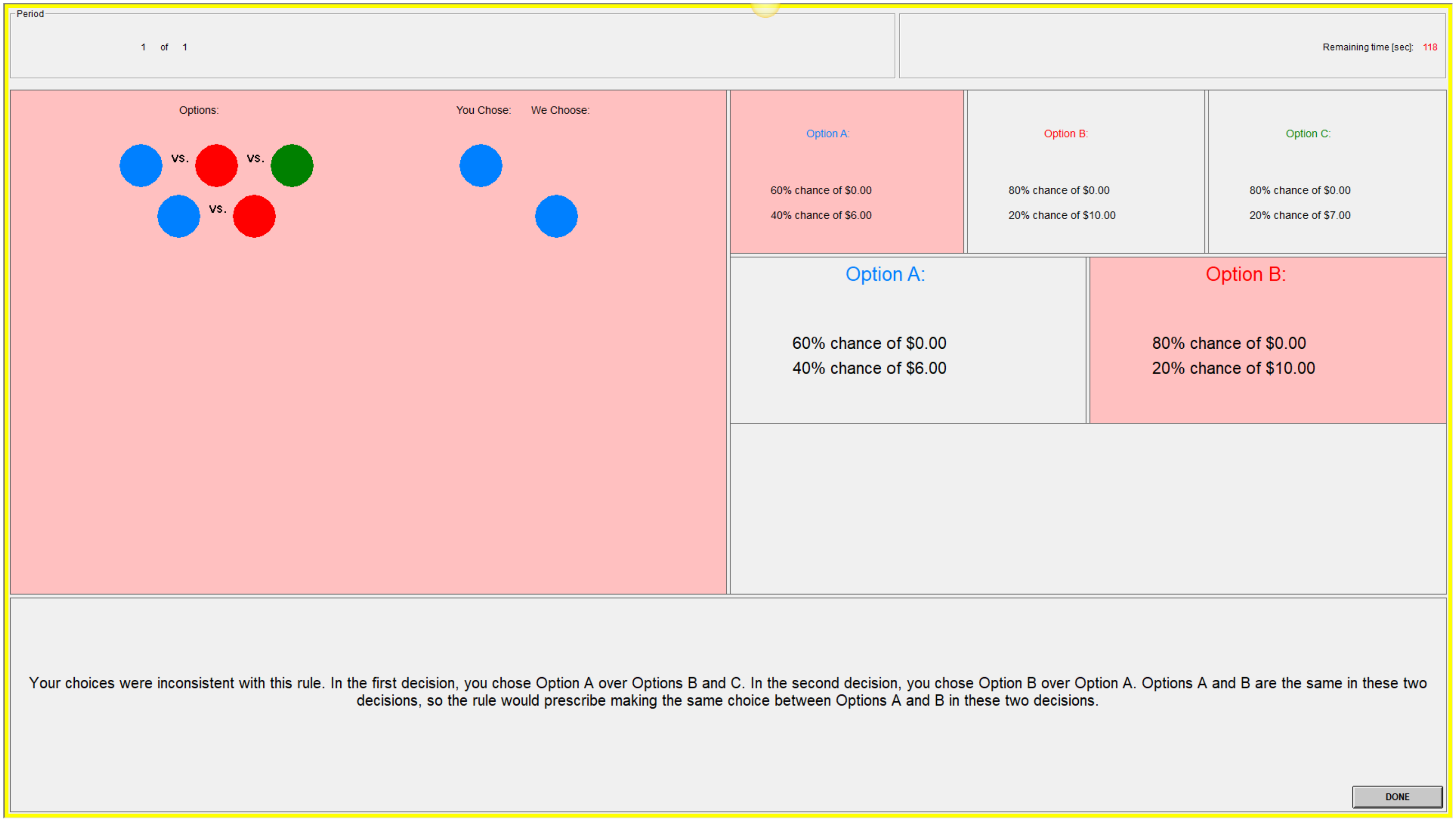
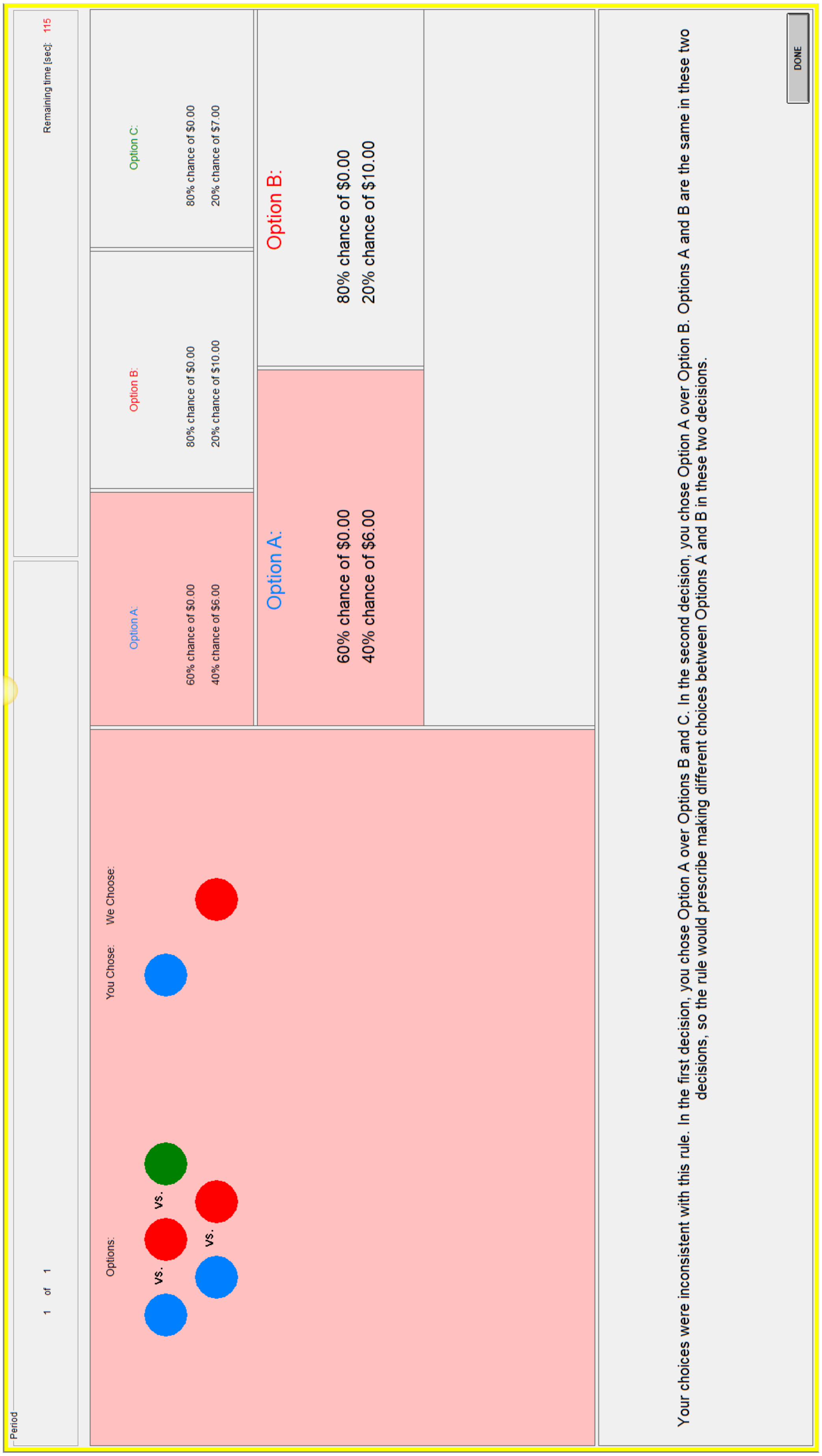
When Choices Are Mistakes

Kirby Nielsen and John Rehbeck

Online Appendix

A. Screenshots


Period
1 of 1
Remaining time [sec]: 118
Options:
vs.
vs.
vs.
You Chose:
We Choose:
Option A:
60% chance of $0.00
40% chance of $6.00
Option B:
80% chance of $0.00
20% chance of $10.00
Option C:
80% chance of $0.00
20% chance of $7.00
Option A:
60% chance of $0.00
40% chance of $6.00
Option B:
80% chance of $0.00
20% chance of $10.00
Your choices were inconsistent with this rule. In the first decision, you chose Option A over Options B and C. In the second decision, you chose Option B over Option A. Options A and B are the same in these two decisions, so the rule would prescribe making the same choice between Options A and B in these two decisions.
DONE


Period
1 of 1
Remaining time [sec]: 115
Options:
vs.
vs.
vs.
You Chose:
We Choose:
Option A:
60% chance of $0.00
40% chance of $6.00
Option B:
80% chance of $0.00
20% chance of $10.00
Option C:
80% chance of $0.00
20% chance of $7.00
Option A:
60% chance of $0.00
40% chance of $6.00
Option B:
80% chance of $0.00
20% chance of $10.00
Your choices were inconsistent with this rule. In the first decision, you chose Option A over Options B and C. In the second decision, you chose Option A over Option B. Options A and B are the same in these two decisions, so the rule would prescribe making different choices between Options A and B in these two decisions.
DONE

B. Additional Results

	Number of Control Axioms Selected							
#Axioms Selected	0	1	2	3	4	5	6	Total
0	2.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.9%	3.6%
1	0.9%	0.0%	0.9%	0.0%	0.0%	0.0%	0.0%	1.8%
2	2.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.7%
3	3.6%	0.0%	0.0%	0.0%	1.8%	0.9%	0.0%	6.4%
4	3.6%	2.7%	1.8%	0.0%	0.0%	0.0%	0.0%	8.2%
5	11.8%	2.7%	1.8%	0.0%	0.9%	0.0%	0.0%	17.3%
6	39.1%	17.3%	0.9%	1.8%	0.0%	0.0%	0.9%	60.0%
Total	64.5%	22.7%	5.5%	1.8%	2.7%	0.9%	1.8%	100.0%

Table IV: Number of Axioms and control axioms Selected

	Select IND	Select c-IND
CRT Score	0.142	0.111
	(0.0890)	(0.0903)
Understanding Score	0.165	-0.162
	(0.0675)	(0.0721)
CRT × Understanding Score	-0.0178	-0.0192
	(0.0137)	(0.0146)
Constant	-0.486	0.377
	(0.410)	(0.428)

Table V: Relationship Between CRT and Understanding Score on IND and c-IND Axiom Selection

Notes: This reports results from a probit regression. Standard errors are clustered at the subject-level.

	Keep Inconsistent	Change Lotteries	Change and Still Inconsistent
CRT Score	-0.00395	0.0498	0.0319
	(0.0717)	(0.0718)	(0.100)
Understanding Score	0.111	-0.0461	0.0280
	(0.113)	(0.109)	(0.173)
Constant	0.0230	0.406	-1.571
	(0.645)	(0.633)	(1.126)

Table VI: Relationship Between CRT and Understanding Score on c-IND Reconciliation Decision

Notes: This reports results from a multinomial logistic regression. The omitted category is those who keep their lottery choices and unselect the axiom. Standard errors are clustered at the subject-level.

C. Lotteries

A description of references and behavioral effects for each question can be found in Table VII, along with the question numbering that we use to present the results. The payment amounts span from \$0 to \$30, and lotteries range in expected value from \$1.40 to \$26. Within each question (with either two or three lotteries), the difference in expected value between the lotteries ranges from \$0 to \$6. On average, the expected value difference is just shy of \$1.75. Furthermore, these lottery questions are not the same as the lottery questions that incentivized Block 1 rule choices. This was to ensure that subjects do not update on the type of lotteries where the rules would apply. We briefly describe the source of the questions. We note that none of the choices directly replicate questions from the source paper. We did this since the payments were not comparable across experiments.

Question	Reference
IIA1–IIA3	Huber et al. (1982) (Attraction Affect)
IIA4	Huber et al. (1982) (Compromise Effect)
FOSD1–FOSD4	Birnbaum and Martin (2003)
TRANS1–TRANS2	Loomes et al. (1991) (Regret Theory)
TRANS3	Brown and Healy (2018) (Multiple Switch Points)
IND1	Birnbaum and Chavez (1997)
IND2	Kahneman and Tversky (1979) (Certainty Effect)
IND3	Jain and Nielsen (2019) (Reverse Certainty Effect)
BRANCH1	Birnbaum and Chavez (1997)
CONS1–CONS2	Brown and Healy (2018) (Near Indifference)

Table VII: Description of Questions

INDEPENDENCE OF IRRELEVANT ALTERNATIVES — We used four IIA questions similar to Huber et al. (1982). Three of the four questions targeted violations of IIA by adding a dominated lottery to a binary choice problem to "attract" the subject to the dominating alternative. We refer to these as IIA1, IIA2, and IIA3. The fourth question, IIA4, targeted a violation of IIA by adding a lottery to a binary choice problem that makes one of the initial two lotteries a "compromise" option.

TRANSITIVITY — We used two transitivity questions (TRANS1 and TRANS2) similar to Loomes et al. (1991) that were used to examine regret theory. In addition, we included six binary questions which together comprised a separated price list, as demonstrated in Brown and Healy (2018).[35] These six questions involved binary comparisons between a risky lottery and a sure payment. The risky lottery was the same in all six questions while the sure payment varied. Multiple switch points on the price list constitute a violation of transitivity, which we refer to as TRANS3.

FIRST-ORDER STOCHASTIC DOMINANCE — We asked four binary questions to target violations of FOSD (FOSD1–FOSD4). All four questions followed the structure in Birnbaum and Martin (2003).

INDEPENDENCE — We included three questions that targeted violations of independence, including one question from Birnbaum and Chavez (1997) (IND1), one question from (Kahneman and Tversky, 1979) demonstrating the certainty effect (IND2), and one question from Jain and Nielsen (2019) demonstrating the reverse certainty effect (IND3).

BRANCH INDEPENDENCE — We included one question targeting a violation of Branch Independence from Birnbaum and Chavez (1997) (BRANCH1).

CONSISTENCY — We included two questions to target violations of consistency in which we asked two binary decision problems that were each repeated twice (CONS1 and CONS2).[36] We chose the binary decision problems based on the questions that were nearest to indifference in Brown and Healy (2018).

Table VIII: IIA Questions

Question	Lottery A	Lottery B	Lottery C
IIA1	60% chance of \$0 40% chance of \$6	80% chance of \$0 20% chance of \$10	80% chance of \$0 20% chance of \$7
IIA2	60% chance of \$0 40% chance of \$6	80% chance of \$0 20% chance of \$10	85% chance of \$0 15% chance of \$10
IIA3	60% chance of \$0 40% chance of \$6	80% chance of \$0 20% chance of \$10	85% chance of \$0 15% chance of \$7
IIA4	60% chance of \$0 40% chance of \$6	80% chance of \$0 20% chance of \$10	70% chance of \$0 30% chance of \$8

[35]For example, one question was a binary choice between lottery p and \$14.00. Another was the choice between p and \$14.50, another between p and \$15.00, etc. Presenting questions of this form is a common procedure used to elicit a certainty equivalent for lottery p.

[36]The questions are not repeated back to back.

Table IX: FOSD Questions (B FOSD A)

Question	Lottery A	Lottery B
FOSD1	10% chance of \$1.25 5% chance of \$9 85% chance of \$9.75	5% chance of \$1.25 5% chance of \$1.50 90% chance of \$9.75
FOSD2	10% chance of \$2 5% chance of \$16 85% chance of \$19	5% chance of \$2 5% chance of \$3 90% chance of \$19
FOSD3	21% chance of \$1 18% chance of \$10.25 61% chance of \$11	1% chance of \$1 19% chance of \$2 80% chance of \$11
FOSD4	21% chance of \$0.50 18% chance of \$13 61% chance of \$16	1% chance of \$0.50 19% chance of \$4 80% chance of \$16

Table X: Transitivity Questions

Question	Lottery A	Lottery B	Lottery C
TRANS1	30% chance of \$6 30% chance of \$6 40% chance of \$20	30% chance of \$0.50 30% chance of \$11 40% chance of \$11	30% chance of \$8 30% chance of \$8 40% chance of \$8
TRANS2	45% chance of \$7.50 25% chance of \$7.50 30% chance of \$19	45% chance of \$1.25 25% chance of \$10.50 30% chance of \$10.50	45% chance of \$9 25% chance of \$9 30% chance of \$9

Table XI: Price List Transitivity Questions

Question	A	B	C	D	E	F	G
TRANS3	25% chance of \$5 75% chance of \$25	100% chance of \$14	100% chance of \$14.50	100% chance of \$15	100% chance of \$15.50	100% chance of \$16	100% chance of \$16.50

Table XII: Independence Questions

Question	Lottery A	Lottery B	Lottery C	Lottery D
BRANCH1	80% chance of \$0 10% chance of \$2 10% chance of \$12	80% chance of \$0 10% chance of \$8 10% chance of \$9	10% chance of \$2 10% chance of \$12 80% chance of \$15	10% chance of \$8 10% chance of \$9 80% chance of \$15
IND1	80% chance of \$0 10% chance of \$6 10% chance of \$11	80% chance of \$0 10% chance of \$8 10% chance of \$9	40% chance of \$0 30% chance of \$6 30% chance of \$11	40% chance of \$0 30% chance of \$8 30% chance of \$9
IND2	100% chance of \$10	20% chance of \$0 80% chance of \$13.50	75% chance of \$0 25% chance of \$10	80% chance of \$0 20% chance of \$13.50
IND3	20% chance of \$10 80% chance of \$30	100% chance of \$20	24% chance of \$10 8% chance of \$20 68% chance of \$30	8% chance of \$10 84% chance of \$20 8% chance of \$30

Table XIII: Consistency Questions

Question	Lottery A	Lottery B
CONS1	50% chance of \$3 50% chance of \$15	25% chance of \$5 75% chance of \$12
CONS2	50% chance of \$5 50% chance of \$10	30% chance of \$0 70% chance of \$15

Question	# of Violators	# Keep Inconsistent	# Unselect Axiom	# Change Lotteries	# Change Inconsistently
IIA1	18	3	0	15	0
IIA2	17	2	1	13	1
IIA3	17	4	0	13	0
IIA4	11	3	0	8	0
FOSD1	59	27	11	20	1
FOSD2	55	25	12	18	0
FOSD3	48	26	11	10	1
FOSD4	32	17	7	8	0
TRANS1	6	1	2	3	0
TRANS2	3	1	0	2	0
TRANS3	32	5	0	22	5
IND1	22	7	4	11	0
IND2	37	21	4	11	1
IND3	37	17	7	11	2
BRANCH1	22	9	0	12	1
CONS1	19	1	0	14	4
CONS2	33	6	0	27	0

Table XIV: Number of Violations and Revisions Per Question, Conditional on Selecting Axiom

D. Strict Cost of Deciding

As we described in Section III, we ran an additional treatment where subjects had to pay a strictly positive cost, \$1, to make decisions on their own rather than following a rule. Figure VI shows the difference in rule selection rates across treatments. For each of the axioms, individuals are more likely to select both the axiom and the control axiom in the \$1 cost treatment.

51% of inconsistencies are revised, which is significantly lower than the 63% in our main treatment (Fisher's Exact, $p < 0.001$). However, among choices reconciled to be consistent, it is still the case that individuals reconcile in favor of the axiom. 91% of reconciliations change lottery choices, which is significantly higher than the 79% in the main treatment (Fisher exact, $p < 0.001$). We find a similar story for the control axiom revisions. 39% of inconsistencies are revised, which is significantly lower than the 67% in the main treatment (Fisher exact, $p < 0.001$). Among the revised choices, 46% are revised in favor of the $c-$axiom, which is directionally but not significantly higher than the 36% in the main treatment (Fisher exact, $p = 0.243$).

Overall, we find the same qualitative results in both treatments: Individuals find the axioms to be normatively appealing and revise inconsistencies in favor of the axioms. The treatment differences do give some interesting insights into how subjects perceive these axioms. Individuals are more willing to follow rules when it saves

Question	# of Violators	# Keep Inconsistent	# Unselect Axiom	# Change Lotteries	# Change Inconsistently
c−IIA1	10	3	4	2	1
c−IIA2	12	4	5	2	1
c−IIA3	11	4	6	1	0
c−IIA4	9	5	3	1	0
c−FOSD1	5	1	0	4	0
c−FOSD2	4	2	1	1	0
c−FOSD3	2	1	1	0	0
c−FOSD4	5	2	1	2	0
c−TRANS1	11	3	5	3	0
c−TRANS2	11	2	6	0	3
c−IND1	11	5	3	1	2
c−IND2	8	1	3	4	0
c−IND3	10	5	2	2	1
c−BRANCH1	8	3	3	2	0
c−CONS1	4	0	1	1	2
c−CONS2	3	0	0	2	1

Table XV: Number of Violations and Revisions Per Question, Conditional on Selecting control axiom

Note: There were six total instances where a subject changed their lottery choices in such a way that they were still inconsistent with the c−axiom, but did not unselect the c−axiom. These are included in the last column.

Question	# of Violators	# Keep Inconsistent	# Unselect Axiom	# Change Lotteries	# Change Inconsistently
IIA1	14	3	0	11	0
IIA2	21	7	0	14	0
IIA3	18	6	0	12	0
IIA4	12	7	0	4	1
FOSD1	60	38	5	17	0
FOSD2	55	28	5	21	1
FOSD3	50	39	2	9	0
FOSD4	31	17	2	11	1
TRANS1	2	1	0	1	0
TRANS2	3	1	0	2	0
TRANS3	35	7	0	27	1
IND1	21	7	1	13	0
IND2	42	28	1	10	3
IND3	37	24	3	10	0
BRANCH1	17	6	1	10	0
CONS1	28	0	0	25	3
CONS2	22	10	0	12	0

Table XVI: Number of Violations and Revisions Per Question, Conditional on Selecting and Violating Axiom, in \$1 Cost to Decide Treatment

Note: There were three total instances where a subject changed their lottery choices in such a way that they were still inconsistent with the axiom, but did not unselect the axiom. These are included in the last column.

Question	# of Violators	# Keep Inconsistent	# Unselect Axiom	# Change Lotteries	# Change Inconsistently
c−IIA1	17	10	4	1	2
c−IIA2	16	12	3	1	0
c−IIA3	17	11	3	3	0
c−IIA4	10	7	3	0	0
c−FOSD1	6	2	1	3	0
c−FOSD2	8	4	2	2	0
c−FOSD3	12	8	2	2	0
c−FOSD4	15	8	4	3	0
c−TRANS1	23	12	4	0	7
c−TRANS2	24	14	5	0	5
c−IND1	29	21	1	4	3
c−IND2	17	11	1	3	2
c−IND3	17	10	3	4	0
c−BRANCH1	24	16	3	4	0
c−CONS1	14	5	0	3	6
c−CONS2	13	7	2	2	2

Table XVII: Number of Violations and Revisions Per Question, Conditional on Selecting and Violating control axiom, in $1 Cost to Decide Treatment
Note: There were fifteen total instances where a subject changed their lottery choices in such a way that they were still inconsistent with the axiom, but did not unselect the axiom. These are included in the last column.

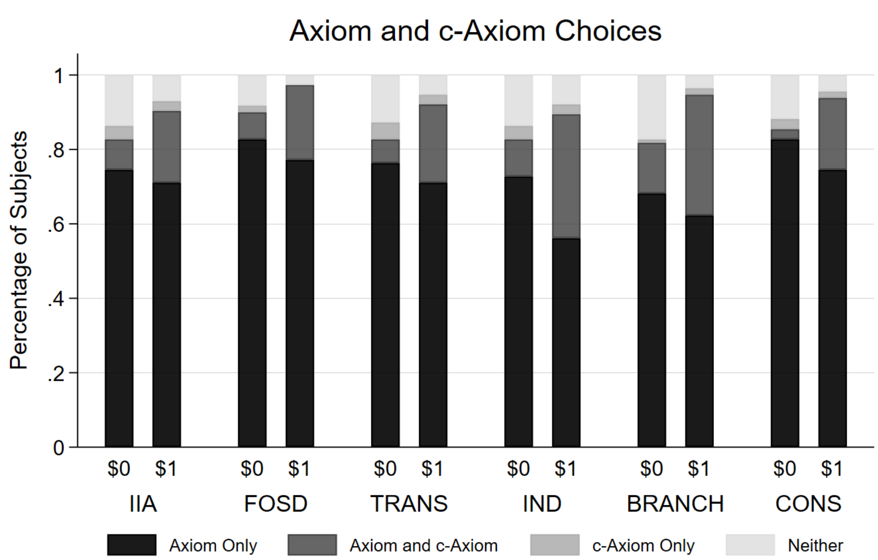


Figure VI: Axiom Selection Rates Across Treatments them \$1, which is intuitive. They are also less likely to revise inconsistent choices. This suggests that individuals in the \$0 cost treatment view selecting the axiom as indicating that it should be "always" true, while individuals in the \$1 cost treatment view it as something that should be "mostly" true.

In Tables XVI and XVII, we report the percentage of violations and direction of reconciliation for each question.

E. Axiom Ranking

To elicit willingness to reconcile inconsistent choices, we had subjects rank any of the six main axioms they selected against a \$1 outside option. For example, a subject who selected all six axioms would see seven boxes on their screen—one for each of the axioms, and one with an option that says "I would rather have \$1 than reconcile choices associated with any of the remaining rules." Subjects first select the axiom they would most want to reconcile should their choices violate it, or select the outside option if they would rather have \$1 than reconcile their choices. Then, subjects select the axiom they would next-most want to reconcile among the remaining axioms, and so on.

If the ranking were chosen for payment, we would randomly select two of the available axioms or the outside option and pay the subject according to the Block 4 reconciled choices from whichever axiom they ranked higher. For example, take a subject who ranks the axioms in the order FOSD ≻ IIA ≻ TRANS ≻ CONS ≻ Outside Option ≻ BRANCH ≻ IND. We would randomly select two options, say IIA and the Outside Option. The subject ranked IIA higher, so they would be paid based on their reconciled choices in the IIA question, as described below.[37] Regardless of their ranking, a subject still faces all of the reconciliation decisions in Block 4; the ranking only impacts which would be paid.

Technically, the reconciled choices for the last-ranked axiom would not be incentivized in this procedure. The reconciled choices of last-ranked axiom would never be implemented since we implement the reconciled choices of whichever axiom is ranked higher. To ensure incentive compatibility, there's an independent chance that

[37] If they had ranked the outside option higher, they would be paid for their original choices in the IIA question and would receive an extra \$1 bonus. If they did not violate IIA, they would be paid for their original choices and would receive a \$1 bonus, which ensures their ranking is not affected by their perceptions of which axioms they were more likely to have violated.

we would randomly select the reconciled choices to pay, as described below. This means that the reconciled choices are almost twice as likely to be paid as the original choices. Therefore, if anything, subjects should be more concerned with their reconciled choices than their original choices. This also helps encourage subjects to carefully consider the reconciliation opportunity.

The main purpose of the ranking is to see whether subjects strictly prefer to re-evaluate their choices. This gives us only a coarse measure—whether individuals are willing to give up at least $1. We felt this would be easier for subjects to understand than trying to elicit a finer willingness-to-pay for each axiom. We also use the reported rankings to look for any consistent patterns within rankings.[38] This gives us a finer measure of subjects' perceptions of the rules compared to the binary ranking in Block 1.[39]

We find that 48% of subjects rank IND before the $1 outside option, and this is similar at 48% for TRANS, 47% for IIA, 45% for CONS, 44% for FOSD, and 43% for BRANCH. On an individual level, 46% of subjects are willing to give up $1 to re-evaluate choices corresponding to at least one axiom.

Looking at the average ranking of each axiom, again we find very few differences. Figure VII presents the average ranking for each of the alternatives. Transitivity is ranked lowest (most preferred), while BRANCH is the least preferred, on average. There are some minor differences across axioms, but overall it seems that subjects do not have any systematic preferences among the axioms they wish the follow.

[38]With this procedure, we cannot rule out that subjects are indifferent among the axioms or to the outside option. We look for systematic patterns in the rankings, but acknowledge this as a shortcoming of our ranking procedure. We also cannot rule out that rankings are driven by subjects' beliefs about the expected value differences of the associated lotteries.

[39]Eliciting a ranking over axioms is also similar to the work of MacCrimmon and Larsson (1979).

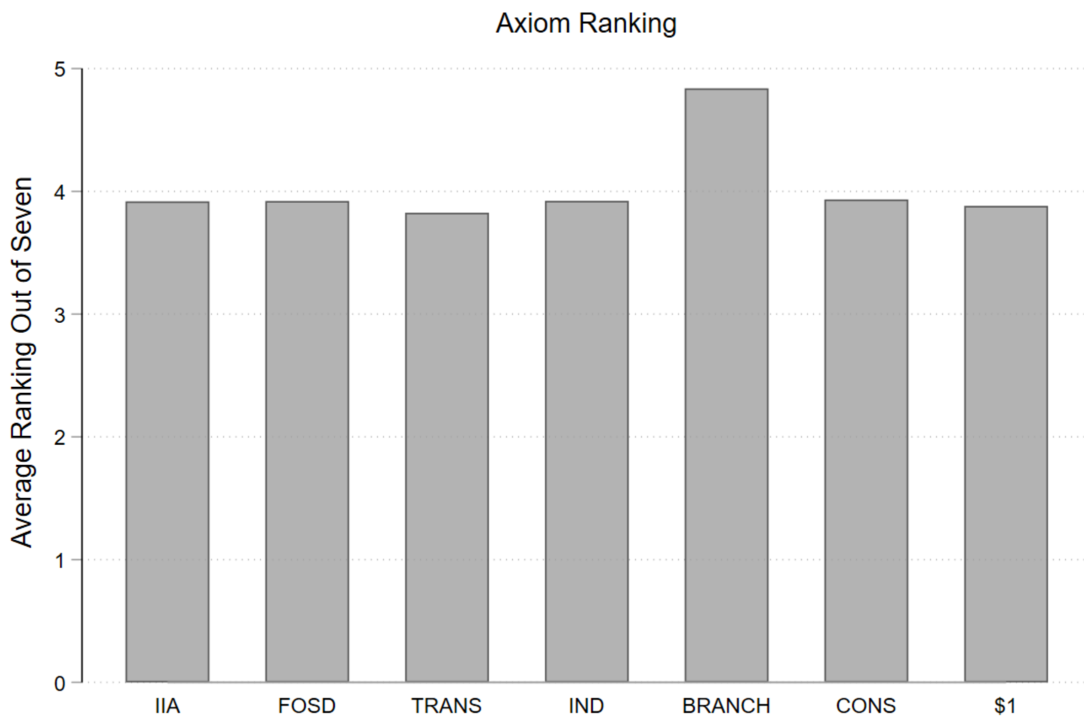


Figure VII: Average Ranking of Each Axiom
Notes: Lower ranking corresponds to the rule being more preferred.

F. SUPPLEMENTAL APPENDIX

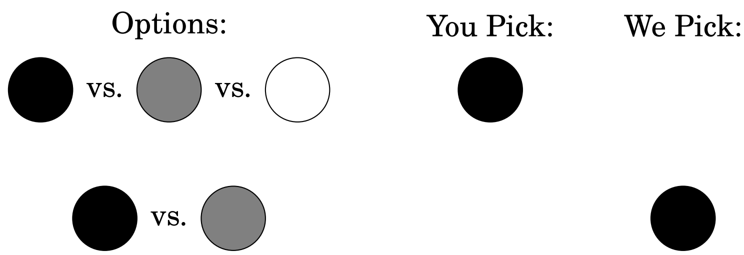


Figure VIII: IIA Rule

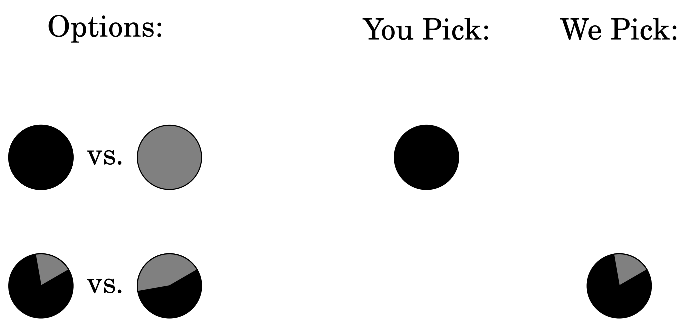


Figure IX: First Order Stochastic Dominance Rule

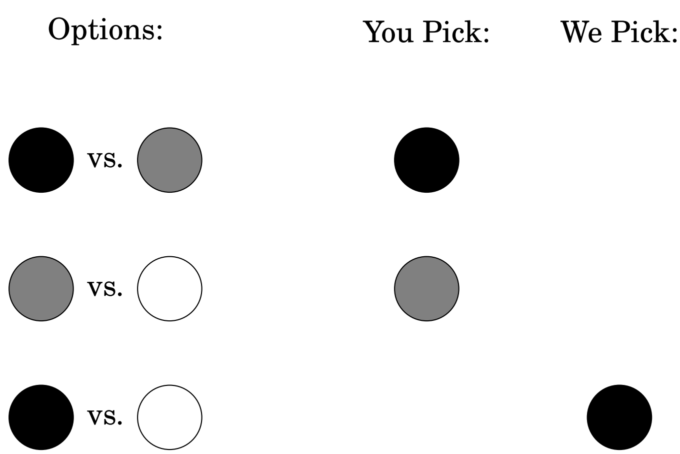


Figure X: Transitivity Rule

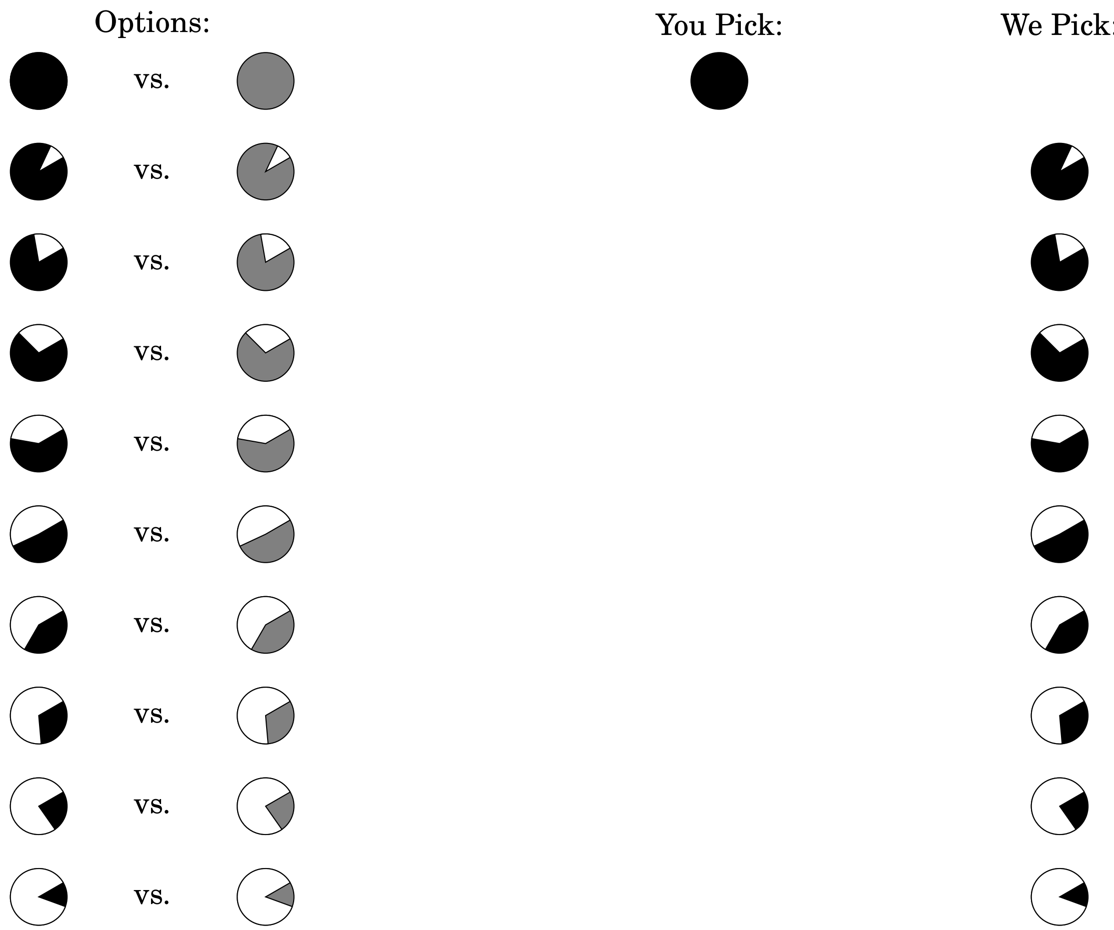


Figure XI: Independence Rule

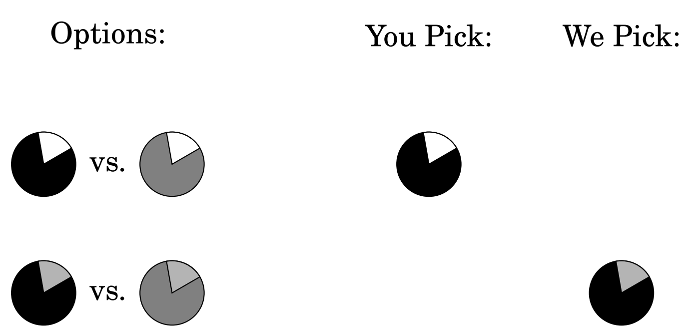


Figure XII: Branch Independence Rule

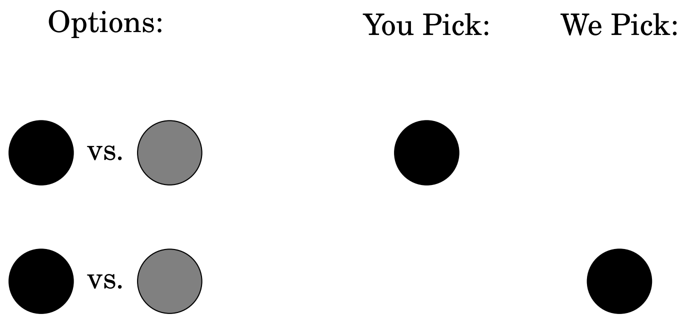


Figure XIII: Consistency Rule

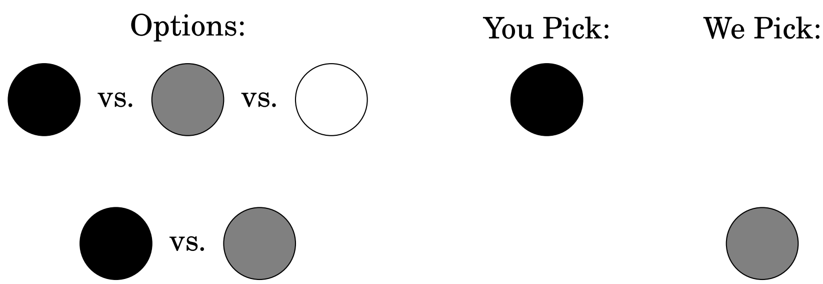


Figure XIV: $c-$IIA Rule

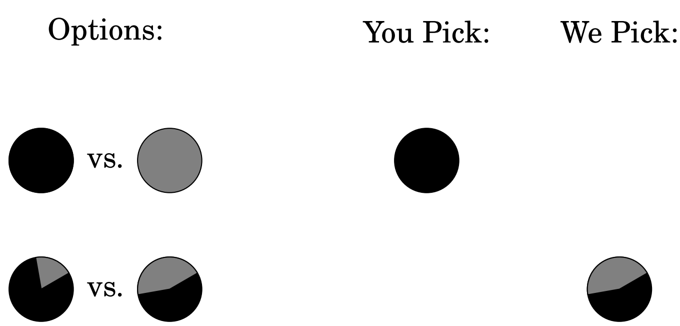


Figure XV: $c-$First Order Stochastic Dominance Rule

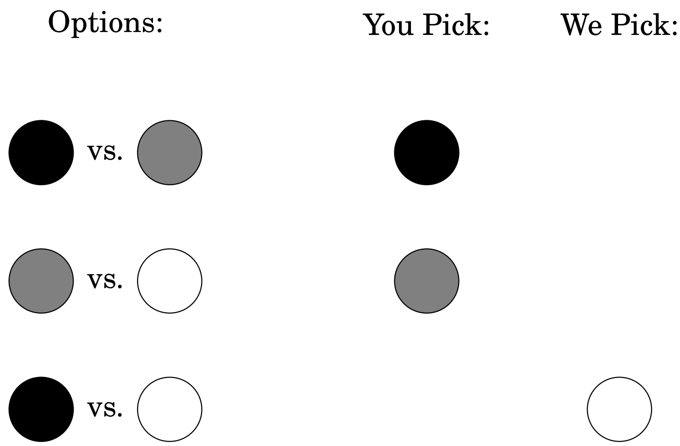


Figure XVI: $c-$Transitivity Rule

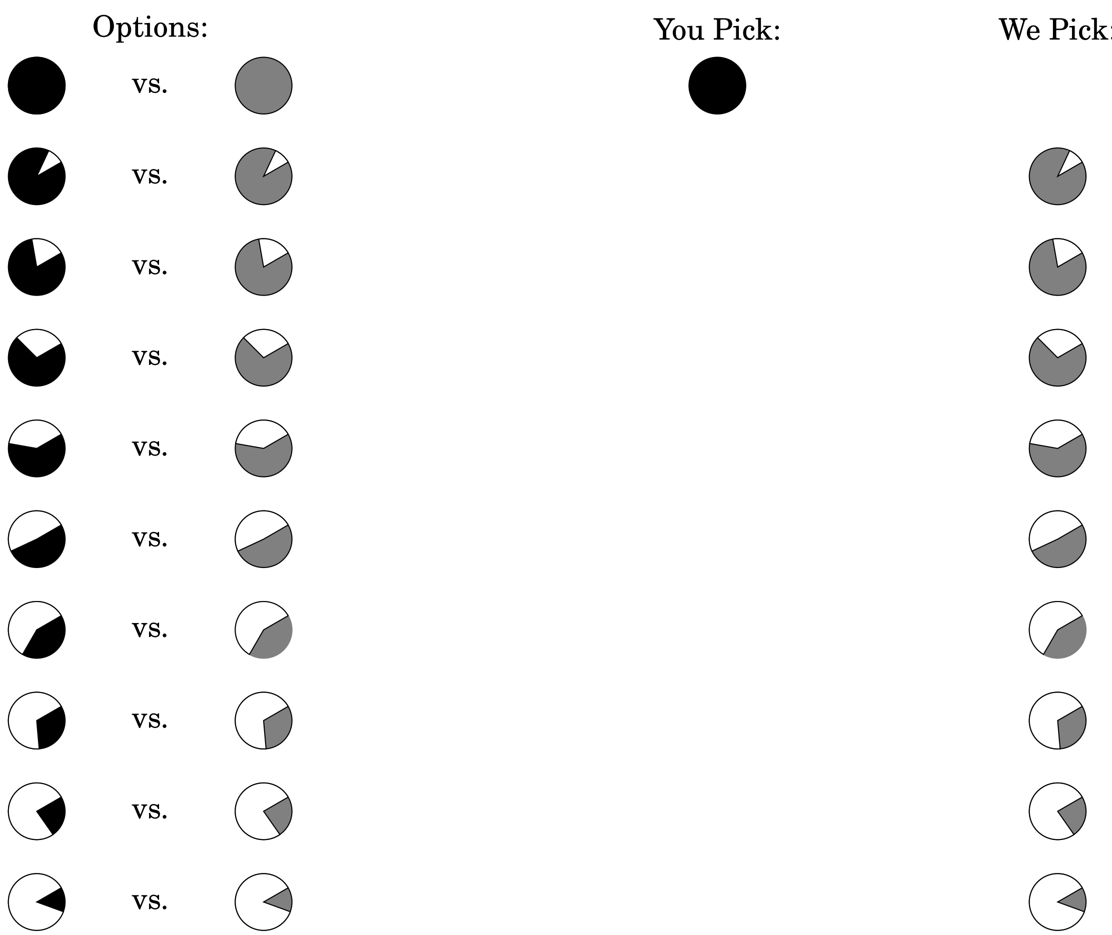


Figure XVII: $c-$Independence Rule

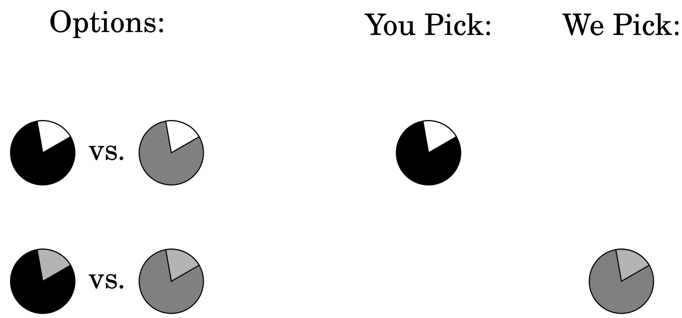


Figure XVIII: $c-$Branch Independence Rule

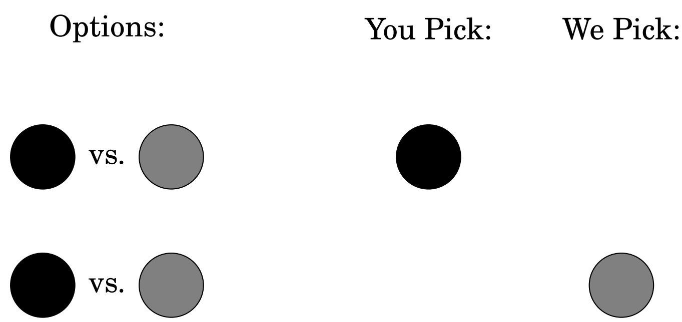


Figure XIX: $c-$Consistency Rule

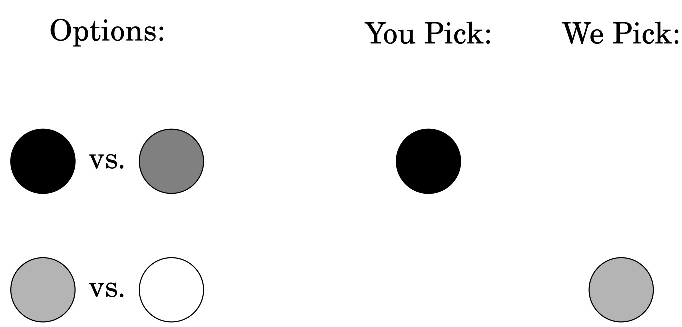


Figure XX: Distractor Rule #1

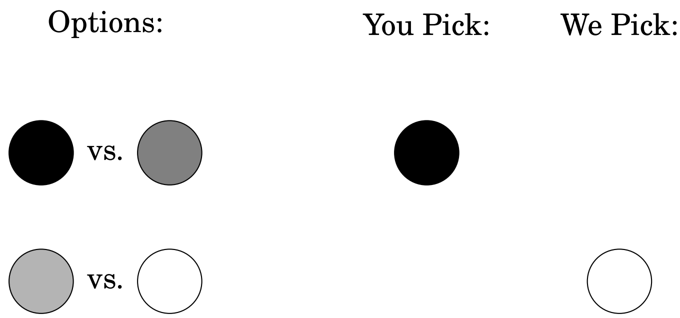


Figure XXI: Distractor Rule #2

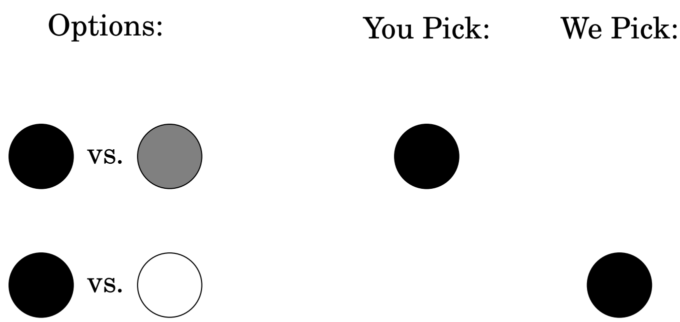


Figure XXII: Distractor Rule #3

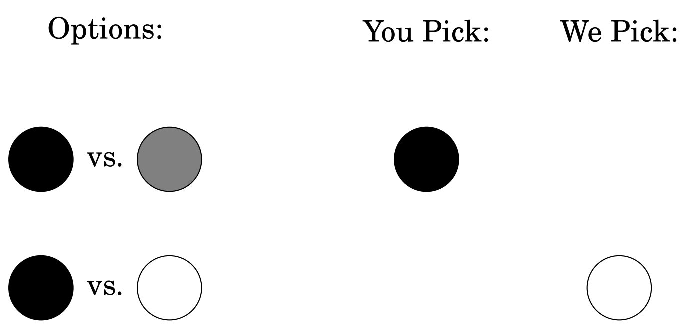


Figure XXIII: Distractor Rule #4

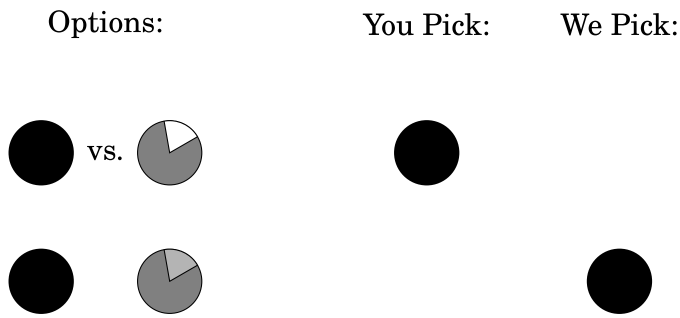


Figure XXIV: Distractor Rule #5

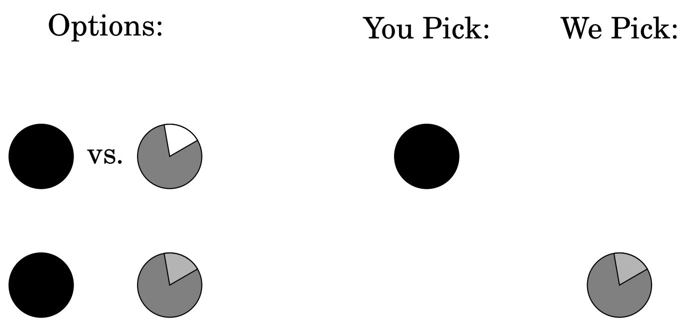


Figure XXV: Distractor Rule #6

INSTRUCTIONS

This is an experiment in the economics of decision making. Stanford University and the Ohio State University have provided the funds for this research. Feel free to ask questions while we go over the instructions. Please do not speak with any other participants during the experiment and please put away your cell phones and anything that you might have brought with you.

This experiment has three different parts, and each part has many decisions. These instructions are for the first part. You will be paid based on your choice in exactly ONE randomly selected decision from the entire experiment. Each of your decisions is equally likely to be paid. In addition, you will receive $7 for completing the experiment.

For each part, we will explain how you would be paid from a decision in that part. The decision chosen to determine your payment will be shown at the end of the experiment, and we will roll dice at the front of the room to determine which decision it will be.

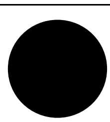
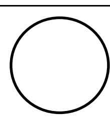
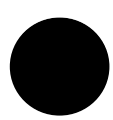
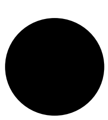
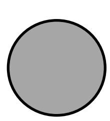
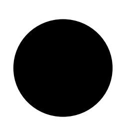
RULES

In this part of the experiment, you will be presented with various decision "rules." These rules are abstract ways to represent choices, and we are interested in how people perceive them. Your task is to evaluate various rules and decide whether you would want to implement choices using the rule or make choices yourself. If you select your preferred rules carefully, will implement your preferred choices from the rules and you won't have to make these choices on your own.

The rules will use colors to represent **positive money payments.** These payments could be "lotteries" or sure payments, which we'll describe below. The possible payments range from $0 to $30. You will choose whether you want the rule to make decisions for you or whether you want to make the choices yourself. Remember, when you evaluate these rules, you should only be considering money payments, and only positive amounts (meaning you can't lose money).

A "rule" is like an algorithm that observes your initial choices and then figures out what to pick later based on those initial choices. You can choose to use various rules to make your choices, or you can choose to make each later choice on your own.

For example, here's one possible rule:

Options:	You Choose:	We Choose:
 vs. 		
 vs. 		

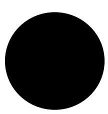
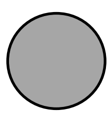
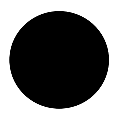
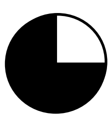
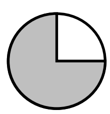
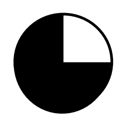
This rule establishes that, when given the choice between “black” and “white,” you chose “black.” Then, the rule says that if you were given the choice between “black” and “grey,” we would choose black for you.

The colors don’t have any inherent meaning (e.g. grey is not “in between” black and white). They can represent any possible money amount or lottery. As a result, you probably wouldn’t want to select this rule. If you like black over white, whatever they may be, this doesn’t necessarily mean you’d like black over grey, since grey can represent any possible payment. Grey might be $30 and black might be $5!

You want to select rules that would be always best for you, regardless of what the colors stand for. It’s worthwhile to make the choice on your own if the rule would not always be best for you, like in the example above. This way, if “grey” were $30, you could choose grey over black. If instead grey were $0, you’d be able to choose black.

MIXTURES

Some of the rules will involve “mixtures.” Here’s an example.

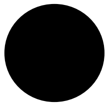
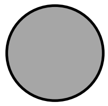
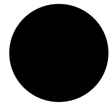
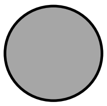
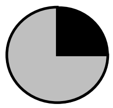
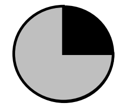
Options:	You Choose:	We Choose:
 vs. 		
 vs. 		

This rule says that if you prefer black over grey, then you would prefer a mix of black and white to the same mix of grey and white.

You can think of the mixtures like a spinner wheel. If the spinner wheel lands in the “white” region, you’d receive white. If it lands in the black (or grey) region, you’d receive black (or grey). Essentially, this rule would say that if you like black over grey, then you’d also like black-mixed-with-white over grey-mixed-with-white, regardless of what black, white, and grey are.

For example, imagine black and grey are both lotteries (remember, they can be any lottery), and imagine white is $10. If the spinner lands in the white region (which happens with probability ¼), you would receive $10. If it lands in the black or grey region (which happens with probability ¾), you would receive the original black or grey lottery.

Here's another example:

Options:	You Choose:	We Choose:
 vs. 		
 vs. 		

Many people would find this to be a desirable rule. If you like black more than grey, you might prefer the mix of black-and-grey to grey. Because there's a chance you can get black, which you prefer to grey.

TYPES OF QUESTIONS

In the experiment, the colored circles will represent various lotteries. These lotteries can have any payments from $0 to $30, and can have any probabilities. For example, maybe one lottery is a 100% chance of $20. Another lottery might be a 40% chance of $5, 30% chance of $11, and 30% chance of $16.

You won't know what the exact lotteries are while you're making your decisions about the rules, but the lotteries are sufficiently varied. Some might be very risky, some are safe, some involve low payments, some high, etc.

Therefore, when choosing your rules, you'll want to select only rules which are always best for you. By selecting rules which are always best for you, you'll get the option which is best for you without having to make the decision on your own. By not selecting rules which aren't always best for you, you'll ensure that you have the opportunity to pick your most preferred option in the cases where the rule wouldn't be good for you.

PAYMENT

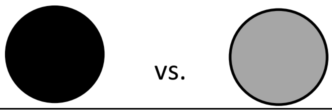
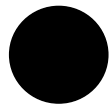
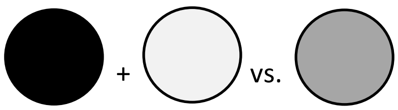
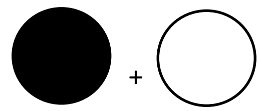
Along with all decisions you make in this experiment, each of your rule decisions is equally likely to be paid, and we will roll dice at the end of the experiment to determine which decision will be paid. If one of the rules is the randomly selected question to determine your payment, here's how we would pay you.

Each rule corresponds to some specific lottery questions. If you selected to make the choice on your own, you will be shown the lottery question(s) and you will make the choice on your own.

If you selected to implement your choices using the rule, we will make the choice for you based on what the rule says.

You will be paid based on the lottery chosen, either by you or by the rule.

For example, imagine you are being paid based on the following rule:

Options:	You Choose:	We Choose:
		
		

There would be two lotteries corresponding to “black” and “grey.” Remember, these lotteries could be anything, but let’s say the two lotteries were

1. 100% chance of $12
2. 75% chance of $20, 25% chance of $10

Let’s say you prefer option 2 (75% chance of $20, 25% chance of $10), so think of this as “black” and the other (100% chance of $12) as “grey.” In this case, you preferred black over grey, as the rule assumes. Then, the rule says we will pay you “black & white” instead of “grey.” The white lottery also could be anything, say it’s 100% chance of $5. Then we would pay you “black & white,” or 75% chance of $20, 25% chance of $10, as well as 100% chance of $5, instead of “grey,” which would have been 100% chance of $12.

If you hadn’t selected this rule, you would make the choice of black + white vs. grey on your own.

HOW TO ANSWER

There are no “right” or “wrong” answers in these questions. We are interested in people’s preferences over these rules, so we simply want to know which rules you like and which you don’t.

Since we want to know people’s true preferences, the payment is set up such that you’ll be paid your “favorite” thing if you answer truthfully. Therefore, you have no incentive to answer differently from what you really think. If you think the rule should describe your choices, you should select it (and then you’ll save the cost of making the decision on your own). If you think there are situations where the rule would not give you your favorite option, you should not select it.

LOTTERIES

In this part of experiment, you will be making choices between "lotteries." A lottery specifies the chance of receiving certain payoffs. In this experiment, the possible payoffs will range from $0 to $30. The chance of each payoff can be anything from 0% to 100%.

For example, one lottery could give you an 80% chance of $18, 10% chance of $7, and a 10% chance of $4. Another lottery might give a 100% chance of $13. There are many different possible lotteries.

In each decision, you will see two or three lotteries on your screen. Your screen will display the written values for the payoffs and probabilities in a table.

This is an example of what that could look like:

Option A:	Option B:
40% chance of $5 30% chance of $7 30% chance of $19	50% chance of $3 50% chance of $25

To visualize these lotteries, imagine rolling two 10-sided dice to generate a number from 1 to 100. In Option A, the first 40 numbers pay $5, the next 30 numbers pay $7, and the last 30 numbers pay $19. In Option B the first half of the numbers pay $3 and the other half pay $25. If this is the question to determine your payment, we would roll the dice and pay you according to which number is rolled.

Your task is simply to choose the lottery you prefer. The computer will record your choice and then will bring you to the next decision.

PAYMENT

You will be making 33 decisions. Each decision will be presented on a different screen. Along with all decisions you make in this experiment, each of your lottery decisions is equally likely to be paid, and we will roll dice at the end of the experiment to determine which decision will be paid.

For example, in the randomly selected problem, imagine you chose the lottery which gives

30% chance of $0

50% chance of $11.50

20% chance of $17

If we roll a number 1—30, you'd receive $0. There are 30 out of 100 possible numbers between 1 and 30, so this corresponds to a 30% chance of $0.

If we roll a number 31—80, you'd receive $11.50. There are 50 out of 100 possible numbers between 31 and 80, so this corresponds to a 50% chance of $11.50.

If we roll a number 81—100, you'd receive $17. There are 20 out of 100 possible numbers between 81 and 100, so this corresponds to a 20% chance of $17.

HOW TO ANSWER

Simply choose the lottery you prefer! In any given decision, if it's the decision to determine your payment, we will give you the lottery you selected. So you should select the lottery that you'd rather have determine your payment.

There are no "right" or "wrong" answers in these questions. We are interested in people's preferences over these lotteries, so we simply want to know which lotteries you prefer.

These lotteries are not the same questions as the lotteries which would determine your payment from your "rule" decisions.

RULES AND CHOICES

In the first part of the experiment, you indicated which "rules" you liked and which ones you did not like. In the second part of the experiment, you made choices over lotteries. It's possible that you selected a rule in Part 1 which could have been applied to make one of your choices in Part 2.

In this final part of the experiment, you will have the opportunity to reevaluate your choices. We will show you if you ever selected a rule and then made lottery choices which were not what the rule would have chosen for you. This way, you can analyze the rule and the choices together. You might decide that you want to change your lottery choices to align with what the rule would have chosen for you. Or you might decide that the rule isn't always true of your choices, so you can "un-select" it. Or, you can leave your choices as they were.

Here's how that will work.

RANKING OF THE RULES

First, for some of the rules you selected in Part 1, we will ask you to "rank" them in order of how much you would like to revise your choices if they conflict with the rule. An example is shown on the board. Essentially, we are asking you to rank the rules according to how important you think they are. The rule you think is most important would be ranked first, the next most important would be ranked second, etc.

At the bottom of the screen, there is also an option which says "I would rather have $1 than revise my choices for any of the remaining rules." This is an alternative which can enter into your ranking, too.

For example, let's say you selected six rules. In order of importance, you rank them

Rule 4, Rule 1, Rule 2, Rule 3, Rule 6, Rule 5.

Now suppose that you'd be willing to pay at least $1 to revise choices that conflict with rules 4, 1, 2, and 3, but you'd rather have an extra $1 than revise choices that conflict with rules 6 and 5.

Then, you would report a ranking of

Rule 4, Rule 1, Rule 2, Rule 3, $1, Rule 6, Rule 5.

If this ranking question is randomly chosen for payment at the end of the experiment, we will randomly select two of the things you ranked. We would pay you according to whichever you ranked *higher*. If that is one of the rules, we would pay you for your revised choices in that rule (more on this below). If that is the $1, you would receive a $1 bonus and would be paid for your original choices.

Your decision will be implemented only IF your choices are not in agreement with the rule. If your choices *are* in agreement with the rule, we will just implement your original decisions and you still get a $1 bonus. This means that you don't need to worry about whether you think your choices were in agreement with the rule or not. If they were, your decision in these questions won't matter (since we'll just implement your original choices). So you should report your ranking as if your choices conflict with the rules.

REVISING YOUR CHOICES

Regardless of your ranking, we will show you your rule/lottery decisions and you can choose to revise them or not. These decisions actually could be paid if you are paid for your revised choices, as described above.

To give you the opportunity to revise your choices, we will show you the rule on your screen and we'll show you your choices which are inconsistent with that rule. An example is shown on the board.

The choices you made in Parts 1 and 2 will be shown in red. Below that, you'll see an explanation of why the rule would have selected something different than what you chose. To change your choice of the rule, just click the box containing the rule. It will change from red to grey and vice versa. To change your lottery decisions, just click the box of the option you prefer instead. It will turn red, also. You can change any of your choices as many or as few times as you wish. Your final choices will be those in red.

You can revise your choices in any way you wish. For example, your choices being inconsistent with the rule might indicate that you don't like the rule after all and it is not a rule which is always best for you. In that case, you could choose to "un-select" the rule. On the other hand, you might decide that the rule does give you things which are always best for you, and therefore you want to change your choices to align with the rule. Finally, you might decide that you like the rule but also like your choices, even though they're inconsistent. In this case, you can leave all your choices as they are.

In other words, you can change any of your choices or keep them the same. You are under no obligation to make your choices agree with the rules, or vice versa.

PAYMENT

If one of your revised choices is selected for payment, we would pay you in the same way that we described in Parts 1 and 2. That is, if a revised rule were selected for payment, we would pay you just like how we described for the rules in Part 1. If you selected the rule *in your revised choices*, we would use the rule to make decisions for you. If you did not select the rule, you would make the decision for yourself.

If a revised lottery decision were selected for payment, we would pay you the lottery you selected *in your revised choices*. We would roll dice to generate a number between 1—100 to determine which payoff you receive.

HOW TO ANSWER

There are no "right" or "wrong" answers in these questions. We are interested in people's preferences over these rules and choices, so we want to know which options you prefer.

Since we want to know people's true preferences, the payment is set up such that you'll be paid your "favorite" thing if you answer truthfully. Therefore, you have no incentive to answer different from what you really think. If you think the rule should describe your choices, you should select it. If you think there are situations where it should not describe your choices, you should not. If you like one lottery over the other, you should choose that.

Your revised rule selections or your revised lottery choices could be selected to determine your final payment. If this is the case, we will pay you based on your revised rule or lottery choice, as described in Parts 1 and 2. Therefore, since your revised choices might be selected to determine your payment, you should choose the options you most prefer.

You are also under no obligation to make your lottery choices and rules agree. And, if you do want to change your decisions, you can change either the rule or the lottery choices depending on your preferences.