Equity Concerns are Narrowly Framed

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Working Paper 18-040

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August 31, 2021

Abstract

Distributional decisions regularly involve multiple payoff components. In a series of experiments, we show that subjects frequently exhibit *narrow equity concerns*: individuals apply their fairness preferences narrowly, on a specific component of payoffs, rather than focusing on the broader payoff consequences of their choices. This behavior leads subjects to make different decisions depending on which component of payoffs we frame them to consider. We document narrow equity concerns in an exceedingly simple setting—in which payoff components are small tokens worth 1 cent and large tokens worth 2 cents—and in context-rich applications (e.g., relating to tax policy, worker compensation, and prosocial behavior). Across treatments, we also investigate when narrow equity concerns are more likely to reflect a preference for narrow equity rather than mistakes or cognitive limitations.

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1   Introduction

Economists have generated a significant and growing body of research about how individuals choose to distribute resources between parties. How individuals make such distributional decisions directly informs the types of tax policies and social welfare programs policy makers propose and constituents support; how employers allocate work, resources, and rewards among employees; how parties negotiate; how parents invest in their multiple children; and how individuals make payoff decisions in myriad other settings.

Given the relevance of such distributional decisions, there is a rich line of work in economics exploring these decisions and the fairness attitudes that underly them.[1] As evidence of the careful control employed by the experimental work in this literature, one common feature of this work is a focus on a simplified decision environment that considers payoffs comprised of a single component (e.g., cash payoffs). This focus on a single payoff component is key to many of the insights gleaned in this prior work, but it leaves open many questions about how individuals make distributional decisions in the myriad environments when outcomes depend on multiple payoff components (e.g., wealth, income, leisure time, access to resources such as healthcare and education) or when a source of payoffs can be reframed to be comprised of various payoff components (e.g., wealth from accumulated income, wealth from asset appreciation, wealth from inheritance). Guided by prior work on narrow bracketing—in particular, work in which a framing manipulation does not change the actual set of available choices but influences decisions by causing individuals to narrowly consider the payoff consequences of their choices—we are particularly interested in whether, in the presence of multiple components of payoffs, individuals apply their fairness preferences narrowly, on a specific component of payoffs, rather than focusing on the broader payoff consequences of their choices. If individuals engage in this pattern of behavior, we say they display *narrow equity concerns.*

We explore whether subjects display narrow equity concerns in a carefully controlled laboratory experiment in which total monetary payoffs come from two payoff components: small tokens and large tokens. Subjects in the role of third-party social planners decide how to influence the cash received by two other participants, which is simply calculated as one cent times the number of small tokens plus two cents times the number of large tokens. The social planner learns how many small and large tokens have been randomly endowed to the two participants and then chooses between three allocation options that influence the cash each participant ends up with.

To investigate whether social planners exhibit narrow equity concerns over small or large tokens, we randomly vary whether the three allocation options allow social planners to adjust

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[1]For instance, this work has documented: the tradeoff between equality and efficiency (see, e.g., Engelmann and Strobel (2004) and Fehr, Naef and Schmidt (2006)), how the sources of inequities matter (see, e.g., Mollerstrom, Reme and Sørensen (2015), and Gee, Migueis and Parsa (2017)), and the relevance of various fairness principles, such as those involving "equality of opportunity," "equality of outcomes," and "equity" (see, e.g., Konow (2000) and Cappelen et al. (2007)).

the number of small tokens each participant ends up with or instead adjust the number of large tokens each participant ends up with. If social planners only care about the payoff consequences of the allocations they choose, this framing manipulation should have no impact.

By contrast, if social planners exhibit narrow equity concerns, this manipulation may influence choices. If a social planner can only affect the cash payoffs of the two participants by adjusting small tokens, they may be drawn towards equalizing the number of small tokens the two participants end up with. Similarly, if a social planner can only affect cash payoffs by adjusting large tokens, they may be drawn towards equalizing the number of large tokens the two participants end up with.

We find that this is what social planners frequently do. Social planners make different choices when asked to influence small tokens or large tokens, even though the three options they choose from involve the exact same cash payoffs across the two frames. In our primary treatment, social planners are 16–21 percentage points more likely to choose a particular allocation when it is consistent with narrow equity concerns. Indeed, social planners exhibit narrow equity concerns even though one of the three allocation options available to them always allows them to achieve a broader type of equity that equalizes the cash payoffs received by the two participants.

Why do social planners display narrow equity concerns? We answer this question by exploring the extent of narrow equity concerns across four treatments (in a 2 × 2 design). Motivated by the question of whether narrow equity concerns in the *Baseline* treatment, described thus far, are reflective of some sort of mistake or cognitive limitation, we ran the *Baseline-Aggregated* treatment. The *Baseline-Aggregated* treatment is identical to the *Baseline* treatment but directly informs social planners of the cash payoffs resulting from each possible allocation. This treatment makes achieving equity in cash payoffs more salient and allows social planners to do it without even the simplest of calculations. We find that the treatment almost entirely eliminates narrow equity concerns. This suggests that social planners prefer to achieve equity in cash payoffs than to display narrow equity concerns but that mistakes or cognitive limitations prevent them from doing so in the *Baseline* treatment.

Motivated by the possibility that narrow equity concerns could be more of a preference when broader forms of equity may be less attractive, in our other two treatments, the broader form of equity (i.e., equity in cash payoffs) cannot be achieved with certainty. The *Uncertainty* and *Uncertainty-Aggregated* treatments are identical to the *Baseline* and *Baseline-Aggregated* treatments, respectively, except that we introduce salient uncertainty in cash payoffs. In the *Uncertainty* and *Uncertainty-Aggregated* treatments, cash payoffs equal one cent times the number of small tokens plus two cents times the number of large tokens plus a random amount of money—equally likely to be 0 cents, 40 cents, or 80 cents—randomly drawn for each participant. We find that the *Uncertainty* treatment generates a similar level of narrow equity concerns as the *Baseline* treatment. Unlike with the *Baseline* and *Baseline-Aggregated* treatments, however,

comparing the *Uncertainty* treatment to the *Uncertainty-Aggregated* treatment reveals that directly informing social planners of the three possible cash payoffs resulting from each allocation fails to mitigate narrow equity concerns. Narrow equity concerns are nearly as prevalent in the *Uncertainty-Aggregated* treatment as in the *Uncertainty* and *Baseline* treatments. These results suggest that social planners prefer to achieve equity on a single component of payoffs than to achieve a broader form of equity when there is salient uncertainty in the broader form of equity.

Taken together, our results suggest that whether narrow equity concerns are more of a preference or mistake depends on the context. While we observe evidence consistent with narrow equity concerns being entirely due to mistakes or cognitive limitations in the decision environment without uncertainty, the persistence of narrow equity concerns in the *Uncertainty-Aggregated* treatment suggests that narrow equity concerns also reflect a preference in environments where broader forms of equity involve salient uncertainty. Akin to the certainty effect or a possible preference for certainty, we speculate that individuals may have a preference for a narrower type of equity that can be achieved with certainty over broader types of equity that may be less attractive because they involve uncertainty.

Given that uncertainty in payoffs is inherent to many of the environments decision makers face outside of the laboratory, these results suggest that narrow equity concerns may prove prevalent in practice, even when the decision environment is constructed to mitigate the role of mistakes and cognitive limitations. In addition, even absent uncertainty in payoffs, narrow equity concerns may be widely relevant. Results from five additional study versions—all similar to the *Baseline* treatment in which broader forms of equity can be achieved with certainty—show that narrow equity concerns persist in settings where one might have thought mistakes or cognitive limitations would be mitigated. In particular, narrow equity concerns persist: when social planners must pass a cognitive screen, in settings with higher stakes, when social planners' choices affect their own payoffs, and regardless of whether allocations add to or subtract from endowments.

To further explore how narrow equity concerns might manifest in practice, we ran a survey that asked subjects how resources should be allocated between parties in various policy-relevant settings. The specific applications we explore follow the examples listed in the first paragraph of the Introduction. We ask subjects which of two households should get a tax credit (either an income tax credit or a property tax credit), which of two workers should have their compensation cut (either as a cut to salary or to benefits), which child should receive additional parental support (either for rent or for car payments), which family should provide additional public goods (either from cash donation or from volunteering hours), and how a firm should renegotiate with trading partners to save money (on one good or another). Following the design in our tokens study, we ask subjects these questions once when considering one component of payoffs and once when considering the other component of payoffs. Many subjects advocate for equity on the specific component of payoffs we frame them to consider, rather than achieving the broader form of

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equity that would account for both payoff components. Their responses are also consistent with the patterns of choices we saw in the tokens studies. Subjects switch which household, worker, child, trading partner, or family they say should be favored, depending on which component of payoffs they are asked to consider in a given question.

Our research exploring narrow equity concerns adds to a rich prior literature on how individuals narrowly consider the consequences of their choices, specifically in relation to narrow bracketing and mental accounting (for reviews, see Read et al. (1999) and Thaler (1999)). Prominent examples in the risk domain include how individuals make different choices according to: the extent to which payoffs are framed as endowments rather than as payoffs associated with a lottery outcome (Kahneman and Tversky, 1979) and whether payoffs result from two choices over lotteries rather than one choice of the corresponding compound lotteries (Tversky and Kahneman, 1981; Rabin and Weizsäcker, 2009). Evidence also comes from domains ranging from personal consumption decisions (Simonson, 1990; Read and Loewenstein, 1995; Abeler and Marklein, 2017) to personal financial decisions (Gneezy and Potters, 1997; Barberis, Huang and Thaler, 2006; Imas, 2016; Andreoni et al., 2018; Vorjohann, 2020) to personal health insurance decisions (Gottlieb and Mitchell, 2020). Notably less empirical attention has been paid to narrow bracketing in distributional decisions involving equity concerns—despite its potential importance having been discussed in prior work such as Read et al. (1999) and Sobel (2005). Moreover, relative to existing evidence on narrow equity concerns—such as individuals appearing to care more about inequity in the lab than outside of the lab, ignoring endowment differences in the lab, and, more generally, the prevalence of the 50–50 norm in laboratory studies (Kagel, Kim and Moser, 1996; Charness and Rabin, 2002; Andreoni and Bernheim, 2009)—we differ by providing a direct test of how a framing manipulation, which keeps constant the payoffs involved, induces narrow equity concerns.[2] Thus, along with Ellis and Freeman (2020), our results present the first direct evidence of how narrow framing influences distributional decisions.[3]

One reason we think it is important to document direct evidence of narrow equity concerns in an exceedingly simple environment is to lend credence to the belief—often implicitly assumed in the literature, as discussed in Sobel (2005)—of the role of narrow equity concerns in explaining distributional decisions.[4] We hope our direct evidence leads to more work on how narrow framing may interact with work on fairness and the malleability of fairness preferences. For instance, future work may investigate if narrow equity concerns can help to explain why some individuals

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[2]This allows us to provide evidence on narrow equity concerns that cannot be related to factors such as in-group preferences that cause individuals to care more about fellow laboratory participants.

[3]Ellis and Freeman (2020) also provides direct evidence of narrow bracketing in a domain involving lottery decisions and in a domain involved induced-utility.

[4]Sobel (2005) notes that: "In applications, subjects are assumed to care only about the welfare of other active participants in the game and to make relative income comparisons based only on the material payoffs of the game. It is typical (and necessary) to identify a "small world" in which to apply decision-theoretic arguments (particularly in models involving choice under uncertainty)."

appear more inequality averse between themselves and individuals with incomes just above them than those with incomes much above them (Fisman, Kuziemko and Vannutell, 2021), why individuals may adopt ex-ante views of fairness (e.g., "equality of opportunity") in some situations but adopt ex-post views of fairness (e.g., "equality of outcomes") in other situations (Krawczyk and Lec, 2010; Brock, Lange and Ozbay, 2013; Cappelen et al., 2013; Trautmann and Wakker, 2010; Trautmann and van de Kuilen, 2016; Andreoni et al., 2019), and why individuals are sometimes insensitive to the endowments of others when making distributional decisions (Brülhart and Usunier, 2012; Calabuig et al., 2016).[5]

Another reason that we think it is important to document narrow equity concerns is that, more so than the findings in many other domains (e.g., in the risk literature where narrow bracketing can lead subjects to choose dominated lotteries), narrow equity concerns may not be reflective of mistakes or cognitive limitations.[6] Thus, a central contribution of our paper is investigating whether narrow equity concerns appear to be more of a mistake or more of a preference in various environments. In doing so, we highlight the role of uncertainty, since we find that subjects prefer to achieve equity in a narrower frame when broader forms of equity may be less attractive because they involve uncertainty. Future work may investigate whether other factors contribute to narrow equity concerns being more of a preference than a mistake. For instance, social norms or culture could contribute to individuals having a preference for achieving narrow equity over some payoff components, even at the cost of broader forms of equity.[7]

The remainder of the paper proceeds as follows. Section 2 presents the main 2×2 experimental design. Section 3 presents the results from these treatments, shows their robustness, and presents results from five additional study versions. Section 4 presents results from our survey exploring the presence of narrow equity concerns across a variety of applications. Section 5 concludes.

2   Design of the *Tokens* version

Subjects in our main study version are randomly assigned to one of four treatments: the *Baseline* treatment, the *Baseline-Aggregated* treatment, the *Uncertainty* treatment, or the *Uncertainty-Aggregated* treatment. The latter three treatments are built off of the *Baseline* treatment. We therefore begin by detailing the design for the *Baseline* treatment (Section 2.1) and a discussion of how we identify narrow equity concerns in that treatment (Section 2.2). We then detail how the latter three treatments are built off of the *Baseline* treatment (Section 2.3) and provide details about experimental implementation (Section 2.4).

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[5]It could also be interesting to see if individuals who exhibit narrow equity concerns are more likely to exhibit insensitivity to important aspects of distributional decisions, such as group size (Schumacher et al., 2017).

[6]While it details several types of exceptions, Read et al. (1999) notes that the premise of their review paper is that: "broad bracketing usually leads to better outcomes than narrow bracketing."

[7]For evidence on how culture may relate to fairness views, see Almås, Cappelen and Tungodden (Forthcoming).

2.1   The Baseline Treatment

In the *Baseline* treatment, subjects make decisions as third-party social planners by affecting the payoffs of two other study participants: participant 1 and participant 2. Following prior work that introduces arbitrary components—such as tokens—to assess equity concerns in the lab (Roth and Murnighan, 1982; Kagel, Kim and Moser, 1996), the cash payoffs for each of these participants is determined by how many small tokens and how many large tokens they end up with. Each participant receives 1 cent for each small token they end up with and 2 cents for each large token they end up with.[8]

Social planners make 14 decisions, knowing that no more than one decision will be randomly selected to be implemented. These decisions vary along two key dimensions: (i) the endowment sets of participant 1 and participant 2, and (ii) whether the social planner is constrained to make a small-token decision or a large-token decision.

The 7 unique endowment sets for the two participants are shown in Table 1. While participant 1 is always endowed with 140 small tokens and 70 large tokens (i.e., $1.40 in small tokens and $1.40 in large tokens, for a total of $2.80), participant 2's endowment varies across decisions.

Table 1: Allocation Decisions

| Decision | Endowment of | | Allocations | Allocation Achieving | |
#	Participant 1	Participant 2	Denominated in	Component Equity	Cash Equity
1	$140s$, $70l$	$140s$, $70l$	Small Tokens (s)	Equal	Equal
2	$140s$, $70l$	$140s$, $70l$	Large Tokens (l)	Equal	Equal
3	$140s$, $70l$	$100s$, $70l$	Small Tokens (s)	Favors2	Favors2
4	$140s$, $70l$	$100s$, $70l$	Large Tokens (l)	Equal	Favors2
5	$140s$, $70l$	$180s$, $70l$	Small Tokens (s)	Favors1	Favors1
6	$140s$, $70l$	$180s$, $70l$	Large Tokens (l)	Equal	Favors1
7	$140s$, $70l$	$140s$, $50l$	Small Tokens (s)	Equal	Favors2
8	$140s$, $70l$	$140s$, $50l$	Large Tokens (l)	Favors2	Favors2
9	$140s$, $70l$	$140s$, $90l$	Small Tokens (s)	Equal	Favors1
10	$140s$, $70l$	$140s$, $90l$	Large Tokens (l)	Favors1	Favors1
11	$140s$, $70l$	$100s$, $90l$	Small Tokens (s)	Favors2	Equal
12	$140s$, $70l$	$100s$, $90l$	Large Tokens (l)	Favors1	Equal
13	$140s$, $70l$	$180s$, $50l$	Small Tokens (s)	Favors1	Equal
14	$140s$, $70l$	$180s$, $50l$	Large Tokens (l)	Favors2	Equal

For each decision (1–14), the second and third columns display the endowed number of small tokens (s) and large tokens (l) for participants 1 and 2, respectively. The fourth column displays whether the allocation choices are denominated in small tokens, because the social planner makes a small-token decision, or large tokens, because the social planner makes a large token decision. The fifth column notes which allocation achieves *component equity* while the sixth column notes which allocation achieves *cash equity*.

The social planners face each of these 7 unique endowments sets twice, once when making a small-token decision and once when making a large-token decision. In each small-token decision,

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[8]One could also consider the introduction of tokens as an introduction of a "medium," which itself can have an impact on decisions (Hsee et al., 2003).

the social planner chooses between three options for taking away a total of 80 small tokens (i.e., $0.80) from the two participants.[9] The options are to take away:

1. 20 and 60 small tokens from participants 1 and 2, respectively (the "Favors1" allocation)

2. 40 small tokens from each participant (the "Equal" allocation)

3. 60 and 20 small tokens from participants 1 and 2, respectively (the "Favors2" allocation)

In each large-token decision, the social planner chooses between three options for taking away a total of 40 large tokens (i.e., $0.80) from the two participants. The options are to take away:

1. 10 and 30 large tokens from participants 1 and 2, respectively (the "Favors1" allocation)

2. 20 large tokens from each participant (the "Equal" allocation)

3. 30 and 10 large tokens from participants 1 and 2, respectively (the "Favors2" allocation)

As is apparent, given that large tokens are worth twice as much as small tokens, the difference between small-token and large-token decisions is a framing effect. The monetary payoff consequences of choosing any of these options—i.e., the Favors1 allocation, the Equal allocation, or the Favors2 allocation—is exactly the same in small-token decisions and large-token decisions. All that varies is that these allocations are denominated in small tokens in small-token decisions and in large tokens in large-token decisions.

Appendix Figures B.4 and B.5 show example decision screens for a small-token decision and a large-token decision, respectively. We emphasize a few things about these decision screens. First, the top of the decision screen makes clear the endowments of participant 1 and participant 2 and how these endowments differ. Second, to make it easy for social planners to determine how allocations lead to payoffs, each allocation choice highlights: (i) the difference in the number of tokens taken from each participant if that allocation is selected, and (ii) the number of small tokens and large tokens each participant ends up with if that allocation is selected. Third, each decision screen makes clear that—if that decision is randomly selected to count—social planners can only affect the number of small tokens each participant receives if it is a small-token decision, or can only affect number of large tokens each participant receives if it is a large-token decision. Finally, as detailed in the instructions that precede these decision screens (see Appendix Figure B.2), social planners know that the endowments are randomly determined.[10]

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[9]The options are named based on who they favor: the "Favors1" allocation takes away less money from the first participant, the "Equal" allocation takes away the same amount of money from both participants, and the "Favors2" allocation takes away less money from the second participant.

[10]The random assignment of endowments mitigates fairness concerns relating to participants having control over their outcomes (Krawczyk, 2010; Cappelen et al., 2013; Mollerstrom, Reme and Sørensen, 2015; Akbaş, Ariely and Yuksel, 2016; Gee, Migueis and Parsa, 2017). See, also, related literature that examines how "earning the right" to be a dictator in the dictator game influences generosity (i.e., the entitlement effect; see Hoffman et al. (1994) for early evidence and Engel (2011) for a review) as well as work where such an entitlement effect is absent (e.g., see the ultimatum game in Demiral and Mollerstrom (2018)).

2.2 Expected Results

Whether the Favors1, Equal, and Favors2 allocations are denominated in small tokens (as in small-token decisions) or denominated in large tokens (as in large-token decisions) is a framing manipulation. If social planners' decisions are only driven by payoff consequences—even those unrelated to equity concerns—it immediately follows that our framing manipulation should have no effect on which allocations social planners choose.

By contrast, if social planners exhibit narrow equity concerns over the payoff component they are framed to consider, our framing manipulation may influence which allocations social planners choose. Specifically, when a social planner can only affect the cash payoffs of the two participants by adjusting small tokens in small-token decisions, they may be drawn towards equalizing the number of small tokens the two participants end up with. By contrast, if a social planner can only affect the cash payoffs by adjusting large tokens large-token decisions, they may be drawn towards equalizing the number of large tokens the two participants end up with.

Our design allows for a direct test of narrow equity concerns over the payoff component they are framed to consider because, in Decisions 3–14, the allocation that equalizes the payoff component they are framed to consider systematically differs in small-token decisions and large-token decisions. Table 1 makes this clear. We label an allocation as achieving *component equity* if both participants end up with the same number of small tokens in a small-token decision or the same number of large tokens in a large-token decision. In each pair of decisions with the same endowments (i.e., 3 & 4, 5 & 6, 7 & 8, 9 & 10, 11 & 12, and 13 & 14), the allocation that achieves *component equity* differs between small-token decisions (i.e., the odd-numbered decision) and large-token decisions (i.e., the even-numbered decision). If social planners are more likely to choose that allocation when it achieves *component equity* than when it does not, we say that they exhibit narrow equity concerns.

To conclude, we emphasize two additional features of our design. First, we provide a direct test for narrow equity concerns in an environment in which a broader type of equity is easily achievable. Specifically, as shown in Table 1, the allocation that equalizes the cash payoffs between the two participants—which we label as the allocation that achieves *cash equity*—is always one of the three available allocations. If social planners treat monetary payoffs as the relevant payoffs for applying fairness preferences—as assumed in models such as Fehr and Schmidt (1999), Bolton and Ockenfels (2000), and Charness and Rabin (2002)—one may expect social planners to consistently favor the allocation that achieves *cash equity*.[11] Second, while we focus

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[11]Of course, as noted by Sobel (2005) and others, equalizing cash payoffs between participants in an experiment can be indicative of narrow equity concerns that ignore inequities outside of the experiment. For our purposes, what is important is that *cash equity* is a broader type of equity than *component equity*. Moreover, since social planners only know that the two participants are anonymous other individuals participating in this study, they do not have any way of attempting to offset additional inequities from outside of the lab. Note that this may be different in cases where a decision maker is one of the parties receiving funds, since subjects may have informed beliefs about whether they are better or worse off financially than other subjects in the laboratory.

on whether social planners exhibit narrow equity concerns over the payoff component they are framed to consider, social planners' decisions could be driven by an even "narrower" type of equity concern in which they favor allocations that *equally* affect both participants, independent of any endowment differences. While this type of narrow equity concerns is also of clear importance—and is consistent with the large literature on the preference for a 50–50 split (see, e.g., Kagel, Kim and Moser (1996), Charness and Rabin (2002) and Andreoni and Bernheim (2009))—we note that social planners who adhere to this form of narrow equity concerns would be consistent in their decisions: they would always choose the Equal allocation. Our desire to examine how narrow equity concerns influence allocation decisions—and cause choices to differ due to a framing manipulation—is one reason that we focus on narrow equity concerns over payoff components.[12] We also focus on narrow equity concerns over payoff components given our motivation to understand how narrow equity concerns may influence decisions that involve multiple payoff components. To the extent that social planners' decisions are driven by a narrower form of equity that ignores endowments altogether, we may underestimate the degree to which social planners exhibit narrow equity concerns in general.

2.3 Additional Treatments

To better understand what drives narrow equity concerns, we ran three additional treatments alongside the *Baseline* treatment. The four treatments vary by whether social planners are shown aggregated payoff information and whether there is uncertainty about the cash payoffs that participants receive, generating a 2×2 design.

Baseline-Aggregated treatment

Motivated by the question of whether achieving component equity is reflective of some sort of mistake or cognitive limitation, in the *Baseline-Aggregated* treatment we investigate the impact of making cash equity more salient and easier to achieve (i.e., without making any calculations).[13]

The *Baseline-Aggregated* treatment is the same as the *Baseline* treatment, except that subjects are provided with aggregated information on the payoff consequences of each allocation choice. In particular, for each allocation choice in each decision, social planners are explicitly told the total number of cents that each participant ends up with (i.e., we aggregate the value of the small and large tokens and display these values on the decision screen). Appendix Figures B.20 and B.21 show screenshots of a small-token decision and a large-token decision in the *Baseline-Aggregated* treatment.[14]

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[12]The desire to show that choices change because social planners respond to endowments on one component of payoffs also underscores why we require social planners to make adjustments to existing endowments.

[13]For evidence on how simplifying calculations can mitigate cognitive biases, see Enke and Zimmermann (2019).

[14]The only difference between these screenshots and those for the *Baseline* treatment are the additional words "for a total of [insert number] cents" in each allocation choice. See Appendix B.2 for the full experimental instructions for the *Baseline-Aggregated* treatment.

Uncertainty treatment

One of the features of our *Baseline* treatment is that there is no uncertainty about the total payoffs the two participants receive from the experiment, which means that cash equity can be achieved with certainty. Motivated by the possibility that narrow equity concerns could be more of a preference when broader forms of equity may be less attractive, we introduced a new environment in which cash equity cannot be achieved with certainty.

The *Uncertainty* treatment keeps the same structure and decisions as the *Baseline* treatment but introduces a third, random payoff component. This random amount—determined independently for each participant—is equally likely to be an additional $0.00, $0.40, or $0.80.

To make salient that cash equity cannot be achieved with certainty, and to ensure that social planners understand the full distribution of payoffs, we describe this random payoff component by displaying the three equally likely random payoff amounts. Appendix Figures B.24 and B.25 show screenshots of a small-token decision and a large-token decision in the *Uncertainty* treatment.[15] Despite the uncertainty over the cash payoffs for each participant, it still follows that—absent narrow equity concerns—no differences should arise across the small-token and large-token decisions within each pair of decisions with the same endowments.

Uncertainty-Aggregated treatment

Again motivated by whether achieving component equity is reflective of some sort of mistake or cognitive limitation, we investigate the impact of making cash equity more salient and easier to achieve in the presence of salient uncertainty by running the *Uncertainty-Aggregated* treatment.

The *Uncertainty-Aggregated* treatment is the same as the *Uncertainty* treatment except that social planners are provided with aggregated information on the cash payoff consequences of each allocation. For each allocation choice in each decision, social planners are explicitly told the three possible total number of cents that each participant may end up with. To equalize the amount of cash that each participant has a chance of receiving, the social planner does not need to do any calculations. The social planner can simply choose the allocation for which the three possible total number of cents are the same between the two participants.[16] Appendix Figures B.26 and B.27 show screenshots of a small-token decision and a large-token decision in the *Uncertainty-Aggregated* treatment.[17]

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[15]The only difference between these screenshots and those for the *Baseline* treatment are the additional words "and a random amount equal to 0 cents or 40 cents or 80 cents" in each endowment description and allocation choice. See Appendix B.3 for the full experimental instructions for the *Uncertainty* treatment.

[16]By providing information on each possible cash payoff—rather than the expected cash payoff—we do not have to explain how expected values are calculated (which could cause confusion) and we ensure that the uncertainty in cash payoffs remains salient. Making the uncertainty in cash payoffs less salient could cause participants to ignore uncertainty, counter to our interest in how individuals make decisions when uncertainty in payoffs is salient. We hope future work examines the impact of making uncertainty in payoffs less salient, such as by only providing information on expected cash equity, since it may prove to be particularly insightful from a policy perspective.

[17]The only difference between these screenshots and those for the *Uncertainty* treatment are the additional words "for a total of [insert number] cents or [insert number] cents or [insert number] cents" in each allocation

2.4 Implementation

In May 2021, 800 social planners, recruited from the online labor market platform Prolific, completed our study and were randomly assigned to the *Baseline* treatment, the *Uncertainty* treatment, the *Baseline-Aggregated* treatment, or the *Uncertainty-Aggregated* treatment.[18] Each social planner completed two parts of our study, Part 1 and Part 2.

Part 1 involved the 14 decisions described above and varied by treatment. Prior to making their choices in Part 1, social planners had to correctly answer several understanding questions about how their choices influenced the payments for the pair of participants. Each social planner was then randomized to first face the 7 small-token decisions or the 7 large-token allocation decisions. Within each set of 7, the order of the decisions was also randomized.

In Part 2, which did not vary by treatment, subjects made 10 hypothetical allocation decisions involving 5 different contexts, motivated by field settings in which narrow equity concerns might influence outcomes. These settings included: tax policy, resource allocation between children, public good provision, negotiation with suppliers, and compensation for employees. The order in which social planners faced these 10 decisions was randomized. These decisions are described and analyzed in Section 4.

After completing Part 1 and Part 2, subjects answered attention check questions and filled out a short demographic survey. Social planners received $5 for completing the study, and additional payments were distributed from one randomly selected "part-that-counts." If Part 1 was selected as the part-that-counts, additional payments—for participant 1 and participant 2—were determined from the social planner's allocation choice in a randomly selected decision. If Part 2 was selected as the part-that-counts, the subject received an additional $1 bonus payment.

3 Main Results

Section 3.1 presents results from the *Baseline* treatment. Section 3.2 presents results from the *Baseline-Aggregated* treatment. Section 3.3 presents results from the *Uncertainty* and *Uncertainty-Aggregated* treatment. Section 3.4 shows the robustness of the results and presents replications and extensions from five additional study versions. Section 3.5 explores individual differences.

3.1 Baseline results

Figure 1 displays distributions of the allocation choices made by social planners in each decision in the *Baseline* treatment. The three bars on the left of each panel display the distribution of small-token allocation choices, and the three bars on the right of each panel display the distribution of large-token allocation choices. The allocations that equalize the cash between the two participants (i.e., achieve cash equity) and the allocations that equalize the payoff compo-

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choice. See Appendix B.4 the full experimental instructions for the *Uncertainty-Aggregated* treatment.

[18]To participate in our study, a subject must have an approval rating of 95% or greater from at least 100 prior submissions on Prolific and choose the United States when asked for their nationality.

nent social planners are framed to consider (i.e., achieve component equity) are indicated on the horizontal axis of each histogram. The allocation that achieves component equity is also shaded in black to make comparisons across small-token and large-token decisions easier to visualize.

Before investigating evidence for narrow equity concerns, we start by considering choices in Decisions 1 and 2, in which both participants have identical endowments of small and large tokens. Subjects choose the Equal allocation 90% of the time, both when allocating small tokens in Decision 1 and when allocating large tokens in Decision 2. Consistent with a desire to achieve component equity or cash equity, these decisions are encouragingly consistent with prior literature that often finds that participants favor allocations that minimize inequity in experimental payoffs.

To investigate narrow equity concerns, we next consider Decisions 3–14, in which participants are endowed with either a different number of small tokens, a different number of large tokens, or both. In a subset of these decisions (i.e., in Decisions 4, 6, 7, 9, and 11–14), the allocation that achieves cash equity does not achieve component equity. The distribution of choices in each of these decisions immediately reveals evidence consistent with narrow equity concerns because social planners frequently equalize the component of payoffs they are framed to consider rather than the cash payoffs between the two participants. In particular, while social planners achieve cash equity 59% of the time, they instead achieve component equity—choosing the allocation that equalizes small tokens when making small-token decisions or that equalizes large tokens when making large-token decisions—31% of the time.[19]

To provide further, direct evidence of narrow equity concerns, we next examine whether narrow equity concerns cause social planners to make different decisions when the same decision is framed differently. Specifically, while holding constant both participants' endowments, we examine the impact of our framing manipulation that varies whether the allocations are denominated in small tokens (framing participants to consider the small-token payoff component) or in large tokens (framing participants to consider the large-token payoff component).

Consider, for example, Decisions 3 and 4. In both of these decisions, participants are endowed with the same number of large tokens but participant 1 is endowed with more small tokens than participant 2. How social planners can affect the cash payoffs of these two participants is also the same across these decisions. They can take away $0.20 from participant 1 and $0.60 from participant 2 by choosing the Favors1 allocation, $0.40 from each by choosing the Equal allocation, or $0.60 from participant 1 and $0.20 from the participant 2 by choosing the Favors2 allocation. All that differs across these two decisions is whether the three allocations are denominated in small tokens or large tokens.

Comparing choices across Decisions 3 and 4, we see that social planners are equally likely to

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[19]The likelihood that an individual social planner chooses to achieve component equity in any of these 8 decisions is highly correlated with the likelihood they choose to achieve component equity in any of the other 7 of these decisions. Indeed, in each of the corresponding 28 pairwise correlations, these likelihoods are significantly and positively correlated ($p < 0.01$).

choose the Favors1 allocation in both decisions. Differences emerge, however, when considering how likely social planners are to choose the Equal allocation and the Favors2 allocation across decisions. These differences align with narrow equity concerns over the payoff component they are framed to consider. When social planners can only influence cash payoffs by adjusting small tokens (i.e., in Decision 3), they are drawn towards the allocation that equalizes the number of small tokens: the Favors2 allocation. When social planners can only influence cash payoffs by adjusting large tokens (i.e., in Decision 4), they are drawn towards the allocation that keeps the number of large tokens equal, the Equal allocation. That is, our framing manipulation causes participants to systematically favor the allocation that achieves equity on the component of payoff they are framed to consider. Similar patterns of results follow when considering the remaining pairs of decisions (i.e., Decisions 5 & 6, 7 & 8, 9 & 10, 11 & 12, and 13 & 14).

Table 2 shows that these changes in allocation choices are statistically significant in the *Baseline* treatment. It presents regression results from a linear probability model of the likelihood an allocation is chosen on whether that allocation achieves component equity (i.e., equalizes small tokens when making small-token decisions or large-tokens when making large-token decisions). The first three columns show the likelihood that the social planner chooses the Favors1, Equal, and Favors2 allocations, respectively; the fourth column shows the likelihood that the subject chooses the allocation that achieves cash equity. All regressions include fixed effects for each of the 7 unique sets of endowments, so that we identify concerns for narrow equity holding fixed the endowments of the participants, and all regressions cluster standard errors for each social planner, to account for the fact that each social planner makes 14 decisions. Social planners clearly display narrow equity concerns: allocations are 16–21 percentage points more likely to be chosen when they achieve equity in the payoff component the social planner is framed to consider, as compared to allocations *with identical payoff consequences* that do not achieve component equity.

Table 2: *Baseline* treatment, regression results

	Linear probability model of choosing:			
	Favors1	Equal	Favors2	Cash Equity
	(1)	(2)	(3)	(4)
Component equity $\implies$ X	0.16***	0.21***	0.16***	0.21***
	(0.02)	(0.02)	(0.03)	(0.02)
# Social planners	210	210	210	210
# Decisions	2940	2940	2940	2940

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors are clustered by subject and shown in parentheses. The results are from a linear probability model of choosing the allocation noted in the column header. *Component equity* $\implies$ X is an indicator for the allocation that achieves component equity being the allocation denoted in the corresponding column. We include FEs for each endowment set. Data are from the decisions of subjects in the *Baseline* treatment of our experiment described in Section 2.

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Figure 1: *Baseline* treatment, allocation choices for each scenario
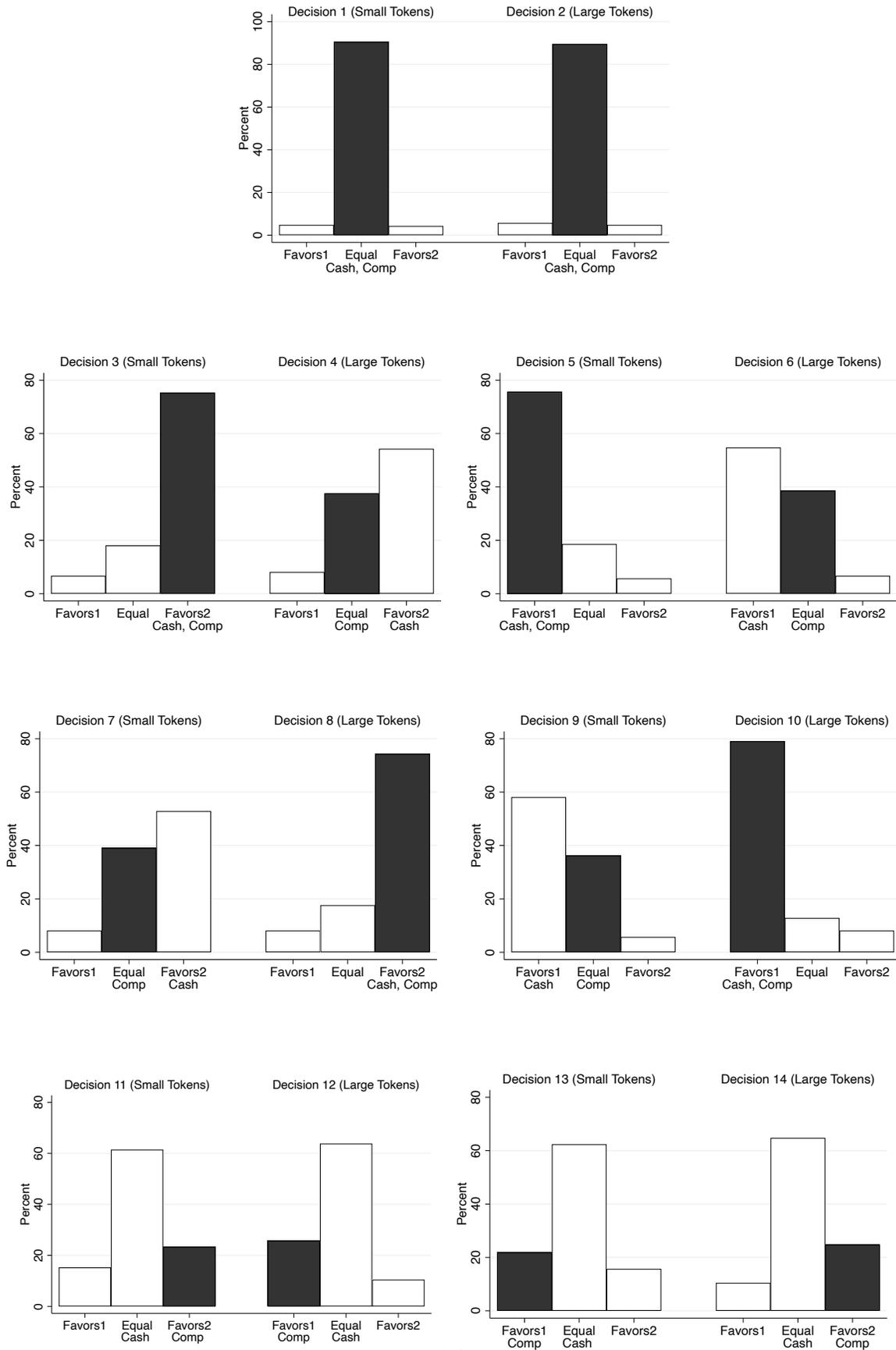
3.2 Comparing the *Baseline* and the *Baseline-Aggregated* treatments

Subjects gravitate towards the allocation that achieves component equity in the *Baseline* treatment. To explore whether these narrow equity concerns are reflective of some sort of mistake or cognitive limitation, we compare behavior in the *Baseline* treatment to behavior in the *Baseline-Aggregated* treatment.

As in Section 3.1, we first consider the distribution of choices. Appendix Figure A.2 follows the structure of Figure 1 and shows the distribution of allocation choices in each decision in the *Baseline-Aggregated* treatment. When the allocation that achieves component equity differs from the allocation that achieves cash equity, component equity is chosen 14% of the time and cash equity is chosen 80% of the time in the *Baseline-Aggregated* treatment. This clearly contrasts with the corresponding results in the *Baseline* treatment in which component equity is chosen 31% of the time and cash equity is only chosen 59% of the time.

Turning next to our direct test of narrow equity concerns, Appendix Table A.1 reveals little to no evidence for narrow equity concerns in the *Baseline-Aggregated* treatment: allocations are only 1–4 percentage points more likely to be selected when they align with component equity. As shown in the first panel of Table 3, the 1–4 percentage point effects in the *Baseline-Aggregated* treatment are statistically significantly smaller than the 16–21 percentage point effects in the *Baseline* treatment (the first row of Table 3 reproduces the results from Table 2).

Thus, when cash equity is made particularly salient and when it is exceedingly easy to achieve cash equity (i.e., without even the simplest of calculations), there is substantially less evidence for narrow equity concerns. This result suggests that the narrow equity concerns displayed in the *Baseline* treatment are reflective of mistakes or cognitive limitations that prevents social planners from achieving cash equity in that treatment. We explore the efficacy of other interventions to mitigate such mistakes or cognitive limitations in Section 3.4.

3.3 Results from the *Uncertainty* and *Uncertainty-Aggregated* treatments

That narrow equity appears to be primarily driven by mistakes or cognitive limitations in the *Baseline* treatment is not surprising given that there is no particular reason for social planners to care about the distribution of small tokens or large tokens when they can instead achieve cash equity. To explore the possibility that narrow equity concerns might be more of a preference when broader forms of equity may be less attractive, we ran the *Uncertainty* and *Uncertainty-Aggregated* treatments in which the broader form of equity (i.e., cash equity) cannot be achieved with certainty.

Starting again with results on the distribution of choices, Appendix Figures A.1 and A.3 display the distribution of allocation choices in each decision in the *Uncertainty* and *Uncertainty-Aggregated* treatments. When the allocation that achieves component equity differs from the

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allocation that achieves cash equity, component equity is chosen 30% of the time in the *Uncertainty* treatment and 24% of the time in the *Uncertainty-Aggregated* treatment, and cash equity is chosen 59% of the time in the *Uncertainty* treatment and 69% of the time in the *Uncertainty-Aggregated* treatment. Thus, while there is a shift towards cash equity in the *Uncertainty-Aggregated* treatment, results from both treatments are consistent with a substantial role of narrow equity concerns.

Table 3: Tokens study, regression results

	Linear probability model of choosing:			
	Favors1	Equal	Favors2	Cash Equity
	(1)	(2)	(3)	(4)
Panel 1: *Baseline* and *Baseline-Aggregated* treatments				
Component equity $\implies$ *X*	0.16***	0.21***	0.16***	0.21***
	(0.02)	(0.02)	(0.03)	(0.02)
Component equity $\implies$ *X*	-0.15***	-0.17***	-0.12***	-0.18***
*Aggregated	(0.03)	(0.03)	(0.03)	(0.03)
# Social planners	410	410	410	410
# Decisions	5740	5740	5740	5740
Panel 2: *Uncertainty* and *Uncertainty-Aggregated* treatments				
Component equity $\implies$ *X*	0.13***	0.18***	0.15***	0.18***
	(0.02)	(0.02)	(0.02)	(0.02)
Component equity $\implies$ *X*	0.00	-0.05	-0.02	-0.03
*Aggregated	(0.03)	(0.03)	(0.03)	(0.03)
# Social planners	390	390	390	390
# Decisions	5460	5460	5460	5460

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors are clustered by subject and shown in parentheses. The results are from a linear probability model of choosing the allocation noted in the column header. *Component equity* $\implies$ *X* is an indicator for the allocation that achieves component equity being the allocation denoted in the corresponding column. *Component equity* $\implies$ *X*Aggregated* is an interaction between the former indicator and an indicator for being either the *Baseline-Aggregated* or *Uncertainty-Aggregated* treatment. We include FEs for each endowment set in each treatment. Data are from the decisions of subjects in any of the four treatments in our experiment described in Section 2.

Turning next to our direct test of narrow equity concerns, Appendix Table A.2 reveals substantial evidence for narrow equity concerns in the *Uncertainty* treatment: allocations are 13–18 percentage points significantly more likely to be selected when they align with component equity.[20] Appendix Table A.3 also reveals substantial evidence for narrow equity concerns in the *Uncertainty-Aggregated* treatment: allocations are 12–15 percentage points significantly more likely to be selected when they align with component equity. While these rates are slightly smaller than those observed in the *Uncertainty* treatment, the second panel of Table 3 reveals that these rates are not statistically significantly different.

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[20]These rates are not statistically significantly different from the rates in the *Baseline* treatment.

Thus, in the presence of salient uncertainty in cash payoffs, we observe substantial evidence of narrow equity concerns. But, unlike the results from the *Baseline* treatments, making cash equity salient and allowing it to be selected without any calculations has little to no impact on narrow equity concerns.[21] Consequently, while displaying narrow equity concerns seems indicative of a mistake or a cognitive limitation in the *Baseline* treatment, narrow equity concerns appear more indicative of a preference in the *Uncertainty* treatment.

3.4 Robustness, Replications, and Extensions

In this section, we show robustness of the results in the prior sections. We then report on a number of additional study versions that explore strategies to mitigate narrow equity concerns in a setting similar to the *Baseline* treatment (i.e., absent uncertainty).

We have two sets of robustness results. First, we show that our results are robust to excluding inattentive subjects. Appendix Table A.4 replicates Table 3, showing results from our direct test of narrow equity concerns, but excludes the 6% of social planners who fail the attention check questions we ask after all 14 decisions are made.[22] The effects are nearly identical whether or not we exclude these inattentive subjects. Second, we show our results are robust to only analyzing the first 7 decisions made by each social planner (i.e., we only analyze a social planner's small-token decisions or large-token decisions, but not both). Appendix Table A.5 replicates Table 3 and shows that narrow equity concerns remain just as significant—and if anything are slightly stronger—when we leverage only between-subject variation to identify changes in choices in response to a given set of endowments.

Prior to running the 2×2 design presented in Section 2, we ran five different studies that explored narrow equity concerns in various settings built off of the *Baseline* treatment.[23] Given that the narrow equity concerns we observe in the *Baseline* treatment appear to be indicative of mistakes or cognitive limitations, these prior study versions provide insight into the sensitivity of such mistakes or cognitive limitations to various changes in the decision environment. Together, the results from these versions highlight that changes in the decision environment short of what we do in the *Baseline-Aggregated* treatment still leave significant room for the types of mistakes

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[21]While not shown in Table 3, the statistically significant difference between *Component Equity* $\implies$ *X* in the *Baseline* and *Baseline-Aggregated* treatments is statistically significantly larger than the small and insignificant difference between the *Uncertainty* and *Uncertainty-Aggregated* treatments. This implies that providing the aggregated information has a different impact on decisions in settings with and without salient uncertainty.

[22]In the follow-up survey, subjects asked to indicate their agreement on a scale from 1 (strongly disagree) to 5 (strongly agree) with the following three statements: (i) "I made each decision in this study carefully," (ii) "I made each decision in this study randomly," and (iii) "I understood what my decisions meant for my payment and the payments of my participants." Subjects who indicate disagreement with (i) or (iii), or who indicate agreement with (ii) are excluded from Appendix Table A.4.

[23]These five studies comprised an earlier version of this paper in which we documented narrow equity concerns in a treatment similar to the *Baseline* treatment and then showed the robustness of those results to various changes in the decision environment. Detailed descriptions of these treatments are presented in Appendix C. That earlier version of this paper also included two additional tokens-based study versions, not discussed in this paper, that provides evidence consistent with narrow equity concerns in an environment without endowments.

or cognitive limitations that cause narrow equity concerns in the *Baseline* treatment. This persistence suggests a potentially large relevance of narrow equity concerns in settings outside of the lab, a point we return to in Section 4.

Appendix Table A.7 presents results from these five additional study versions. Panel 1 documents narrow equity concerns in the *Baseline-Replication* study, which replicates results from the *Baseline* treatment with a larger sample on a different online platform (i.e., Amazon Mechanical Turk rather than Prolific).[24] Panel 2 documents narrow equity concerns in the *Baseline-Cognitive-Screen* study, which shows that narrow equity concerns persist in the *Baseline* treatment among social planners who pass a cognitive screen before making choices.[25] Panels 3 and 4 document narrow equity concerns in the *Baseline-High-Stakes* study, in which we both replicate the *Baseline* treatment (Panel 3) and have social planners make decisions when tokens are worth 5 times as much, so that payoffs to the two participants total $20–$28, rather than $4–$5.60, in each decision (Panel 4). Panels 5 and 6 document narrow equity concerns in the *Baseline-Adding* study, in which we again replicate the *Baseline* treatment (Panel 5) and have social planners make allocation decisions that add to endowments rather than take away from them (Panel 6). Panel 7 documents narrow equity concerns in the *Baseline-First-Person* study in which social planners receive the payoffs of participant 1 and so might be susceptible to self-serving motives, which are known to influence fairness attitudes (Kagel, Kim and Moser, 1996; Konow, 2000; Haisley and Weber, 2010). As might be expected, narrow equity concerns are larger among subjects who are more willing to make a monetary sacrifice to benefit participant 2 (e.g., we cannot observe narrow equity concerns manifest among the 24% of subjects who always choose the Favors1 allocation in all decisions in the *Baseline-First-Person* study).

3.5 How narrow bracketing of risk relates to narrow equity concerns

As discussed in the Introduction, the narrow equity concerns that we observe in our experiment are related to narrow bracketing, a well-documented behavioral phenomenon. In this section, we explore how the narrow equity concerns we identify in our experiment relate to narrow bracketing over risk.

In our main treatments, a questionnaire (asked after subjects answered the 14 allocation decisions) asked social planners three hypothetical questions about choices over lotteries. These questions were built off of the questions from Tversky and Kahneman (1981) and the experimental instructions from Rabin and Weizsäcker (2009).

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[24]As with the results from our 2×2 design, results are nearly identical—and almost all get directionally larger—when we exclude inattentive social planners (using the same screen applied in Appendix Table A.4).

[25]The screen requires social planners to correctly report the monetary value of: (1) 50 small tokens, (2) 100 large tokens, and (3) the sum of 140 small tokens and 40 large tokens. Social planners who answer any of these questions incorrectly are screened out of our study and do not participate. Social planners who are screened out receive a $3.00 completion payment; subjects who answer all of these questions correctly make 26 choices and receive a $4.00 completion payment. The difference in completion payments is known to social planners when they are answering the screening questions.

On the first screen, social planners are asked two questions. The first question asks participants to choose between A (winning $240) and B (a 25% chance of winning $1000 and a 75% chance of not winning or losing any money). The second question ask participants to choose between C (losing $750) and D (a 75% chance of losing $1000 and a 25% chance of not winning or losing any money).

On the second screen, social planners are instead asked only one question. This question asked them to choose between the four options associated with each possible combination of answers from the two questions on the prior screen. That is, the question asked them to choose among the compound lotteries generated if they were to choose: A & D (a 25% chance of winning $240 and a 75% chance of losing $760), A & C (losing $510), B & C (a 25% chance of winning $250 and a 75% chance of losing $750), and B & D (a 6.25% chance of winning $1000, a 37.5% chance of not winning or losing anything, and a 56.25% chance of losing $1,000).

We then classify subjects as narrowly bracketing risk if they choose the dominated compound lottery of A & D on the first screen—when they may have narrowly bracketed their choices by choosing A in the first question and D in the second question—but if they do not choose A & D on the second screen when they only face one choice. We find that 49% of our social planners are classified as narrowly bracketing risk in this way.[26]

We test whether narrowly bracketing choices in the risk domain is correlated with subjects displaying narrow equity concerns in our experiment. Appendix Table A.6 shows that it is not. If anything, evidence for narrow equity concerns is larger among social planners who do not narrowly bracket their choices over risk. Consequently, while displaying narrow equity concerns is clearly related to narrow bracketing, it is not necessarily the case that the behavior is more likely to be displayed by people who narrowly bracket in other domains.

One additional methodological note is worth making. Both the narrow bracketing in risk test taken from prior literature and the direct test of narrow equity concerns we deploy in our study identify evidence of narrow framing with changes in choices in response to a framing manipulation (e.g., choosing A & D on the first screen but not choosing the compound lottery on the second screen; choosing a different allocation when the social planner is faced with an identical decision denominated in small or large tokens). That said, our two approaches are somewhat different. In the risk example, subjects make different choices depending on whether they are narrowly framed (e.g. asked about each lottery separately) or broadly framed (e.g., asked about the compound lottery). Our direct test of narrow equity concerns always has social planners make one choice at a time but manipulates which component of payoffs we frame them to consider. Using the terminology in Read et al. (1999), one may wish to consider our results as more similar to narrow framing effects arising due to outcome editing rather than due to choice bracketing.[27] But, as

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[26]In our data, 52% of social planners choose A over B and D over C on the first screen, but only 6% of social planners choose the compound lottery induced by A and D on the second screen.

[27]Indeed, as shown in Appendix Figures B.4 and B.5, how many small tokens and large tokens each participant

also discussed in Read et al. (1999), we view these narrow framing effects as very similar. Indeed, our framing manipulation, like the narrow bracketing in risk example above, induces individuals to consider payoffs narrowly. In our case, social planners are framed to consider a particular component of payoffs; in the narrow bracketing in risk example, subjects are framed to narrowly consider one choice at a time when the compound lottery is presented as two separate choices.

4   Applications

As detailed in the prior sections, the design of the token treatments allows us to investigate the role of narrow equity concerns in a setting where components of payoffs are artificial (i.e., they are only instrumental in generating cash payoffs). This tokens design allows us to conduct our direct test of narrow equity concerns by framing the same decision as relating to small tokens or to large tokens. Since the way tokens aggregate into cash is clear, the tokens design also facilitates our investigation of when narrow equity concerns are reflective of mistakes or cognitive limitations and when they are instead more of a preference.

We are additionally interested in how narrow equity concerns might manifest in the context-rich settings that decision makers face in practice. To explore the role of narrow equity concerns in these settings, we conducted a complementary analysis investigating how social planners think distributional decisions should be made in five context-rich settings.[28] The questions were chosen to reflect a wide range of contexts: we asked subjects which of two households should get a tax credit (either an income tax credit or a property tax credit), which of two workers should have their compensation cut (either as a cut to salary or to benefits), which child should receive additional parental support (either for rent or for car payments), which family should provide additional public goods (either from cash donation or from volunteering hours), and how a firm should renegotiate with trading partners to save money (either from one good or another).

The structure of these application decisions is built off of the structure of Decisions 11–14 in our tokens design. In each context, two parties are endowed with the same total payoffs when payoffs are considered broadly (e.g., they pay the same amount of taxes, accounting for both property and income taxes). However, the equality in endowments accounting for both payoff components arises because of two countervailing inequities (e.g., they pay the same amount of taxes because one party pays more property taxes and the other pays more income taxes).[29] Mirroring the tokens design, we have each social planner respond to the same endowment set twice. Each time, we ask social planners how they think payoffs should be adjusted, but we

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is given is explicitly noted in all allocation choices, regardless of whether the social planner is making a small-token or large-token decision. This presentation is consistent with a "broad frame" as described by Read et al. (1999), which suggests that subjects are failing to "integrate" the outcomes due to outcome editing.

[28]Social planners who participated in any of our four main treatments were each asked 10 hypothetical application questions in Part 2 of the study. Data analyzed in this section comes from these responses.

[29]Within a context, which payoff component favors which of the two involved parties is randomized across social planners. Thus, while each social planner makes 10 decisions—two in each fo the 5 contexts—in total we observe results from 20 decisions.

constrain them to make adjustments to only one component of payoffs (e.g., either property taxes or income taxes) in each decision.

Similar to how we examine the prevalence of narrow equity concerns in our tokens design by examining changes in the distribution of choices in response to our framing manipulation, we investigate whether social planners are supportive of policies that help different parties depending on which component of payoffs they are asked about. We say they display narrow equity concerns if they support making more equal the specific component of payoffs they are asked to consider (e.g., making property taxes more equal when asked about property taxes; making income taxes more equal when asked about income taxes). As in the tokens design, social planners always have the option to say that they support a policy that treats both parties equally. Such a policy may be appealing to social planners who consider the total payoffs broadly, since—as noted above—the two parties always begin with the same total payoffs when considered broadly.

One of the features of our application questions is that we ask social planners what *should* happen in these contexts (see the specific decision screens in Appendix Figures B.7–B.7). Consequently, while there are no incentives to choose any of the three options, our questions aim to elicit subjects' perceptions of which distributional decisions are socially appropriate for individuals in positions of power (e.g., policymakers, parents, bosses) to make. Such perceptions may be relevant for an individual's own choices or for the types of policies they support.[30]

Sections 4.1–4.5 provide details on each of the contexts we consider (see the second half of Appendix B.1 for the full experimental instructions). While we discuss each setting in one subsection, the results across all of them are remarkably robust and display significant evidence of narrow equity concerns. Appendix Figures A.4 and A.5 show the distribution of choices in each of the five settings and aggregated across all five (see the top row of Figure A.4). Table 4 shows the corresponding regression for each of the five contexts separately and aggregated across all five (see the first two columns of Table 4).

4.1   Application Context: Taxes

Policy makers and constituents often consider tax policies by focusing on one tax or transfer program at a time or only considering a subset of programs (e.g., perhaps due to jurisdictional lines, such as local, state, and federal tax policies being controlled by different legislative bodies). Consequently, policy makers and constituents may engage in narrow equity concerns when considering specific tax or transfer programs.

We explore such a possibility in an application in which the two payoff components are income taxes and property taxes. After learning that two households have earned the same amount of

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[30]Even absent context-rich reasons, we observe evidence for the social appropriateness in contributing to narrow equity concerns. In a survey at the end of our study (see Appendix Figure B.17), when social planners are asked about the social appropriateness of their token decisions, 77% of social planners say that choosing to achieve component equity is either somewhat or very socially appropriate. Indeed, 62% of social planners say achieving component equity is as socially appropriate or more socially appropriate than cash equity.

money and paid the same amount of money in taxes—but that one household has paid less in income taxes while the other household has paid less in property taxes—social planners are asked how to distribute income tax credits (when only income tax credits can be distributed) and how to distribute property tax credits (when only property tax credits can be distributed).[31]

Consistent with narrow equity concerns, Columns (3) and (4) of Table 4 (and the second row of Appendix Figure A.4) show that social planners are 21–22 percentage points more likely to suggest credits that disproportionately benefit a household when asked about the type of tax of which that household pays more.

4.2 Application Context: Worker Compensation

Compensation packages often have various components (e.g., base salary, bonus, stock options, equity, and other benefits). When employers or managers are considering the compensation of various employees, they may aim to achieve equity one or some subset of these components rather than thinking about all of them together. There may also be rules within a firm that dictate who gets to decide each part of a compensation package, perhaps leading decision makers to achieve equity on the components that they can control.

We explore such a possibility in an application in which the social planner is asked how an employer should cut the compensation of two workers. After learning that both workers earn the same total compensation—but that one worker earns more in salary and the other earns more in benefits—the social planner is asked how an employer should make salary cuts (when constrained to only making salary cuts) and how an employer should make benefit cuts (when constrained to only making benefit cuts).

Consistent with narrow equity concerns, Columns (5) and (6) of Table 4 (and the third row of Appendix Figure A.4) show that social planners are 24–25 percentage points more likely to suggest cuts that disproportionately harm a worker when asked about the type of compensation of which that worker gets more.

4.3 Application Context: Public Good Provision

Individuals often privately provide public goods in various ways (e.g., donating money and volunteering time). When organizations are asking for individuals to support a cause—or when individuals are considering how they should make additional contributions—they may focus on one, or some subset, of the types of contribution they can make, rather than considering all of them together. This behavior could lead to narrow equity concerns arising in public good provision.

We explore such a possibility in an application in which the social planner is asked how much two families should each contribute to their children's school. After learning that both

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[31]This application question is inspired by the types of questions in Saez and Stantcheva (2016), in which individuals are asked which of two households should get a tax break.

families have the same amount of available time and money and have previously contributed the same total amount—but that one family has contributed more in time while the other family has contributed more in money—the social planner is asked how additional monetary contributions should be made (when only monetary contributions are needed) and how additional time contributions should be made (when only time contributions are needed).

Consistent with narrow equity concerns, Columns (7) and (8) of Table 4 (and the first row Appendix Figure A.5) show that social planners are 25–26 percentage points more likely to suggest a family should contribute more when asked about the type of contribution of which that family has contributed less.

4.4 Application Context: Parental Support

Parents may want to treat their children fairly but often make decisions to support them in response to specific needs (e.g., educational expenses, housing expenses, transportation expenses, and medical expenses). Consequently, they may exhibit narrow equity concerns over one, or some subset, of these needs, rather than thinking about all of them together.[32]

We explore such a possibility in an application in which the social planner is asked which of two siblings should receive additional financial support from their parents. After learning that both siblings have previously received the same total amount of money from their parents—but that one sibling has received more money for car payments while the other sibling has received more money for rent—the social planner is asked how additional car payment support should be distributed (when only car payment support is needed) and how additional rent support should be distributed (when only rent support is needed).

Consistent with narrow equity concerns, Columns (9) and (10) of Table 4 (and the second row of Appendix Figure A.5) show that social planners are 24 percentage points more likely to suggest a sibling should receive more support when asked about the type of support of which that sibling has received less in the past.

4.5 Application Context: Negotiations

Firms often negotiate contracts with multiple parties, and concerns about fairness may enter into these negotiations. Since contracts are often complex and cover various components of payoffs, parties may narrowly focus on a specific component of payoffs rather than considering all the components together.[33] Such behavior could lead negotiating parties to exhibit narrow equity concerns.

We explore such a possibility an application in which the social planner is asked which of two suppliers should be forced to suffer a loss in profits from renegotiation. After learning that both suppliers are earning the same total profit from a negotiated agreement to supply the same

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[32]For related work on how parents allocate resources to children, see Berry, Dizon-Ross and Jagnani (2020).

[33]For work on how parties may narrowly focus on some components in a negotiation, see Davis and Leider (2018).

two goods—but that one supplier earns more profit from good 1 and the other supplier earns more profit from good 2—the social planner is asked how the firm should renegotiate with these suppliers when a budgetary change requires these suppliers to either give up some profit from good 1 (but not good 2) and when a budgetary change requires these suppliers to give up some profit from good 2 (but not good 1).

Consistent with narrow equity concerns, Columns (11) and (12) of Table 4 (and the third row of Appendix Figure A.5) show that social planners are 21–22 percentage points more likely to suggest a supplier should give up more profit when asked about the good from which the supplier earns more profit.

Table 4: Applications, regression results

	For application in *italics*, linear probability model of choosing:					
	All applications		Property, Income		Salary, Bonus	
	Favors1	Favors2	Favors1	Favors2	Favors1	Favors2
	(1)	(2)	(3)	(4)	(5)	(6)
Component equity $\implies X$	0.24***	0.23***	0.22***	0.21***	0.24***	0.25***
	(0.01)	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)
# Subjects	800	800	800	800	800	800
# Decisions	8000	8000	1600	1600	1600	1600
	Donation, Time		Car, Rent		Profit 1, Profit 2	
Chose:	Favors1	Favors2	Favors1	Favors2	Favors1	Favors2
	(1)	(2)	(3)	(4)	(5)	(6)
Component equity $\implies X$	0.26***	0.25***	0.24***	0.24***	0.22***	0.21***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
# Subjects	800	800	800	800	800	800
# Decisions	1600	1600	1600	1600	1600	1600

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors are clustered by subject and shown in parentheses. The results are from a linear probability model of choosing the allocation noted in the column header. *Component equity $\implies X$* is an indicator for the allocation that achieves component equity being the allocation denoted in the corresponding column. Data are from the application decisions of subjects in all treatments of our experiment described in Section 2 and Section 4.

5 Conclusion

A number of payoff components influence utility. Exploring how individuals make distributional decisions in these multi-dimensional settings is essential to understanding what types of choices are likely to arise in practice. This paper identifies a potentially widely relevant pattern in how individuals make distributional decisions in the presence of multiple payoff components: they display narrow equity concerns, achieving equity on a component of payoffs they are framed to consider when they could instead achieve equity on payoffs construed more broadly.

In a simple decision environment—in which payoff components are small tokens worth one cent and large tokens worth two cents—we find that narrow equity concerns sometimes arise due to mistakes or cognitive limitations (e.g., in our *Baseline* treatment). When provided with information that allows them to achieve a broader form of equity without making any additional calculations, social planners do not make substantially different choices according to which payoff component they are framed to consider. They instead frequently achieve a broader form of equity that equalizes total cash payoffs.

But, narrow equity concerns do not always reflect a cognitive limitation or mistake. When a payoff component involving simple uncertainty is introduced (e.g., in our *Uncertainty* treatment), we find that narrow equity concerns appear to reflect more of a preference. Social planners appear to prefer narrow equity on a component of payoff they are framed to consider over a broader form of equity when that broader form of equity may be less attractive because it involves salient uncertainty. Given that uncertainty in payoff components is inherent to many decisions in practice, these results suggest that narrow equity concerns may be a particularly interesting area of exploration for future work. More generally, as discussed in Section 4, a better understanding of narrow equity concerns may provide insight into the drivers of how individuals make distributional decisions in a wide variety of context-rich applications (relating to tax policy, worker compensation, public good provision, parental support of children, and firm negotiation).

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APPENDICES (FOR ONLINE PUBLICATION ONLY)

A   Additional Results

Table A.1: *Baseline-Aggregated* treatment, main regression results

	Linear probability model of choosing:			
	Favors1	Equal	Favors2	P-equity
	(1)	(2)	(3)	(4)
Component equity $\implies$ *X*	0.01	0.04***	0.04**	0.03
	(0.02)	(0.02)	(0.02)	(0.02)
# Social planners	200	200	200	200
# Decisions	2800	2800	2800	2800

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors are clustered by subject and shown in parentheses. The results are from a linear probability model of choosing the allocation noted in the column header. See Table 2 for variable definitions. We include FEs for each endowment set. Data are from the decisions of subjects in the *Baseline-Aggregated* treatment of our experiment described in Section 2.

Table A.2: *Uncertainty* treatment, main regression results

	Linear probability model of choosing:			
	Favors1	Equal	Favors2	P-equity
	(1)	(2)	(3)	(4)
Component equity $\implies$ *X*	0.13***	0.18***	0.15***	0.18***
	(0.02)	(0.02)	(0.02)	(0.02)
# Social planners	203	203	203	203
# Decisions	2842	2842	2842	2842

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors are clustered by subject and shown in parentheses. The results are from a linear probability model of choosing the allocation noted in the column header. See Table 2 for variable definitions. We include FEs for each endowment set. Data are from the decisions of subjects in the *Uncertainty* treatment of our experiment described in Section 2.

Table A.3: *Uncertainty-Aggregated* treatment, main regression results

	Linear probability model of choosing:			
	Favors1	Equal	Favors2	P-equity
	(1)	(2)	(3)	(4)
Component equity $\implies X$	0.14***	0.12***	0.13***	0.15***
	(0.02)	(0.02)	(0.02)	(0.02)
# Social planners	187	187	187	187
# Decisions	2618	2618	2618	2618

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors are clustered by subject and shown in parentheses. The results are from a linear probability model of choosing the allocation noted in the column header. See Table 2 for variable definitions. We include FEs for each endowment set. Data are from the decisions of subjects in the *Uncertainty-Aggregated* treatment of our experiment described in Section 2.

Table A.4: All treatments, among those passing attention checks, regression results

	Favors1 (1)	Equal (2)	Favors2 (3)	Cash Equity (4)
		Linear probability model of choosing:		
Panel 1: *Baseline* and *Baseline-Aggregated* treatments				
Component equity $\implies X$	0.16***	0.21***	0.16***	0.21***
	(0.03)	(0.03)	(0.03)	(0.03)
Component equity $\implies X$	-0.15***	-0.17***	-0.12***	-0.19***
*Aggregated	(0.03)	(0.03)	(0.03)	(0.03)
# Social planners	388	388	388	388
# Decisions	5432	5432	5432	5432
Panel 2: *Uncertainty* and *Uncertainty-Aggregated* treatments				
Component equity $\implies X$	0.14***	0.19***	0.16***	0.14***
	(0.02)	(0.02)	(0.02)	(0.02)
Component equity $\implies X$	0.00	-0.05	-0.01	-0.04
*Aggregated	(0.03)	(0.03)	(0.03)	(0.03)
# Social planners	363	363	363	363
# Decisions	5082	5082	5082	5082

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors are clustered by subject and shown in parentheses. The results are from a linear probability model of choosing the allocation noted in the column header. See Table 3 for variable definitions. We include FEs for each endowment set in each treatment. Data are from the decisions of the 94% of subjects who pass our attention checks in all treatments of our experiment described in Section 2.

Table A.5: All treatments, among the first set of decisions, regression results

	Linear probability model of choosing:			
	Favors1	Equal	Favors2	Cash Equity
	(1)	(2)	(3)	(4)
Panel 1: *Baseline* and *Baseline-Aggregated* treatments				
Component equity $\implies X$	0.20***	0.20***	0.17***	0.23***
	(0.03)	(0.03)	(0.03)	(0.03)
Component equity $\implies X$	-0.20***	-0.18***	-0.12***	-0.22***
*Aggregated	(0.04)	(0.04)	(0.04)	(0.04)
# Social planners	410	410	410	410
# Decisions	2870	2870	2870	2870
Panel 2: *Uncertainty* and *Uncertainty-Aggregated* treatments				
Component equity $\implies X$	0.13***	0.17***	0.13***	0.17***
	(0.03)	(0.03)	(0.03)	(0.03)
Component equity $\implies X$	0.03	-0.03	-0.04	-0.01
*Aggregated	(0.04)	(0.04)	(0.04)	(0.04)
# Social planners	390	390	390	390
# Decisions	2730	2730	2730	2730

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors are clustered by subject and shown in parentheses. The results are from a linear probability model of choosing the allocation noted in the column header. See Table 3 for variable definitions. We include FEs for each endowment set in each treatment. Data are from the first set of decisions of made by subjects in all treatments of our experiment described in Section 2.

Table A.6: All treatments, with interaction of narrow bracketing risk, regression results

	Linear probability model of choosing:			
	Favors1	Equal	Favors2	Cash Equity
	(1)	(2)	(3)	(4)
Panel 1: *Baseline* treatment				
Component equity $\implies$ X	0.19***	0.25***	0.18***	0.24***
	(0.03)	(0.04)	(0.04)	(0.05)
Narrowly Bracketing Risk	0.02	0.01	0.02	0.07
	(0.02)	(0.03)	(0.02)	(0.04)
Component equity $\implies$ X	-0.06	-0.07	-0.03	-0.05
*Narrowly Bracketing Risk	(0.04)	(0.05)	(0.04)	(0.05)
# Social planners	210	210	210	210
# Decisions	2940	2940	2940	2940
Panel 2: *Baseline-Aggregated* treatment				
Component equity $\implies$ X	-0.00	0.04*	0.03	0.03
	(0.02)	(0.02)	(0.02)	(0.05)
Narrowly Bracketing Risk	-0.00	-0.00	0.01	0.01
	(0.01)	(0.03)	(0.03)	(0.02)
Component equity $\implies$ X	0.02	-0.00	0.01	0.00
*Narrowly Bracketing Risk	(0.03)	(0.03)	(0.03)	(0.03)
# Social planners	200	200	200	200
# Decisions	2800	2800	2800	2940
Panel 3: *Uncertainty* treatment				
Component equity $\implies$ X	0.13***	0.19***	0.15***	0.20***
	(0.03)	(0.03)	(0.03)	(0.03)
Narrowly Bracketing Risk	-0.01	0.02	-0.00	0.05
	(0.02)	(0.03)	(0.02)	(0.05)
Component equity $\implies$ X	0.00	-0.03	0.00	-0.03
*Narrowly Bracketing Risk	(0.04)	(0.05)	(0.04)	(0.04)
# Social planners	203	203	203	203
# Decisions	2842	2842	2842	2842
Panel 4: *Uncertainty-Aggregated* treatment				
Component equity $\implies$ X	0.11***	0.10***	0.13***	0.13***
	(0.03)	(0.03)	(0.03)	(0.03)
Narrowly Bracketing Risk	0.04	0.05	0.00	0.04
	(0.04)	(0.05)	(0.04)	(0.04)
Component equity $\implies$ X	0.04	0.05	0.00	0.04
*Narrowly Bracketing Risk	(0.04)	(0.05)	(0.04)	(0.04)
# Social planners	187	187	187	187
# Decisions	2618	2618	2618	2618

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors are clustered by subject and shown in parentheses. The results are from a linear probability model of choosing the allocation noted in the column header. See Table 3 for variable definitions; *Narrow Bracketing Risk* is an indicator for subjects who we classify as narrowly bracketing risk (according to the definition in Section 3.5). We include FEs for each endowment set. Data are from the decisions in all treatments of our experiment described in Section 2.

Table A.7: Additional study versions, regression results

	Linear probability model of choosing:			
	Favors1	Equal	Favors2	Cash Equity
Panel 1: Baseline-Replication version				
Component equity $\implies X$	0.15***	0.18***	0.17***	0.18***
	(0.02)	(0.02)	(0.02)	(0.02)
# Social Planners	400	400	400	400
# Decisions	5600	5600	5600	5600
Panel 2: Baseline-Cognitive-Screen version				
Component equity $\implies X$	0.11***	0.13***	0.11***	0.09***
	(0.02)	(0.02)	(0.02)	(0.02)
# Social Planners	284	284	284	284
# Decisions	3976	3976	3976	3976
Panel 3: Baseline-High-Stakes version (Baseline Decisions Only)				
Component equity $\implies X$	0.12***	0.11***	0.11***	0.13***
	(0.02)	(0.02)	(0.02)	(0.02)
# Social Planners	199	199	199	199
# Decisions	2786	2786	2786	2786
Panel 4: Baseline-High-Stakes version (High-Stakes Decisions Only)				
Component equity $\implies X$	0.13***	0.09***	0.12***	0.11***
	(0.02)	(0.02)	(0.02)	(0.02)
# Social Planners	199	199	199	199
# Decisions	2388	2388	2388	2388
Panel 5: Baseline-Adding version (Baseline Decisions Only)				
Component equity $\implies X$	0.11***	0.06***	0.06***	0.10***
	(0.02)	(0.02)	(0.02)	(0.02)
# Social Planners	199	199	199	199
# Decisions	2786	2786	2786	2786
Panel 6: Baseline-Adding version (Adding Decisions Only)				
Component equity $\implies X$	0.06***	0.09***	0.05**	0.07***
	(0.02)	(0.02)	(0.02)	(0.02)
# Social Planners	199	199	199	199
# Decisions	2388	2388	2388	2388
Panel 7: Baseline-First-Person version				
Component equity $\implies X$	0.11***	0.09***	0.08***	0.10***
	(0.02)	(0.02)	(0.01)	(0.01)
# Social Planners	400	400	400	400
# Decisions	5600	5600	5600	5600

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors are clustered by subject and shown in parentheses. The results are from a linear probability model of choosing the allocation noted in the column header. See Table 2 for variable definitions. We include FEs for each endowment set. Data are from the (subset of) decisions from the additional study version that are noted in the panel and described in Section 3.4.

Figure A.1: *Uncertainty* treatment, allocation choices for each scenario
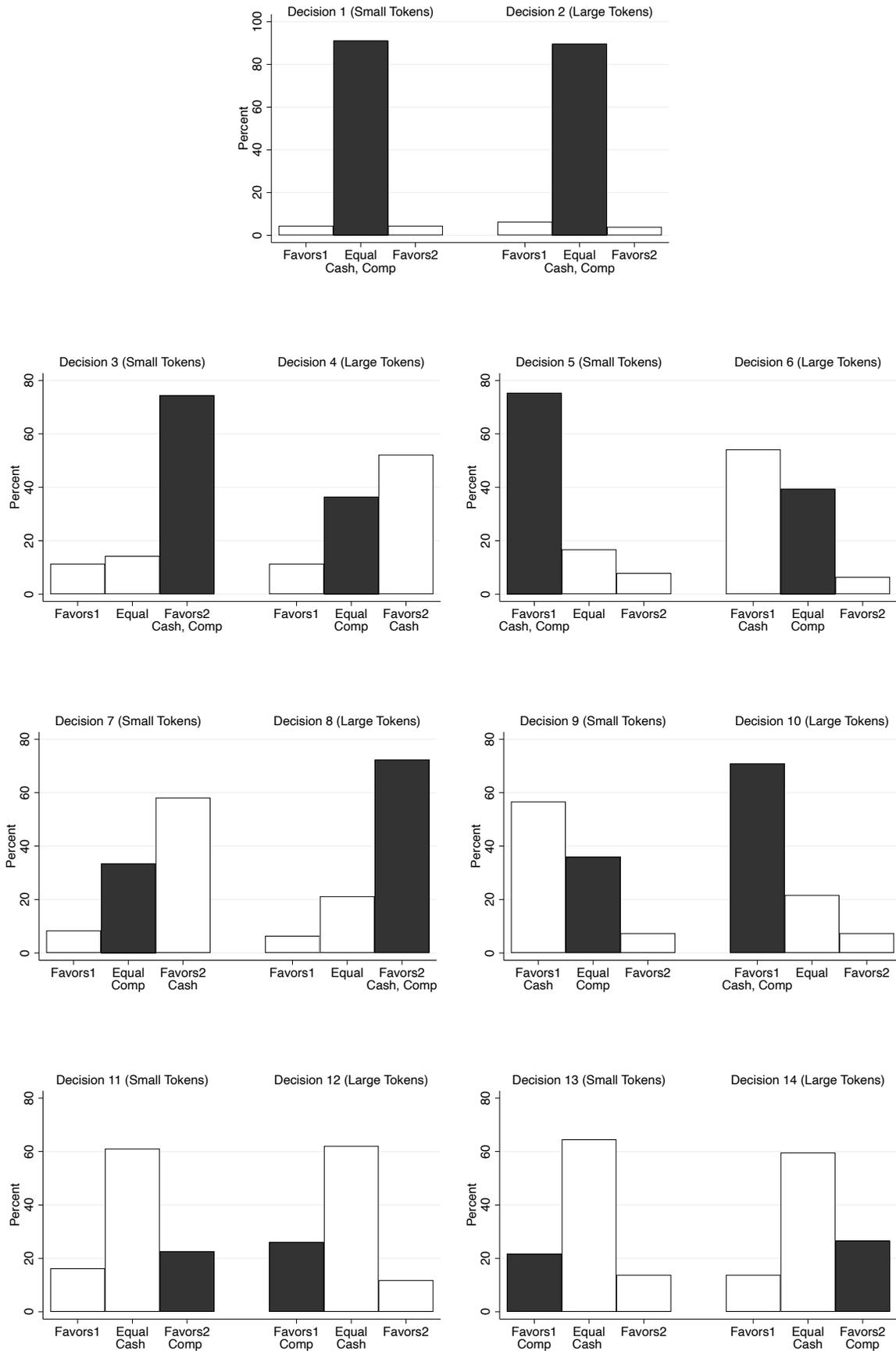
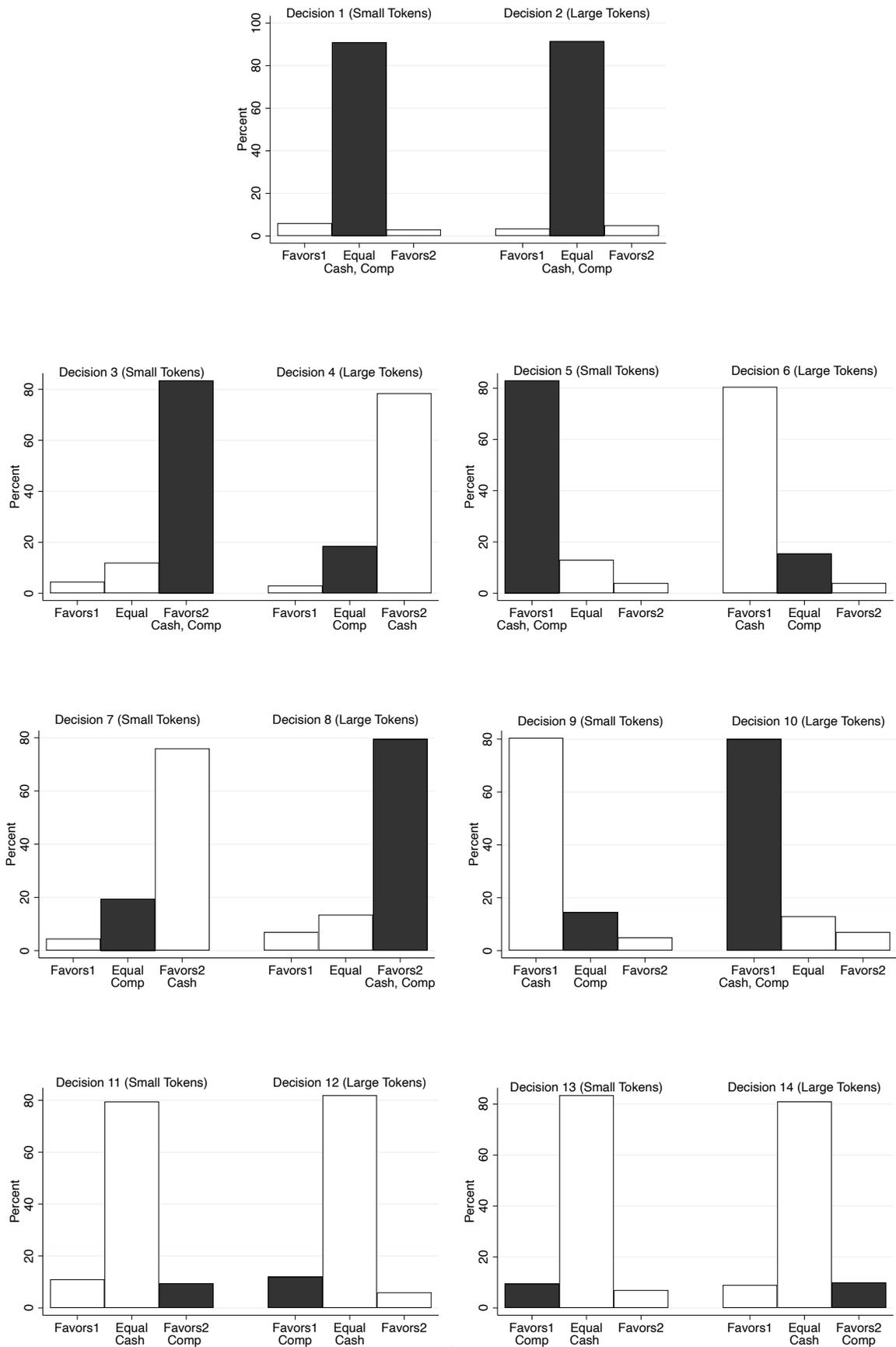Figure A.2: *Baseline-Aggregated* treatment, allocation choices for each scenario

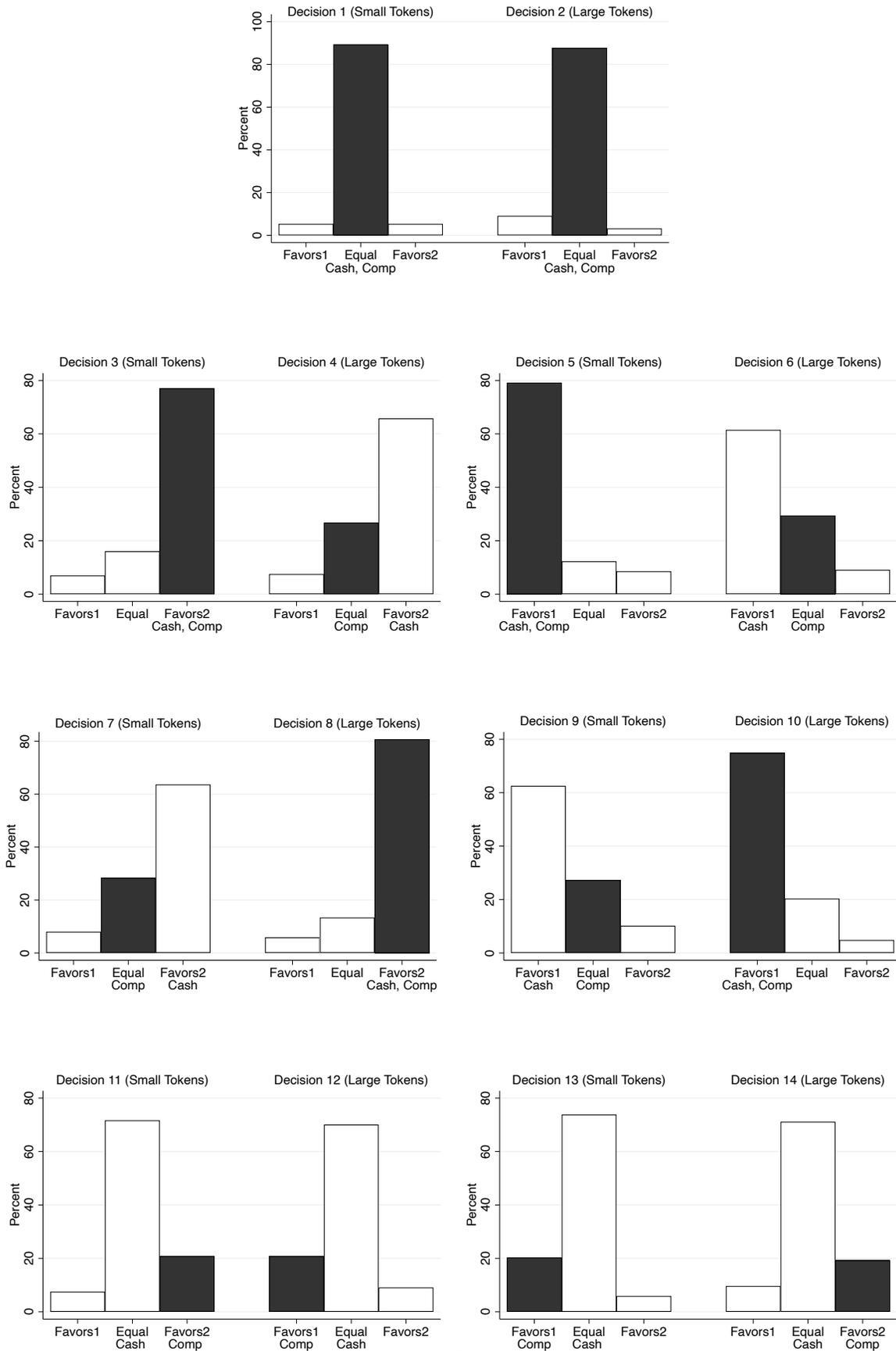Figure A.3: *Uncertainty-Aggregated* treatment, allocation choices for each scenario
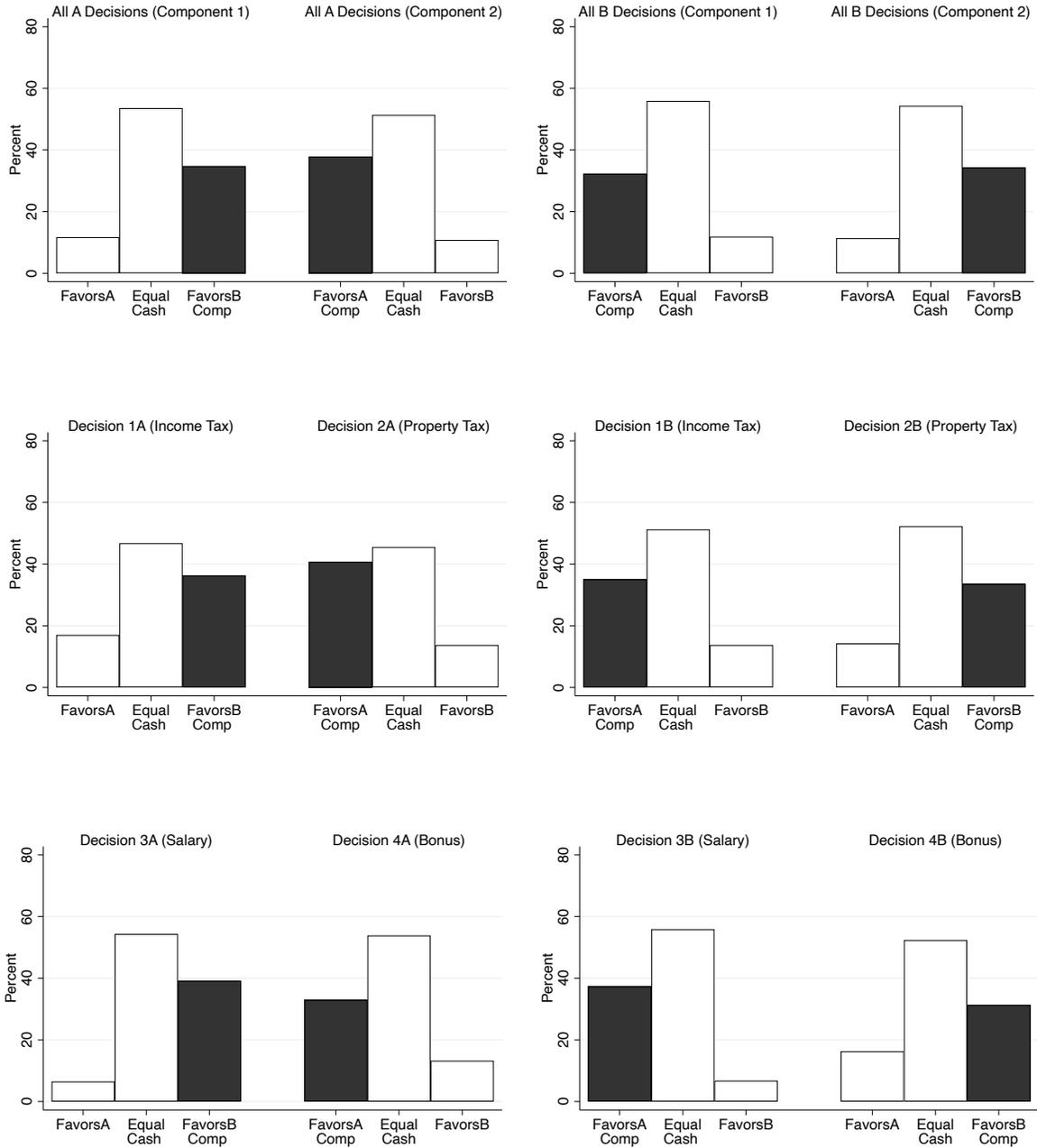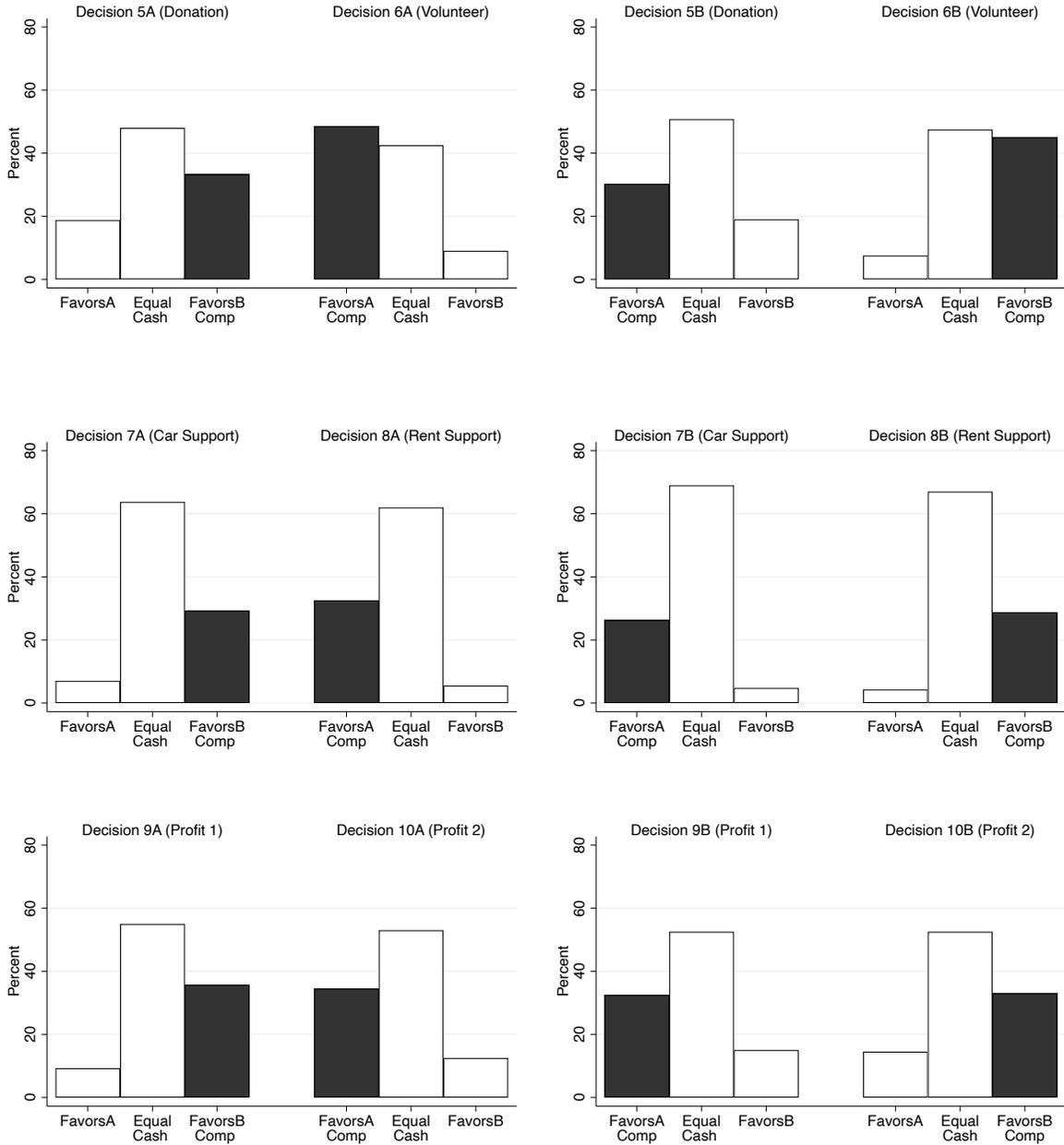
Figure A.4: Application Graphs

Figure A.5: Application Graphs 2

B   Experimental Instructions for Main Study

B.1   Experimental Instructions for the *Baseline* treatment

After consenting to participate in the study, subjects are informed of the $5 study completion fee and of the opportunity to earn additional payment. Figure B.1 shows how this payment information is explained and the corresponding understanding question that each subject must answer correctly in order to proceed.

Figure B.1: Payment

Study Overview: To complete this study, you will complete two parts (Part 1 and Part 2) and a short follow-up survey. Following certain instructions, you will be asked understanding questions. You must answer these understanding questions correctly in order to proceed to complete the study.

Your Payment: For completing this study, you will receive a minimum payment of $5 within 24 hours. Additional payments may also result from this study. In particular, Part 1 and Part 2 are equally likely to be randomly selected as the part-that-counts. Any additional payments from the part-that-counts will be distributed.

Understanding Question: Which of the following statements is true?

> For completing this study, I will receive $5 within 24 hours. Also, there is no chance of any additional payments.

> For completing this study, I will receive $5 within 24 hours. Also, any additional payments that result from the part-that-counts will be distributed.

> For completing this study, I will receive no payment.

In Part 1, the subjects learn that they will make decisions for a future study involving two participants who are called their "first participant" and their "second participant." In particular, the subjects learn that they will have to choose between options that require each of the two participants to give up some number of small tokens or large tokens. Figures B.2 and B.3 show how this information is explained and the corresponding understanding questions that each subject must answer correctly in order to proceed.

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Figure B.2: Part 1 Instructions

Part 1 (out of 2) Instructions

A Future Study: In a future study, other Prolific participants will be asked to answer a series of questions. Their bonus payment depends on how many small tokens and large tokens they end up with. How many small tokens and how many large tokens a participant ends up with is determined as follows. First, at the beginning of the study, they will receive a random endowment of small tokens and large tokens. Second, as part of the study, they will have to give up some of their tokens. Third, at the end of the study, any tokens that a participant ends up with are turned into cents and paid to that participant as a bonus. Each small token is worth 1 cent. Each large token is worth 2 cents.

Your Decisions: If this part is randomly selected as the part-that-counts, you will be paired with two randomly selected Prolific participants who will complete the future study. We will refer to your two Prolific participants as "your first participant" (or "P1") and "your second participant" (or "P2").

Your two participants will face one randomly selected scenario out of 14 possible scenarios that vary in how many tokens they are endowed with. We will refer to the randomly selected scenario as the "scenario-that-counts." For each of the 14 scenarios, you will be asked to choose between one of three allocations. Each allocation will specify how many small tokens each of your participants must give up out of their endowments of small tokens or how many large tokens each of your participants must give up out of their endowments of large tokens. The allocation you choose in the scenario-that-counts will then be implemented and thus determine how many small tokens and how many large tokens each of your participants ends up with.

Figure B.3: Part 1 Comprehension Questions

Understanding Question: If this part is the part-that-counts, the allocation you choose in the scenario-that-counts...

> will not influence how many tokens each of your participants ends up with.

> will determine how many tokens each of your participants ends up with.

> may or may not determine how many tokens each of your participants ends up with.

Understanding Question: If this part is the part-that-counts, your participants will receive bonus payments of...

> 1 cent for each small token and 1 cent for each large token that they end up with.

> 2 cents for each small token and 1 cent for each large token that they they end up with.

> 1 cent for each small token and 2 cents for each large token that they end up with.

The subjects then face 14 decisions, arising from 7 unique endowment sets. These 7 endowment sets only differ in the initial endowment of the second participant, since the first participant always has an initial endowment of 140 small tokens and 70 large tokens. Specifically the second participant has an initial endowment equal to (140 small tokens, and 70 large tokens), (100 small tokens, and 70 large tokens), (180 small tokens, and 70 large tokens), (140 small tokens, and 50 large tokens), (140 small tokens, and 90 large tokens), (100 small tokens, and 90 large tokens), or (180 small tokens, and 50 large tokens). While all subjects face the same decisions, the order of these 14 decisions is randomized at the subject level as follows. Each subject is randomized to either make the 7 small-token decisions first or the 7 large-token decisions first. Within each set of 14 decisions, the order of the endowments for the second participants are randomized. Figure B.4 shows an example of a small-token decision where the subject is asked to decide how many small tokens the first and second participant must give up. Figure B.5 shows an example of a large-token decision where the subject is asked to decide how many large tokens the first and second participant must give up.

Figure B.4: Example Small-Token Decision in the *Baseline* treatment

Scenario 1 (out of 14)

Recall that your first participant (P1) and your second participant (P2) will receive 1 cent for each small token and 2 cents for each large token that they end up with.

If this is the scenario-that-counts, relative to P2, **P1 will be endowed with more small tokens and with fewer large tokens**. In particular:

    P1: will be endowed with **140 small tokens** and **70 large tokens**.
    P2: will be endowed with **100 small tokens** and **90 large tokens**.

If this is the scenario-that-counts, your two participants must give up a total of 80 small tokens. Please select how many small tokens each participant should have to give up.

> **Have P1 give up 40 fewer small tokens than P2 so that**
>   **P1**: ends up with **120 small tokens** and **70 large tokens**.
>   **P2**: ends up with **40 small tokens** and **90 large tokens**.

> **Have P1 give up the same number of small tokens as P2 so that**
>   **P1**: ends up with **100 small tokens** and **70 large tokens**.
>   **P2**: ends up with **60 small tokens** and **90 large tokens**.

> **Have P1 give up 40 more small tokens than P2 so that**
>   **P1**: ends up with **80 small tokens** and **70 large tokens**.
>   **P2**: ends up with **80 small tokens** and **90 large tokens**.

Figure B.5: Example Large-Token Decision in the *Baseline* treatment

Scenario 1 (out of 14)

Recall that your first participant (P1) and your second participant (P2) will receive 2 cents for each large token and 1 cent for each small token that they end up with.

If this is the scenario-that-counts, relative to P2, **P1 will be endowed with fewer large tokens and with more small tokens**. In particular:

    P1: will be endowed with 70 large tokens and 140 small tokens.
    P2: will be endowed with 90 large tokens and 100 small tokens.

If this is the scenario-that-counts, your two participants must give up a total of 40 large tokens. Please select how many large tokens each participant should have to give up.

    Have P1 give up 20 fewer large tokens than P2 so that
        P1: ends up with 60 large tokens and 140 small tokens.
        P2: ends up with 60 large tokens and 100 small tokens.

    Have P1 give up the same number of large tokens as P2 so that
        P1: ends up with 50 large tokens and 140 small tokens.
        P2: ends up with 70 large tokens and 100 small tokens.

    Have P1 give up 20 more large tokens than P2 so that
        P1: ends up with 40 large tokens and 140 small tokens.
        P2: ends up with 80 large tokens and 100 small tokens.

In Part 2, the subjects face five scenarios comprised of two decisions each—one decision about payoff component 1 in a scenario and another decision about payoff component 2 in a scenario. Within each scenario, which participant is randomly endowed with more of payoff component 1 (and less of payoff component 2) is randomly determined. In each decision, subjects indicate how they would *hypothetically* allocate resources between two individuals or groups. Figure B.6 shows the scenario instructions, and Figures B.7-B.16 show the scenarios and decisions for a subject.

Figure B.6: Part 2 Instructions

Part 2 (out of 2) Instructions

Your Decisions: In this part, you will be asked to choose between one of three allocations in 10 scenarios. Please choose your allocations carefully and honestly. If this part is randomly selected as the part-that-counts, you will be paid $1 as a bonus payment.

Understanding Question: If this part is the part-that-counts, I will receive...

no bonus payment.

a bonus payment of $1 for sure.

a bonus payment that depends on which allocations I choose in the scenarios in this part.

Figure B.7: Scenario 1, Payoff Component 1

Consider two households who earn the same amount of money (from their jobs and from returns on their assets) and who pay the same total amount of money in taxes.

Household A pays less in income taxes but more in property taxes.
Household B pays more in income taxes but less in property taxes.

To help stimulate the economy, the government has decided to provide some households with an income tax credit. Each dollar that a household receives as an income tax credit is a dollar less they have to pay in taxes. Which household should get a larger income tax credit?

Household A should get a larger income tax credit

The income tax credit should be the same for both households

Household B should get a larger income tax credit

Figure B.8: Scenario 1, Payoff Component 2

Consider two households who earn the same amount of money (from their jobs and from returns on their assets) and who pay the same total amount of money in taxes.

Household A pays more in property taxes but less in income taxes.
Household B pays less in property taxes but more in income taxes.

To help stimulate the economy, the government has decided to provide some households with a property tax credit. Each dollar that a household receives as a property tax credit is a dollar less they have to pay in taxes. Which household should get a larger property tax credit?

Household A should get a larger property tax credit

The property tax credit should be the same for both households

Household B should get a larger property tax credit

Figure B.9: Scenario 2, Payoff Component 1

Consider two workers who earn the same total compensation from their salaries and benefits.

Worker A is compensated with **more salary** but **less benefits**.

Worker B is compensated with **less salary** but **more benefits**.

Due to unexpected financial struggles, their boss has decided to make cuts to the salaries of some workers. Which worker should have their **salary** cut by more?

Worker A's salary should be cut by more

Both workers' salaries should be cut by the same amount

Worker B's salary should be cut by more

Figure B.10: Scenario 2, Payoff Component 2

Consider two workers who earn the same total compensation from their salaries and benefits.

Worker A is compensated with **less benefits** but **more salary**.

Worker B is compensated with **more benefits** but **less salary**.

Due to unexpected financial struggles, their boss has decided to make cuts to the benefits of some workers. Which worker should have their **benefits** cut by more?

Worker A's benefits should be cut by more

Both workers' benefits should be cut by the same amount

Worker B's benefits should be cut by more

Figure B.11: Scenario 3, Payoff Component 1

Consider two families. Each family has one child. The two children attend the same school. Each family has contributed the same total amount to the school when accounting for money they have donated and time they have volunteered. Each family also has the same amount of available time and money.

Family A has donated less money but volunteered more time.
Family B has donated more money but volunteered less time.

Due to unexpected financial struggles, the school needs more money to be donated next month. Next month, which family should donate relatively more?

Family A should donate more

Both families should donate the same amount

Family B should donate more

Figure B.12: Scenario 3, Payoff Component 2

Consider two families. Each family has one child. The two children attend the same school. Each family has contributed the same total amount to the school when accounting for money they have donated and time they have volunteered. Each family also has the same amount of available time and money.

Family A has volunteered more time but donated less money.
Family B has volunteered less time but donated more money.

Due to unexpected financial struggles, the school needs more time to be volunteered next month. Next month, which family should volunteer relatively more?

Family A should volunteer more

Both families should volunteer the same amount

Family B should volunteer more

Figure B.13: Scenario 4, Payoff Component 1

Consider two siblings. Since they graduated from high school, each sibling has received the same total amount of money from their parents.

    Sibling A has received **more money for car payments** but **less money for rent**.
    Sibling B has received **less money for car payments** but **more money for rent**.

Due to unexpected financial struggles, both siblings need money for car payments. Their parents have a fixed amount of additional money to assist the siblings. Which sibling should receive relatively more of this additional **money for car payments**?

> Sibling A should receive relatively more of this additional money for car payments

> Both siblings should receive the same amount of this additional money for car payments

> Sibling B should receive relatively more of this additional money for car payments

Figure B.14: Scenario 4, Payoff Component 2

Consider two siblings. Since they graduated from high school, each sibling has received the same total amount of money from their parents.

    Sibling A has received **less money for rent** but **more money for car payments**.
    Sibling B has received **more money for rent** but **less money for car payments**.

Due to unexpected financial struggles, both siblings need money for rent. Their parents have a fixed amount of additional money to assist the siblings. Which sibling should receive relatively more of this additional **money for rent**?

> Sibling A should receive relatively more of this additional money for rent

> Both siblings should receive the same amount of this additional money for rent

> Sibling B should receive relatively more of this additional money for rent

Figure B.15: Scenario 5, Payoff Component 1

Consider two suppliers who have negotiated with a firm to provide two goods for the firm. Both suppliers are earning the same amount of profit from their arrangement with the firm.

Supplier A is earning **more profit from providing good 1** but **less profit from providing good 2**.
Supplier B is earning **less profit from providing good 1** but **more profit from providing good 2**.

Due to an unexpected change in the firm's budget, the firm decides to renegotiate with the suppliers to decrease the amount of profit the firms earn from good 1. How should they reduce the amount of **profit from good 1** earned by the two suppliers?

Supplier A should give up more profit from good 1

Both suppliers should give up the same amount of profit from good 1

Supplier B should give up more profit from good 1

Figure B.16: Scenario 5, Payoff Component 2

Consider two suppliers who have negotiated with a firm to provide two goods for the firm. Both suppliers are earning the same amount of profit from their arrangement with the firm.

Supplier A is earning **less profit from providing good 2** but **more profit from providing good 1**.
Supplier B is earning **more profit from providing good 2** but **less profit from providing good 1**.

Due to an unexpected change in the firm's budget, the firm decides to renegotiate with the suppliers to decrease the amount of profit the firms earn from good 2. How should they reduce the amount of **profit from good 2** earned by the two suppliers?

Supplier A should give up more profit from good 2

Both suppliers should give up the same amount of profit from good 2

Supplier B should give up more profit from good 2

After finishing both parts of the study, subjects finish a short follow-up survey. On the first page (see Figure B.17), it randomly determined whether a subject is asked about about their small-token decisions or large-token decisions. In the *Uncertainty* treatments, the third statement is changed to read "Always equalize the total amounts in cents that each participant has a chance of ending up with." On the second page (see Figure B.18) and third page (see Figure B.19), subjects are asked to make hypothetical lottery decisions.

Figure B.17: Follow-Up Survey (Page 1)

Consider the decisions you made involving small and large tokens. Across those scenarios, when deciding how many small tokens each of your participants had to give up, please indicate that extent to which it is socially appropriate to:

	Very socially inappropriate	Somewhat socially inappropriate	Somewhat socially appropriate	Very socially appropriate
Always equalize the total number of small tokens that each participant ends up with.	○	○	○	○
Always have participants give up the same number of small tokens	○	○	○	○
Always equalize the total amount in cents that each participant ends up with.	○	○	○	○

Figure B.18: Follow-Up Survey (Page 2)

Below describes two **hypothetical** decisions that you will be asked to make about winning or losing money. In each case, please make your decision as though you were actually going to win or lose the money.

Please keep in mind that winning or losing in one decision does not make it more or less likely that you win or lose in another decision, as though the outcome of each decision was decided with a separate coin flip.

Decision 1: Choose between:

> A. winning $240

> B. a 25% chance of winning $1000 and a 75% chance of not winning or losing any money

Decision 2: Choose between:

> C. losing $750

> D. a 75% chance of losing $1000, and a 25% chance of not winning or losing any money

Figure B.19: Follow-Up Survey (Page 3)

Below describes a **hypothetical** decision that you will be asked to make about winning or losing money. Please make your decision as though you were actually going to win or lose the money.

Decision: Choose between:

> A. a 25% chance of winning $240 and a 75% chance of losing $760

> B. losing $510

> C. a 25% chance of winning $250 and a 75% chance of losing $750

> D. a 6.25% chance of winning $1000, a 37.5% chance of not winning or losing any money, and a 56.25% chance of losing $1000

B.2 Experimental Instructions for the *Baseline-Aggregated* treatment

The experimental instructions in the *Baseline-Aggregated* treatment are identical to those in *Baseline* treatment shown in Section B.1, with the exception that the total amount of money (in cents) that each participant ends up with from each allocation is calculated for the subject in Part 1. Figures B.20 and B.21 show example token decisions with the total amount of money shown in green.

Figure B.20: Example Small-Token Decision in the *Baseline-Aggregated* treatment

Scenario 1 (out of 14)

Recall that your first participant (P1) and your second participant (P2) will receive 1 cent for each small token and 2 cents for each large token that they end up with.

If this is the scenario-that-counts, relative to P2, **P1 will be endowed with more small tokens and with fewer large tokens**. In particular:

    P1: will be endowed with 140 small tokens and 70 large tokens.
    P2: will be endowed with 100 small tokens and 90 large tokens.

If this is the scenario-that-counts, your two participants must give up a total of 80 small tokens. Please select how many small tokens each participant should have to give up.

    Have P1 give up 40 fewer small tokens than P2 so that
        P1: ends up with 120 small tokens and 70 large tokens, for a total of 260 cents.
        P2: ends up with 40 small tokens and 90 large tokens, for a total of 220 cents.

    Have P1 give up the same number of small tokens as P2 so that
        P1: ends up with 100 small tokens and 70 large tokens, for a total of 240 cents.
        P2: ends up with 60 small tokens and 90 large tokens, for a total of 240 cents.

    Have P1 give up 40 more small tokens than P2 so that
        P1: ends up with 80 small tokens and 70 large tokens, for a total of 220 cents.
        P2: ends up with 80 small tokens and 90 large tokens, for a total of 260 cents.

Figure B.21: Example Large-Token Decision in the *Baseline-Aggregated* treatment

Scenario 1 (out of 14)

Recall that your first participant (P1) and your second participant (P2) will receive 2 cents for each large token and 1 cent for each small token that they end up with.

If this is the scenario-that-counts, relative to P2, **P1 will be endowed with fewer large tokens and with more small tokens**. In particular:

     P1: will be endowed with **70 large tokens** and **140 small tokens**.
     P2: will be endowed with **90 large tokens** and **100 small tokens**.

If this is the scenario-that-counts, your two participants must give up a total of 40 large tokens. Please select how many large tokens each participant should have to give up.

    Have P1 give up 20 fewer large tokens than P2 so that
       P1: ends up with **60 large tokens** and **140 small tokens**, for a total of **260 cents**.
       P2: ends up with **60 large tokens** and **100 small tokens**, for a total of **220 cents**.

    Have P1 give up the same number of large tokens as P2 so that
       P1: ends up with **50 large tokens** and **140 small tokens**, for a total of **240 cents**.
       P2: ends up with **70 large tokens** and **100 small tokens**, for a total of **240 cents**.

    Have P1 give up 20 more large tokens than P2 so that
       P1: ends up with **40 large tokens** and **140 small tokens**, for a total of **220 cents**.
       P2: ends up with **80 large tokens** and **100 small tokens**, for a total of **260 cents**.

B.3 Experimental Instructions for the *Uncertainty* treatment

The experimental instructions in the *Uncertainty* treatment are identical to those in the *Baseline* treatment shown in Section B.1, with the exception that each participant is randomly endowed with —in addition to the amount of money resulting from their endowment of small tokens and large tokens—an unknown number of cents in Part 1. Specifically, while subjects are not informed of the unknown number of cents with which participants are endowed, subjects are informed that, for each participant, the unknown number of cents is randomly selected to equal 0, 40, or 80 cents. Figures B.22 and B.23 show the instructions and comprehension questions. Figures B.24 and B.25 show example token decisions with uncertain amount of cents added. Given the unknown number of cents, the last statement in the follow-up question shown in Figure B.17 was also modified to ask how socially appropriate it is to "always equalize the total amount of cents that each participant has a chance of ending up with" rather than to "always equalize the total amount of cents that each participant ends up with."

Figure B.22: Instructions

Part 1 (out of 2) Instructions

A Future Study: In a future study, other Prolific participants will be asked to answer a series of questions. Their bonus payment will equal the sum of their non-tokens-based bonus payment and their tokens-based bonus payment. Their non-tokens-based bonus payment will equal a random amount that is equally likely to be 0, 40, or 80 cents. Their tokens-based bonus payment depends on how many small tokens and large tokens they end up with. How many small tokens and how many large tokens a participant ends up with is determined as follows. First, at the beginning of the study, they will receive a random endowment of small tokens and large tokens. Second, as part of the study, they will have to give up some of their tokens. Third, at the end of the study, any tokens that a participant ends up with are turned into cents and paid to that participant as a bonus. Each small token is worth 1 cent. Each large token is worth 2 cents.

Your Decisions: If this part is randomly selected as the part-that-counts, you will be paired with two randomly selected Prolific participants who will complete the future study. We will refer to your two Prolific participants as "your first participant" (or "P1") and "your second participant" (or "P2").

Your two participants will face one randomly selected scenario out of 14 possible scenarios that vary in how many tokens they are endowed with. We will refer to the randomly selected scenario as the "scenario-that-counts." For each of the 14 scenarios, you will be asked to choose between one of three allocations. Each allocation will specify how many small tokens each of your participants must give up out of their endowments of small tokens or how many large tokens each of your participants must give up out of their endowments of large tokens. The allocation you choose in the scenario-that-counts will then be implemented and thus determine how many small tokens and how many large tokens each of your participants ends up with.

Figure B.23: Comprehension Questions

Understanding Question: If this part is the part-that-counts, the allocation you choose in the scenario-that-counts...

will not influence how many tokens each of your participants ends up with.

will determine how many tokens each of your participants ends up with.

may or may not determine how many tokens each of your participants ends up with.

Understanding Question: If this part is the part-that-counts, your participants will receive tokens-based bonus payments of...

1 cent for each small token and 1 cent for each large token that they end up with.

2 cents for each small token and 1 cent for each large token that they they end up with.

1 cent for each small token and 2 cents for each large token that they end up with.

Understanding Question: If this part is the part-that-counts, your participants will receive bonus payments of...

their tokens-based bonus payment only.

their non-tokens-based bonus payment only.

their tokens-based bonus payment plus their non-tokens-based bonus payment.

Figure B.24: Example Small-Token Decision in *Uncertainty* treatment

Scenario 1 (out of 14)

Recall that your first participant (P1) and your second participant (P2) will receive 1 cent for each small token and 2 cents for each large token that they end up with.

If this is the scenario-that-counts, relative to P2, **P1 will be endowed with more small tokens and with fewer large tokens**. In particular:

> **P1**: will be endowed with 140 small tokens and 70 large tokens and a random amount equal to 0 cents or 40 cents or 80 cents.
> **P2**: will be endowed with 100 small tokens and 90 large tokens and a random amount equal to 0 cents or 40 cents or 80 cents.

If this is the scenario-that-counts, your two participants must give up a total of 80 small tokens. Please select how many small tokens each participant should have to give up.

Have P1 give up 40 fewer small tokens than P2 so that
> **P1**: ends up with 120 small tokens and 70 large tokens and a random amount equal to 0 cents or 40 cents or 80 cents.
> **P2**: ends up with 40 small tokens and 90 large tokens and a random amount equal to 0 cents or 40 cents or 80 cents.

Have P1 give up the same number of small tokens as P2 so that
> **P1**: ends up with 100 small tokens and 70 large tokens and a random amount equal to 0 cents or 40 cents or 80 cents.
> **P2**: ends up with 60 small tokens and 90 large tokens and a random amount equal to 0 cents or 40 cents or 80 cents.

Have P1 give up 40 more small tokens than P2 so that
> **P1**: ends up with 80 small tokens and 70 large tokens and a random amount equal to 0 cents or 40 cents or 80 cents.
> **P2**: ends up with 80 small tokens and 90 large tokens and a random amount equal to 0 cents or 40 cents or 80 cents.

'

Figure B.25: Example Large-Token Decision in *Uncertainty* treatment

Scenario 1 (out of 14)

Recall that your first participant (P1) and your second participant (P2) will receive 2 cents for each large token and 1 cent for each small token that they end up with.

If this is the scenario-that-counts, relative to P2, **P1 will be endowed with fewer large tokens and with more small tokens**. In particular:

> **P1**: will be endowed with 70 large tokens and 140 small tokens and a random amount equal to 0 cents or 40 cents or 80 cents.
>
> **P2**: will be endowed with 90 large tokens and 100 small tokens and a random amount equal to 0 cents or 40 cents or 80 cents.

If this is the scenario-that-counts, your two participants must give up a total of 40 large tokens. Please select how many large tokens each participant should have to give up.

> **Have P1 give up 20 fewer large tokens than P2 so that**
> **P1**: ends up with 60 large tokens and 140 small tokens and a random amount equal to 0 cents or 40 cents or 80 cents.
> **P2**: ends up with 60 large tokens and 100 small tokens and a random amount equal to 0 cents or 40 cents or 80 cents.

> **Have P1 give up the same number of large tokens as P2 so that**
> **P1**: ends up with 50 large tokens and 140 small tokens and a random amount equal to 0 cents or 40 cents or 80 cents.
> **P2**: ends up with 70 large tokens and 100 small tokens and a random amount equal to 0 cents or 40 cents or 80 cents.

> **Have P1 give up 20 more large tokens than P2 so that**
> **P1**: ends up with 40 large tokens and 140 small tokens and a random amount equal to 0 cents or 40 cents or 80 cents.
> **P2**: ends up with 80 large tokens and 100 small tokens and a random amount equal to 0 cents or 40 cents or 80 cents.

B.4   Experimental Instructions for the *Uncertainty-Aggregated* treatment

The experimental instructions in the *Uncertainty-Aggregated* treatment are identical to those in *Uncertainty* treatment shown in Section B.3, with the exception that the total amount of money (in cents) that each participant ends up with from each allocation is calculated for the subject in Part 1. Figures B.26 and B.27 show example token decisions with the total amount of money shown in green.

Figure B.26: Example Small-Token Decision in *Uncertainty-Aggregated* treatment

Scenario 1 (out of 14)

Recall that your first participant (P1) and your second participant (P2) will receive 1 cent for each small token and 2 cents for each large token that they end up with.

If this is the scenario-that-counts, relative to P2, **P1 will be endowed with more small tokens and with fewer large tokens**. In particular:

P1: will be endowed with 140 small tokens and 70 large tokens and a random amount equal to 0 cents or 40 cents or 80 cents.

P2: will be endowed with 100 small tokens and 90 large tokens and a random amount equal to 0 cents or 40 cents or 80 cents.

If this is the scenario-that-counts, your two participants must give up a total of 80 small tokens. Please select how many small tokens each participant should have to give up.

Have P1 give up 40 fewer small tokens than P2 so that
P1: ends up with 120 small tokens and 70 large tokens and a random amount equal to 0 cents or 40 cents or 80 cents, for a total of 260 cents or 300 cents or 340 cents.
P2: ends up with 40 small tokens and 90 large tokens and a random amount equal to 0 cents or 40 cents or 80 cents, for a total of 220 cents or 260 cents or 300 cents.

Have P1 give up the same number of small tokens as P2 so that
P1: ends up with 100 small tokens and 70 large tokens and a random amount equal to 0 cents or 40 cents or 80 cents, for a total of 240 cents or 280 cents or 320 cents.
P2: ends up with 60 small tokens and 90 large tokens and a random amount equal to 0 cents or 40 cents or 80 cents, for a total of 240 cents or 280 cents or 320 cents.

Have P1 give up 40 more small tokens than P2 so that
P1: ends up with 80 small tokens and 70 large tokens and a random amount equal to 0 cents or 40 cents or 80 cents, for a total of 220 cents or 260 cents or 300 cents.
P2: ends up with 80 small tokens and 90 large tokens and a random amount equal to 0 cents or 40 cents or 80 cents, for a total of 260 cents or 300 cents or 340 cents.

Figure B.27: Example Large-Token Decision in *Uncertainty-Aggregated* treatment

Scenario 1 (out of 14)

Recall that your first participant (P1) and your second participant (P2) will receive 2 cents for each large token and 1 cent for each small token that they end up with.

If this is the scenario-that-counts, relative to P2, **P1 will be endowed with fewer large tokens and with more small tokens**. In particular:

    P1: will be endowed with 70 large tokens and 140 small tokens and a random amount equal to 0 cents or 40 cents or 80 cents.

    P2: will be endowed with 90 large tokens and 100 small tokens and a random amount equal to 0 cents or 40 cents or 80 cents.

If this is the scenario-that-counts, your two participants must give up a total of 40 large tokens. Please select how many large tokens each participant should have to give up.

Have P1 give up 20 fewer large tokens than P2 so that
    P1: ends up with 60 large tokens and 140 small tokens and a random amount equal to 0 cents or 40 cents or 80 cents, for a total of **260 cents or 300 cents or 340 cents**.
    P2: ends up with 60 large tokens and 100 small tokens and a random amount equal to 0 cents or 40 cents or 80 cents, for a total of **220 cents or 260 cents or 300 cents**.

Have P1 give up the same number of large tokens as P2 so that
    P1: ends up with 50 large tokens and 140 small tokens and a random amount equal to 0 cents or 40 cents or 80 cents, for a total of **240 cents or 280 cents or 320 cents**.
    P2: ends up with 70 large tokens and 100 small tokens and a random amount equal to 0 cents or 40 cents or 80 cents, for a total of **240 cents or 280 cents or 320 cents**.

Have P1 give up 20 more large tokens than P2 so that
    P1: ends up with 40 large tokens and 140 small tokens and a random amount equal to 0 cents or 40 cents or 80 cents, for a total of **220 cents or 260 cents or 300 cents**.
    P2: ends up with 80 large tokens and 100 small tokens and a random amount equal to 0 cents or 40 cents or 80 cents, for a total of **260 cents or 300 cents or 340 cents**.

C Experimental Instructions for Additional Study Versions

There are five additional study versions. Section C.1 presents the full instructions of the *Baseline-Replication* version. Section C.2 presents the full instructions of the *Baseline-Cognitive-Screen* version. Section C.3 details how the *Baseline-High-Stakes* version differs from the *Baseline-Replication* version. Section C.4 details how the *Baseline-Adding* version differs from the *Baseline-Replication* version. Section C.5 details how the *Baseline-First Person* version differs from the *Baseline-Replication* version.

C.1 Experimental Instructions: The *Baseline-Replication* version

We recruited 400 Amazon Mechanical Turk participants to complete the *Baseline-Replication* version in February 2018. After consenting to participate in the study, subjects are informed of the $4 study completion fee and of the opportunity to earn additional payment. Figure C.1 shows how this payment information is explained and the corresponding understanding question that each subject must answer correctly in order to proceed.

Figure C.1: Payment Information

Your Payment: For completing this study, you will receive a minimum payment of $4 within 24 hours. To complete this study, you will make a series of decisions -- followed by a short survey. Following certain instructions, you will be asked understanding questions. You must answer these understanding questions correctly in order to proceed to complete the study.

Understanding Question: Which of the following statements is true?

   ○ For completing this study, I will receive $4 within 24 hours.

   ○ For completing this study, I may or may not receive $4 within 24 hours.

   ○ For completing this study, I will receive no payment.

The subjects then proceed to the study instructions. The subjects learn that they will make decisions for a future study involving two participants who are called their "first participant" and their "second participant." In particular, the subjects learn that they will have to choose between options that require each of the two participants to give up some number of small tokens or large tokens. Figure C.2 shows how this information is explained and the corresponding understanding questions that each subject must answer correctly in order to proceed.

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Figure C.2: Instructions and Understanding Questions

A Future Study: In a future study, other Mturk participants will be asked to answer a series of questions. As part of their payment, they will receive a random endowment of small tokens and large tokens. Before the participants complete the study, they will have to give up some of their tokens. At the end of the study, any tokens that a participant gets to keep are turned into cents and paid to that participant as a bonus. Each small token is worth 1 cent. Each large token is worth 2 cents.

Your Decisions: You will be paired with two randomly selected Mturk participants who will complete the future study. We will refer to your two Mturk participants as "your first participant" and "your second participant."

Your two participants will face one randomly selected scenario out of 26 possible scenairos that vary in how many tokens they are endowed with. We will refer to the randomly selected scenario as the "scenario-that-counts." For each of the 26 scenarios, you will be asked to choose between one of three allocations. Each allocation will specify how many small tokens each of your participants must give up out of their endowments of small tokens or how many large tokens each of your participants must give up out of their endowments of large tokens. The allocation you choose in the scenario-that-counts will then be implemented and thus determine how many small tokens and how many large tokens each of your participants gets to keep.

Understanding Question: In the scenario-that-counts, the allocation you choose...

- ○ will not influence how many tokens each of your participants gets to keep.
- ○ will determine how many tokens each of your participants gets to keep.
- ○ may or may not determine how many tokens each of your participants gets to keep.

Understanding Question: As a bonus, the participants will receive...

- ○ 1 cent for each small token and 1 cent for each large token that they get to keep.
- ○ 2 cents for each small token and 1 cent for each large token that they get to keep.
- ○ 1 cent for each small token and 2 cents for each large token that they get to keep.

Understanding Question: Consider a scenario where, relative to your second participant, your first participant will be endowed with a larger number of small tokens and a larger number of large tokens -- in particular:

 Your first participant: will be endowed with **120** small tokens and **50** large tokens
 Your second participant: will be endowed with **110** small tokens and **40** large tokens

If the allocation that is implemented requires your first participant to give up **40** small tokens and your second participant to give up **20** small tokens, how many tokens would each of your participants get to keep?

- ○ **Your first participant**: will get to keep **80** small tokens and **50** large tokens
 Your second participant: will get to keep **90** small tokens and **40** large tokens

- ○ **Your first participant**: will get to keep **120** small tokens and **10** large tokens
 Your second participant: will get to keep **110** small tokens and **20** large tokens

- ○ **Your first participant**: will get to keep **120** small tokens and **50** large tokens
 Your second participant: will get to keep **110** small tokens and **40** large tokens

The subjects then face 26 decisions, arising from 13 unique endowment sets. These 13 endowment sets only differ in the initial endowment of the second participant, since the first participant always has an initial endowment of 140 small tokens and 70 large tokens. Specifically the second participant has an initial endowment equal to (140 small tokens, and 70 large tokens), (100 small tokens, and 70 large tokens), (180 small tokens, and 70 large tokens), (140 small tokens, and 50 large tokens), (140 small tokens, and 90 large tokens), (100 small tokens, and 90 large tokens), (180 small tokens, and 50 large tokens), (120 small tokens, and 70 large tokens), (160 small tokens, and 70 large tokens), (140 small tokens, and 60 large tokens), (140 small tokens, and 80 large tokens), (100 small tokens, and 50 large tokens) or (180 small tokens, and 90 large tokens). While all subjects face the same decisions, the order of these 26 decisions is randomized at the subject level as follows. Each subject is randomized to either make the 13 small-token decisions first or the 13 large-token decisions first. Within each set of 13 decisions, the order of the endowments for the second participants are randomized. Figure C.3 shows an example of a small-token decision where the subject is asked to decide how many small tokens the first and second participant must give up. Figure C.4 shows an example of a large-token decision where the subject is asked to decide how many large tokens the first and second participant must give up.

Figure C.3: Example Small-Token Decision

Scenario 1 (out of 26)

Recall that participants will receive 1 cent for each small token and 2 cents for each large token that they get to keep.

If this is the scenario-that-counts, relative to your second participant, **your first participant will be endowed with the same number of small tokens and with a smaller number of large tokens --** in particular:

> **Your first participant**: will be endowed with **140** small tokens and **70** large tokens
> **Your second participant**: will be endowed **140** small tokens and **90** large tokens

If this is the scenario-that-counts, then how many small tokens would you like for each of your participants to give up?

○ **My first participant**: give up **20** small tokens
  My second participant: give up **60** small tokens

○ **My first participant**: give up **40** small tokens
  My second participant: give up **40** small tokens

○ **My first participant**: give up **60** small tokens
  My second participant: give up **20** small tokens

Figure C.4: Example Large-Token Decision

Scenario 14 (out of 26)

Recall that participants will receive 1 cent for each small token and 2 cents for each large token that they get to keep.

If this is the scenario-that-counts, relative to your second participant, **your first participant will be endowed with a smaller number of small tokens and with a smaller number of large tokens --** in particular:

    Your first participant: will be endowed with **140** small tokens and **70** large tokens
    Your second participant: will be endowed **180** small tokens and **90** large tokens

If this is the scenario-that-counts, then how many large tokens would you like for each of your participants to give up?

  ○ **My first participant:** give up **10** large tokens
    My second participant: give up **30** large tokens

  ○ **My first participant:** give up **20** large tokens
    My second participant: give up **20** large tokens

  ○ **My first participant:** give up **30** large tokens
    My second participant: give up **10** large tokens

C.2 Experimental Instructions *Baseline-Cognitive-Screen* version

We recruited 400 Amazon Mechanical Turk participants to complete the *Baseline-Cognitive-Screen* version in July 2020. A total of 284 subjects correctly answered the screening questions and completed this version of the study.

After consenting to participate in the study, subjects are asked three screening questions that require them to correctly report the monetary value of: (i) 50 small tokens, (ii) 100 large tokens, and (iii) the sum of 140 small tokens and 40 large tokens. The subjects who answered one or more of these questions incorrectly were screened out of our study, did not participate further, and only received a $3.00 completion payment. The 284 subjects who answered all of these questions correctly were screened into our study, made 26 choices and received a $4.00 completion payment. The difference in completion payments—$3.00 versus $4.00—was known to subjects when they were answering the screening questions. Figure C.5 shows how this information is explained and the corresponding screening questions. For the 284 subjects who are screened into our study, they view a decision screen explaining that they will now make additional choices (see Figure C.6 and then face the exact same decision screens as those detailed in our main *Tokens* version (see Appendix C.1).

Figure C.5: Screening Questions

In this study, you will make decisions that involve small tokens and large tokens.

Each small token is equal to 1 cent.

Each large token is equal to 2 cents.

Given this, please answer the following three questions.

Understanding Question: How many cents are 100 small tokens worth?

| 50 | 100 | 150 | 200 |

Understanding Question: How many cents are 50 large tokens worth?

| 50 | 100 | 150 | 200 |

Understanding Question: How many cents are 140 small tokens and 40 large tokens worth?

| 100 | 180 | 220 | 320 |

Figure C.6: Payment Information

That's correct!

You will now make a series of decisions in Parts 1 and 2 -- followed by a short survey.

If you complete this study, you will receive a minimum payment from this HIT of $3.00 within 24 hours. Also:

- You are guaranteed to receive a bonus payment of at least $1.00, and

- Additional payments may result from your decisions in Parts 1 and 2. In particular, one of those two parts will be randomly selected as the part-that-counts. Any additional payment that results from the part-that-counts will be distributed in accordance with the instructions in that part.

Understanding Question: Which of the following statements is true?

> For completing this study, I will receive $3.00 within 24 hours. I will also receive a bonus payment of at least $1.00. Any additional payment that results from the part-that-counts will also be distributed.

> For completing this study, I will receive $3.00 within 24 hours. No additional payments may result.

> For completing this study, I will receive $3.00 within 24 hours. Also, the decisions I make in Parts 1 and 2 cannot influence any additional payments from this study.

C.3 Experimental Instructions: The *Baseline-High Stakes* version

We recruited 199 Amazon Mechanical Turk participants to complete the *Baseline-High Stakes* version in April 2020. After consenting to participate in the study, subjects are informed of the $3 study completion fee and of the opportunity to earn additional payment. Figure C.7 shows how this payment information is explained and the corresponding understanding question that each subject must answer correctly in order to proceed.

Figure C.7: Payment Information

Your Payment: For completing this study, you will receive a minimum payment of $3 within 24 hours. To complete this study, you will make a series of decisions -- followed by a short survey. Following certain instructions, you will be asked understanding questions. You must answer these understanding questions correctly in order to proceed to complete the study.

Understanding Question: Which of the following statements is true?

For completing this study, I will receive $3 within 24 hours.

For completing this study, I may or may not receive $3 within 24 hours.

For completing this study, I will receive no payment.

The subjects then proceed to the study instructions. The subjects learn that they will make decisions for a future study involving two participants who are called their "first participant" and their "second participant." In particular, the subjects learn that they will have to choose between options that result in each participant receiving some number of small tokens or large tokens. Figure C.8 shows how this information is explained and the corresponding understanding questions that each subject must answer correctly in order to proceed.

Figure C.8: Instructions and Understanding Questions

A Future Study: In a future study, other Mturk participants will be asked to answer a series of questions. As part of their payment, they will receive a random endowment of small tokens and large tokens. Before the participants complete the study, they will have to give up some of their tokens. At the end of the study, any tokens that a participant gets to keep are turned into cents and paid to that participant as a bonus. Each small token is worth some number of cents, and each large token is worth some number of cents.

Your Decisions: You will be paired with two randomly selected Mturk participants who will complete the future study. We will refer to your two Mturk participants as "your first participant" and "your second participant."

Your two participants will face one randomly selected scenario out of 26 possible scenarios that vary in how many tokens they are endowed with. We will refer to the randomly selected scenario as the "scenario-that-counts." For each of the 26 scenarios, you will be asked to choose between one of three allocations. Each allocation will specify how many small tokens each of your participants must give up out of their endowments of small tokens or how many large tokens each of your participants must give up out of their endowments of large tokens. The allocation you choose in the scenario-that-counts will then be implemented and thus determine how many small tokens and how many large tokens each of your participants gets to keep.

Understanding Question: In the scenario-that-counts, the allocation you choose...

will not influence how many tokens each of your participants gets to keep.

will determine how many tokens each of your participants gets to keep.

may or may not determine how many tokens each of your participants gets to keep.

Understanding Question: In the scenario-that-counts, if each small token is worth 1 cent and each large token is worth 2 cents, the participants will receive, as a bonus, ...

1 cent for each small token and 1 cent for each large token that they get to keep.

5 cents for each small token and 10 cents for each large token that they get to keep.

1 cent for each small token and 2 cents for each large token that they get to keep.

Understanding Question: In the scenario-that-counts, if each small token is worth 5 cents and each large token is worth 10 cents, the participants will receive, as a bonus, ...

1 cent for each small token and 1 cent for each large token that they get to keep.

5 cents for each small token and 10 cents for each large token that they get to keep.

1 cent for each small token and 2 cents for each large token that they get to keep.

Understanding Question: Consider a scenario where, relative to your second participant, your first participant will be endowed with a larger number of small tokens and a larger number of large tokens -- in particular:

Your first participant: will be endowed with **120** small tokens and **50** large tokens
Your second participant: will be endowed with **110** small tokens and **40** large tokens

If the allocation that is implemented requires your first participant to give up **40** small tokens and your second participant to give up **20** small tokens, how many tokens would each of your participants get to keep?

Your first participant: will get to keep **80** small tokens and **50** large tokens
Your second participant: will get to keep **90** small tokens and **40** large tokens

Your first participant: will get to keep **120** small tokens and **10** large tokens
Your second participant: will get to keep **110** small tokens and **20** large tokens

Your first participant: will get to keep **120** small tokens and **50** large tokens
Your second participant: will get to keep **110** small tokens and **40** large tokens

The subjects then face 26 decisions. There are 14 baseline decisions in which small tokens are worth 1 cent and large tokens are worth 2 cents, and 12 high-stakes decisions in which small tokens are worth 5 cents and large tokens are worth 10 cents. In all of the decisions, the first participant always has an initial endowment of 140 small tokens and 70 large tokens.

The 14 baseline decisions arise from participants making small-token decisions (structured as in Figure C.9) and large-token decisions (structured as in Figure C.10) when the second participant has an initial endowment equal to (140 small tokens, and 70 large tokens), (100 small tokens, and 70 large tokens), (180 small tokens, and 70 large tokens), (140 small tokens, and 50 large tokens), (140 small tokens, and 90 large tokens), (100 small tokens, and 90 large tokens), or (180 small tokens, and 50 large tokens).

The 12 high-stakes decisions arise from participants making small-token decisions (structured as in Figure C.11) and large-token decisions (structured as in Figure C.12) when the second participant has an initial endowment equal to (100 small tokens, and 70 large tokens), (180 small tokens, and 70 large tokens), (140 small tokens, and 50 large tokens), (140 small tokens, and 90 large tokens), (100 small tokens, and 90 large tokens), or (180 small tokens, and 50 large tokens),

While all subjects face the same decisions, the order of these 26 decisions is randomized at the subject level as follows. First, each subject is randomized to either face the 14 baseline decisions of the 12 high-stakes decisions first. Second, within each set of these decisions, each subject is randomized to either either face the small-token decisions or the large-token decisions first. Third, within each set of those decisions, the order of the endowments for the second participants are randomized.

Figure C.9: Example Small-Token Baseline Decision

Scenario 1 (out of 26)

If this is the scenario-that-counts, participants will receive 1 cent for each small token and 2 cents for each large token that they get to keep.

If this is the scenario-that-counts, relative to your second participant, **your first participant will be endowed with a larger number of small tokens and with a smaller number of large tokens** -- in particular:

    Your first participant: will be endowed with **110** small tokens and **55** large tokens

    Your second participant: will be endowed with **70** small tokens and **75** large tokens

If this is the scenario-that-counts, then how many small tokens would you like for each of your participants to give up?

> **My first participant:** give up **20** small tokens
> **My second participant:** give up **60** small tokens

> **My first participant**: give up **40** small tokens
> **My second participant**: give up **40** small tokens

> **My first participant**: give up **60** small tokens
> **My second participant**: give up **20** small tokens

Figure C.10: Example Large-Token Baseline Decision

Scenario 8 (out of 26)

If this is the scenario-that-counts, participants will receive 1 cent for each small token and 2 cents for each large token that they get to keep.

If this is the scenario-that-counts, relative to your second participant, **your first participant will be endowed with a smaller number of small tokens and with a larger number of large tokens** -- in particular:

    Your first participant: will be endowed with **110** small tokens and **55** large tokens

    Your second participant: will be endowed with **150** small tokens and **35** large tokens

If this is the scenario-that-counts, then how many large tokens would you like for each of your participants to give up?

> **My first participant:** give up **10** large tokens
> **My second participant:** give up **30** large tokens

> **My first participant:** give up **20** large tokens
> **My second participant:** give up **20** large tokens

> **My first participant:** give up **30** large tokens
> **My second participant:** give up **10** large tokens

Figure C.11: Example Small-Token High-Stakes Decision

Scenario 20 (out of 26)

If this is the scenario-that-counts, participants will receive 5 cents for each small token and 10 cents for each large token that they get to keep.

If this is the scenario-that-counts, relative to your second participant, **your first participant will be endowed with the same number of small tokens and with a larger number of large tokens** -- in particular:

    Your first participant: will be endowed with **110** small tokens and **55** large tokens

    Your second participant: will be endowed with **110** small tokens and **35** large tokens

If this is the scenario-that-counts, then how many small tokens would you like for each of your participants to give up?

    My first participant: give up **20** small tokens
    My second participant: give up **60** small tokens

    My first participant: give up **40** small tokens
    My second participant: give up **40** small tokens

    My first participant: give up **60** small tokens
    My second participant: give up **20** small tokens

Figure C.12: Example Large-Token High-Stakes Decision

Scenario 21 (out of 26)

If this is the scenario-that-counts, participants will receive 5 cents for each small token and 10 cents for each large token that they get to keep.

If this is the scenario-that-counts, relative to your second participant, **your first participant will be endowed with the same number of small tokens and with a larger number of large tokens** -- in particular:

    Your first participant: will be endowed with **110** small tokens and **55** large tokens

    Your second participant: will be endowed with **110** small tokens and **35** large tokens

If this is the scenario-that-counts, then how many large tokens would you like for each of your participants to give up?

    My first participant: give up **10** large tokens
    My second participant: give up **30** large tokens

    My first participant: give up **20** large tokens
    My second participant: give up **20** large tokens

    My first participant: give up **30** large tokens
    My second participant: give up **10** large tokens

C.4 Experimental Instructions: The *Baseline-Adding* version

We recruited 199 Amazon Mechanical Turk participants to complete the *Baseline-Adding* version in April 2020. After consenting to participate in the study, subjects are informed of the $3 study completion fee and of the opportunity to earn additional payment. Figure C.13 shows how this payment information is explained and the corresponding understanding question that each subject must answer correctly in order to proceed.

Figure C.13: Payment Information

Your Payment: For completing this study, you will receive a minimum payment of $3 within 24 hours. To complete this study, you will make a series of decisions -- followed by a short survey. Following certain instructions, you will be asked understanding questions. You must answer these understanding questions correctly in order to proceed to complete the study.

Understanding Question: Which of the following statements is true?

> For completing this study, I will receive $3 within 24 hours.

> For completing this study, I may or may not receive $3 within 24 hours.

> For completing this study, I will receive no payment.

The subjects then proceed to the study instructions. The subjects learn that they will make decisions for a future study involving two participants who are called their "first participant" and their "second participant." In particular, the subjects learn that they will have to choose between options that result in each participants receiving some number of small tokens or large tokens. Figure C.14 shows how this information is explained and the corresponding understanding questions that each subject must answer correctly in order to proceed.

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Figure C.14: Instructions and Understanding Questions

A Future Study: In a future study, other Mturk participants will be asked to answer a series of questions. As part of their payment, they will receive a bonus that is solely determined by the number of small tokens and large tokens they end up with. Each small token is worth 1 cent, and each large token is worth 2 cents. They will start with a random endowment of small tokens and large tokens.

Your Decisions: You will be paired with two randomly selected Mturk participants who will complete the future study. We will refer to your two Mturk participants as "your first participant" and "your second participant."

Your two participants will face one randomly selected scenario out of 26 possible scenarios that vary in how many tokens they are endowed with. We will refer to the randomly selected scenario as the "scenario-that-counts." For each of the 26 scenarios, you will be asked to choose between one of three allocations. Each allocation will specify changes to the number of small tokens each of your participants will end up with or changes to the number of large tokens each of your participants will end up with. The allocation you choose in the scenario-that-counts will then be implemented and determine how many small tokens and how many large tokens each of your participants will end up with.

Understanding Question: In the scenario-that-counts, the allocation you choose...

> will not influence how many tokens each of your participants ends up with.

> will determine how many tokens each of your participants ends up with.

> may or may not determine how many tokens each of your participants ends up with.

Understanding Question: In the scenario-that-counts, if each small token is worth 1 cent and each large token is worth 2 cents, the participants will receive, as a bonus, ...

> 1 cent for each small token and 1 cent for each large token that they end up with.

> 5 cents for each small token and 10 cents for each large token that they end up with.

> 1 cent for each small token and 2 cents for each large token that they end up with.

Understanding Question: Consider a scenario where, relative to your second participant, your first participant will be endowed with a larger number of small tokens and a larger number of large tokens -- in particular:

Your first participant: will be endowed with **120** small tokens and **50** large tokens
Your second participant: will be endowed with **110** small tokens and **40** large tokens

If the allocation chosen in the scenario-that-counts requires your first participant to give up **40** small tokens from their endowment of small tokens and your second participant to give up **20** small tokens from their endowment of small tokens, how many tokens would each of your participants end up with?

Your first participant: will end up with **80** small tokens and **50** large tokens
Your second participant: will end up with **90** small tokens and **40** large tokens

Your first participant: will end up with **120** small tokens and **10** large tokens
Your second participant: will end up with **110** small tokens and **20** large tokens

Your first participant: will end up with **120** small tokens and **50** large tokens
Your second participant: will end up with **110** small tokens and **40** large tokens

Understanding Question: Consider a scenario where, relative to your second participant, your first participant will be endowed with a larger number of small tokens and a larger number of large tokens -- in particular:

Your first participant: will be endowed with **120** small tokens and **50** large tokens
Your second participant: will be endowed with **110** small tokens and **40** large tokens

If the allocation chosen in the scenario-that-count requires your first participant to get an additional **20** large tokens and your second participant to get an additional **10** large tokens, how many tokens would each of your participants end up with?

Your first participant: will end up with **140** small tokens and **50** large tokens
Your second participant: will end up with **120** small tokens and **40** large tokens

Your first participant: will end up with **120** small tokens and **70** large tokens
Your second participant: will end up with **110** small tokens and **50** large tokens

Your first participant: will end up with **120** small tokens and **50** large tokens
Your second participant: will end up with **110** small tokens and **40** large tokens

The subjects then face 26 decisions. There are 14 baseline decisions in which small tokens are worth 1 cent and large tokens are worth 2 cents, and 12 high-stakes decisions in which small tokens are worth 5 cents and large tokens are worth 10 cents. In all of the decisions, the first participant always has an initial endowment of 140 small tokens and 70 large tokens.

The 14 baseline decisions arise from participants making small-token decisions (structured as in Figure C.15) and large-token decisions (structured as in Figure C.16) when the second participant has an initial endowment equal to (140 small tokens, and 70 large tokens), (100 small tokens, and 70 large tokens), (180 small tokens, and 70 large tokens), (140 small tokens, and 50 large tokens), (140 small tokens, and 90 large tokens), (100 small tokens, and 90 large tokens), or (180 small tokens, and 50 large tokens).

The 12 adding decisions arise from participants making small-token decisions (structured as in Figure C.17) and large-token decisions (structured as in Figure C.18) when the second participant has an initial endowment equal to (100 small tokens, and 70 large tokens), (180 small tokens, and 70 large tokens), (140 small tokens, and 50 large tokens), (140 small tokens, and 90 large tokens), (100 small tokens, and 90 large tokens), or (180 small tokens, and 50 large tokens),

While all subjects face the same decisions, the order of these 26 decisions is randomized at the subject level as follows. First, each subject is randomized to either face the 14 baseline decisions of the 12 adding decisions first. Second, within each set of these decisions, each subject is randomized to either either face the small-token decisions or the large-token decisions first. Third, within each set of those decisions, the order of the endowments for the second participants are randomized.

Figure C.15: Example Small-Token Baseline Decision

Scenario 1 (out of 26)

If this is the scenario-that-counts, participants will receive 1 cent for each small token and 2 cents for each large token that they end up with.

If this is the scenario-that-counts, relative to your second participant, **your first participant will be endowed with a smaller number of small tokens and with a larger number of large tokens** -- in particular:
    Your first participant: will be endowed with **140** small tokens and **70** large tokens
    Your second participant: will be endowed with **180** small tokens and **50** large tokens

If this is the scenario-that-counts, how would you like to change the number of small tokens each of your participants ends up with?

> **My first participant:** give up **20** small tokens
> **My second participant:** give up **60** small tokens

> **My first participant**: give up **40** small tokens
> **My second participant**: give up **40** small tokens

> **My first participant**: give up **60** small tokens
> **My second participant**: give up **20** small tokens

Figure C.16: Example Large-Token Baseline Decision

Scenario 8 (out of 26)

If this is the scenario-that-counts, participants will receive 1 cent for each small token and 2 cents for each large token that they end up with.

If this is the scenario-that-counts, relative to your second participant, **your first participant will be endowed with a smaller number of small tokens and with a larger number of large tokens** -- in particular:

    Your first participant: will be endowed with **140** small tokens and **70** large tokens
    Your second participant: will be endowed with **180** small tokens and **50** large tokens

If this is the scenario-that-counts, how would you like to change the number of large tokens each of your participants ends up with?

> **My first participant:** give up **10** large tokens
> **My second participant:** give up **30** large tokens

> **My first participant:** give up **20** large tokens
> **My second participant:** give up **20** large tokens

> **My first participant:** give up **30** large tokens
> **My second participant:** give up **10** large tokens

Figure C.17: Example Small-Token Adding Decision

Scenario 15 (out of 26)

If this is the scenario-that-counts, participants will receive 1 cent for each small token and 2 cents for each large token that they end up with.

If this is the scenario-that-counts, relative to your second participant, **your first participant will be endowed with a smaller number of small tokens and with the same number of large tokens** -- in particular:
> **Your first participant**: will be endowed with **140** small tokens and **70** large tokens
> **Your second participant**: will be endowed with **180** small tokens and **70** large tokens

If this is the scenario-that-counts, how would you like to change the number of small tokens each of your participants ends up with?

> **My first participant:** gets an additional **20** small tokens
> **My second participant:** gets an additional **60** small tokens

> **My first participant**: gets an additional **40** small tokens
> **My second participant**: gets an additional **40** small tokens

> **My first participant**: gets an additional **60** small tokens
> **My second participant**: gets an additional **20** small tokens

Figure C.18: Example Large-Token Adding Decision

Scenario 22 (out of 26)

If this is the scenario-that-counts, participants will receive 1 cent for each small token and 2 cents for each large token that they end up with.

If this is the scenario-that-counts, relative to your second participant, **your first participant will be endowed with a larger number of small tokens and with a smaller number of large tokens** -- in particular:
     Your first participant: will be endowed with **140** small tokens and **70** large tokens
     Your second participant: will be endowed with **100** small tokens and **90** large tokens

If this is the scenario-that-counts, how would you like to change the number of large tokens each of your participants ends up with?

> **My first participant:** gets an additional **10** large tokens
> **My second participant:** gets an additional **30** large tokens

> **My first participant:** gets an additional **20** large tokens
> **My second participant:** gets an additional **20** large tokens

> **My first participant:** gets an additional **30** large tokens
> **My second participant:** gets an additional **10** large tokens

C.5 Experimental Instructions: The *Tokens, First Person* version

We recruited 400 Amazon Mechanical Turk participants to complete the *Tokens, First Person* version in April 2019.

In the *Tokens, First Person* version, the subjects who make decisions are assigned to the role of the first participant, so each decision involves allocating small or large tokens between oneself and another study participant assigned to the role of the second participant. More specifically, for the *Tokens, First Person* version, all that differs from the *Tokens* version (see Appendix C.1) is the perspective subjects must take when they are making decisions.

Thus, the corresponding differences are shown in the following figures: Figure C.19 shows how the instructions are explained and the corresponding understanding questions that each subject must answer correctly in order to proceed; Figure C.20 shows an example of a small-token decision; and Figure C.21 shows an example of a large-token decision.

Figure C.19: Instructions and Understanding Questions

A Future Study: In a future study, other Mturk participants will be asked to answer a series of questions. As part of their payment, they will receive a random endowment of small tokens and large tokens. Before the participants complete the study, they will have to give up some of their tokens.

Your Decisions: You will be paired with one randomly selected Mturk participant who will complete the future study. We will refer to this participant as "your partner." Your partner will face one randomly selected scenario out of 26 possible scenarios that vary in how many tokens they are endowed with. We will refer to the randomly selected scenario as the "scenario-that-counts." For each of the 26 scenarios, you will be asked to choose between one of three allocations. Each allocation will specify how many small tokens you and your partner must give up or how many large tokens you and your partner must give up. The allocation you choose in the scenario-that-counts will then be implemented and thus determine how many small tokens and how many large tokens each of you gets to keep.

Bonus Payments: At the end of the study, any tokens you and your partner get to keep are turned into cents and paid to you and your partner, respectively, as a bonus. Each small token will be turned into 1 cent. Each large token will be turned into 2 cents.

Understanding Question: In the scenario-that-counts, the allocation you choose...

- ○ will not influence how many tokens you and your partner get to keep.

- ○ will determine how many tokens you and your partner get to keep.

- ○ may or may not determine how many tokens you and your partner get to keep.

Understanding Question: As a bonus, you and your partner will receive...

- ○ 1 cent for each small token and 1 cent for each large token that you and your partner get to keep, respectively.

- ○ 2 cents for each small token and 1 cent for each large token that you and your partner get to keep, respectively.

- ○ 1 cent for each small token and 2 cents for each large token that you and your partner get to keep, respectively.

Understanding Question: Consider a scenario where, relative to your partner, you will be endowed with a larger number of small tokens and a larger number of large tokens -- in particular:

You: will be endowed with **120** small tokens and **50** large tokens
Your partner: will be endowed with **110** small tokens and **40** large tokens

If the allocation that is implemented requires you to give up **40** small tokens and your partner to give up **20** small tokens, how many tokens would each of you get to keep?

- ○ **You:** will get to keep **80** small tokens and **50** large tokens
Your partner: will get to keep **90** small tokens and **40** large tokens

- ○ **You:** will get to keep **120** small tokens and **10** large tokens
Your partner: will get to keep **110** small tokens and **20** large tokens

- ○ **You:** will get to keep **120** small tokens and **50** large tokens
Your partner: will get to keep **110** small tokens and **40** large tokens

Figure C.20: Example Small-Token Decision

Scenario 15 (out of 26)

Recall that you and your partner will receive 1 cent for each small token and 2 cents for each large token that you and your partner get to keep, respectively.

If this is the scenario-that-counts, relative to your partner, **you will be endowed with a smaller number of small tokens and with a larger number of large tokens** -- in particular:

You: will be endowed with **140** small tokens and **70** large tokens
Your partner: will be endowed **180** small tokens and **50** large tokens

If this is the scenario-that-counts, then how many small tokens would you like for each of you to give up?

○ **You**: give up **20** small tokens
Your partner: give up **60** small tokens

○ **You**: give up **40** small tokens
Your partner: give up **40** small tokens

○ **You**: give up **60** small tokens
Your partner: give up **20** small tokens

Figure C.21: Example Large-Token Decision

Scenario 1 (out of 26)

Recall that you and your partner will receive 1 cent for each small token and 2 cents for each large token that you and your partner get to keep, respectively.

If this is the scenario-that-counts, relative to your partner, **you will be endowed with a larger number of small tokens and with a smaller number of large tokens** -- in particular:

You: will be endowed with **140** small tokens and **70** large tokens
Your partner: will be endowed **100** small tokens and **90** large tokens

If this is the scenario-that-counts, then how many large tokens would you like for each of you to give up?

○ **You**: give up **10** large tokens
Your partner: give up **30** large tokens

○ **You**: give up **20** large tokens
Your partner: give up **20** large tokens

○ **You**: give up **30** large tokens
Your partner: give up **10** large tokens