Supplementary Materials: Simulated Data

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Author Note

Abstract

Moral dumbfounding occurs when people maintain a moral judgment in the absence of supporting reasons. Drawing on dual-process approaches to moral judgment, one possible explanation for moral dumbfounding proposes that it occurs as a result of a conflict between intuitive and deliberative processes. Consistent with this explanation, previous research has shown that under manipulations designed to lead to more intuitive thinking rather than deliberative thinking (such as increased cognitive load), people are less likely to provide reasons for their judgments, and more likely to provide dumbfounded responses in a moral dumbfounding task. Building on this work the present research examines if dumbfounded responding can be reduced through experimental manipulations designed to facilitate deliberative thinking (over intuitive thinking). Drawing on construal-level theory, and the finding that distancing facilitates deliberative thinking, we predict that including a distancing manipulation in a moral dumbfounding task will increase reason-giving, and reduce dumbfounded responding. We propose a pre-registered study to test this prediction.

Keywords: moral dumbfounding, distancing, construal-level theory, dual-processes, reasons, intuitions

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Temporal Distancing and Dumbfounding

Overview of Judgments. A total of 3360 participants (70%) rated the behavior of Julie and Mark as wrong initially, and 3232 participants (67.33%) rated the behavior as wrong at the end of the task. There was a significant difference between initial ratings ($M = 3.3$, $SD = 1.3$) and revised ratings ($M = 3.4$, $SD = 1.4$), $t(4799) = -3.3$, $p < .001$, $d = 0.05$.

Distancing and Judgments Made. There was no difference in initial judgement depending on distance manipulation: $F(2, 4797) = 1.73$, $p = .177$ $\eta_p^2 = 0.001$, ($M_{\text{increased}} = 3.3$, $SD_{\text{increased}} = 1.3$, $M_{\text{decreased}} = 3.3$, $SD_{\text{decreased}} = 1.3$, $M_{\text{control}} = 3.4$, $SD_{\text{control}} = 1.3$). There was no difference in revised judgement depending on distance manipulation: $F(2, 4797) = 0.45$, $p = .640$, $\eta_p^2 = 0$, ($M_{\text{increased}} = 3.4$, $SD_{\text{increased}} = 1.3$, $M_{\text{decreased}} = 3.4$, $SD_{\text{decreased}} = 1.4$, $M_{\text{control}} = 3.4$, $SD_{\text{control}} = 1.4$).

Distancing and Reason-Giving/Dumbfounding. There was a significant association between temporal distance condition and response to the critical slide, $\chi^2(4, N = 4800) = 109.93$, $p < .001$, $V = 0.15$, the observed power was 1. The responses to the critical slide for the increased distance group ($N = 1600$) the decreased distance group ($N = 1600$), and the control group ($N = 1600$) are displayed in Figure 1.

Figure 1

Simulated Data: Responses to critical slide depending on temporal distance for the increased temporal distance group (future, N = 1,600), for the decreased temporal distance group (today, N = 1,600), and for the control group (N = 1,600) (error bars represent standard error of the proportion)
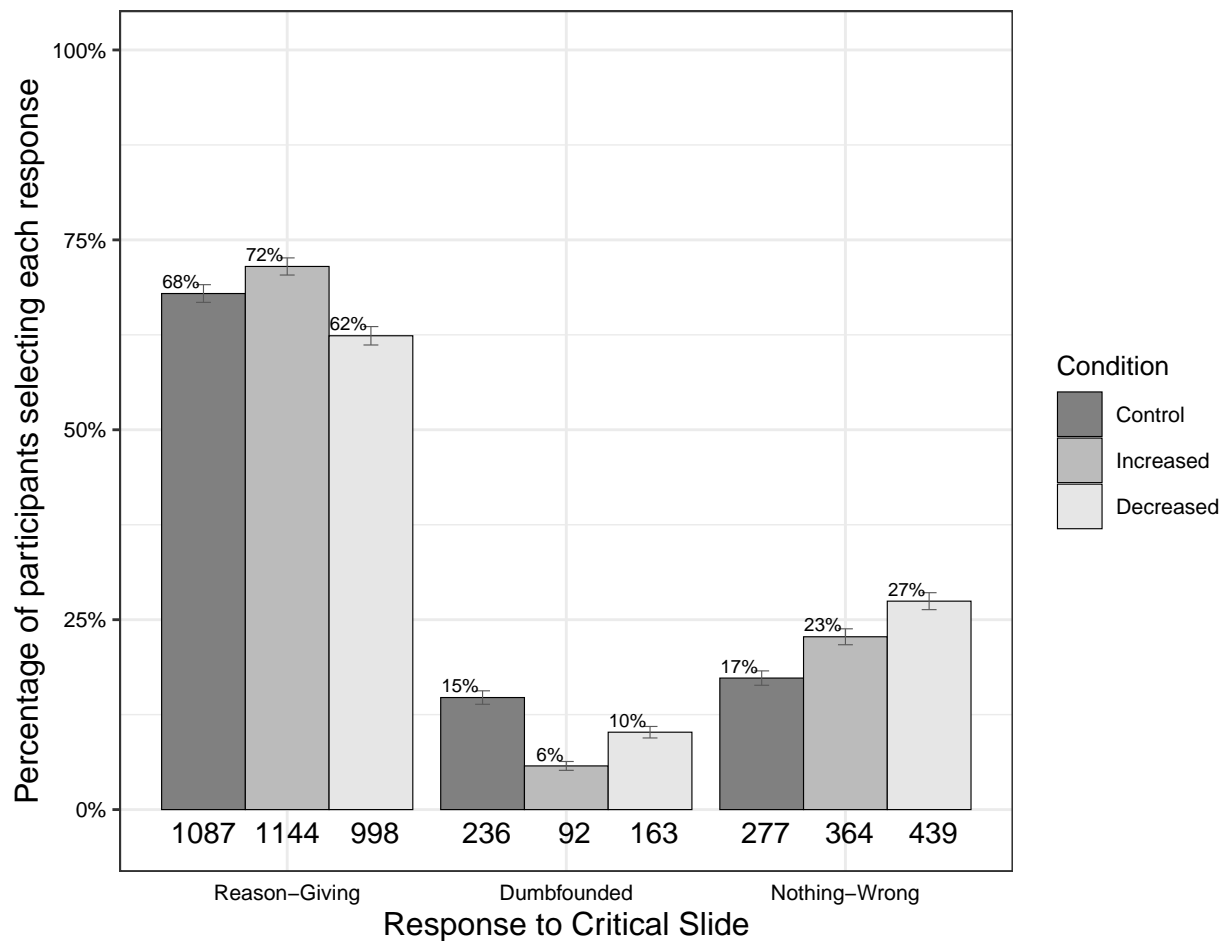
Table 1

Observed counts, expected counts, and standardised residuals for each response to the critical slide depending on temporal distancing

		Control	Increased	Decreased
Observed count	Reasons	1087	1144	998
	Dumbfounded	236	92	163
	Nothing Wrong	277	364	439
Expected count	Reasons	1076.33	1076.33	1076.33
	Dumbfounded	163.67	163.67	163.67
	Nothing Wrong	360	360	360
Standardised residuals	Reasons	0.7	4.42**	-5.11**
	Dumbfounded	7.31**	-7.24**	-0.07
	Nothing Wrong	-6.09**	0.29	5.79**

Note. * = sig. at $p < .05$; ** = sig. at $p < .001$

Psychological Distancing and Dumbfounding

Overview of Judgments. A total of 3360 participants (70%) rated the behavior of Julie and Mark as wrong initially, and 3232 participants (67.33%) rated the behavior as wrong at the end of the task. There was a significant difference between initial ratings ($M = 3.3$, $SD = 1.3$) and revised ratings ($M = 3.4$, $SD = 1.4$), $t(4799) = -3.3$, $p < .001$, $d = 0.05$.

Distancing and Judgments Made. There was no difference in initial judgement depending on distance manipulation: $t(4796.82) = 1.02$, $p = .306$, $d = 0.03$, ($M_{\text{increased}} = 3.3$, $SD_{\text{increased}} = 1.3$, $M_{\text{decreased}} = 3.3$, $SD_{\text{decreased}} = 1.3$). There was no difference in revised judgement depending on distance manipulation: $t(4793.45) = 1.08$, $p = .281$, $d = 0.03$, ($M_{\text{increased}} = 3.4$, $SD_{\text{increased}} = 1.4$, $M_{\text{decreased}} = 3.4$, $SD_{\text{decreased}} = 1.4$).

Distancing and Reason-Giving/Dumbfounding. There was a significant association between temporal distance condition and response to the critical slide, $\chi^2(2, N = 4800) = 15.056$, $p < .001$, $V = 0.06$, the observed power was 0.92. The responses to the critical slide for the increased distance group ($N = 2400$) and the decreased distance group ($N = 2400$) are displayed in Figure 2.

Figure 2

Simulated Data: Responses to critical slide depending on psychological distance for the increased psychological distance group (future, N = 2,400), and for the decreased psychological distance group (today, N = 2,400), (error bars represent standard error of the proportion)
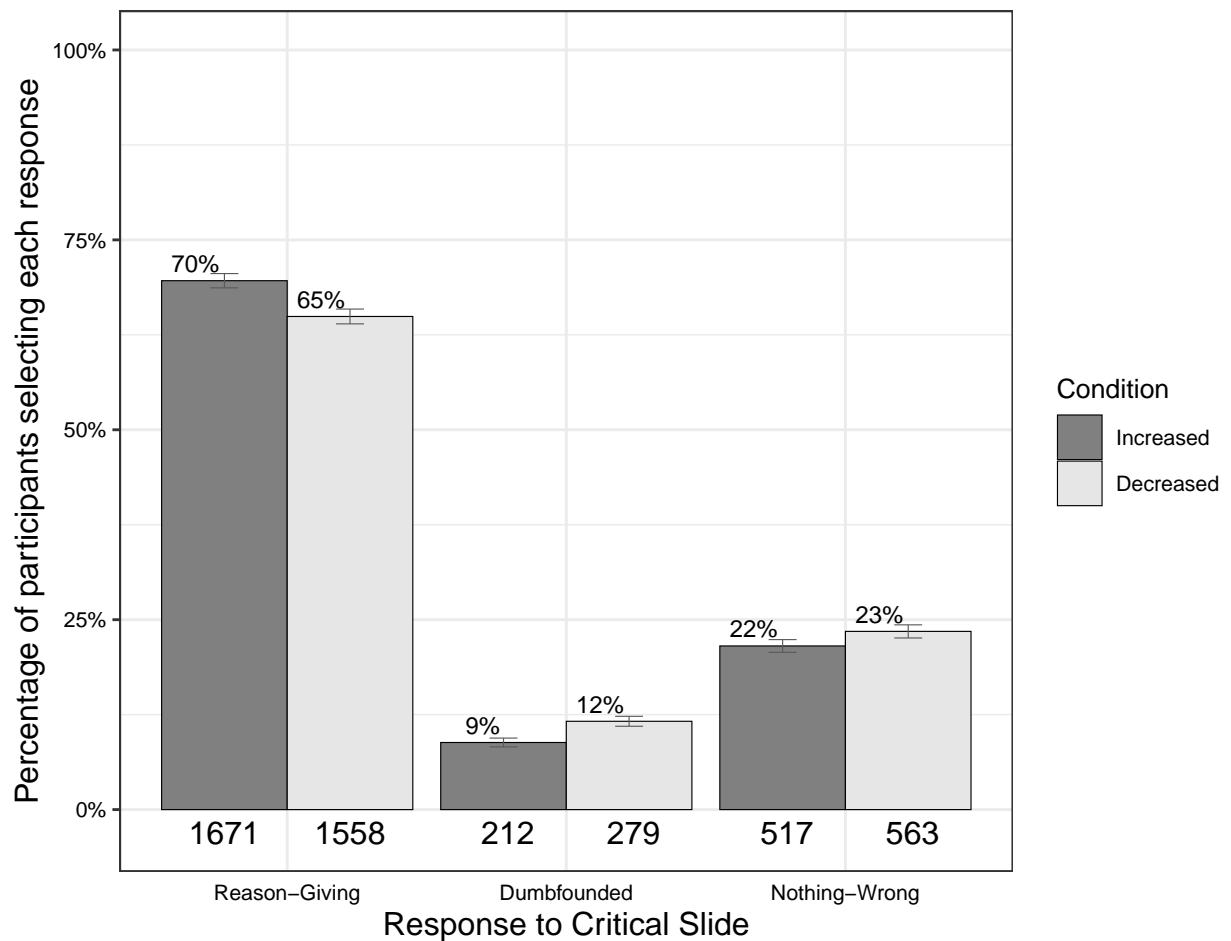
Table 2

Observed counts, expected counts, and standardised residuals for each response to the critical slide depending on psychological distancing

		Increased	Decreased
Observed count	Reasons	1671	1558
	Dumbfounded	212	279
	Nothing Wrong	517	563
Expected count	Reasons	1614.5	1614.5
	Dumbfounded	245.5	245.5
	Nothing Wrong	540	540
Standardised residuals	Reasons	3.48**	-3.48**
	Dumbfounded	-3.19*	3.19*
	Nothing Wrong	-1.59	1.59

Note. * = sig. at $p < .05$; ** = sig. at $p < .001$

Distancing and Dumbfounding

Overall the model significantly predicted responses to the critical slide $\chi^2(16, N = 4800) = 212.06$, $p < .001$, The observed power was 1. The model explained between 1.46% (Cox and Snell R square) and 3.42% (Nadelkerke R squared) of the variance in responses to the critical slide. For scenarios in the future, participants were more likely to provide reasons than to present as dumbfounded Wald = -10.83, $p < .001$, odds ratio = 0.35, 95% CI [0.24, 0.51].

Figure 3

Simulated Data: Responses to critical slide depending on both manipulations. Sample sizes as follows: Self-Control, N = 800, Other-Control, N = 800, Self-Now, N = 800, Other-Now, N = 800, Self-Future, N = 800, Other-Future, N = 800, (error bars represent standard error of the proportion)
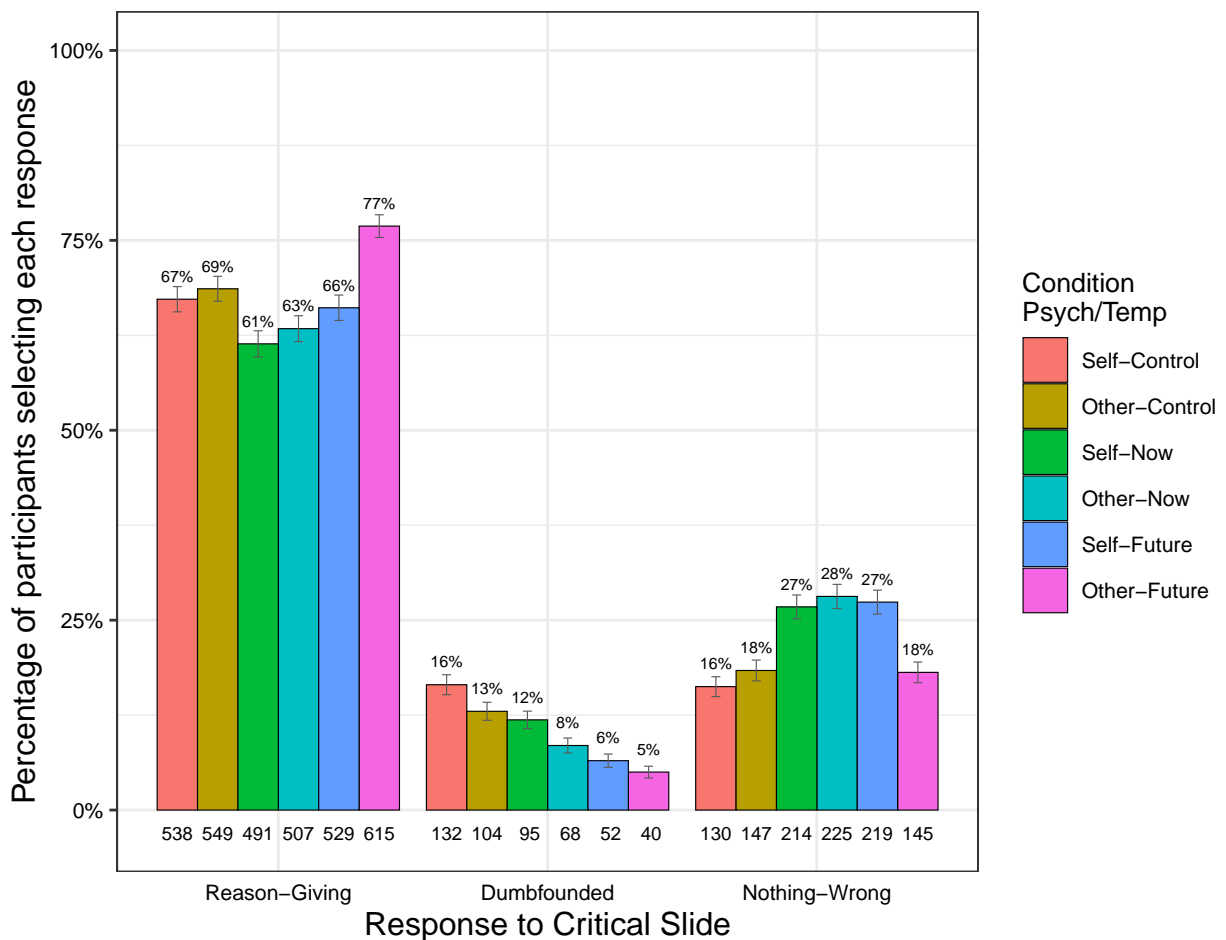
Table 3

Predictors of each response with reason-giving as the reference response

Response	Term	b	S.E.	z	Wald	p	O.R.	Lower	Upper
D	(Intercept)	-1.64	0.14	-11.90	-23.80	< .001**	0.19	0.15	0.26
D	Psy-Self	0.26	0.15	1.81	3.62	0.071	1.30	0.98	1.73
D	Temp-Future	-1.06	0.20	-5.42	-10.83	< .001**	0.35	0.24	0.51
D	Temp-Now	-0.32	0.17	-1.91	-3.81	0.057	0.73	0.52	1.01
D	Scenario-Jennifer	-0.28	0.14	-1.94	-3.88	0.052	0.76	0.57	1.00
D	Scenario-Julie and Mark	0.40	0.13	3.08	6.16	.002*	1.49	1.16	1.92
D	Scenario-Trolley	-0.39	0.15	-2.61	-5.21	.009*	0.68	0.51	0.91
D	Psy-Self × Temp-Future	0.16	0.26	0.62	1.23	0.538	1.18	0.70	1.97
D	Psy-Self × Temp-Now	0.09	0.22	0.41	0.82	0.682	1.10	0.71	1.70
NW	(Intercept)	-1.28	0.11	-11.44	-22.88	< .001**	0.28	0.22	0.35
NW	Psy-Self	-0.10	0.14	-0.75	-1.49	0.456	0.90	0.69	1.18
NW	Temp-Future	-0.13	0.13	-0.96	-1.92	0.338	0.88	0.68	1.14
NW	Temp-Now	0.51	0.12	4.18	8.35	< .001**	1.67	1.31	2.13
NW	Scenario-Jennifer	-0.39	0.11	-3.72	-7.44	< .001**	0.68	0.55	0.83
NW	Scenario-Julie and Mark	0.13	0.10	1.33	2.66	0.184	1.14	0.94	1.39
NW	Scenario-Trolley	0.07	0.10	0.72	1.44	0.47	1.07	0.89	1.30
NW	Psy-Self × Temp-Future	0.67	0.18	3.68	7.36	< .001**	1.96	1.37	2.80
NW	Psy-Self × Temp-Now	0.08	0.18	0.43	0.87	0.665	1.08	0.76	1.53

Note. * = sig. at $p < .05$; ** = sig. at $p < .001$; D = dumbfounded, NW = nothing-wrong