ONLINE-APPENDIX
NOT FOR PUBLICATION

Appendix A. Additional Correlates of Responsiveness to Information

The last stage of our experiment was a questionnaire to elicit a range of demographic and psychological measures from our subjects. Here, we extend the analysis of section 4.3 to include these psychological measures. We administered the substantive questions of the life-orientation-test-revised (Scheier et al. (1994)) as a measure of optimism, and we elicited agreement[41] to a number of statements intended to capture superstition,[42] spirituality,[43] and political orientation.[44] We interspersed these latter questions with the LOT-R questions and with each other. We added some of these questions only after having run the first two sessions of the experiment. The variables optimism, superstition and religiosity are elicited using several statements each. We use the first principal component as a single index for each of these variables. As in section 4.3, we use both OLS and median regressions.

Table A.8 reports the results. The inclusion of psychological variables does not alter our conclusions regarding the effect of cognitive style and proxies for mathematical aptitude. Psychological variables are largely insignificant. An exception is the finding that more optimistic subjects deviate from the Bayesian benchmark to a slightly (1 - 2 percentage points) lesser extent. Moreover, while more religious subjects appear to deviate from the Bayesian benchmark to a larger extent when we consider the OLS estimates, this effect disappears in the median regression, and hence appears to be driven by outliers.

[41] The possible responses were "I agree a lot", "I agree a little", "I disagree a little", and "I disagree a lot".

[42] We opted not to use the standard superstition questionnaires such as Tobacyk and Milford (1983) because the statements in these tests seemed too blunt given our subject pool. Instead we elicited the level of agreement with the following three statements: "I own an object that I feel brings me good luck during exams", "I am uncomfortable if I am assigned seat number 13 in a theatre", and "I refrain from taking risks when I feel I am having an unlucky day".

[43] We elicited the level of agreement to the statements "Today, I am less spiritual than I was 10 years ago", "My religious beliefs are roughly the same as they were when I was 12 years old", and "Over the past ten years, I have become more spiritual".

[44] The questions were "In political elections, I vote (if you cannot vote in the US, please answer who you would vote for if you could)" with answers "always republican", "usually republican", "about equally often republican as democrat", "usually democrat", and "always democrat".

Demographic variables have greater explanatory power. While males are not, on average, more or less responsive than females, they tend to be closer to the Bayesian benchmark by a substantial amount (4 to 10 percentage points). Additionally, Caucasians and Asians are more responsive to information and deviate from the Bayesian benchmark to a lesser extent than the excluded category *other*, whereas these effects are reversed for African-Americans.

Appendix B. Robustness Checks

Appendix B.1. Truncation in the aggregate analysis

The compression effect might be a statistical artifact: First, it is impossible to enter valuations that exceed one, and second, even for subjects who do not know how to value a particular information structure, it might be obvious that stating valuations short of 0.5 is suboptimal. Consequently, large upward errors are possible for less informative information structures, but not for more informative ones, and the opposite holds for large downward errors.

We show that the compression effect is not a statistical artifact, as follows. If for information structure I, the maximal upwards deviation from the theoretical valuation is M, then we set all valuations with $v_{I,i} < v_I^{Bayes} - M$ equal to $v_I^{Bayes} - M$. Similarly, if the maximal downwards deviation from the theoretical valuation is m, then we set all valuations with $v_{I,i} > v_I^{Bayes} + m$ equal to $v_I^{Bayes} + m$. We perform the analysis of section 3 on this data. If the compression effect is purely a statistical artifact, then the coefficient on v_I^{Bayes} will be equal to 1 in this procedure. On the other hand, if the true coefficient on v_I^{Bayes} is less than 1, then this procedure will bias that coefficient estimate upwards, and bias the other coefficients in ways that are difficult to sign.

Table B.9 displays the results. We find that the compression effect is reduced, but remains substantial and highly statistically significant, and hence is not a statistical artifact.

VARIABLES	(1) $\hat{\alpha}_i$	(2) $\hat{\alpha}_i$	(3) $\lvert\hat{\alpha}_i - 1\rvert$	(4) $\lvert\hat{\alpha}_i - 1\rvert$
Knows Bayes' law	0.0857	0.0257	-0.00442	-0.0134
	(0.0935)	(0.0732)	(0.0765)	(0.0365)
Male	0.0124	-0.00219	-0.0414	-0.0922***
	(0.0793)	(0.0634)	(0.0649)	(0.0320)
Science or engineering major	0.0107	0.0152	-0.0131	0.0106
	(0.0874)	(0.0714)	(0.0715)	(0.0342)
Business or economics major	-0.0323	-0.00808	0.0487	0.0366
	(0.161)	(0.123)	(0.132)	(0.0651)
African-American	-0.143	-0.273*	0.0303	0.163**
	(0.186)	(0.149)	(0.152)	(0.0749)
Asian	0.0867	0.187*	-0.132	-0.118***
	(0.115)	(0.0950)	(0.0944)	(0.0448)
Caucasian	0.255**	0.243***	-0.184**	-0.100**
	(0.104)	(0.0854)	(0.0855)	(0.0432)
CRT	0.0397	0.0395	-0.0236	0.000602
	(0.0446)	(0.0358)	(0.0365)	(0.0182)
LOTR	0.0134	0.0235	-0.0145	-0.0178**
	(0.0234)	(0.0189)	(0.0191)	(0.00880)
Superstition	0.00863	-0.0289	0.000100	0.000535
	(0.0352)	(0.0266)	(0.0288)	(0.0137)
Religiosity	-0.0134	0.0101	0.0592**	0.00998
	(0.0356)	(0.0273)	(0.0291)	(0.0142)
Constant	0.506***	0.641***	0.470***	0.288***
	(0.172)	(0.130)	(0.141)	(0.0667)
Method	OLS	MR	OLS	MR
Observations	120	120	120	120
R-squared	0.171	-	0.199	-

*** p<0.01, ** p<0.05, * p<0.1

Table A.8: Responsiveness to information, demographic and psychological variables. The excluded category for major is *humanities and social sciences*. The excluded category for race is *other*. Columns 1 and 3 display OLS estimates. Columns 2 and 4 display estimates from median regressions. All models include session and order fixed effects.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Info Structures	[S,A,B]	[S,A,B]	[S]	[S,A]	[S,B]	[S,B]	[S,A]
Dependent Var	$v_{I,i}$	$v_{I,i}$	$v_{I,i}$	$v_{I,i}$	$v_{I,i}$	$v_{I,i}$	$v_{I,i}$
v_I^{Bayes}	0.866***	0.945**	0.867***	0.880***	0.919***	0.876***	0.884***
	(0.026)	(0.025)	(0.025)	(0.027)	(0.024)	(0.026)	(0.027)
Asymmetry	-0.065***						-0.093***
	(0.024)						(0.028)
Boundary	0.041***					0.018***	
	(0.007)					(0.005)	
Constant	0.072***	0.013	0.075***	0.057**	0.042*	0.068***	0.060**
	(0.023)	(0.024)	(0.023)	(0.024)	(0.023)	(0.023)	(0.024)
Observations	1429	1429	571	1000	1000	1000	1000
R-squared	0.444	0.436	0.503	0.350	0.549	0.552	0.355

*** p<0.01, ** p<0.05, * p<0.1

Table B.9: Results of section 3 correcting for truncation. Standard errors clustered by subjects. Reported significance levels for v_I^{Bayes} concern the hypothesis that this coefficient is 1.

Appendix B.2. Effect of different urn sizes

One of the urns in our experiment contains half as many balls as the other. This design choice prevents simple non-Bayesian heuristics from coinciding with Bayesian behavior. The difference in the size of the urns, however, might by itself cause artifacts.[45] To address this concern, we regress the valuations $v_{I,i}$ on the properties of the information structure, with the inclusion of a control variable *small urn* that encodes whether the more informative signal realization is associated with the smaller or with the larger box. This variable equals 1, -1, and 0 for information structures below, above, and on the diagonal in Figure 1 (B), respectively.[46]

Column 2 of Table B.10 displays the result (Column 1 replicates the regression without the inclusion of the control variable). The coefficient on the variable *small urn* is very small and not significantly different from zero. The only notable effect

[45] We thank an anonymous referee for this suggestion.

[46] Consequently, the information structures labelled 6 and 3 in Figure 1 (B) are assigned value 1, and the information structures labelled 5, 7, 8, 9 in that figure are assigned value -1.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	$v_{I,i}$		$\Delta v_{I,i}$		$\Delta P_{I,i}(s=1\|\sigma=1)$		$\Delta P_{I,i}(s=0\|\sigma=0)$	
Informativeness	0.603***	0.622***	-0.396***	-0.374***	-0.299***	-0.271***	-0.441***	-0.435***
	(0.043)	(0.043)	(0.043)	(0.043)	(0.032)	(0.035)	(0.033)	(0.036)
Asymmetry	-0.024	-0.001	-0.026	-0.001	0.103***	0.136***	-0.198***	-0.191***
	(0.026)	(0.032)	(0.026)	(0.032)	(0.024)	(0.028)	(0.027)	(0.027)
Boundary	0.034***	0.033***	0.034***	0.032***	0.049***	0.048***	0.076***	0.076***
	(0.010)	(0.010)	(0.010)	(0.010)	(0.008)	(0.008)	(0.011)	(0.011)
Small Urn		-0.007		-0.008*		-0.010***		-0.002
		(0.005)		(0.005)		(0.004)		(0.004)
Constant	0.260***	0.240***	0.259***	0.238***	0.199***	0.171***	0.328***	0.322***
	(0.033)	(0.033)	(0.033)	(0.033)	(0.026)	(0.030)	(0.027)	(0.030)
Observations	1,429	1,429	1,412	1,412	1,412	1,412	1,412	1,412
R-squared	0.177	0.178	0.052	0.053	0.068	0.069	0.080	0.080

Table B.10: Robustness to differing urn sizes. *Small Urn* is a dummy variable that equals 1, -1, and 0 for information structures below, above, and on the diagonal in Figure 1 (B), respectively. Standard errors clustered by subject. *** p<0.01, ** p<0.05, * p<0.1

of including this variable is to further attenuate the coefficient on asymmetry which was insignificant anyway. The remaining coefficients are not substantially affected.

Additionally, we can perform a similar exercise using the deviation from the Bayesian valuation, and the deviation in Bayesian posteriors as dependent variables. Columns 3 - 8 display the results. There is no statistically significant effect of *small urn*, except on the extent to which $P_{I,i}(s = 1|\sigma = 1)$ deviates from the Bayesian benchmark. Even that effect is very small, and does not substantially alter the estimated coefficients associated with the other right-hand-side variables.

We conclude that the difference in urn sizes does not substantially affect our results.

Appendix B.3. Other factors that could cause within-subject consistency

To address the potential confounds emanating from misunderstandings of the multiple price lists, we use deviations in the probability assessment task, as well as

the realization of ball draws a subject has observed in stage 1 of the experiment to predict the deviations in the belief updating task that can be explained by these factors. Formally, we estimate the following model

$$\Delta x_{I,i} = \beta^x_{0,I} + \sum_{I'=1}^{10} \left[\beta^x_{I',I} \Delta P^1_{i,I'}(\sigma = 1) + \gamma^x_{I',I} \Delta P^0_{i,I'}(\sigma = 1) \right] + \sum_{k=1}^{6} c^k_i + \epsilon^x_{I,i} \quad \text{(B.1)}$$

where $\Delta P^{\sigma'}_{i,I'}(\sigma = 1) = P^{\sigma'}_{i,I'}(\sigma = 1) - P_{I'}(\sigma = 1)$. Here, $P^1_{i,I'}(\sigma = 1)$ is subject i's elicited probability of receiving signal $\sigma = 1$ if she was directly asked about that signal, and $P^0_{i,I'}(\sigma = 1)$ is the implied subjective probability of receiving signal $\sigma = 1$ if she was asked about signal $\sigma = 0$.[47] Moreover, c^k_i is the color of the ball that subject i saw in round k of part 1, the $\epsilon^x_{I,i}$ are assumed to be i.i.d. with mean zero and $x \in \{P(s = 1|\sigma = 1), P(s = 0|\sigma = 0)\}$ are elicited posterior beliefs. We include session and order fixed-effects.

This model is the most general model with the properties that (i) the functional form relating behavior in the Probability Assessment Task to behavior in a given other part of the experiment is the same for all subjects (although its parameters may vary across subjects) and (ii) this function is linear. In particular, it allows for each $\Delta x_{I,i}$ to depend differentially on all of the $\Delta P_{i,I'}(\sigma)$, for $I, I' \in \{1, \ldots, 10\}$ and $\sigma \in \{0, 1\}$. Thus it accommodates explanations such as people placing a constant premium (heterogenous across individuals) on the exogenous lottery relative to the evaluation option or ideas such as some people being more prone to avoid extreme lines in the multiple choice lists.

To assess consistency across parts of the experiment, we obtain the residuals and predicted values from regression (B.1). Because we will use these variables on the right hand side, we average across information structures to alleviate attenuation

[47] We randomly elicited either the probabilities of white or black balls. Hence either $\Delta P_{i,I'}(\sigma = 1) = 0$ or $\Delta P_{i,I'}(\sigma = 0) = 0$ for each observation (i, I). We allow the parameters in the first stage regression to differ depending on whether we elicited the probability of a black ball or the probability of a white ball to allow for the greatest generality.

bias. Moreover, for the sake of interpretability, we normalize all variables by their standard deviation. We denote the resulting variables by $\hat{\epsilon}_i^x$ and $\hat{x}_i$, respectively, for $x \in \{P(s=1|\sigma=1), P(s=0|\sigma=0)\}$.[48]

We then regress the deviation from the Bayesian valuation in the information valuation task (normalized by its standard deviation) jointly on the predicted deviation and the residual in the belief updating stage. Specifically, we estimate

$$\Delta x_{I,i} = \gamma_0 + \gamma_1 \hat{\epsilon}_{I,i}^{P(s=1|\sigma=1)} + \gamma_2 \hat{\epsilon}_{I,i}^{P(s=0|\sigma=0)} + \eta_{I,i} \tag{B.2}$$

If deviations in valuations are entirely an experimental artifact (such as misunderstandings of the multiple price lists), we expect the residuals to have no explanatory power, and hence, $\gamma_1 = \gamma_2 = 0$. If, on the other hand, deviations are entirely due to heterogenous responsiveness to information, we expect the residuals to have significant explanatory power, $\gamma_1 > 0, \gamma_2 > 0$.

We estimate equation (B.2) using session fixed effects, clustering standard errors by subject. We find that the coefficients on the residuals are $\gamma_1 = 0.106$ (s.e. 0.058) and $\gamma_2 = 0.143$ (s.e. 0.051). The p-value of a test for joint significance is below 0.01.

Hence, even controlling for the effects mentioned above, deviations from the Bayesian benchmark in the Belief Updating Task are still highly significant predictors of deviations from the Bayesian benchmark in the Information Valuation Task.

Appendix B.4. Responsiveness and subsets of information structures

In section 4.2 we found that our constrained predictor explains 86.9% of the variation in the deviations from Bayesian valuations that can maximally be explained using beliefs. We check that this result is not driven by a small number of information structures.

[48] We exclude the boundary information structures when averaging over information structures.

Subset	$R^2_{constrained}/R^2_{both}$	Subset	$R^2_{constrained}/R^2_{both}$
S	79.0%	A, B	93.0%
A	98.5%	S, B	73.3%
B	55.8%	S, A	91.7%
S_1, B_3	26.1%	S_2, S_3, B_1, B_2, A	96.9%
S_1, S_2, B_2, B_3	67.9 %	S_2, S_3, B_1, B_2, A	96.9%
$S_1, S_2, S_4, A, B_2, B_3$	88.2 %	S_3, B_1	78.5%

Table B.11: Fraction of explainable variance in individual biases in valuations that can be explained using responsiveness alone, on subsets of information structures. $R^2_{constrained}$ is the R^2 of a regression of $\Delta v_{I,i}$ on the constrained predictor. R^2_{both} is the R^2 of a regression of $\Delta v_{I,i}$ on both the constrained and the unconstrained predictor.

We consider the variation in the deviations from Bayesian valuations that can maximally be explained using beliefs separately for all the symmetric, asymmetric, and boundary information structures, and their respective complements. We also consider the subsets consisting of the two, four, and eight information structures that are most extreme in terms of informativeness.[49]

Table B.11 shows that for just two of these subsets the fraction of variance explained by the unconstrained predictor drops substantially below 70%. In both of these cases, the subset of information structures is small. We conclude that our finding in section 4.2 is not driven by a small number of information structures.

Appendix C. Responsiveness to Information and Risk Aversion

Here we demonstrate that the predictions of heterogeneity in responsiveness to information are not collinear with those of heterogenous risk aversion.

Suppose there is a binary state of the world $s \in \{0, 1\}$ with a known prior $p = P(s = 1)$. An agent can take either a risk free act C that provides a state independent payoff c, or he can opt for a risky act R which has downside d in state $s = 0$ and upside u in state $s = 1$, where $d < c < u$, as depicted in the following table.

[49] We do not consider the subset of the six most extreme information structures, as this would require us to break ties for equally informative information structures.

Act	$s=0$	$s=1$
C	c	c
R	d	u

Before making a decision, the agent has the opportunity to acquire a costly informative signal $\sigma \in \{0,1\}$ about the state of the world. We are interested in the comparative statics of the agent's willingness to pay for the information with respect to (i) his responsiveness to information and (ii) his risk aversion.

It is clear that the agent's willingness to pay for information is increasing in his responsiveness to information, regardless of which act he would choose in the absence of information. This is because an agent who is more responsive to information experiences a greater reduction in subjective uncertainty upon observing any signal.

Importantly, however, the comparative statics with respect to risk aversion depend on what action the agent would take in the absence of information.

First, suppose that the parameters of the problem are such that in the absence of information the agent chooses the risky act R. In this case, a signal realization either increases the subjective probability for $s=1$, in which case the agent also decides for the risky act after observing the signal. Or it decreases the subjective probability for $s=1$, in which case the agent might opt for the riskless act C instead. Hence, information can prevent the agent from deciding for R when doing so would likely pay the downside d.[50] An increase in risk aversion decreases the attractiveness of R for any posterior about s, but leaves the attractiveness of C unchanged. Therefore, a more risk averse agent who, in the absence of information, opts for the risky option has more to gain from information. Hence, his willingness to pay for information *increases* with risk aversion.

Second, suppose that the parameters of the problem are such that in absence of information, the agent would instead optimally choose the riskless act C. Now,

[50] Conditional on this signal, $EU(R) < EU(C)$.

if the signal realization decreases the subjective probability that $s = 1$, then the agent still opts for the riskless act C. If it increases the subjective probability that $s = 1$, however, the agent might choose the risky act R instead. Hence, information can help the agent to take the risk R when doing so is likely to pay the upside u.[51] Now, an increase in risk aversion decreases the attractiveness of the risky option R relative to the riskless option C. Hence, a more risk averse agent has less to gain from information. Consequently, if in the absence of information the agent opts for the riskless option, an increase in risk aversion *decreases* willingness to pay for information.[52]

[51] Conditional on this signal, $EU(R) > EU(C)$.

[52] We can use this simple model to derive predictions of individual behavior across markets for information. Suppose that market A provides information for decisions in which people by default opt for the risky option, whereas market B provides information for decisions in which people usually opt for the riskless option. If people are all similarly risk averse but heterogenous in responsiveness to information, then individuals' willingness to pay for information is positively correlated across the two markets. On the other hand, if people are all similarly responsive to information but differ in risk aversion, we expect negative correlation between individual willingness to pay across markets A and B.

Appendix D. Experimental Instructions

WELCOME

This is a study of individual decision-making and behavior. Money earned will be paid to you in cash at the end of this experiment.

In addition to your $5 show up payment and your $15 completion payment, you will be paid in cash your earnings from the experiment.

This experiment proceeds in 5 parts. For each part, we will give you instructions just before that part begins. Your choices in one part of the experiment will not affect what happens in any other part. Each part proceeds in rounds. In total, there will be 40 rounds of similar length and an additional 40 rounds of shorter length. The experiment will end with a short questionnaire, for which you may earn additional money.

After you are finished with the experiment, we will draw one of the parts of the experiment at random, and one of the rounds within this part, so that each round of the experiment is similarly likely to be drawn. We will pay you in cash for the decision that you made in that round (the Payment Round), and only in that round. Hence **you should make every decision as if it is the one that counts, because it might be!**

Remember that this is a study of **individual** decision-making, which means you are **not** allowed to talk during the study. If you have any questions, please raise your hand and we will come and answer your questions privately.

Please do not use cell phones or other electronic devices until after the study is over. If we do find you using your cell phone or other electronic devices, the rules of the study require us to withhold your completion payment.

Often during this study, you will be shown information or asked to make decisions. After doing so, remember to click the button that says “Continue” or “Save My Decisions”. The experiment will not proceed until you click that button.

PART 1

The first part of the experiment proceeds in 6 rounds. In each round, you will play the **Prediction Game** (described below), for a prize of $35.

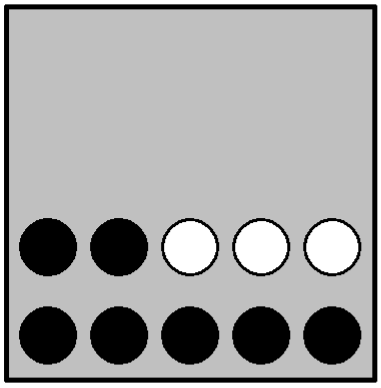
In each round there are two boxes, Box X and Box Y. Each of the boxes contains balls that are either black or white. Box X contains 10 balls. Box Y contains 20 balls. For example, Box X could contain 7 black balls and 3 white balls, and Box Y could contain 14 white balls and 6 black balls. The composition of the boxes may change from round to round.

THE PREDICTION GAME

At the beginning of the Prediction Game, the computer will select either Box X or Box Y by tossing a fair coin. Thus, Box X is selected with chance 50%, and Box Y is selected with chance 50%. The box that has been selected is called the Selected Box. We will *not* tell you which box has been selected by the computer.

Box X

Chance 50%

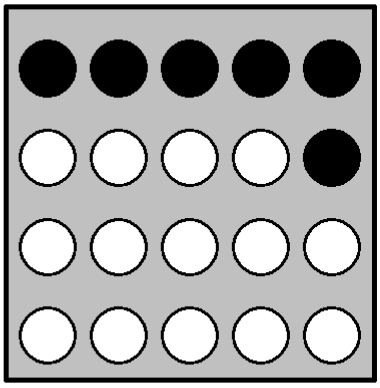


Black balls: 7

White balls: 3

Box Y

Chance 50%



Black balls: 6

White balls: 14

The computer will then draw a ball randomly from the Selected Box, and show that ball to you. Your task is to predict whether the Selected Box is Box X or Box Y. If you predict correctly, you will receive $35. If you predict incorrectly, you will receive $0.

The computer randomly drew either box X or box Y.

It then randomly drew one of the balls out of the Selected Box. The color of this ball is:

I predict that the Selected Box is

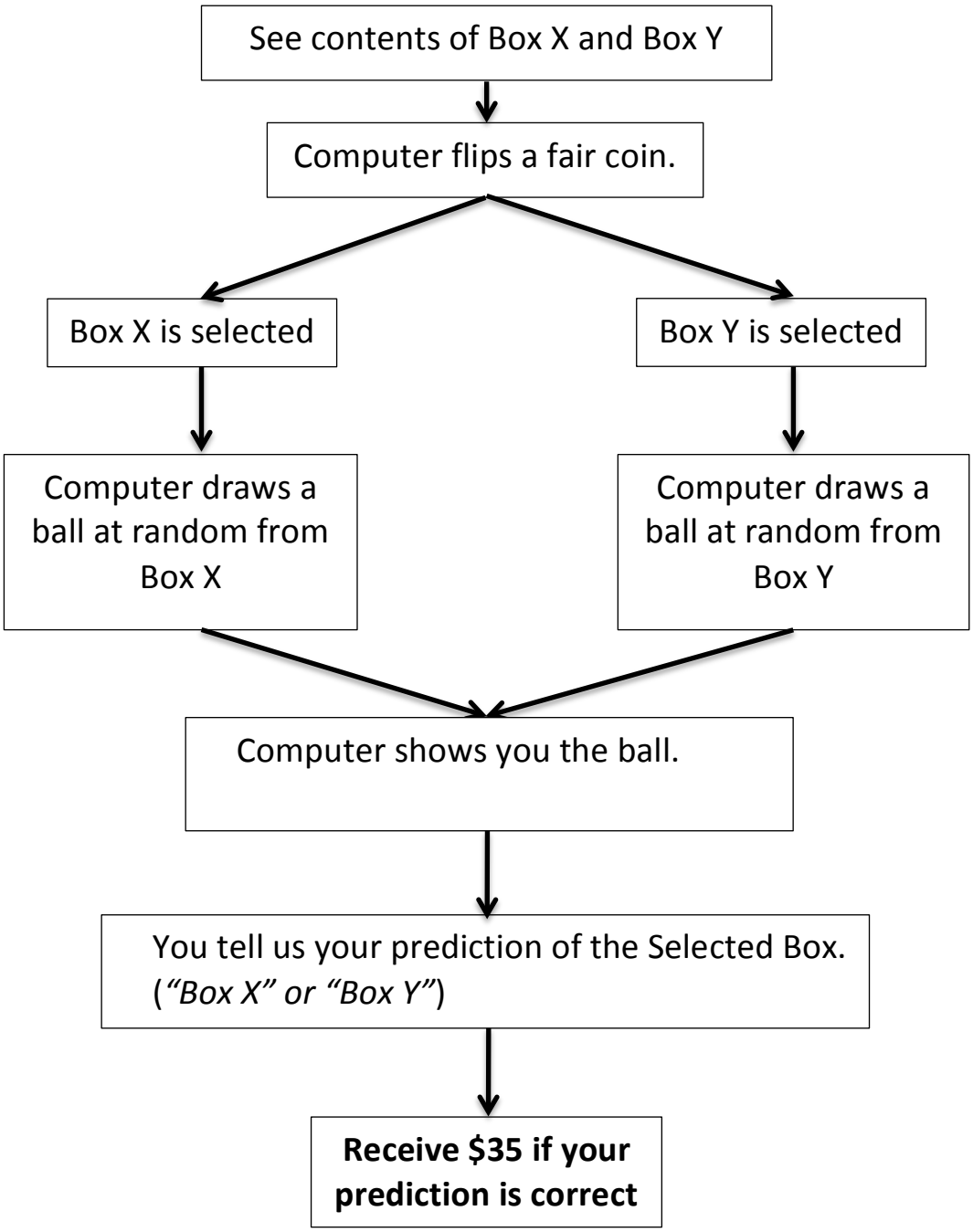
Box X Box Y

For instance, suppose you predict that the Selected Box is Box X. Then you get $ 35 if the Selected Box is in fact Box X.

We will not tell you whether your prediction was correct until the end of the experiment. The flow chart on the next page illustrates what happens in the Prediction Game.

This may seem simple, but we just want you to get used to playing this game.

The Prediction Game



PART 2

This part of the experiment proceeds in 10 rounds. In each round, we will show you two boxes, Box X and Box Y. We then ask whether you would rather play the **Prediction Game** with those boxes, for a prize of $35, or instead have a stated chance of winning of $35.

After inspecting the boxes, you will make a choice by filling in a list such as this:

play the prediction game	☐	☐	get $ 35 with chance 100%
play the prediction game	☐	☐	get $ 35 with chance 97%
play the prediction game	☐	☐	get $ 35 with chance 94%
play the prediction game	☐	☐	get $ 35 with chance 91%
play the prediction game	☐	☐	get $ 35 with chance 88%
play the prediction game	☐	☐	get $ 35 with chance 85%
play the prediction game	☐	☐	get $ 35 with chance 82%
play the prediction game	☐	☐	get $ 35 with chance 79%
play the prediction game	☐	☐	get $ 35 with chance 76%
play the prediction game	☐	☐	get $ 35 with chance 73%
play the prediction game	☐	☐	get $ 35 with chance 70%
play the prediction game	☐	☐	get $ 35 with chance 67%
play the prediction game	☐	☐	get $ 35 with chance 64%
play the prediction game	☐	☐	get $ 35 with chance 61%
play the prediction game	☐	☐	get $ 35 with chance 58%
play the prediction game	☐	☐	get $ 35 with chance 55%
play the prediction game	☐	☐	get $ 35 with chance 52%
play the prediction game	☐	☐	get $ 35 with chance 49%
play the prediction game	☐	☐	get $ 35 with chance 46%
play the prediction game	☐	☐	get $ 35 with chance 43%
play the prediction game	☐	☐	get $ 35 with chance 40%
play the prediction game	☐	☐	get $ 35 with chance 37%
play the prediction game	☐	☐	get $ 35 with chance 34%
play the prediction game	☐	☐	get $ 35 with chance 31%
play the prediction game	☐	☐	get $ 35 with chance 28%
play the prediction game	☐	☐	get $ 35 with chance 25%
play the prediction game	☐	☐	get $ 35 with chance 22%
play the prediction game	☐	☐	get $ 35 with chance 19%
play the prediction game	☐	☐	get $ 35 with chance 16%
play the prediction game	☐	☐	get $ 35 with chance 13%
play the prediction game	☐	☐	get $ 35 with chance 10%
play the prediction game	☐	☐	get $ 35 with chance 7%
play the prediction game	☐	☐	get $ 35 with chance 4%
play the prediction game	☐	☐	get $ 35 with chance 1%

At the end of the experiment, the computer will select one of the lines on this list at random. That decision will be the one that counts.

All numbers that you see in this part of the instructions are chosen to illustrate the payment procedure. These numbers will not be relevant once we start this part of the experiment.

For instance, suppose that you filled in the list like this:

Suppose that the computer selects the third line from the top. On this line, you ticked the option on the right. Hence you will receive $35 with chance 94 %, and $0 otherwise.

Suppose instead that the computer selects the fifth line from the top. On this line, you ticked the option on the left. Hence, you will play the prediction game.

Your task is to consider, for each line, whether you would rather play the Prediction Game with the boxes offered, or instead receive $35 with the chance on the right.

If you prefer playing the prediction game to getting $35 with chance 12%, for instance, then you will also prefer playing the prediction game to getting $35 with any lower chance. Similarly, if you prefer getting $35 with chance 13% to playing the prediction game, then you will also prefer getting $35 with any chance higher than 13% to playing the prediction game. For your convenience, once you tick a given option, the computer will fill in the lines above and below in this way.

Our payment procedure is designed so that it is in your best interest to choose on each line the option you genuinely prefer.

At the end of the experiment, what happens if a round from this part is the one selected as the Payment Round? The computer will select a line from your choice list for that round. If, on that line, you chose to play the Prediction Game for a $35 prize, then you will play the Prediction Game with the boxes from that round. If, on that line, you chose to have a chance of receiving $35, then you will receive $35 with the specified chance.

Specifically, you will be shown a wheel of luck. The wheel is part green and part red. The fraction of the wheel of luck that is green is exactly the specified chance of getting $35, the remaining part of the wheel is red. You will click a button to spin the needle. You will get $35 if the needle stops on the green part of the wheel, and you will get $0 if the needle stops on the red part of the wheel.

You may change your decisions as many times as you like. Your decisions are final as soon as you click the SAVE MY DECISIONS button. Once at least 10 seconds have passed and you have made all your decisions, this button will automatically appear on the bottom of your screen.

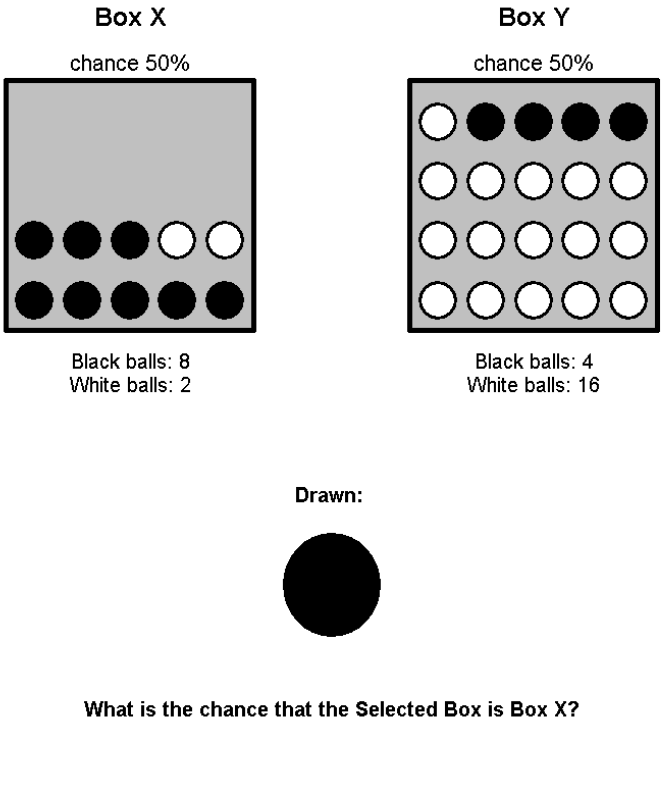
PART 3

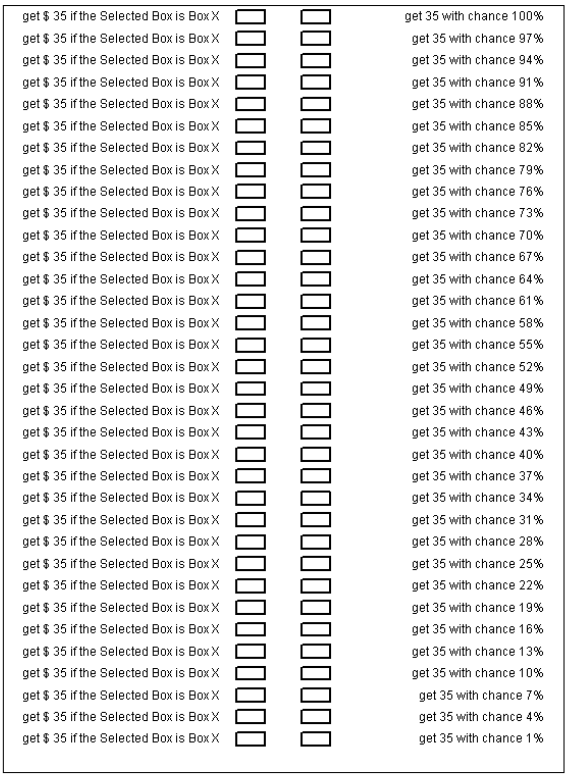
This part of the experiment proceeds in 10 rounds. In each round, we will show you **two boxes, Box X and Box Y. The computer will select a Box using the flip of a fair coin, and draw a ball randomly from that Box.** We will not tell you the color of the ball yet.

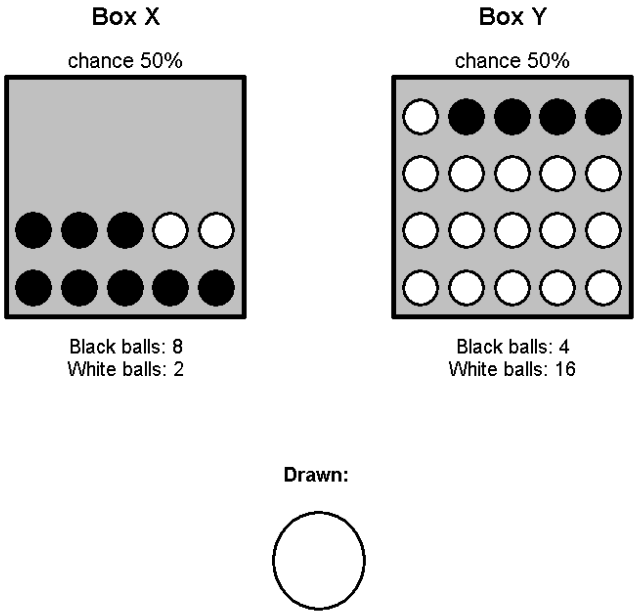
In each round, we ask you to assess:

1. If the ball is BLACK, how likely it is that the ball was drawn from BOX X.
2. If the ball is WHITE, how likely it is that the ball was drawn from BOX Y.

After inspecting the boxes, you will fill in **two** lists such as these:







get $ 35 if the Selected Box is Box Y	☐	☐	get 35 with chance 100%
get $ 35 if the Selected Box is Box Y	☐	☐	get 35 with chance 97%
get $ 35 if the Selected Box is Box Y	☐	☐	get 35 with chance 94%
get $ 35 if the Selected Box is Box Y	☐	☐	get 35 with chance 91%
get $ 35 if the Selected Box is Box Y	☐	☐	get 35 with chance 88%
get $ 35 if the Selected Box is Box Y	☐	☐	get 35 with chance 85%
get $ 35 if the Selected Box is Box Y	☐	☐	get 35 with chance 82%
get $ 35 if the Selected Box is Box Y	☐	☐	get 35 with chance 79%
get $ 35 if the Selected Box is Box Y	☐	☐	get 35 with chance 76%
get $ 35 if the Selected Box is Box Y	☐	☐	get 35 with chance 73%
get $ 35 if the Selected Box is Box Y	☐	☐	get 35 with chance 70%
get $ 35 if the Selected Box is Box Y	☐	☐	get 35 with chance 67%
get $ 35 if the Selected Box is Box Y	☐	☐	get 35 with chance 64%
get $ 35 if the Selected Box is Box Y	☐	☐	get 35 with chance 61%
get $ 35 if the Selected Box is Box Y	☐	☐	get 35 with chance 58%
get $ 35 if the Selected Box is Box Y	☐	☐	get 35 with chance 55%
get $ 35 if the Selected Box is Box Y	☐	☐	get 35 with chance 52%
get $ 35 if the Selected Box is Box Y	☐	☐	get 35 with chance 49%
get $ 35 if the Selected Box is Box Y	☐	☐	get 35 with chance 46%
get $ 35 if the Selected Box is Box Y	☐	☐	get 35 with chance 43%
get $ 35 if the Selected Box is Box Y	☐	☐	get 35 with chance 40%
get $ 35 if the Selected Box is Box Y	☐	☐	get 35 with chance 37%
get $ 35 if the Selected Box is Box Y	☐	☐	get 35 with chance 34%
get $ 35 if the Selected Box is Box Y	☐	☐	get 35 with chance 31%
get $ 35 if the Selected Box is Box Y	☐	☐	get 35 with chance 28%
get $ 35 if the Selected Box is Box Y	☐	☐	get 35 with chance 25%
get $ 35 if the Selected Box is Box Y	☐	☐	get 35 with chance 22%
get $ 35 if the Selected Box is Box Y	☐	☐	get 35 with chance 19%
get $ 35 if the Selected Box is Box Y	☐	☐	get 35 with chance 16%
get $ 35 if the Selected Box is Box Y	☐	☐	get 35 with chance 13%
get $ 35 if the Selected Box is Box Y	☐	☐	get 35 with chance 10%
get $ 35 if the Selected Box is Box Y	☐	☐	get 35 with chance 7%
get $ 35 if the Selected Box is Box Y	☐	☐	get 35 with chance 4%
get $ 35 if the Selected Box is Box Y	☐	☐	get 35 with chance 1%

If this round is chosen for payment, the computer will draw a ball at random from the selected box. If the ball is BLACK, the computer will select a line at random from the first list, and carry out your stated choice. If the ball is WHITE, the computer will select a line at random from the second list, and carry out your stated choice.

All the numbers that you see in this part of the instructions are chosen to illustrate the payment procedure. These numbers will not be relevant once we start this part of the experiment.

For instance, suppose the ball is White. Also suppose that the computer selects the fourth line from the bottom of the second list. If you chose the option "get $35 if the Selected Box is Box Y", then you will receive $35 if and only if the selected box is Box Y. If you chose the option "get $35 with chance 10%", then you will receive $35 with chance 10%.

How should you decide which options to tick? That depends on how likely you think that, given the drawn ball is white, the Selected Box is Box Y. Suppose you think there is a 63% chance of this. Then you should tick the LEFT option on any line where the RIGHT option offers you a smaller than 63% chance of a cash prize. And you should tick the RIGHT option on any line where the RIGHT option offers you a greater than 63% chance of a cash prize.

Suppose you instead ticked the Left Option for all chances less than 90%, and the Right Option for all chances greater than 90%. If the computer selects one of the lines between 63% and 90%, then you will be given the Left Option (which you believe yields a payment 63% of the time) instead of the Right Option, which yields a payment more than 63% of the time!

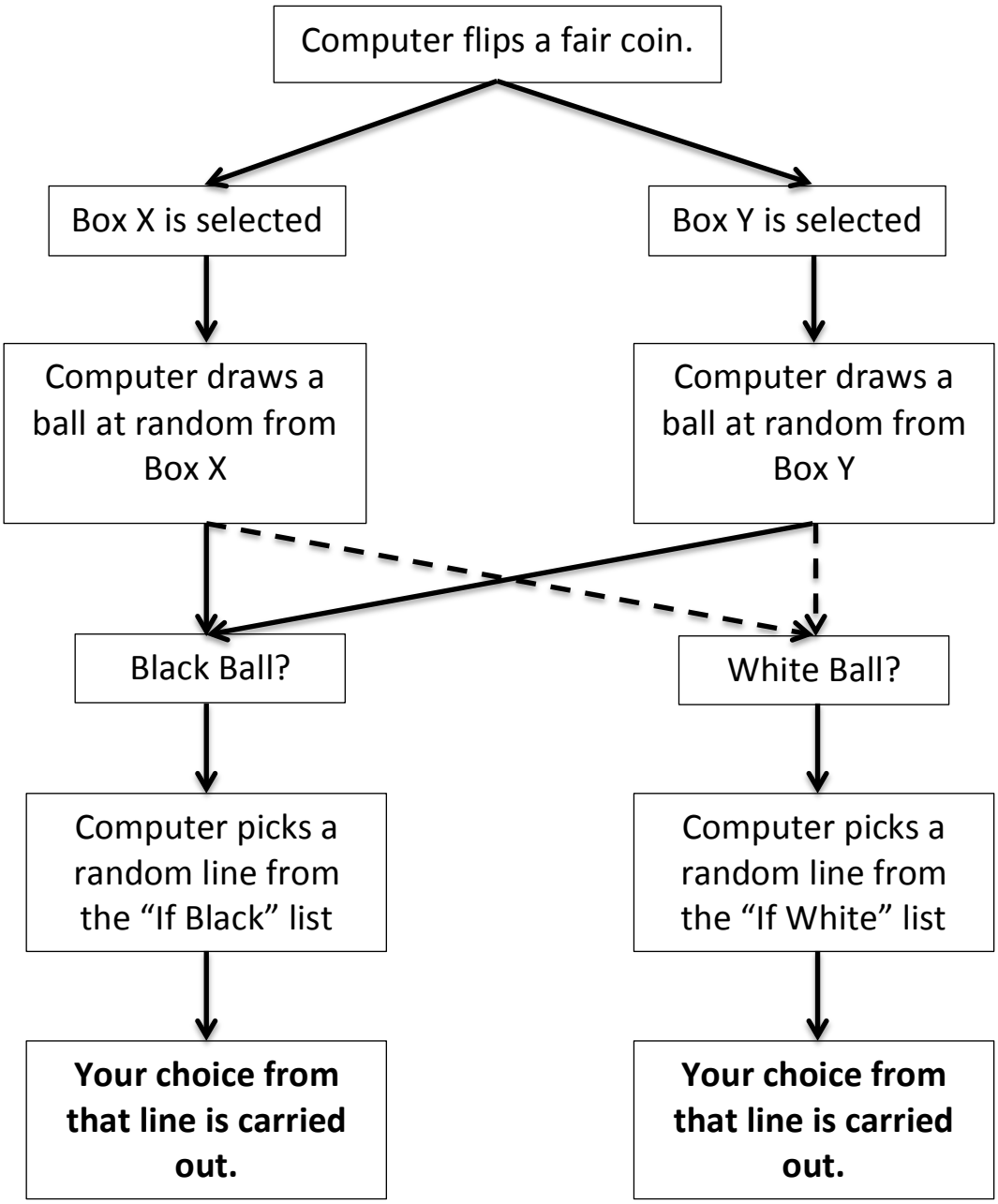
Suppose instead you ticked the left option for all chances less than 30%, and the right option for all chances greater than 30%. If the computer selects one of the lines between 30% and 63%,

then you will be given the Right Option (which yields a payment less than 63% of the time), instead of the Left Option, which you believe yields a payment 63% of the time!

Thus, our payment procedure is designed so that your earnings are highest if you provide your most accurate estimate.

The box letters and ball colors that we are asking about will change from round to round.

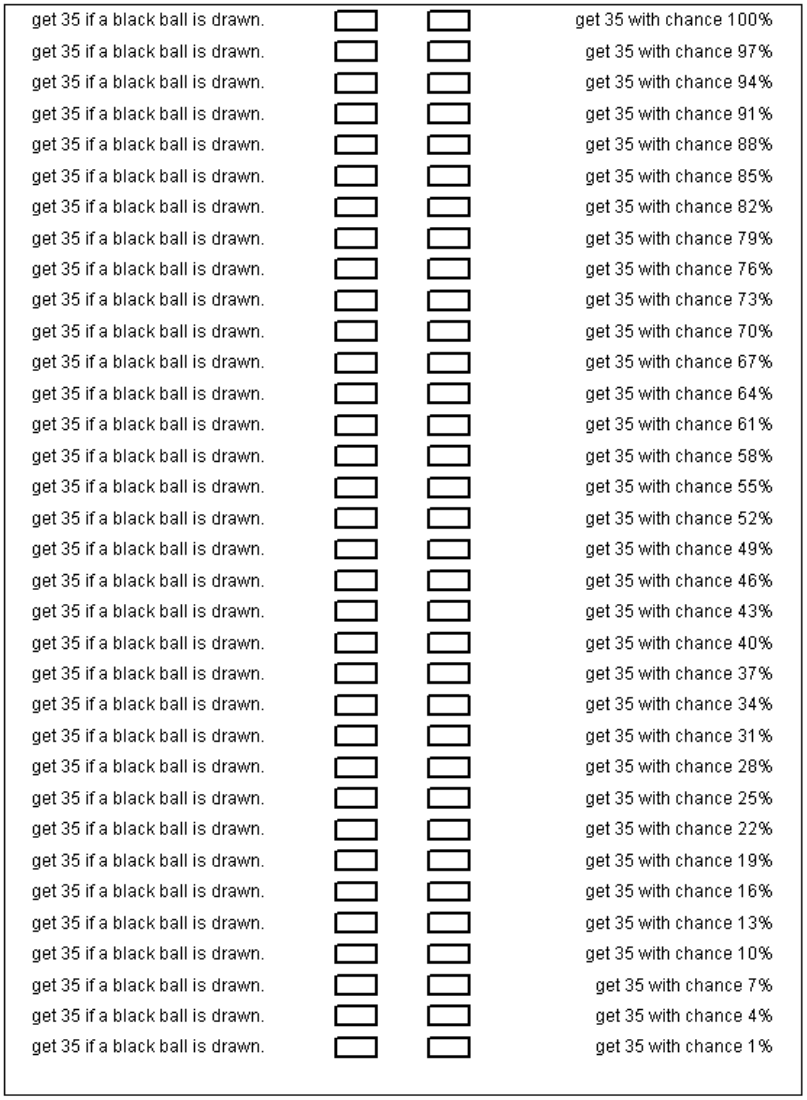
The flow chart below illustrates what happens in one round.



PART 4

This part of the experiment proceeds in 10 rounds. In each round, we will show you **two boxes, Box X and Box Y. The computer will select a Box using the flip of a fair coin, and draw a ball randomly from that Box.**

In this part of the experiment, we ask you to assess how likely it is that the drawn ball is Black or White. You will make a choice by filling in a list such as this:



As before, the computer will randomly select a line from the list, and carry out the choice that you made in that line.

All the numbers that you see in this part of the instructions are chosen to illustrate the payment procedure. These numbers will not be relevant once we start this part of the experiment.

How should you decide which options to tick? That depends how likely you think it is that the drawn ball is black. For instance, if you think that there is a 70% chance that the drawn ball is black, then you should tick the LEFT option on any line where the RIGHT option offers you less than a 70% chance of a cash prize, and you should tick the RIGHT option on any line where the RIGHT option offers you a greater than 70% chance of a cash prize.

You may change your decisions as many times as you like. Your decisions are final as soon as you click the SAVE MY DECISIONS button. Once at least 10 seconds have passed and you have made all your decisions, this button will automatically appear on the bottom of your screen.

Remember, our payment procedure is designed so that your earnings are highest if you provide your most accurate estimate.

The ball color that we are asking about will change from round to round.

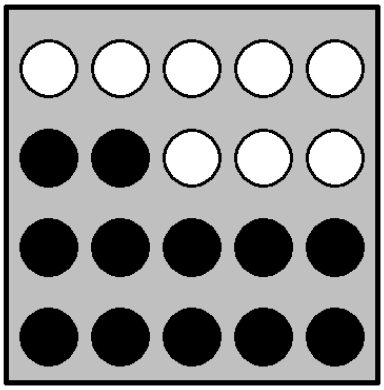
PART 5

This part of the experiment proceeds in 4 blocks. Each block has 12 rounds. In each block, we will show you two boxes, Box X and Box Y. Each contains 20 balls.

For instance, Box X could contain 12 black balls and 8 white balls. Box Y could contain 12 white balls and 8 black balls.

Box X

Chance 50%

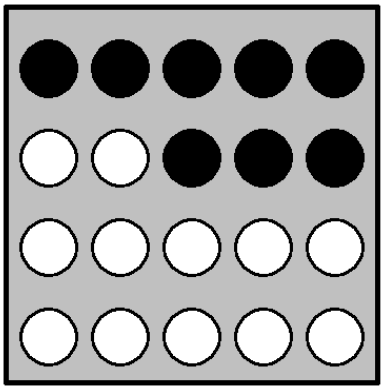


Black balls: 12

White balls: 8

Box Y

Chance 50%



Black balls: 8

White balls: 12

At the start of each block, this is what will happen:

1. You will be shown the contents of the two boxes for the current block
2. The computer will select a Box by flipping a fair coin. **This Box will remain the same for the entire block.**

During the 12 rounds of a block, this is what will happen **in each round**:

1. The computer will draw a ball at random from the Selected Box and show it to you
2. You can then choose one of the following three options:

Receive $35 if Box X is the Selected Box.	Receive $35 with chance 90%	Receive $35 if Box Y is the Selected Box.

3. The computer will put the ball back in the selected box.

Note that the Selected Box stays the same for the entire 12 rounds of the block. A new Selected Box will be drawn only at the beginning of each block.

Payment

If the computer chooses this part of the experiment for payment, here's what will happen. The computer randomly chooses a block, and a round within this block. The computer will then carry

out the choice you made in this round. That is, if you chose the option on the left, you will get $ 35.- if the Selected Box in this block was indeed Box X; if you chose the middle option, you will get $ 35.- with the specified chance; and if you chose the option on the right, you will get $ 35.- if the Selected Box was indeed Box Y.

Please note the following:

- The *chance* with which you can receive $ 35.- if you choose the middle option *may vary from block to block*. But it will stay the same for all 12 rounds within a block.
- A new *Selected Box* is drawn at the beginning of each block, and will stay the *same for all 12 rounds within the block*.
- After a ball has been drawn from the Selected Box, it is put back into the Selected Box. Hence, draws are *with* replacement.

Overview of part 5

BLOCK 1

You see the contents of Box X and Box Y

Computer draws the Selected Box.

Round 1 (i) Computer draws a ball from the Selected Box and shows it to you
(ii) You choose between the left, middle, or right options
(iii) Computer returns the ball to the Selected Box

Round 2 like round 1

...

Round 12 like round 1

BLOCK 2

You see the contents of Box X and Box Y

Computer draws the Selected Box.

Round 1 (i) Computer draws a ball from the Selected Box and shows it to you
(ii) You choose between the left, middle, or right options
(iii) Computer returns the ball to the Selected Box

Round 2 like round 1

...

Round 12 like round 1

BLOCK 3
like block 2

BLOCK 4
like block 2

QUESTIONNAIRE

Thank you for participating in the experiment! We would like to ask you a few questions about yourself.

At the end of the questionnaire, the computer will randomly select a round, and a decision that you made in that round. We will pay you in cash for that decision.

If the decision selected was from Part 2, and you chose to play the Prediction Game, then you will play a final round of the Prediction Game, with the relevant boxes displayed. This will be for a cash prize of $35.