Attention and Salience in Preference Reversals

Carlos Alós-Ferrer and Alexander Ritschel

SUPPLEMENTARY MATERIAL

For Online Publication Only

A Descriptive Statistics

The following table presents summary statistics about the average number of fixations and average decision times separately for the choices, joint evaluations, and separate evaluations.

	# Fixations	Decision times
Choice	27.60	12.78 s
Joint	20.77	15.93 s
Separate	17.88	14.25 s

B Exploratory Analyses

B.1 Averages at the Lottery Level

The analysis of the lottery evaluations in the main text relies on subject averages across lotteries. In the following analysis, we construct an average evaluation across subjects for each given lottery, for both treatments. A Wilcoxon-Signed-Rank test then compares the evaluations between the Joint and Separate Treatments, with paired observations for each lottery. As before, the test conditions only on cases where the P-bet was chosen during the choice trials.

Figure B.1 shows the average evaluation for P-bets and \$-bets for both treatments for the online study (left-hand side) and the eye-tracking study (right-hand side). Results are mixed. In the online study, in line with Salience Theory's predictions, the joint evaluation did significantly reduce the stated minimum selling price compared to the separate evaluation, both for P-bets (Joint 5.80, Separate 5.97; WSR, $N = 32$, $z = 3.38$, $p = .0007$) and for \$-bets (Joint 7.20, Separate 7.62; WSR, $N = 32$, $z = 2.49$, $p = .0129$). In contrast, in the eye-tracking experiment evaluations were not significantly different across treatments, neither for P-bets (Joint 5.95, Separate 5.92; $N = 32$, $z = -1.103$, $p = .2699$) nor for \$-bets (Joint 6.74, Separate 6.63; WSR, $N = 32$, $z = -0.767$, $p = .4433$).

B.2 Fixations Across Lottery Types

Kim et al. (2012) and Alós-Ferrer et al. (2021) showed that fixations on P- and \$-bets differ during evaluation, with \$-bets generally being fixated more. Figure B.2 shows the average number of fixations on each lottery during evaluations in the Joint Treatment, when the lottery was the one being evaluated (left-hand side), and when it was the

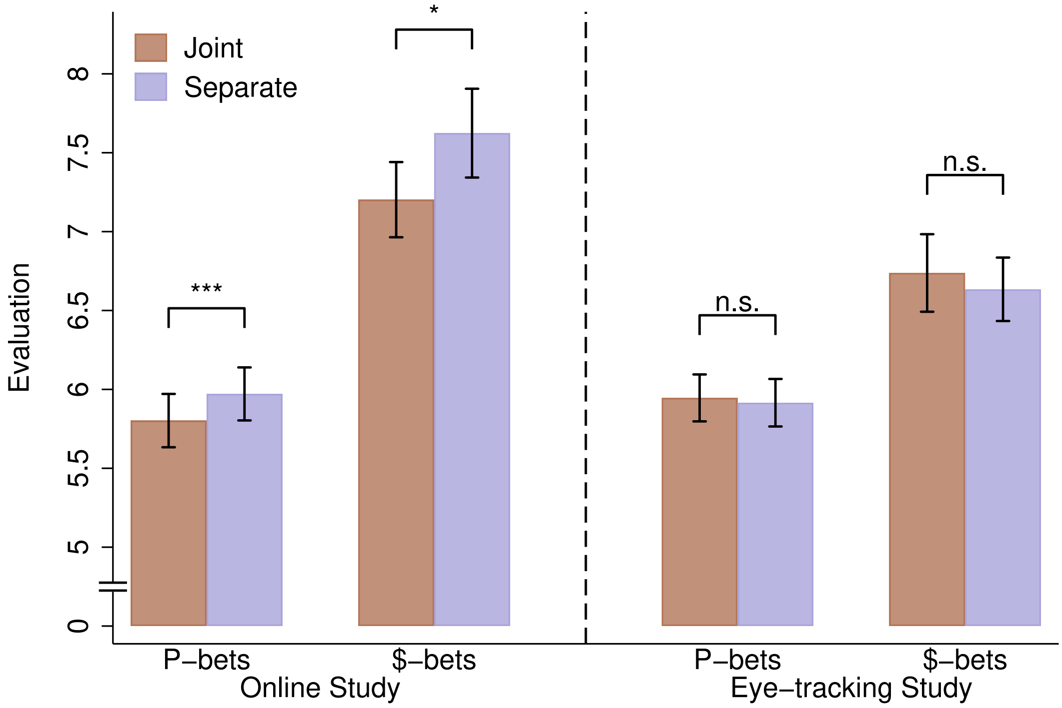

Figure B.1: Average evaluation of P-bets and $-bets when P-bet was chosen during Joint and Separate evaluation treatments for the Online Study (left-hand side) and the Eye-tracking Study (right-hand side). Stars indicate significance of non-parametric tests: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

alternative (not evaluated) lottery (right-hand side). Fixations on the evaluated lottery differed by lottery type, with P-bets being fixated significantly less often (18.07) than $-bets (19.14; WSR, $z = 2.809$, $p = .0050$). That is, we reproduce the findings of Kim et al. (2012) and Alós-Ferrer et al. (2021) for the lottery currently evaluated. The difference, however, is absent for the alternative lottery (P-bets 2.18, $-bets 2.13; WSR, $z = -.0281$, $p = .7787$).

Of course, the average number of fixations greatly differed between evaluated and alternative lotteries. With an average number of ≈ 2 fixations on the other lottery, it is not surprising that there are no differences across alternative lotteries of different types.

B.3 A Lottery with an Extreme Outcome

Our preregistered test for Hypothesis (H4) in Section 4 of the main text failed to deliver evidence that differences in the salience of states are reflected by differences in the corresponding number of transitions. Lottery pair nr. 48 included a $-bet with a particularly high outcome (26 ECU) which allows us to conduct an extreme comparison along the lines of Hypothesis (H4). Since the salience of states depends on the difference between outcomes, this pair yields a particularly large salience for the state where the high outcome of the $-bet and the low outcome of the P-bet are compared. We compare it with another pair, lottery pair nr. 2, which yields a particularly small salience for the corre-

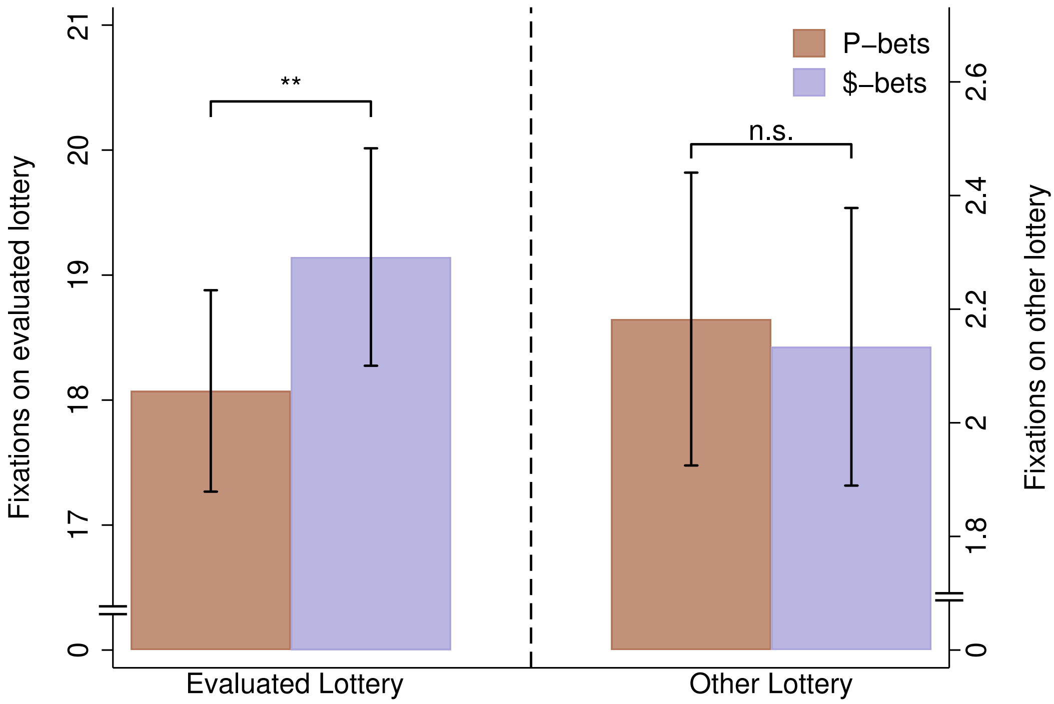

Figure B.2: Number of fixations by lottery type during joint evaluation. Left-hand side shows the average number of fixations on the lottery that was evaluated. Right-hand side shows the average number of fixations on the alternative lottery, which was not evaluated (notice the changed scale). Stars indicate significance of non-parametric tests: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

sponding state (in terms of equation (1) in the main text, $\sigma(26, 2.1) = .85$ for the former and $\sigma(11.5, 5) = .39$ for the latter pair). We then test whether the high-salience state of lottery pair nr. 48 received more attention than the corresponding state of lottery pair nr. 2. This is indeed the case. During choices, subjects exhibited more transitions on the most salient state of lottery pair nr. 48 (mean 1.00) compared to the corresponding state of lottery pair nr. 2 (mean 0.39; WSR, $N = 64$, $z = 3.040$, $p = .0012$). This suggests that differences in transitions reflecting the salience of states might be generally hard to detect and only measurable when salience differences are large enough.

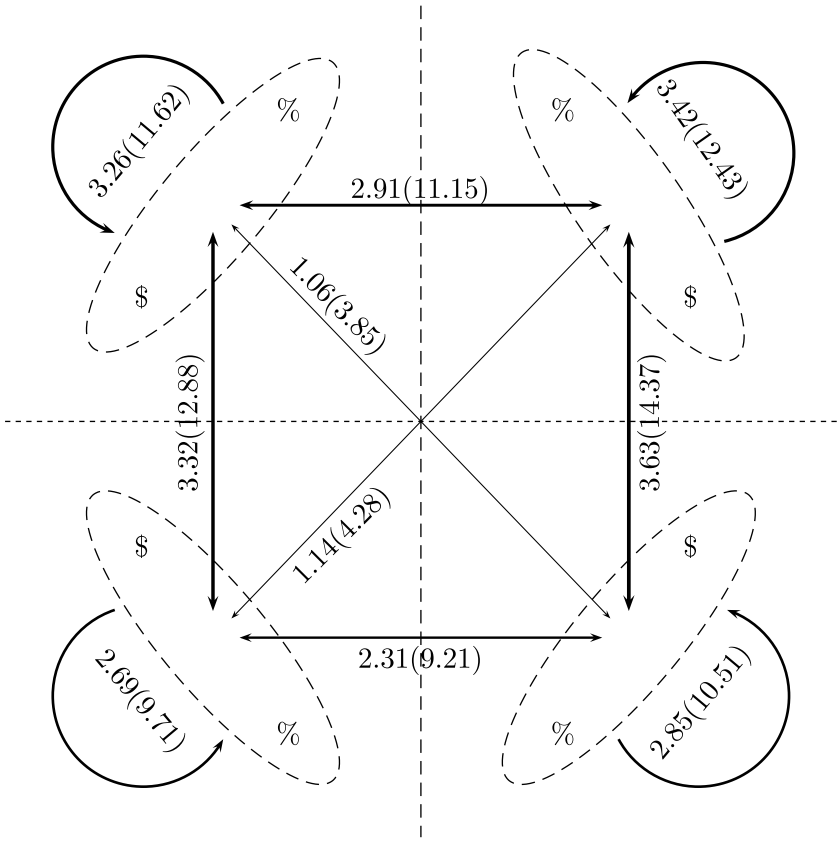

Figure C.1: Average number of transitions during the choice phase. Relative number of transitions (in percentage of total) in parentheses.

C Additional Analyses

C.1 Transitions

In this subsection we present further analyses concerning general eye-movement, i.e. transitions, during the different tasks which allow further inferences on how decision makers process information (Arieli et al., 2011). Figure C.1 displays the average number of transitions from different areas of interest. To ease the exposition, we refer to the area containing the outcome of a lottery and its corresponding probability as a *quadrant*. We distinguish three different types of transitions: within a quadrant, within a lottery (but across quadrants), and across lotteries.

Transitions within a quadrant, indicated by the semicircles in Figure C.1, hence include switches between an outcome and its corresponding probability (or vice versa), and repeated fixations on the same outcome or the same probability. Transitions within a lottery are vertical transitions switching between across quadrants (outcomes or probabilities) of the same lottery. Transitions across lotteries were either horizontal or diagonal transitions switching between any probability or outcome of one lottery to any other probability or outcome of the other lottery. In all cases, the numbers in Figure C.1 give the average number of transitions, and the numbers in parentheses correspond to the relative number of transitions (in percentage of the total). The thickness of all lines represents the relative number of transitions. Aggregating transitions of the same

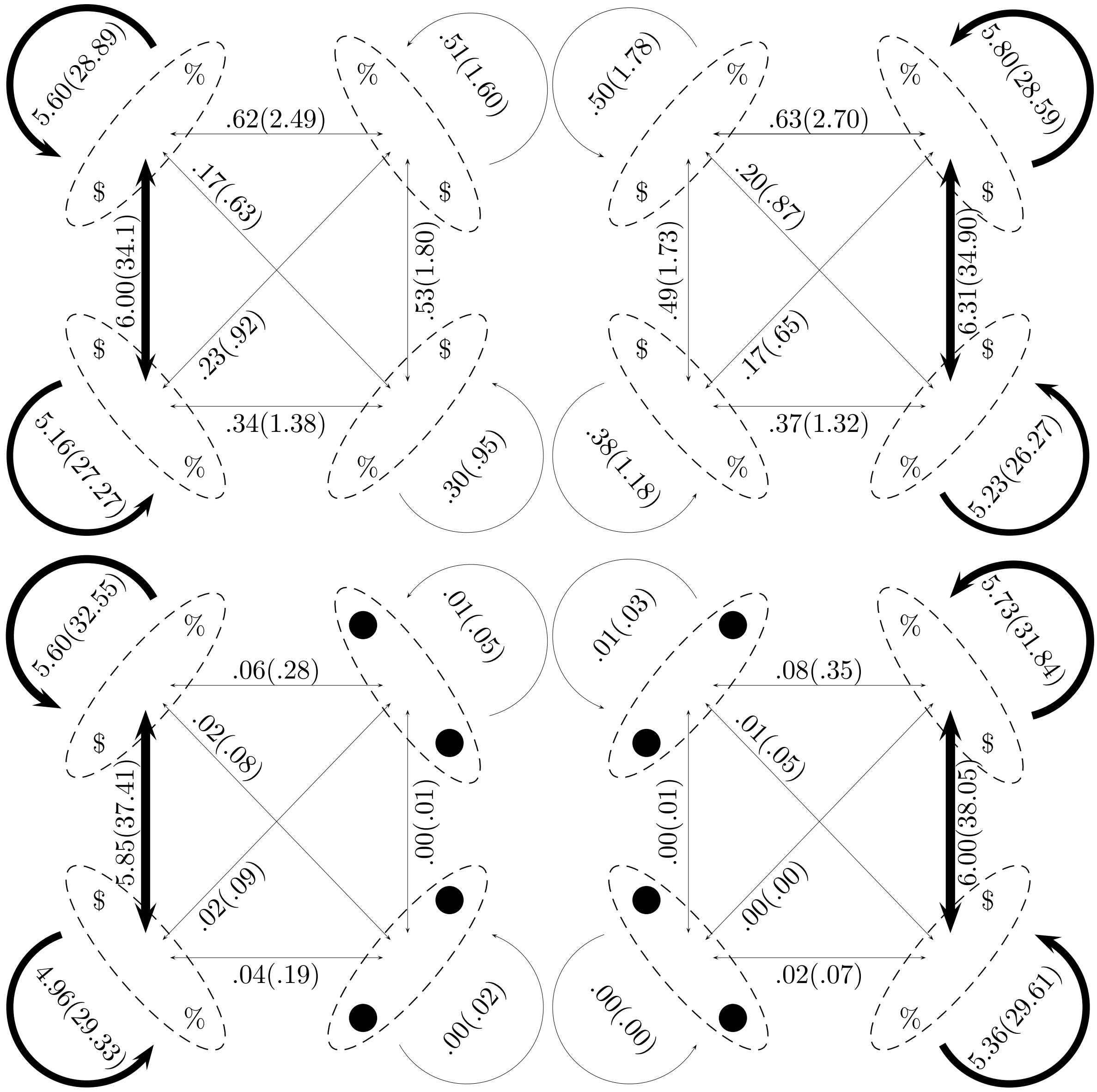

Figure C.2: Average number of transitions during the evaluation phase, both for joint (top) and separate (bottom) evaluations, displayed separately for evaluation of left-hand side and right-hand side lotteries. Relative number of transitions (in percentage of total) in parentheses.

type in Figure C.1 shows an average of 44.27% of within-quadrant transitions, 27.25% of within-lottery transitions, and 28.48% of across-lottery transitions.

Figure C.2 displays the same information for the evaluation tasks in the Joint (up) and Separate (bottom) Treatments, respectively. The evaluation of left- and right-hand-side lotteries is displayed separately. In both treatments, there were few transitions across lotteries. In the evaluation phase of the Joint Treatment there were an average of 58.27% within-quadrant transitions, 36.26% within-lottery transitions, and 5.48% across-lottery transitions. In the Separate Treatment, there were an average of 61.72% of within-quadrant transitions, 37.74% within-lottery transitions, and 0.55% across-lottery transitions (in this case meaning transitions to the placeholder dots).

Unsurprisingly, the differences in tasks and treatments resulted in different gaze patterns regarding across-lottery transitions. The first three rows of Table C.1 summarize the proportion of within-quadrant, vertical (within-lottery), horizontal, and diagonal transitions, aggregated over all rounds. All tests below are Wilcoxon-signed rank tests, each with $N = 64$. The proportion of across-lottery transitions (i.e., horizontal and diagonal transitions together) was larger in the choice phase than in the evaluation phase of either treatment (both WSR tests, $N = 64$, $z = 6.955$, $p_a < .0001$).[1] Additionally, comparing evaluation phases, there was also a larger proportion of across-lottery transitions in the Joint Treatment than in the Separate Treatment (WSR test, $N = 64$, $z = 6.902$, $p_a < .0001$). These differences persist for horizontal (all 3 tests: $z > 6.880$ and $p_a < .0001$) and diagonal transitions (all 3 tests: $z > 6.870$ and $p_a < .0001$).

There was also a lower proportion of within-quadrant transitions in the choice phase compared to the evaluation phases of either treatment (Joint, $z = -6.855$, $p_a < .0001$; Separate, $z = -6.942$, $p_a < .0001$). Comparing evaluation phases again, the proportion of within-quadrant transitions was lower in the Joint Treatment than in the Separate Treatment ($z = -5.457$, $p_a < .0001$). We find qualitatively the same results for vertical transitions, i.e. there was a lower proportion of vertical transitions in the choice phase compared to the evaluation phases of either treatment (Joint, $z = -6.239$, $p_a < .0001$; Separate, $z = -6.280$, $p_a < .0001$) and, comparing evaluation phases, a lower proportion of vertical transitions in the Joint Treatment than in the Separate Treatment ($z = -3.177$, $p_a = .0015$).

To examine possible dynamic effects, we further divide the data into quartiles of 24 rounds each. The bottom part of Table C.1 shows the proportion of within-quadrant, vertical, horizontal, and diagonal transitions separately for each quartile. Visual inspection of the table shows similar attention patterns across quartiles as those reported above and suggests no differences across time.

To further explore possible differences in gaze patterns for within-quadrant and within-lottery transitions, we control for across-lottery transitions by creating a within-quadrant/within-lottery ratio for the choice phase and for the evaluation phase of each treatment, for each participant. For the choice phase, this ratio is defined as the total number of all within-quadrant transitions divided by the total number of all within-lottery transitions. The average across individuals of this attention ratio was 1.71. For the evaluation phase in each treatment, the attention ratio was computed analogously but first averaging the number of transitions per quadrant across left-hand-side and right-hand-side evaluations. The resulting average attention ratios for the evaluation phase were 1.89 in the Joint Treatment and 1.97 in the Separate one. A series of WSR tests showed no differences in attention as indicated by these ratios ($N = 64$; Choice vs. Joint, $z = -0.375$, $p = .7080$; Choice vs. Separate, $z = -0.742$, $p = .4579$; Joint vs. Separate, $z = -1.251$, $p = .2111$).

[1] Tests were adjusted for multiple testing using the Holm-Bonferroni method. Adjusted p-values are indicated by p_a.

Table C.1: Proportion of within-quadrant, vertical, horizontal, and diagonal transitions separately for each quartile (Q).

		Within-quadrant	Vertical	Horizontal	Diagonal
All	Choice	44.27%	27.25%	20.35%	8.1%
	Joint	58.27%	36.26%	3.94%	1.53%
	Separate	61.72%	37.74%	0.44%	0.11%
1^{st} Q	Choice	45.18%	28.06%	19.65%	7.12%
	Joint	56.82%	36.37%	4.92%	1.88%
	Separate	60.48%	38.72%	0.66%	0.13%
2^{nd} Q	Choice	44.28%	27.05%	20.57%	8.10%
	Joint	58.26%	36.34%	3.97%	1.44%
	Separate	62.04%	37.42%	0.43%	0.11%
3^{rd} Q	Choice	43.95%	26.85%	20.49%	8.71%
	Joint	58.76%	35.77%	3.76%	1.72%
	Separate	62.23%	37.21%	0.41%	0.15%
4^{th} Q	Choice	43.50%	27.05%	20.85%	8.60%
	Joint	58.93%	36.50%	3.44%	1.13%
	Separate	62.01%	37.66%	0.29%	0.04%

C.2 Fixation Duration

In this subsection we present further analyses concerning the duration of fixations on the different attributes of the lotteries. In addition to the analyses of transitions, fixation duration on specific attributes can also reveal different levels of processing or patterns of information processing (Velichkovsky, 1999; Velichkovsky et al., 2002; Glöckner and Herbold, 2011; Alós-Ferrer et al., 2021).

The average duration of a fixation in our data set was 315 ms (median 240 ms). Figure C.3 shows the average fixation duration during choices (left-hand side) and evaluations (right-hand side) of a lottery, separately for outcomes and probabilities, and distinguishing fixation duration on the evaluated and other lottery (the one not evaluated at the moment) or the black dots for the Joint and Separate treatments for the evaluation task. For the choice task, the figure displays the average fixation duration per lottery (that is, not for the pair).

All tests below are WSR tests with $N = 64$. Outcomes were attended significantly longer than probabilities during choices (outcome= 2451 ms vs. probabilities= 1682 ms, $z = 6.915$, $p < .0001$). During evaluations of either type, outcomes were also attended significantly longer than probabilities for the actually-evaluated lottery (joint evaluations, outcome= 5150 ms vs. probabilities= 2335 ms, $z = 6.955$, $p < .0001$; separate evaluations, outcome= 5105 ms vs. probabilities= 2220 ms, $z = 6.955$, $p < .0001$). This was also true for the other, non-evaluated lottery in joint evaluations (outcome= 413 ms vs. probabilities= 244 ms, $z = 5.892$, $p < .0001$).[2] In contrast, for a different set of lotteries, Alós-Ferrer et al. (2021) find significantly longer fixations on probabilities than

[2] Although fixations on black dots were rare during separate evaluations, subjects did fixate black dots on positions related to probabilities significantly longer than black dots on outcome positions ("outcome"= 8 ms vs. "probabilities"= 20 ms, $z = -2.972$, $p = .0030$).

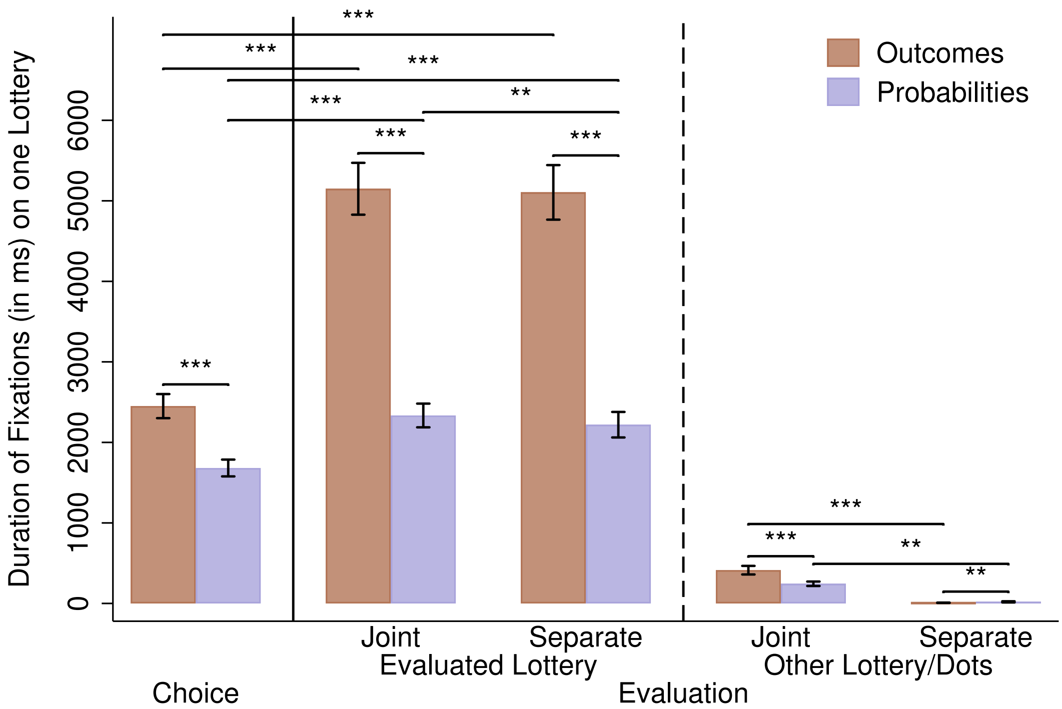

Figure C.3: Average fixation duration in milliseconds (ms) on outcomes and probabilities for the choice (left-hand side) and evaluation (right-hand side) phases, distinguishing outcomes and probabilities. The evaluation phase also distinguishes fixations for the actually-evaluated lottery (left) and fixations on the other lottery (right), i.e. the one not evaluated at the moment, for both treatments. Stars indicate significance of non-parametric tests: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

outcomes in the choice phase but not statistically significant differences in fixation duration on outcomes and probabilities in the evaluation phase. One reason for the differences to the current results might be that all lotteries in Alós-Ferrer et al. (2021) had only one non-zero outcome and the presentation was reduced to the non-zero outcome and its probability. That is, in the experiment at hand looking at one probability within a lottery also reveals the other probability (since they add up to 100%), while looking at one outcome does not reveal the other outcome.

Confirming Hypothesis H1, subjects attended the other lottery in the Joint Treatment longer than the black dots in the Separate Treatment, and the differences were significant both when considering outcomes (Joint= 413 ms vs. Separate= 8 ms, $z = 6.928$, $p < .0001$) and when considering probabilities (Joint= 244 ms vs. Separate= 20 ms, $z = 6.464$, $p < .0001$).

Next we compare fixation duration on each attribute across different tasks and treatments. For this purpose, in the evaluation phase we consider only fixations on the actually-evaluated lottery. Outcomes were fixated for less time during choices than in the evaluation phase of either treatment (choice vs. joint evaluation, $z = -6.948$, $p_a < .0001$; choice vs. separate evaluation, $z = -6.955$, $p_a < .0001$) but there were no statistically significant differences across the evaluation phases of both treatments (joint vs. separate evaluations, $z = 0.910$, $p_a = .3631$). Fixation duration on probabilities was also shorter in the choice task than in either evaluation task (choice vs. joint evaluation, $z = -6.099$, $p_a < .0001$; choice vs. separate evaluation, $z = -5.009$, $p_a < .0001$). The small difference in fixation duration on probabilities between the evaluation phases in the Joint and Separate treatments is also significant (Joint vs. Separate, WSR, $N = 64$, $z = 2.695$, $p_a = .0070$). The differences across tasks and treatments is compatible with the interpretation that participants in evaluation tasks might be engaging in the computation of an abstract value as requested in this kind of tasks, as e.g. a certainty equivalent or an expectation.

C.3 Heterogeneity

In this subsection we present further analyses on possible subject heterogeneity. For this purpose, we performed a median split of all subjects on the rate of standard reversals (median 67.14%). We do not find any statistically significant difference in reversal rates across the Joint Treatment compared to the Separate Treatment (H2a) for either subgroup (high: Joint= 85.39% vs. Separate= 82.46%, WSR, $N = 31$, $z = 0.990$, $p = .3224$; low: Joint= 40.43% vs. Separate= 39.16%, WSR, $N = 32$, $z = 0.094$, $p = .9253$).

We analyze the effect of fixations on evaluations (H3a) and reversal rates (H3b) for subjects with high and low standard reversal rates separately. Table C.2 presents the 7 random effects panel regression models from the main text analyzing the effect of fixations on evaluations (H3a). The top and bottom parts of the table show the regression estimates for subjects with high and low standard reversal rates, respectively. The regression models for subjects with high standard reversal rates confirm the previous result that, as predicted by Salience Theory, more fixations on the other lottery reduce the minimum selling price, as indicated by a significant and negative coefficient (# Fix. on other lottery). The regression models for subjects with low standard reversal rates do not confirm this hypothesis, as fixations on the other lottery do not significantly affect evaluations.

Table C.3 presents the 3 panel probit regression models from the main text analyzing the effect of fixations on standard reversals (H3b). Again, the top and bottom parts of the table show the regression estimates for subjects with high and low standard reversal rates, respectively. The regression models for subjects with high standard reversal rates confirm the previous results that more fixations on the other lottery reduce the standard reversals, as predicted by Salience Theory, indicated by a significant and negative # Fix. on other P-bet coefficient. The regression models for subjects with low standard reversal rates do not confirm this hypothesis, as the coefficient # Fix. on other P-bet is not statistically significant.

Table C.4 presents information about the types of transitions, as in Subsection C.1, split by subjects with high (top) and low (bottom) rates of standard reversals. The first three rows of both subtables present the data aggregated over all rounds. In general, Mann-Whitney-Wilcoxon tests ($N = 64$) show no significant differences for any kind of transitions and tasks (choices and evaluations). The only three exceptions are within-quadrant transitions for joint evaluations ($z = -2.283$, $p = .0225$), and vertical transitions for choices ($N = 64$, $z = 2.041$, $p = .0413$) and joint evaluations ($z = 2.054$, $p = .0399$). All other tests are non-significant (all $p > .1625$).

The remaining rows of both parts of Table C.4 show the data for each of the 24-round quartiles. Visual inspection shows similar attention patterns across quartiles.

Table C.2: Random effects panel regression on evaluations in the Joint Treatment for subjects with high (top) and low (bottom) standard reversal rates.

Subjects With High Standard Reversal Rates

Evaluation	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
# Fix. on other lottery	-0.0264	-0.0255	-0.0268	-0.0462*	-0.0618**	-0.0606**	-0.0412*
	(0.0161)	(0.0168)	(0.0148)	(0.0183)	(0.0193)	(0.0192)	(0.0175)
# Fix. on evaluating lottery		-0.0021	-0.0043	-0.0048	-0.0276*	-0.0257	-0.0231*
		(0.0101)	(0.0091)	(0.0090)	(0.0133)	(0.0133)	(0.0113)
Evaluating a P-bet			-1.5752***	-1.6859***	-1.6846***	-1.6830***	-1.6889***
			(0.1269)	(0.1408)	(0.1411)	(0.1407)	(0.1299)
# Fix. other × P-bet				0.0490	0.0429	0.0427	0.0475
				(0.0273)	(0.0276)	(0.0275)	(0.0254)
Constant	6.6866***	6.7211***	7.5467***	7.6011***	7.7824***	5.3800***	5.2574***
	(0.1595)	(0.2285)	(0.2270)	(0.2293)	(0.2683)	(0.9392)	(0.4975)
Controls	No	No	No	No	Yes	Yes	Yes
Demographics	No	No	No	No	No	Yes	Yes
Lottery Dummies	No	No	No	No	No	No	Yes
adj. R^2	0.0077	0.0092	0.1875	0.1922	0.2088	0.2463	0.4923
WaldTest	2.66	2.71	157.35***	161.29***	168.44***	176.75***	505.16***
LinCom: # Fix. other +				0.0028	-0.0189	-0.0179	0.0063
# Fix. other × P-bet				(0.0222)	(0.0239)	(0.0239)	(0.0220)
Observations	562	562	562	562	562	562	562

Subjects With Low Standard Reversal Rates

Evaluation	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
# Fix. on other lottery	-0.0004	-0.0119	-0.0117	-0.0229	-0.0237	-0.0234	-0.0193
	(0.0131)	(0.0137)	(0.0136)	(0.0171)	(0.0185)	(0.0186)	(0.0156)
# Fix. on evaluating lottery		0.0175**	0.0182**	0.0175**	0.0171	0.0168	0.0158
		(0.0063)	(0.0063)	(0.0063)	(0.0104)	(0.0105)	(0.0087)
Evaluating a P-bet			0.2505*	0.1957	0.2016	0.2013	0.2199*
			(0.1169)	(0.1272)	(0.1274)	(0.1274)	(0.1070)
# Fix. other × P-bet				0.0277	0.0293	0.0292	0.0167
				(0.0256)	(0.0257)	(0.0257)	(0.0217)
Constant	5.7345***	5.4152***	5.2759***	5.3125***	5.2344***	5.4753***	4.9407***
	(0.0861)	(0.1423)	(0.1563)	(0.1611)	(0.2226)	(0.6473)	(0.4490)
Controls	No	No	No	No	Yes	Yes	Yes
Demographics	No	No	No	No	No	Yes	Yes
Lottery Dummies	No	No	No	No	No	No	Yes
adj. R^2	0.0000	0.0130	0.0201	0.0220	0.0241	0.0249	0.3848
WaldTest	0.00	7.76*	12.40**	13.56**	15.12*	15.24	352.22***
LinCom: # Fix. other +				0.0048	0.0056	0.0058	-0.0026
# Fix. other × P-bet				(0.0204)	(0.0222)	(0.0223)	(0.0184)
Observations	604	604	604	604	604	604	604

Standard errors in parentheses, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Controls: response time and normalized round (round number divided by number of rounds).

Demographics: gender and age.

Lottery Dummies: dummies for each lottery pair 2-16, 33-48.

Table C.3: Panel probit regression on preference reversals for lotteries jointly evaluated.

Subjects With High Standard Reversal Rates

Standard Reversals	Model 1	Model 2	Model 3
# Fix. on other P-bet	-0.0462*	-0.0457*	-0.0475*
	(0.0186)	(0.0187)	(0.0186)
# Fix. on other \$-bet	0.0261	0.0261	0.0248
	(0.0281)	(0.0284)	(0.0286)
# Fix. on eval. \$-bet	-0.0048	-0.0054	-0.0031
	(0.0111)	(0.0115)	(0.0114)
# Fix. on eval. P-bet	-0.0031	-0.0036	-0.0040
	(0.0119)	(0.0122)	(0.0121)
Constant	1.0250***	1.0358**	-0.3591
	(0.2605)	(0.3150)	(0.8326)
Controls	No	Yes	Yes
Demographics	No	No	Yes
Log Likelihood	-141.58	-141.54	-138.28
WaldTest	8.42	8.49	13.78
LinCom: # Fix. other P-bet +	-0.0201	-0.0196	-0.0226
# Fix. on other \$-bet	(0.0329)	(0.0333)	(0.0332)
Observations	281	281	281

Subjects With Low Standard Reversal Rates

Standard Reversals	Model 1	Model 2	Model 3
# Fix. on other P-bet	-0.0470	-0.0466	-0.0442
	(0.0242)	(0.0243)	(0.0242)
# Fix. on other \$-bet	0.0269	0.0273	0.0269
	(0.0208)	(0.0209)	(0.0206)
# Fix. on eval. \$-bet	0.0113	0.0117	0.0105
	(0.0075)	(0.0076)	(0.0076)
# Fix. on eval. P-bet	0.0015	0.0021	0.0008
	(0.0099)	(0.0100)	(0.0100)
Constant	-0.6526**	-0.5794*	0.5335
	(0.2319)	(0.2899)	(0.7840)
Controls	No	Yes	Yes
Demographics	No	No	Yes
Log Likelihood	-185.97	-185.86	-184.56
WaldTest	6.43	6.60	9.32
LinCom: # Fix. other P-bet +	-0.0202	-0.0194	-0.0172
# Fix. on other \$-bet	(0.0282)	(0.0283)	(0.0281)
Observations	302	302	302

Standard errors in parentheses, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Controls: response time and normalized round (round number divided by number of rounds).

Demographics: gender and age.

Table C.4: Proportion of within-quadrant, vertical, horizontal, and diagonal transitions separately for each quartile (Q).

Subjects With High Standard Reversal Rates

		Within-quadrant	Vertical	Horizontal	Diagonal
All	Choice	43.22%	28.39%	20.63%	7.75%
	Joint	55.06%	39.11%	4.21%	1.63%
	Separate	59.34%	40.25%	0.32%	0.09%
1^{st} Q	Choice	44.22%	29.14%	20.21%	6.43%
	Joint	53.53%	38.53%	5.93%	2.01%
	Separate	58.20%	41.18%	0.51%	0.11%
2^{nd} Q	Choice	42.72%	28.12%	20.90%	8.26%
	Joint	54.30%	40.27%	4.08%	1.35%
	Separate	58.80%	40.89%	0.20%	0.12%
3^{rd} Q	Choice	43.31%	27.92%	20.43%	8.35%
	Joint	55.63%	38.25%	4.22%	1.89%
	Separate	60.12%	39.33%	0.37%	0.18%
4^{th} Q	Choice	42.45%	28.23%	21.38%	7.94%
	Joint	56.10%	39.53%	3.08%	1.30%
	Separate	60.11%	39.61%	0.28%	0.00%

Subjects With Low Standard Reversal Rates

		Within-quadrant	Vertical	Horizontal	Diagonal
All	Choice	45.32%	26.11%	20.07%	8.50%
	Joint	61.48%	33.41%	3.68%	1.44%
	Separate	64.09%	35.22%	0.56%	0.13%
1^{st} Q	Choice	46.13%	26.97%	19.09%	7.81%
	Joint	60.12%	34.21%	3.91%	1.76%
	Separate	62.76%	36.26%	0.82%	0.16%
2^{nd} Q	Choice	45.84%	25.98%	20.23%	7.95%
	Joint	62.21%	32.41%	3.86%	1.53%
	Separate	65.29%	33.95%	0.66%	0.11%
3^{rd} Q	Choice	44.60%	25.79%	20.54%	9.07%
	Joint	61.89%	33.28%	3.29%	1.54%
	Separate	64.33%	35.10%	0.44%	0.12%
4^{th} Q	Choice	44.54%	25.87%	20.33%	9.26%
	Joint	61.77%	33.47%	3.80%	0.96%
	Separate	63.90%	35.71%	0.30%	0.08%

D Instructions

[The instructions were presented on screen. We merged the instructions of the online and eye-tracking experiment which were almost identical. Text in brackets [. . .] was not displayed to subjects to identify differences between treatments and/or the online and the eye-tracking experiments. Exercise trials and Comprehensions questions were only part of the eye-tracking experiment.]

General Instructions

Welcome! Thank you for participating in this eye-tracking experiment. On top of your fixed earnings of *[Online]:* 1.1 GBP / *[Eye-tracking]:* 10 CHF for completing this study, you will earn a bonus payment which will depend on your decisions.

[Online]: The bonus payment ranges from 0.6 GBP to 10.4 GBP.

Please read all instructions and questions carefully before making a decision. The experiment will take about *[Online]:* 20 minutes / *[Eye-tracking]:* 1 hour to complete.

[Online]: Answer honestly and take care to avoid mistakes.

[Eye-tracking]: The following pages explain the decision task and how your final payment is determined in detail. Use the arrow keys to navigate through the instructions. Please answer the comprehension questions at the end. In case you have any questions, please ask the experimenter.

Decisions and Payment

There are *[Online]:* 24 / *[Eye-tracking]:* 96 rounds in which you will face two types of decision tasks involving lotteries. More detailed instructions on the two decision tasks and lotteries will follow. Your bonus payment depends on the decisions you are about to make. At the end of this study, we will randomly pick one of your decisions. This particular decision will then be paid out according to the rules specified in later pages.

Each decision could be the one that counts for your bonus. It is therefore in your best interest to consider all your answers carefully.

The bonus you can earn in each decision is presented in Experimental Currency Units, in short ECU. At the end of the study your bonus payment will be exchanged using the following exchange rate:

[Online]: 1 ECU = 0.4 GBP.

[Eye-tracking]: 1 ECU = 2.50 CHF.

Lotteries

Below is an example of two lotteries: a Left Lottery and a Right Lottery, which are separated by a vertical line.

Each lottery has two outcomes that can occur with certain probabilities (both adding up to 100%). Each outcome pays a certain amount of ECU. The two outcomes of a lottery are separated by a dashed, horizontal line, i.e. there is a top and bottom outcome, each shown next to the probability of the outcome (i.e., how likely each outcome is).

⋘ *[Example Lottery (Figure D.1) was shown here]* ⋙

Example: The Left Lottery has two possible outcomes. With a probability of 29% the lottery yields 14.0 ECU and with a probability of 71% the lottery yields 3.3 ECU.

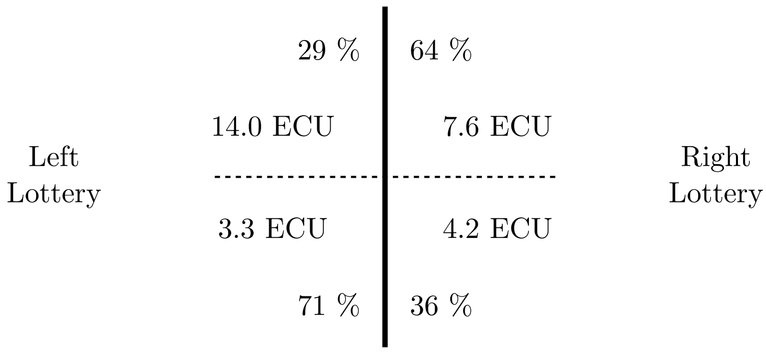

Figure D.1: *[Example Lottery shown during instructions. $-bet (here on the left) and a P-bet (here on the right).]*

Task A: Choose Between Two Lotteries

One of the tasks is to choose between two lotteries and select the one you prefer (Left Lottery or Right Lottery).

In this task you simply select the lottery you prefer to play out. Playing out the lottery means that one of the two outcomes is realized and you will earn that amount of ECU.

⋘ *[Example Lottery (Figure D.1) was shown here]* ⋙

Example: Suppose you chose the Left Lottery which yields 14.0 ECU with 29% probability and 3.3 ECU with 71% probability. Imagine a box with a total of 100 balls of which 29 are blue and 71 are orange. We will then randomly pick a ball from the box and if it is blue you will earn 14.0 ECU and if it is orange you will earn 3.3 ECU.

[Eye-tracking]: Exercise Trial: Choose Between Two Lotteries!

Use the "left Arrow" and "right Arrow" key on the keyboard to choose the "Left Lottery" and "Right Lottery," respectively.

⋘ *[Example Lottery (Figure D.1) was shown here]* ⋙

Task B: State the Lowest-acceptable Selling Price

The other kind of task you will encounter is to state the lowest-acceptable selling price for a lottery: For this, simply assume that you already own the lottery and you have to state the lowest price at which you are still willing to sell that lottery instead of keeping and playing it out.

[Eye-tracking]: In some case you will only see the lottery and black dots on the opposite side (as depicted here). In other cases both lotteries are depicted and you have to state the lowest-acceptable selling price for the indicated lottery (example depicted in the Exercise Trial).

Your bonus payment will be determined as follows:

We will randomly determine an offer for buying the lottery from you.

- If the offer is larger than (or equal to) the lowest-acceptable selling price you stated, then you sell the lottery for the amount of ECU we offered.

[Eye-tracking and Separate Treatment Online Experiment]

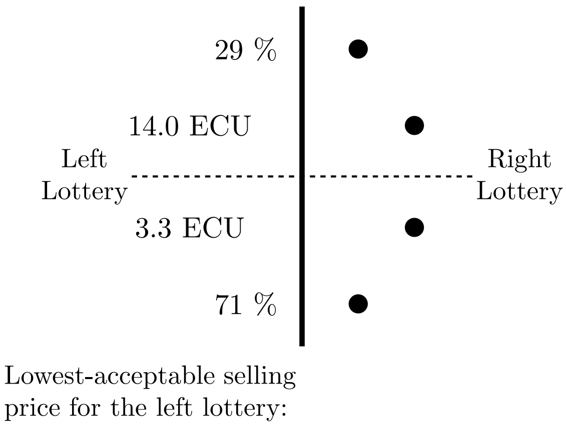

Figure D.2: *[Example Lottery of Separate Evaluation shown during instructions.]*
[Joint Treatment, Online experiment]

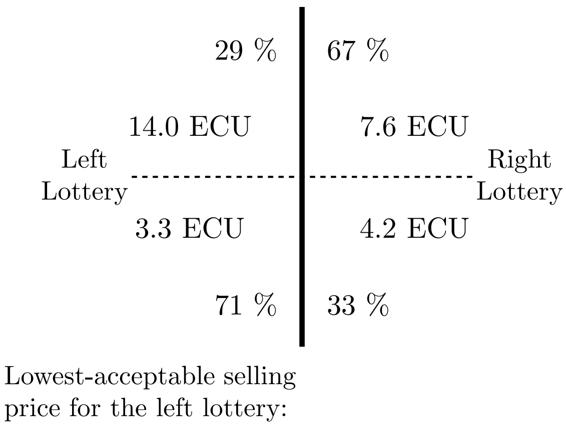

Figure D.3: *[Example Lottery of Joint Evaluation shown during instructions in the Joint Treatment in the Online experiment.]*

- If the offer is smaller, then you keep the lottery and it will be played out. This means that you will randomly receive one of the outcomes of the lottery you kept (according to the probabilities of each outcome).

⋘ *[Example Lottery Evaluation (Figure D.2 or Figure D.3) was shown here]* ⋙

Example: Suppose you stated that 6.5 ECU is the lowest-acceptable selling price for the Left Lottery.

- If we offered to buy the lottery for, e.g., 9.5 ECU (randomly determined), which is higher than your stated price, then you sell the lottery and earn 9.5 ECU.
- If we offered to buy the lottery for, e.g., 5.3 ECU (randomly determined), which is lower than your stated price, then you will keep the lottery and your earnings will be determined by playing it out.

This means that for any offer larger than (or equal to) the lowest-acceptable selling price you stated, you prefer selling the lottery instead of keeping and playing it out. For any offer below the lowest-acceptable selling price you stated, you prefer keeping and playing it out.

Therefore, it is in your best interest to truthfully report the lowest-acceptable selling price, i.e., the lowest price at which you are still willing to sell the lottery.

Note that the lowest-acceptable selling price cannot be larger than the larger outcome or smaller than the smaller outcome of the lottery.

[Eye-tracking]: Exercise Trial: State the Lowest-acceptable Selling Price!

State the lowest-acceptable selling price for the Left Lottery: Use the number pad to enter the lowest-acceptable selling price for the Left lottery and press the "Return"(/"Enter") key to confirm the price or "Backspace" to delete the currently typed price.

Use this opportunity to familiarize yourself with entering the price while keeping your gaze on the screen.

⋘ *[Example Lottery Evaluation (Figure D.2) was shown here]* ⋙

[Eye-tracking]: Comprehension Questions

⋘ *[Example Lottery (Figure D.1) was shown here]* ⋙

Comprehension Question 1: What is the probability you will receive 14.0 ECU in case the Left Lottery is played out?'

Comprehension Question 2 What is the probability you will receive 7.6 ECU in case the Right Lottery is played out?

Comprehension Question 3 What amount of ECU can you receive with probability of 71% when playing the Left Lottery?

Comprehension Question 4 What amount of ECU can you receive with probability of 36% when playing the Right Lottery?

This is the end of comprehension questions! Do you have any remaining questions? The calibration is about to start.

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