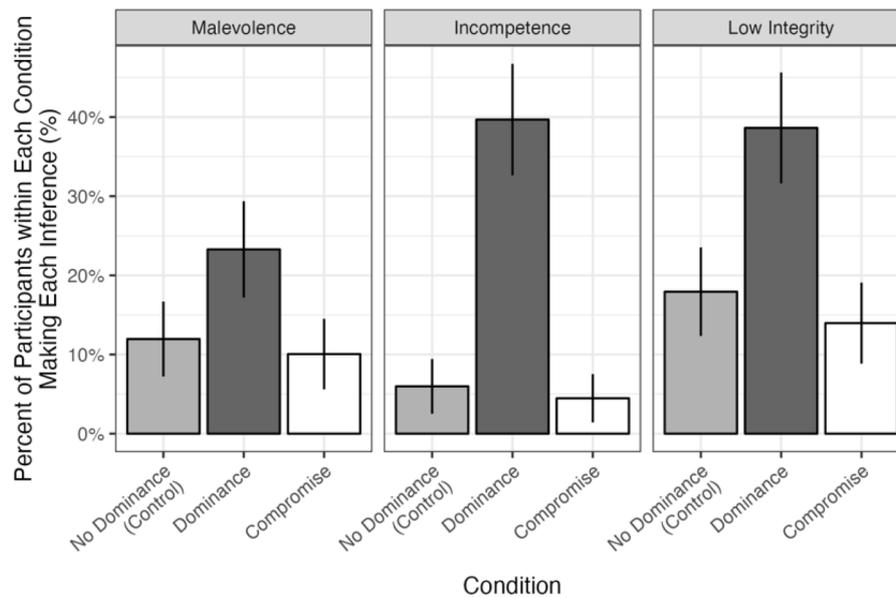


Fig. 8. Spontaneous Trust-based Inferences (Study 3). This figure shows the frequency of the spontaneous trust-based inferences—including malevolence (left panel), incompetence (middle panel), and low integrity (right panel)—by condition. The error bars reflect 95% confidence intervals.

observed by asking a more neutral (i.e., bipolar) version of the dependent measure, this time asking participants to indicate their “trust or distrust” of the choice architect on a bipolar scale from -7 (*Completely distrust the choice architect*) to $+7$ (*Completely trust the choice architect*), with a neutral point of 0 (*Neither trust nor distrust the choice architect*). Finally, Study 4 contributes to our understanding by again asking participants to list the thoughts that spontaneously occurred to them after viewing the menu of options, enabling us to better understand the more specific set of inferences made in response to the various plan menus we tested.

Methods

We pre-registered to recruit 850 American participants on Amazon’s Mechanical Turk for this study. We pre-registered to only include participants in the study who passed two attention-based screener questions and one additional attention check after the dependent measure of interest; 797 participants met these criteria (53.2 % female, $M_{\text{age}} = 44.7$, $SD_{\text{age}} = 13.7$).

The study began with the same scenario from Study 3: Participants imagined moving to a new home and receiving a flyer from the local internet provider, SwiftCom, that contained a menu of plans. The comprehension check questions were identical to those used in Study 3. Participants were randomly assigned to see one of four flyers in this study: No Dominance (Control), Dominance, Discount Dominance, and Subjective Dominance. The No Dominance and Dominance conditions were unchanged from Study 3. In the Discount Dominance condition, participants saw the same options as in the Dominance condition, however the dominating alternative was previously most expensive (with the former price crossed out) and only made cheaper (i.e., dominating) because of a limited-time special offer. We were interested in whether participants in this condition would be less likely to make negative inferences about SwiftCom’s inclusion of a dominated option. Plausibly, the introduction of a temporary dominance relationship due to a special discount may attenuate people’s negative inferences about the firm’s competence, integrity, or benevolence. Finally, in the Subjective Dominance condition (see Ariely & Wallsten, 1995), the third option was not technically dominated but instead had trivially faster speeds but a considerably higher price. We were interested in whether subjectively dominated options would engender less distrust than the straightforwardly dominated option in the Dominance condition. By removing any technical dominance, negative inferences about the firm’s competence may thus be attenuated (though firm benevolence or

integrity may still be questioned). The choice set is displayed in Fig. 9.

The letter was reprised at the top of each subsequent page for reference as participants answered key survey questions. To assess the effect of various plan menus on trust, we asked participants, “Given the plan menu that you received, how much do you trust or distrust SwiftCom?” Participants answered using a bipolar scale from -7 (*Completely distrust SwiftCom*) to $+7$ (*Completely trust SwiftCom*), with a neutral point of 0 (*Neither trust nor distrust SwiftCom*). Immediately after this, participants were asked an attention-check question that resembled the format of the key trust measure from the previous page.

Participants were next asked to record all of the thoughts that came to mind when they considered the offer from SwiftCom. They were able to enter as few or as many as spontaneously occurred, with a new text box appearing after each thought entered. As in Study 3, we then piped participants’ responses to them, one at a time, and asked them to self-categorize the statement they made into whichever of the following categories fit best (if any):

- *SwiftCom is trying to get customers to choose options that are bad for them but good for SwiftCom.*
- *SwiftCom made a mistake when deciding which options to offer.*
- *SwiftCom is trying to deceive consumers.*
- *SwiftCom is offering a good spread of options to cater to consumers with different preferences.*
- *SwiftCom is offering high-value options for consumers.*
- *I must be confused about these options.*
- *None of the above describe my thought.*

In order to better understand the specific nature of the competence-based inferences that participants may have made, any participant who selected the second option above (“SwiftCom made a mistake when deciding which options to offer.”) were then asked to make a more specific categorization among the following:

- *SwiftCom made a mistake because they accidentally priced the different packages in a nonsensical way.*
- *SwiftCom made a mistake because they obviously and ineffectively tried to influence people’s choices with this plan menu.*
- *SwiftCom must generally be an incompetent company in many different ways.*

No Dominance (Control)		Dominance		Discount Dominance		Subjective Dominance	
	Monthly Price		Monthly Price		Monthly Price		Monthly Price
Plan B (150 mbps)	\$30	Plan B (150 mbps)	\$30	Plan B (150 mbps)	\$30	Plan B (150 mbps)	\$30
Plan S (300 mbps)	\$40	Plan S (300 mbps)	\$40	Plan S (300 mbps)	\$55 \$40 <small>Limited-time Special Offer:</small>	Plan S (300 mbps)	\$40
		Plan G (275 mbps)	\$50	Plan G (275 mbps)	\$50	Plan G (305 mbps)	\$50

Fig. 9. Choice Set for Internet Plans (Study 4). This is the set of plan menus participants saw (between-participants). These plan menus were embedded in a fictional letter from the choice architect, SwiftCom.

Note that each of these inferences could lower a person’s confidence in SwiftCom as an organization or their ability to reliably provide good value. The survey ended with participants indicating their age, gender, and any optional feedback for us.

Results and discussion

Our primary hypothesis was that the presence of a dominated option (as in the Dominance Condition) would reduce trust in SwiftCom [relative to the No Dominance (Control) condition]. To test this, we used OLS regression to estimate a model with three indicator variables that coded whether participants were in each experimental condition, omitting the No Dominance condition (thus setting No Dominance as the reference condition). As expected, participants in the Dominance condition ($M = -1.49, SD = 3.39$) trusted SwiftCom considerably less than those in the No Dominance condition ($M = 1.09, SD = 2.54; B = -2.58, 95\% CI = [1.99, 3.17], p < .001$). We were further interested in the effect on trust of introducing dominance in the two other ways described: subjective dominance and temporary discount dominance. While the Subjective Dominance manipulation significantly lowered trust compared to No Dominance ($M = .24, SD = 3.20; B = -.86, 95\% CI = [-1.44, -.27], p = .005$), the Discount Dominance manipulation had no significant effect on trust compared to No Dominance ($M = 1.04, SD = 2.77; B = -.06, 95\% CI = [-.65, .54], p = .855 NS$). Notably, these two alternative ways of introducing dominance to a choice set resulted in significantly higher trust ratings compared to the standard Dominance condition ($B_{discount} = 2.52, 95\% CI = [1.93, 3.11], p < .001; B_{subjective} = 1.72, 95\% CI = [1.14, 2.30], p < .001$). Results are displayed in Fig. 10.

We were also interested in describing differences in the specific set of inferences made between the various conditions using the thought-listing procedure. Using the same methodology as in Study 3, we created binary variables that reflect whether participants coded any of their thoughts in each of the respective categories. The distributions for each trust-based inference category are presented below in Fig. 11. Note that the distributions of all inferences measured in Study 4 are presented in the Supplemental Materials. We did not pre-register directional hypotheses about how each condition would differ for each of the possible inferences – further, the multitude of possible pairwise tests for each condition and each inference raise concerns about Type I error – so we merely describe the general patterns in the distributions below without presenting results of confirmatory tests.

As can be seen in Panel A of Fig. 11, the straightforward Dominance condition induced the largest number of participants to make any kind of negative trust-based inference. Similarly, when a straightforwardly bad option was introduced in the Subjective Dominance condition, participants typically made negative trust inferences. However, the effect of including a dominated option at all was not monolithic. Indeed, as can be seen, when dominance is introduced via a more benign reason (e.g., special discount), fewer participants form negative judgments of the choice architect.

As can be seen in Panel A of Fig. 11, of the trust-based inferences,

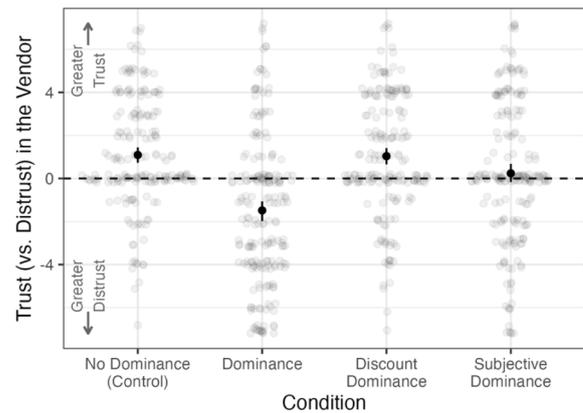


Fig. 10. The Effects of Different Types of Dominated Options on Trust (Study 4). This figure shows trust ratings by experimental condition. Note that the jittered points show the density of the distributions at each scale point. The single black points reflect means and the error bars reflect 95% confidence intervals.

incompetence showed the most pronounced difference by condition. Participants who observed a straightforwardly dominated option (rather than discount dominance or subjective dominance) were the most likely to make negative competence-based inferences. An additional aim of Study 4 was to better understand the specific incompetence-related inferences people drew. For instance, when seeing a dominated option as a signal of firm incompetence, people could think that the firm unintentionally made a nonsensical pricing mistake; alternatively, people could think that the firm ineffectively implemented a persuasion tactic. Panel B shows that, among participants who observed a straightforwardly dominated option, they were most likely to assume it was an unintentional pricing mistake (rather than a poorly implemented tactic).

Together, this pattern of results suggests that the negative effects of dominated options may have an important set of boundary conditions. The negative social attributions people draw from dominated options may depend on their beliefs about the reason the bad option was introduced. For instance, we may not expect to see strong negative trust-based inferences if it were commonly known that a firm’s pricing strategy was determined by some random or algorithmic process. Negative competence-based inferences, in particular, seem to be heavily attenuated from the presence of a mere reason for the dominance relationship’s existence. More generally, people’s reactions to dominated options, it seems, are sensitive to the presumed reasons that the choice architect introduced the dominated option.

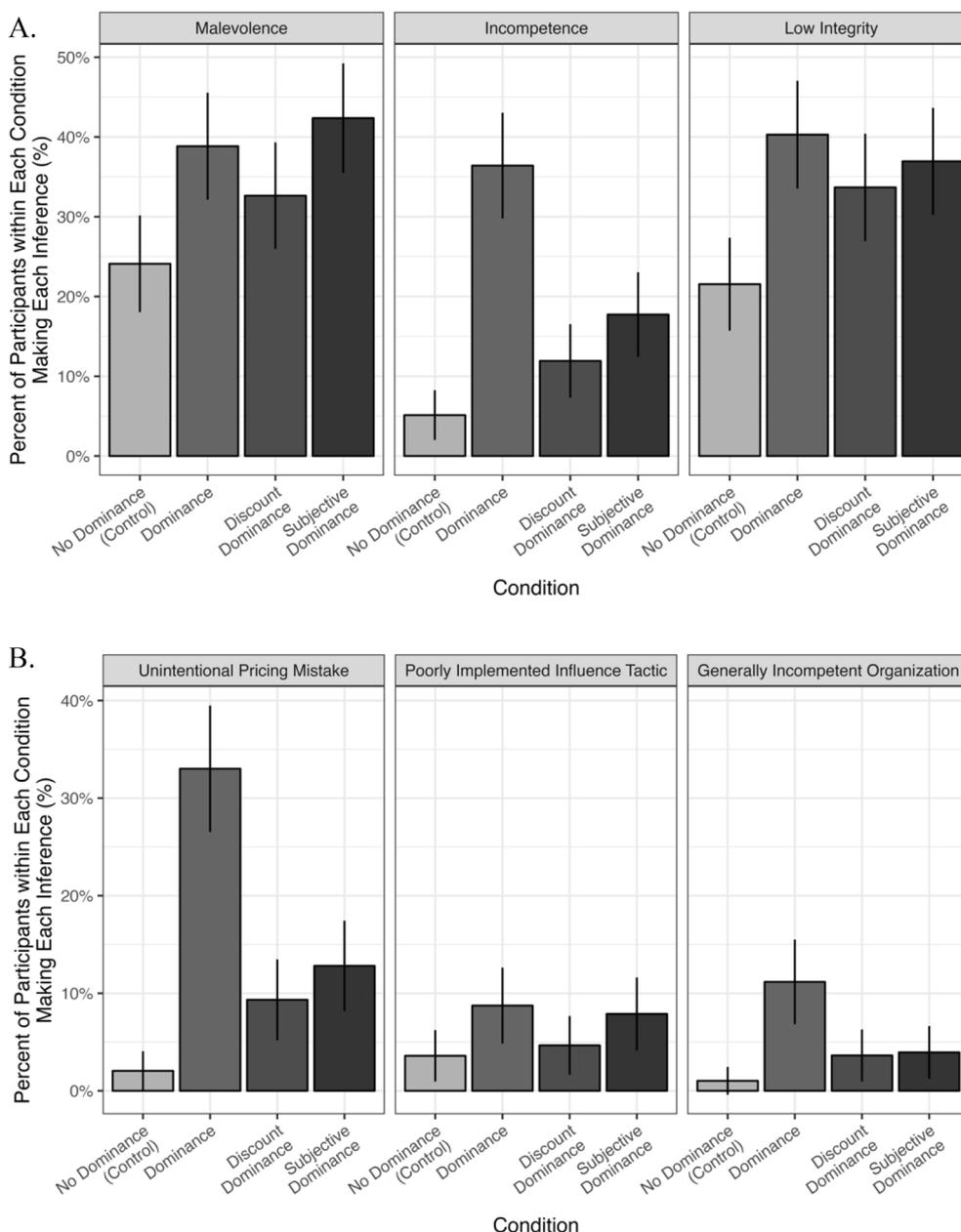


Fig. 11. Spontaneous Inferences from Different Types of Dominated Options. This figure shows the effects of introducing a dominated option in various ways on trust-based inferences (Panel A) and, more specifically, incompetence-based inferences (Panel B).

3.5. Studies 5A & 5B. The effects of dominated options are moderated by explicit information about trustworthiness

In Studies 1–3, we theorized and found evidence that people interpret the inclusion of dominated options in a choice set as a signal of the untrustworthiness of the company making the offer. We further showed that this implicit information affects people’s choices between various choice architects. Moreover, Study 4 demonstrated that this effect depends on the specific inference made about the reason for the dominated option’s presence. The primary purpose of Study 5B is to test another important moderator of this phenomenon: When people have explicit positive information about the trustworthiness of the company, the implicit information signaled by the dominated option may receive less weight in the decision-making process. That is, we predict that including explicit information about the choice architect’s trustworthiness would attenuate the effect of dominated options on choice.

Study 5A serves as a pre-test of Study 5B and a conceptual replication

of the previous studies in a new domain—financial services. Study 5B builds on the paradigm to test our hypothesis about the moderating effect of explicit information about firm trustworthiness.

3.5.1. Study 5A. Conceptual replication in the financial services domain

In Study 5A, we use a vignette study to examine how participants choose between firms when one of them offers a dominated option. As in previous studies, we measured how dominated options affect trust in the choice architect and test whether trust helps explain the effect of the dominated option on choice.

Methods

We pre-registered to target 500 American participants on Amazon’s Mechanical Turk to participate in this study. After removing participants who failed pre-registered attention checks, the final analysis includes 490 participants (51 % female, $M_{age} = 39.1$, $SD_{age} = 12.2$).

After answering screener questions, giving consent, and reading general instructions, participants imagined that they were looking to

invest some of their savings for retirement. They imagined that they searched the internet and found two different private financial investment companies offering plans. “Investment Company A” was offering two plans (Plans X & Y) and “Investment Company B” was offering three plans (Plans X, Y, and Z). The features of each plan are represented below (Fig. 12). Note that Plan Z is dominated by X and Y. These plans were displayed on the same page in a side-by-side table, with a column for each company’s name and its plan menu. As before, participants were told that the plans were identical on all other features except the ones mentioned in the plan menus (i.e., annual fees and transaction fees per trade).

Participants indicated whether there was anything concerning about the options being offered before they then rated each of the companies on two dimensions: trust and fairness.⁶ Specifically, they rated how much they trust the investment company (1 = *Strongly distrust*; 4 = *Neither trust nor distrust*; 7 = *Strongly trust*) and the extent to which they thought each company was offering fair options (1 = *Completely unfair*; 4 = *Neither fair nor unfair*; 7 = *Completely fair*). They were further given the binary choice: “If you were going to choose one of the companies to invest your money with, which company would you choose?”. We also asked participants which plan they would choose from that company. As an exploratory way for us to learn about participants’ unprompted thoughts, we next asked participants to complete a brief thought-listing task, enumerating their reasons for choosing to invest with their selected company. At the very end of the survey, participants completed a scale measuring dispositional trust in various service providers, age, and gender.

Results and discussion

Our primary pre-registered analysis tested whether participants were less likely to choose to invest with the company offering three plans (including a dominated plan) compared to the company offering two identical plans but no dominated plan. We found that only 26.1 % of participants chose to invest with the company offering the dominated option, which is significantly lower than 50 % ($\chi^2 = 110.8, p < .001$). Conceptually replicating the results of previous studies, we also found that participants trusted the company offering the dominated option less ($M = 3.46, SD = 1.58$) than the company that did not offer the dominated option ($M = 4.36, SD = 1.55$; paired t -test, $t(489) = 12.76, p < .001$). Note that we include analyses of fairness and pre-registered robustness checks in the Supplementary Materials.

Together, the results of Study 5A offer evidence consistent with our full theoretical account: The presence of dominated options in a choice set can lower trust in the firm that composed the choice set, which can in turn cause people to avoid engaging with that firm.

3.5.2. Study 5B. Moderation by explicit information about Firms’ trustworthiness

Study 5B extends the paradigm from Study 5A to test an important moderator. We hypothesize that people would show a stronger preference to avoid investing with a firm offering a dominated option *when there is not explicit information about the firms’ trustworthiness*. In other words, we predict that providing explicit information about firms’ trustworthiness would attenuate the effect of dominated options on participants’ investment decisions.

Methods

We pre-registered to recruit 800 American participants on Amazon’s Mechanical Turk to participate in this study. After excluding participants who failed pre-registered attention checks, the final analysis

⁶ We measured perceptions of fairness to further understand why dominated options reduce trust. We do not focus on this mechanism because we offer a more detailed analysis of the potential antecedents of distrust by focusing on specific inferences consumers draw from dominated options (in Studies 3 and 4). Our interpretations focused on specific inferences are not at odds with an alternative account focused on perceived fairness.

includes 788 participants in a 2-condition between-subjects design (53 % female, $M_{\text{age}} = 39.9, SD_{\text{age}} = 12.8$).

The design used the same vignette, plan attributes, and dependent measures as in Study 5A. As before, participants imagined making an investment decision and choosing between two competing companies: Company A offered two investment plans (X and Y) and Company B offered three investment plans (X, Y, and Z, where Z is dominated by the other two plans). In this study, however, participants were also randomly assigned to either receive explicit information on the trustworthiness of the choice architect (“Trust Information Condition”) or no such information (“No Trust Information Condition”). In the Trust Information Condition, participants were shown that both companies received a trust rating of 4.87/5.0 from an independent market research firm’s survey of recent customers (the highest-rated companies from their search). Participants in the No Trust Information Condition did not receive this information.

Participants were then asked our primary outcome measure: “If you were going to choose one of the companies to invest your money with, which company would you choose?” On the following page, participants indicated which plan they would choose. Importantly, in this study, participants responded to the choice measure immediately after viewing the options. After indicating their firm preference, participants were asked if any of the options were concerning and then rated both their trust in the company and the fairness of their offers using the same scales as in Study 5A. Note the difference in the study flow here compared with Study 5A: In Study 5B, the questions about trust and fairness came after the choice questions. Whereas asking about trust before making a choice may raise the salience of that factor when making a selection between firms, no such concern applies to this study. At the very end of the survey, participants completed a measure of general dispositional trust, age, and gender.

Results and discussion

First, we directly replicated the primary result from Study 5A. In the No Trust Information Condition, participants typically preferred to avoid the company offering a dominated option; 37.3 % chose to invest with the company offering the dominated option, which is significantly less than 50 % ($\chi^2 = 24.6, p < .001$). However, in the Trust Information Provided Condition, 46.6 % of participants choose to invest with the company offering the dominated option, which is not statistically significantly different from 50 % ($\chi^2 = 1.7, p = .096$). Indeed, the difference between these two conditions was significant; as predicted, the trust information increased people’s willingness to invest with the company offering the dominated option ($B = .09, 95\% \text{ CI} = [.02, .16], p = .009$). In other words, while participants in the No Trust Information condition significantly preferred the firm who did not offer a dominated option, participants in the Trust Information Provided Condition were indifferent between the firms despite one offering a dominated option. The key results are displayed in Fig. 13.

As a secondary analysis, we conceptually replicated Studies 1-5A and found that, in the absence of explicit information about trustworthiness, people trust the company offering the dominated option less than the company offering the otherwise identical choice set without a dominated option ($M = 4.29, SD = 1.39$ versus $M = 3.74, SD = 1.53$; paired t -test, $t(396) = 8.18, p < .001$). Interestingly, even when trust information was provided, people still rated the company offering the dominated option as less trustworthy than the other company ($M = 4.61, SD = 1.29$ versus $M = 4.18, SD = 1.44$; paired t -test, $t(396) = 7.27, p < .001$).⁷ Thus, we show that trust is lowered by including dominated options whether or not other direct information about firm trust is available. However, despite people’s inference that dominated options signal lower firm trustworthiness, it seems that people weigh this implicit information less strongly in their decision when they have explicit

⁷ Again, the pattern of results using perceived fairness mirrors the results we found using trust (see Supplementary Materials).

<i>Investment Company A</i>	Plan X	Plan Y	
Annual Fees	\$500	\$1000	
Transaction Fee for Each Trade	\$1/share	\$.20/share	

<i>Investment Company B</i>	Plan X	Plan Y	Plan Z
Annual Fees	\$500	\$1000	\$1300
Transaction Fee for Each Trade	\$1/share	\$.20/share	\$1.05/share

Fig. 12. Investment Companies' Choice Sets.

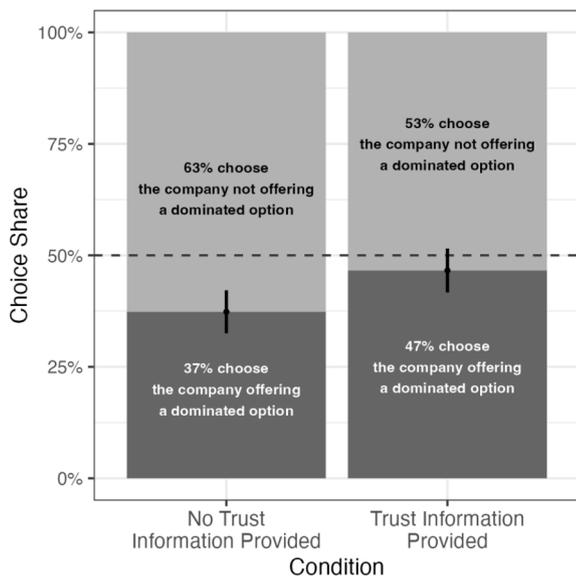


Fig. 13. The Effects of Dominated Options on Choice Depend on Explicit Trust Information (Study 5B). The figure shows the share of people choosing to invest in the company that does not offer dominated options (light gray) vs. the company that offers dominated options (dark gray), by condition. The error bars reflect 95% confidence intervals.

information about the company’s trustworthiness.

Study 5B thus highlights an important moderator of our proposed theory. Dominated options only decrease the likelihood that people purchase from companies when explicit information about the trustworthiness of the company offering the choice set is not provided. Put differently, the inferences drawn from the dominated option may be less important in the decision-making process in the absence of other, more explicit information about trustworthiness. When people already know whether a firm is trustworthy, the implicit information signaled by a dominated option may receive less weight in the decision-making process.

4. General discussion

In this project, we find that including dominated options in a choice set can engender distrust in the choice architect. Because of this distrust, dominated options can diminish people’s interest in choosing any option from the choice architect who offered a dominated option. We observe this effect on choice whether we asked trust measures before or after the

choice measure. We further found that dominated options engender distrust in part because people infer the choice architect must have offered the option due to self-interested motives or due to incompetence. And, as one plausible explanation of why diminished trust may inhibit choice, we found that when offered a dominated option, people make negative inferences about unobserved attributes of the other, non-dominated options in the choice set (as in Study 1). In other words, as a potential consequence of lowering trust, dominated options seem to taint the other (non-dominated) options in the choice set (similar to, e.g., Spektor et al., 2018; Weaver et al., 2012). We document these effects using vignette studies as well as incentive-compatible economic games.

As noted, most investigations of context effects study how people’s choices are affected by the introduction of other options within a choice set, and how people make tradeoffs among objective attributes. However, this approach has missed the full breadth of reactions people have in response to encountering dominated options. Namely, it has failed to investigate the social inferences people make when considering the motives of a person who would compose such a choice set. When making a decision in a shopping scenario in Study 1, for example, participants who encountered a dominated option were far more likely to focus their thoughts on the sort of choice architect who would offer these options (rather than focusing primarily on the objective features of the options themselves) compared to participants who did not encounter a dominated option. This may be revealing of a more general phenomenon: When making a choice, people may naturally focus on the explicit objective features of the options in a choice set. However, when something happens to trigger social sensemaking (e.g., a dominated option is offered), their thoughts shift from being just about the objective features of the options to the broader social context (including awareness of and speculation about the person who designed the choice architecture). We expect to observe our effects only when these social considerations occur to people. Future research should investigate other factors that influence whether people focus on the explicit features of a choice or the implicit information signaled by the social context.

Our findings also bear directly on a theoretical argument for decision analysis: whether to account for dominated options in decision making necessarily reflects a normative mistake. While decoy options as *traditionally studied* are alleged to be normatively irrelevant to rational decision making (Dhar & Simonson, 2003; Huber et al., 1982), this presumes that their presence contains no useful information for the choice maker. However, to the extent that dominated options are in fact diagnostic of a choice architect’s untrustworthiness, choice makers may not be making a normative mistake when accounting for these supposedly “irrelevant” dominated options in their decision making. As an illustration of this point, in Study 1, the presence of a dominated option caused people to view the choice architect as less trustworthy and, perhaps for this reason, caused people to infer that the choice architect’s

other options were lower quality. Apparently, dominated options—and the resulting distrust—may provide useful information to decision makers about the unobserved quality of other options in the choice set. In other words, whereas the attraction effect is often interpreted as a violation of the IIA choice axiom, the effects of dominated options identified in the current research invite additional nuance (for a related discussion, see McKenzie et al., 2018). Namely, dominated options are not irrelevant alternatives that normatively ought to be ignored but instead may provide relevant information about the choice. Choice sets are typically constructed, by some person, for some reason. Speculating about this reason is clearly germane to many people's decisions. We note, however, that it remains an open question for future research whether the inferences we document are well-calibrated; in other words, it is worth considering whether firms that offer dominated options are in fact less scrupulous in other ways.

The argument above offers one reason why the negative trust-based inferences we observed may impact downstream choices. That is, dominated options and the ensuing distrust cause people to make negative inferences about unobserved attributes of non-dominated options. However, another explanation for the effect on choice is possible: Across a variety of domains, people are often instinctually inclined to respond to others' transgressions with moral outrage and a desire to punish (Darley, 2009) or retaliate (Fehr & Gächter, 2000). If people see the inclusion of dominated options in a choice set as a transgression ("they're trying to hoodwink me!"), they may choose to economically punish the choice architect by "taking their business elsewhere" or "voting with their feet." Future research is needed to disentangle the reasons why negative trust inferences affect people's choices.

Of course, we do not expect our results to appear in every possible situation. Indeed, in Study 4, we showed that the effects of dominated options on trust depend on beliefs about how the dominance relationship came to be introduced to a choice set. Further, in Study 5B, the effect of dominated options on choice is attenuated in the presence of explicit positive information about the trustworthiness of the choice architect. This may occur because, when faced with explicit information about the choice architect's trustworthiness, people either (1) infer more benign reasons for the inclusion of dominated options, (2) give relatively less weight to this implicit information in their decision, or (3) no longer social sensemake about the presence of dominated options. To better understand this process, future research should test how explicit (positive and negative) trust information — including background judgments and beliefs about the choice architect, relationship history, and other explicit sources of information — moderate the effects of dominated options on choice.

Further, there are surely other moderators of the phenomenon besides the two we document. More generally, we expect that the effects of dominated options may depend on a vast set of variables that compose the social context in which a decision is made. Here, with the hopes of generating further research, we speculate on what some other moderators may be. First, we expect our effect to shrink when participants infer that the dominated option may be better for some unobserved reason. Consider, for instance, browsing used bicycles on Craigslist. Imagine that someone was selling three bikes: a low-quality generic bike for \$80, a high-quality Schwinn for \$200, and another *seemingly identical* high-quality Schwinn for \$250. It seems reasonable for someone to infer that the last bike, rather than being strictly dominated, is better than the other Schwinn for some reason unknown to the buyer (maybe it is newer, better maintained, and so on). Second, it is possible that the non-dominated options are so attractive that people do not notice the dominance, do not make a negative inference about trust, or do not care that the choice architect may be less trustworthy. These non-dominated, extremely compelling options may overwhelm the tendency to distrust choice architects who offer dominated options. Third, it may be important whether the firm offering the options is a single entity or a confederation of independent sellers. Consider, for instance, the difference between encountering a dominated option on a concert venue's

website (a single vendor that sells tickets) versus StubHub (a decentralized marketplace for individual after-market ticket sales). It is possible that a person may encounter a dominated seating option (e.g., a worse view for more money) on the venue's website and make a negative inference, while this same person could encounter the same set of choices on StubHub and just assume that it was a result of uncoordinated decisions by separate individuals acting in an imperfect market. More generally, we suspect that the more vividly an individual curator of all the options can be called to mind, the more likely people are to engage in social sensemaking and thus the more likely we would be to observe our effects. Finally, it seems plain that people must first *notice and comprehend* the dominance relationship for a negative trust inference to follow. Supporting this notion, we typically find stronger effects in our within-subject designs (e.g., Study 5) than our between-subjects designs (e.g., Study 1). This suggests that there may be stronger effects in real-world decision contexts where options between firms are jointly evaluated (e.g., Amazon, Fiverr, healthcare plan menus, and so on). Moreover, when there is relatively little other information available, the within-person effects of seeing one firm (and not the other) offer a dominated option may be most potent.

In fact, one reason people often end up selecting dominated options in the real world is that they fail to see the dominance relationship among the options (Bhargava et al., 2017; Handel, 2013). This failure to notice can result from option menus that are overwhelmingly long or complex (as is often the case for healthcare and savings products), but it may also result from a choice architect's intentional obfuscation of the dominance. To test this idea, we replicated the basic structure of Study 5A, this time in the context of credit card offers (see the Supplementary Materials for more information). In this study ($N = 379$), participants were randomized to see either two or three credit card offers, varying in cash-back rewards and annual fee. The three-option condition contained both alternatives from the two-option condition plus a third, dominated option. Importantly, unlike in the other studies in this paper, the dominance relationship was obfuscated; in order to realize that the third option was dominated, people had to notice a service fee that was obscured in an asterisked footnote in fine print. We designed the study to appear as if the bank in the three-option condition intended to lure people into a bad deal by burying the negative features (in this case, a \$90 annual service fee). We again found that the presence of the dominated option reduced trust ($B = -.68$, 95% CI = $[-.98, -.39]$, $p < .001$) and increased deferral ($B = .09$, 95% CI = $[.02, .16]$, $p = .012$). In this case, however, the dominated option may have had deleterious effects for a distinct reason: People may have perceived that the firm was intentionally being deceitful by obfuscating dominance. This raises the possibility that firms may "get away with" including dominated options by obscuring the dominance relationships but, when people notice, dominated options can backfire even more strongly compared to when the dominance relationship is obvious.

These ideas bear on broader conversations about institutional trust. Many consumer protection advocates — from the Centers for Medicare and Medicaid (The Affordable Care Act: Increasing Transparency, Protecting Consumers, 2012) to the White House (Executive Order on Transforming Federal Customer Experience and Service Delivery to Rebuild Trust in Government, 2021) — call for greater transparency in the hopes of promoting greater trust and better-informed decisions. These calls-to-action are supported by a growing body of research (Buell et al., 2021; Samek & Sydnor, 2020). Our work suggests, however, that greater transparency may also have the unintended effect of eroding trust in institutions whenever dominated options are offered and apparent. Considering how important trust is for societal and economic progress (Morrone et al., 2009), it is worth considering whether these calls for transparency should also be joined by calls for regulation prohibiting the provision of dominated options in certain important domains.

5. Conclusion

In this project, we have documented a set of trust-based inferences people draw from the composition of a choice set (specifically, the inclusion of a dominated option), and demonstrated an important potential consequence of these inferences on decisions (preference for a different choice provider). We find consistent results when using (a) an agreement scale regarding trust, (b) a scale of measured distrust, (c) a bipolar scale (ranging from complete distrust to complete trust), (d) spontaneous, unprompted comments from a thought-listing task, (e) incentive-compatible behavioral measures of trust (i.e., the Trust Game results), and (f) manifestations of trust in choice (i.e., choice deferral). We suspect that our findings represent just one instantiation of a more general psychological tendency to make social inferences from the particular features of a given choice context. In addition to its theoretical contribution, these findings may also be practically applicable. Choice architecture is often designed by selecting a well-documented psychological force that may be pertinent for a given choice situation (e.g., loss aversion, status quo bias), and then constructing a choice environment that accounts for this tendency (e.g., loss framing, defaults). However, these psychological forces are typically narrowly studied in laboratory settings intentionally devoid of other psychological variables. In contrast, we argue that when choice architecture is embedded within socially rich environments (including field settings), new psychological variables are introduced. In such settings, choice makers may naturally try to infer the social meaning behind the choice context: *Why did the choice architect offer this choice?* Through this lens, even seemingly innocuous features of the choice architecture (e.g., the presence of a dominated option) can signal important social information to decision makers (e.g., the untrustworthiness of the choice architect). This broader class of social factors that may be implicated could considerably dampen or enhance the intended effects of other choice architecture interventions. Understanding such social inferences may prove vital to crafting choice environments that have more predictable effects on attitudes and decisions.

CRedit authorship contribution statement

Jonathan E. Bogard: Writing – review & editing, Writing – original draft, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization. **Joseph S. Reiff:** Writing – review & editing, Writing – original draft, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization. **Eugene M. Caruso:** Writing – review & editing, Writing – original draft, Project administration, Methodology, Funding acquisition, Conceptualization. **Hal E. Hershfield:** Writing – review & editing, Writing – original draft, Project administration, Methodology, Funding acquisition, Conceptualization.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

All data, code, pre-registrations, and survey materials are available online

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