

Supplemental Materials:

Using the CNI Model to Investigate Individual Differences in Moral Dilemma Judgments

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Pilot Studies

The goal of the two pilot studies was to test whether (a) the CNI model shows acceptable fit in describing participants' responses to our new dilemmas and (b) whether our new dilemmas reproduce experimental effects that have been found with Gawronski, Armstrong, Conway, Friesdorf, and Hütter's (2017) dilemma set. Although our eventual goal was to use a combined dilemma battery that includes both our new dilemma set and Gawronski et al.'s (2017) dilemmas for research using the CNI model, the two pilot studies used only the new dilemmas to provide a stringent test of the replicability of previous effects with our new dilemmas.

Toward this end, participants were presented with our new set of moral dilemmas and asked to indicate either (a) if it is morally acceptable to perform the described action (acceptability framing) or (b) if they would perform the described action (action framing). Using the same framing manipulation, Gawronski et al. (2017) found that participants in the action framing condition showed a weaker sensitivity to norms on the N parameter and a stronger general preference for inaction on the I parameter than participants in the moral judgment condition (see also Tassy, Oullier, Mancini, & Wicker, 2013). We expected to replicate this finding with our new dilemma set.

For each pilot study, we aimed to recruit 200 participants, which provides a statistical power of .80 to detect a small to medium-sized between-group effect of $d = .40$ (two-tailed). By default, we excluded participants who aborted the study or started the study more than once, participants with missing data in the moral dilemmas, participants who showed the same response to all dilemmas, and participants who failed to pass an instructional attention check (see Oppenheimer, Meyvis, & Davidenko, 2009). The data for each pilot study were collected in one shot without intermittent statistical analyses. We report all measures, all conditions, and all data

exclusions. The data, analysis codes, and materials for both pilot studies are available at <https://osf.io/ndf4w/>.

Method

Participants. Participants were recruited for a study entitled *How Do We Make Moral Decisions?* via Amazon's Mechanical Turk (MTurk). Participants received compensation of US-\$1.00 for completing the study. Eligibility for participation was limited to English native speakers who (a) had a HIT approval rate of at least 95% at the time of the study and (b) had not participated in prior studies from our lab using the same moral dilemmas.

Of the 211 participants who started Pilot Study 1, 26 were excluded from all analyses (for details on data exclusions, see Table S1), leaving us with a final sample of 185 participants (70 female, 97 male, 1 prefer not to respond; $M_{\text{age}} = 37$ years, $SD_{\text{age}} = 12$; demographic information missing for 17 participants).

Of the 217 participants who started Pilot Study 2, 35 were excluded from all analyses (for details on data exclusions, see Table S1), leaving us with a final sample of 182 participants (82 female, 77 male; $M_{\text{age}} = 38$ years, $SD_{\text{age}} = 13$; demographic information missing for 23 participants).

Procedure. The design, materials, and procedure were identical in the two pilot studies. Participants were randomly assigned to one of two question-framing conditions (acceptability framing vs. action framing). Participants in both conditions responded to 24 newly developed moral dilemmas (see <https://osf.io/ndf4w/>) in a fixed randomized order. Participants in the acceptability-framing condition were asked to indicate for each dilemma whether it is acceptable to perform the described action (*yes* vs. *no*). Participants in the action-framing condition were asked to indicate for each dilemma whether they would perform the described action (*yes* vs. *no*).

After completing the moral dilemma battery, participants provided demographic information, responded to a one-item instructional attention check (see Oppenheimer, Meyvis, & Davidenko, 2009), and were given an opportunity to comment on the study before receiving a completion code to request their compensation.

Results

Following the procedures by Gawronski et al. (2017), the moral judgment data were aggregated by calculating the sum of *action* responses to the four types of moral dilemmas. With a total of 6 scenarios for each dilemma type, aggregate scores could range from 0 to 6. Means and 95% confidence intervals of the aggregated moral judgment data are presented in Table S2. CNI model analyses were conducted using the multinomial modeling software multiTree by Moshagen (2010) and the multiTree template file for CNI model analyses provided by Gawronski et al. (2017) at http://www.bertramgawronski.com/documents/CNI-Model_Materials.zip.

In Pilot Study 1, the probabilities of responses predicted by the CNI model marginally deviated from the probabilities of observed responses, $G^2(2) = 5.25, p = .072$. Participants in the acceptability-framing condition showed significantly higher scores on the *N* parameter, $\Delta G^2(1) = 7.57, p = .006, d = 0.41$, and the *C* parameter, $\Delta G^2(1) = 4.82, p = .028, d = 0.32$, compared to participants in the action-framing condition. The *I* parameter did not significantly differ across conditions, $G^2(1) = 1.95, p = .162, d = .21$ (see Figure S1).

In Pilot Study 2, CNI model fit the data well, $G^2(2) = 1.89, p = .388$. Participants in the acceptability-framing condition showed significantly higher scores on the *N* parameter compared to participants in the action-framing condition, $G^2(1) = 7.96, p = .005, d = 0.42$. The *I* parameter showed a marginal tendency for a greater score in the action-framing condition compared to the

acceptability-framing condition, $G^2(1) = 2.76$, $p = .096$, $d = 0.25$. The C parameter did not significantly differ across conditions, $G^2(1) = 0.01$, $p = .924$, $d = 0.01$ (see Figure S2).

An integrative analysis of the data from the two pilot studies (see Curran & Hussong, 2009) revealed suboptimal fit, in that the probabilities of responses predicted by the CNI model significantly deviated from the probabilities of observed responses, $G^2(2) = 6.46$, $p = .040$. Nevertheless, the analysis replicated the full pattern of results by Gawronski et al. (2017). Specifically, participants in the acceptability-framing condition showed significantly higher scores on the N parameter, $G^2(1) = 14.74$, $p < .001$, $d = 0.40$, and significantly lower scores on the I parameter, $G^2(1) = 4.40$, $p = .036$, $d = 0.22$, compared to participants in the action-framing condition. The C parameter did not significantly differ across conditions, $G^2(1) = 2.70$, $p = .100$, $d = 0.17$ (see Figure S3).

References

- Gawronski, B., Armstrong, J., Conway, P., Friesdorf, R., & Hütter, M. (2017). Consequences, norms, and generalized inaction in moral dilemmas: The CNI model of moral decision-making. *Journal of Personality and Social Psychology, 113*, 343–376.
- Moshagen, M. (2010). multiTree: A computer program for the analysis of multinomial processing tree models. *Behavior Research Methods, 42*, 42–54.
- Oppenheimer, D. M., Meyvis, T., & Davidenko, N. (2009). Instructional manipulation checks: Detecting satisficing to increase statistical power. *Journal of Experimental Social Psychology, 45*, 867-872.
- Tassy, S., Oullier, O., Mancini, J., & Wicker, B. (2013). Discrepancies between judgment and choice of action in moral dilemmas. *Frontiers in Psychology, 4*:250.

Table S1*Overview of number of participant exclusions for each criterion*

Number of Cases per Study	Pilot Study 1	Pilot Study 2
Requested MTurk payment	202	200
Provided correct completion code and received payment	200	200
Started study	211	217
Aborted study	8	9
Started study more than once	4	7
Essential data missing	0	1
Answered all dilemmas with same key	4	3
Failed attention check	10	15
Final sample size	185	182

Table S2

Means and 95% confidence intervals of action (vs. inaction) responses on moral dilemmas with proscriptive and prescriptive norms and consequences involving benefits of action that are either greater or smaller than costs of action. Scores can range from 0 to 6. The neutral reference value of equal numbers of action and inaction responses is 3.

	Proscriptive Norm Prohibits Action				Prescriptive Norm Prescribes Action			
	Benefits of Action Greater than Costs		Benefits of Action Smaller than Costs		Benefits of Action Greater than Costs		Benefits of Action Smaller than Costs	
	<i>M</i>	95% CI	<i>M</i>	95% CI	<i>M</i>	95% CI	<i>M</i>	95% CI
Pilot Study 1	2.37	[2.13, 2.60]	1.23	[0.98, 1.48]	4.49	[4.28, 4.69]	3.55	[3.33, 3.77]
Pilot Study 2	2.23	[1.98, 2.48]	1.19	[0.93, 1.44]	4.80	[4.62, 4.99]	3.76	[3.54, 3.98]

Table S3
Complete Correlation Matrix for All Measures, Study 1a

	2	3	4	5	6	7	8	9	10	11	12	13
1 Trad. Score	.356**	-.587**	-.402**	.322**	-.116	-.144	.393**	.203**	-.034	.178*	-.251**	.038
2 C Parameter	-	.307**	.199*	-.357**	.114	.166*	-.142†	-.190*	.032	-.071	.170*	-.200*
3 N Parameter		-	.292**	-.613**	.235**	.261**	-.510**	-.298**	.067	-.184*	.415**	-.104
4 I Parameter			-	-.299**	.070	.062	-.192*	-.287**	-.009	-.180*	.125	-.047
5 PSYCHO				-	-.451**	-.175*	.473**	.145†	-.067	.274**	-.545**	.046
6 EC					-	.139†	-.129	.259**	.257**	.188*	.655**	.177*
7 NFC						-	-.142†	-.217**	-.281**	.092	.234**	-.085
8 OUS-IH							-	.336**	-.036	.193*	-.244**	.174*
9 OUS-IB								-	.128	.166*	.038	.299**
10 BIS									-	.057	.147†	-.027
11 BAS										-	.153†	.083
12 MI											-	.043

Note. BIS = Behavioral Inhibition; BAS = Behavioral Activation; NFC = Need for Cognition; OUS-IH = Oxford Utilitarianism Scale: Instrumental Harm; OUS-IB = Oxford Utilitarianism Scale: Impartial Beneficence; EC = Empathic Concern; PSYCHO = Primary Psychopathy; MI = Self-Importance of Moral Identity: Internalization. Trad. Score = Traditional Dilemma Score (higher values indicate stronger preference for utilitarian over deontological judgments). 13 = Religiosity

†: $p < .10$. *: $p < .05$. **: $p < .01$.

Table S4

Correlation Coefficients for the C, N, and I parameter and Process Dissociation Parameters, Study 1a

	Traditional Score		C Parameter		N Parameter		I Parameter	
	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>
Proscriptive PD U Parameter	.409	<.001	.854	<.001	.288	<.001	.201	.010
Proscriptive PD D Parameter	-.683	<.001	.344	<.001	.866	<.001	.587	<.001
Prescriptive PD U Parameter	.143	.071	.880	<.001	.343	<.001	.194	.013
Prescriptive PD D Parameter	-.279	<.001	.080	.313	.765	<.001	-.199	.011

Note. Proscriptive PD U Parameter = U Parameter calculated from proscriptive dilemmas; Proscriptive PD D Parameter = D Parameter calculated from proscriptive dilemmas; Prescriptive PD U Parameter = U Parameter calculated from prescriptive dilemmas; Prescriptive PD D Parameter = D Parameter calculated from prescriptive dilemmas. Higher values on traditional score indicate stronger preference for utilitarian over deontological judgments.

Table S5*Correlation Coefficients for the Prescriptive and Proscriptive PD Parameters and Individual Difference Measures, Study 1a*

	Proscriptive PD		Proscriptive PD		Prescriptive PD		Prescriptive PD	
	U Parameter	D Parameter	U Parameter	D Parameter	U Parameter	D Parameter	U Parameter	D Parameter
	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>
Psychopathy	-.381	<.001	-.622	<.001	-.347	<.001	-.329	<.001
Empathic Concern	.132	.094	.217	.006	.105	.187	.152	.054
Need for Cognition	.162	.041	.256	.001	.143	.071	.165	.037
OUS: Instrumental Harm	-.163	.039	-.534	<.001	-.174	.028	-.314	<.001
OUS: Impartial Beneficence	-.201	.011	-.372	<.001	-.155	.049	-.108	.174
Behavioral Inhibition	.044	.580	.077	.334	.006	.942	.067	.398
Behavioral Activation	-.053	.502	-.223	.005	-.087	.274	-.036	.653
MI	.231	.003	.405	<.001	.171	.030	.241	.002
Religiosity	-.176	.026	-.154	.051	-.162	.040	.031	.694

Note. OUS = Oxford Utilitarianism Scale; MI = Self-Importance of Moral Identity: Internalization. Higher values on traditional score indicate stronger preference for utilitarian over deontological judgments.

Table S6

Correlation Coefficients for the C, N, and I parameter and Individual Difference Measures after exclusion of participants for whom the CNI modeling yielded error messages (N = 154, after excluding 7 participants), Study 1a

	Traditional		C Parameter		N Parameter		I Parameter	
	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>
	Score							
Psychopathy	.319	<.001	-.352	<.001	-.614	<.001	-.250	.002
Empathic Concern	-.106	.189	.104	.197	.221	.006	.021	.800
Need for Cognition	-.173	.032	.122	.131	.249	.002	.060	.458
OUS: Instrumental Harm	.393	<.001	-.160	.048	-.542	<.001	-.202	.012
OUS: Impartial Beneficence	.195	.015	-.204	.011	-.306	<.001	-.297	<.001
Behavioral Inhibition	-.006	.938	.087	.285	.093	.251	-.011	.890
Behavioral Activation	.178	.027	-.067	.410	-.187	.020	-.145	.072
MI	-.247	.002	.148	.067	.398	<.001	.075	.357
Religiosity	.015	.855	-.241	.003	-.105	.197	-.063	.441

Note. OUS = Oxford Utilitarianism Scale; MI = Self-Importance of Moral Identity: Internalization. Higher values on traditional score indicate stronger preference for utilitarian over deontological judgments.

Table S7

Correlation Coefficients for the C, N, and I parameter and Individual Difference Measures after exclusion of participants for whom the CNI model showed significant model deviations (N = 153, after excluding 8 participants), Study 1a

	Traditional Score		C Parameter		N Parameter		I Parameter	
	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>
Psychopathy	.360	<.001	-.334	<.001	-.611	<.001	-.310	<.001
Empathic Concern	-.105	.195	.113	.164	.226	.005	.072	.375
Need for Cognition	-.176	.029	.130	.110	.265	.001	.083	.306
OUS: Instrumental Harm	.382	<.001	-.213	.008	-.507	<.001	-.178	.028
OUS: Impartial Beneficence	.222	.006	-.193	.017	-.285	<.001	-.326	<.001
Behavioral Inhibition	-.006	.945	.050	.543	.046	.569	.010	.901
Behavioral Activation	.180	.026	-.086	.291	-.191	.018	-.180	.026
MI	-.271	.001	.149	.066	.401	<.001	.123	.129
Religiosity	.053	.514	-.183	.024	-.102	.210	-.061	.454

Note. OUS = Oxford Utilitarianism Scale; MI = Self-Importance of Moral Identity: Internalization. Higher values on traditional score indicate stronger preference for utilitarian over deontological judgments.

Table S8*Complete Correlation Matrix for All Measures, Study 1b*

	2	3	4	5	6	7	8	9	10	11	12	13
1 Trad. Score	.246**	-.606**	-.430**	.405**	-.244**	-.205**	.546**	.257**	.095	.121	-.420**	.119
2 C Parameter	-	.317**	.105	-.252**	.047	.115	-.037	-.078	.144†	-.279**	.154*	-.350**
3 N Parameter		-	.112	-.595**	.175*	.270**	-.561**	-.348**	.053	-.357**	.430**	-.235**
4 I Parameter			-	-.143†	.153*	.095	-.273**	-.010	-.038	-.040	.231**	-.181*
5 PSYCHO				-	-.586**	-.317**	.607**	.228**	-.099	.239**	-.678**	.290**
6 EC					-	.110	-.231**	.189*	.167*	.173*	.662**	-.111
7 NFC						-	-.286**	-.196**	-.249**	.017	.171*	-.242**
8 OUS-IH							-	.513**	.015	.297**	-.442**	.296**
9 OUS-IB								-	.036	.344**	-.097	.358**
10 BIS									-	-.102	.159*	-.022
11 BAS										-	.024	.274**
12 MI											-	-.229**

Note. Trad. Score = Traditional Dilemma Score (higher values indicate stronger preference for utilitarian over deontological judgments). PSYCHO = Primary Psychopathy; EC = Empathic Concern; NFC = Need for Cognition; OUS-IH = Oxford Utilitarianism Scale: Instrumental Harm; OUS-IB = Oxford Utilitarianism Scale: Impartial Beneficence; BIS = Behavioral Inhibition; BAS = Behavioral Activation; MI = Self-Importance of Moral Identity: Internalization. 13 = Religiosity

†: $p < .10$. *: $p < .05$. **: $p < .01$.

Table S9*Correlation Coefficients for the C, N, and I parameter and Process Dissociation Parameters, Study 1b*

	Traditional Score		C Parameter		N Parameter		I Parameter	
	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>
Proscriptive PD U Parameter	.372	<.001	.863	<.001	.275	<.001	.053	.484
Proscriptive PD D Parameter	-.788	<.001	.296	<.001	.837	<.001	.487	<.001
Prescriptive PD U Parameter	.070	.356	.843	<.001	.330	<.001	.065	.387
Prescriptive PD D Parameter	-.186	.013	.088	.244	.738	<.001	-.415	<.001

Note. Proscriptive PD U Parameter = U Parameter calculated from proscriptive dilemmas; Proscriptive PD D Parameter = D Parameter calculated from proscriptive dilemmas; Prescriptive PD U Parameter = U Parameter calculated from prescriptive dilemmas; Prescriptive PD D Parameter = D Parameter calculated from prescriptive dilemmas. Higher values on traditional score indicate stronger preference for utilitarian over deontological judgments.

Table S10

Correlation Coefficients for the Prescriptive and Proscriptive PD Parameters and Individual Difference Measures, Study 1b

	Proscriptive PD		Proscriptive PD		Prescriptive PD		Prescriptive PD	
	U Parameter		D Parameter		U Parameter		D Parameter	
	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>
Psychopathy	-.230	.002	-.531	<.001	-.308	<.001	-.382	<.001
Empathic Concern	.000	.997	.205	.006	.110	.145	.036	.634
Need for Cognition	.094	.212	.247	.001	.127	.093	.132	.080
OUS: Instrumental Harm	-.014	.853	-.577	<.001	-.089	.238	-.298	<.001
OUS: Impartial Beneficence	-.059	.439	-.306	<.001	-.145	.055	-.266	<.001
Behavioral Inhibition	.177	.018	.016	.836	.093	.217	.036	.636
Behavioral Activation	-.264	<.001	-.306	<.001	-.255	.001	-.257	.001
MI	.115	.126	.463	<.001	.234	.002	.163	.030
Religiosity	-.361	<.001	-.325	<.001	-.291	.001	-.015	.846

Note. OUS = Oxford Utilitarianism Scale; MI = Self-Importance of Moral Identity: Internalization. Higher values on traditional score indicate stronger preference for utilitarian over deontological judgments.

Table S11

Correlation Coefficients for the C, N, and I parameter and Individual Difference Measures after exclusion of participants for whom the CNI modeling yielded error messages (N = 170, after excluding 7 participants), Study 1b

	Traditional		C Parameter		N Parameter		I Parameter	
	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>
	Score							
Psychopathy	.406	<.001	-.264	.001	-.623	<.001	-.138	.072
Empathic Concern	-.239	.002	.086	.265	.207	.007	.140	.069
Need for Cognition	-.208	.006	.140	.068	.303	<.001	.082	.285
OUS: Instrumental Harm	.540	<.001	-.033	.666	-.579	<.001	-.248	.001
OUS: Impartial Beneficence	.255	.001	-.062	.424	-.346	<.001	-.002	.983
Behavioral Inhibition	.102	.187	.131	.088	.026	.741	-.027	.731
Behavioral Activation	.120	.120	-.255	.001	-.334	<.001	-.055	.475
MI	-.415	<.001	.166	.030	.449	<.001	.216	.005
Religiosity	.115	.134	-.348	<.001	-.223	.003	-.183	.017

Note. OUS = Oxford Utilitarianism Scale; MI = Self-Importance of Moral Identity: Internalization. Higher values on traditional score indicate stronger preference for utilitarian over deontological judgments.

Table S12

Correlation Coefficients for the C, N, and I parameter and Individual Difference Measures after exclusion of participants for whom the CNI model showed significant model deviations (N = 167, after excluding 10 participants), Study 1b

	Traditional Score		C Parameter		N Parameter		I Parameter	
	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>
Psychopathy	.395	<.001	-.233	.002	-.576	<.001	-.164	.034
Empathic Concern	-.260	.001	.034	.663	.175	.024	.182	.019
Need for Cognition	-.214	.006	.082	.293	.261	.001	.091	.242
OUS: Instrumental Harm	.520	<.001	-.010	.897	-.526	<.001	-.272	<.001
OUS: Impartial Beneficence	.224	.004	-.052	.501	-.313	<.001	.013	.871
Behavioral Inhibition	.111	.153	.155	.046	.042	.586	-.014	.860
Behavioral Activation	.049	.534	-.301	<.001	-.324	<.001	-.026	.736
MI	-.445	<.001	.114	.141	.414	<.001	.267	<.001
Religiosity	.047	.549	-.337	<.001	-.202	.009	-.144	.063

Note. OUS = Oxford Utilitarianism Scale; MI = Self-Importance of Moral Identity: Internalization. Higher values on traditional score indicate stronger preference for utilitarian over deontological judgments.

Table S13
Complete Correlation Matrix for All Measures, Study 2a

	2	3	4	5	6	7	8	9	10	11	12	13
1 Trad. Score	.429**	-.601**	-.185**	.264**	-.151*	-.035	.391**	.158*	.027	.044	-.180*	-.069
2 C Parameter	-	.233**	.337**	-.224**	-.051	.077	.023	-.202**	.157*	-.119†	.107	-.146*
3 N Parameter		-	.213**	-.494**	.246**	.077	-.411**	-.172*	.167*	-.050	.347**	.101
4 I Parameter			-	-.219**	-.023	.027	-.145*	-.186**	-.014	-.100	.087	.011
5 PSYCHO				-	-.503**	-.118	.482**	.006	-.216**	.101	-.570**	-.038
6 EC					-	.148*	-.255**	.256**	.308**	.273**	.602**	.149*
7 NFC						-	-.094	-.050	-.200**	.252**	.076	-.037
8 OUS-IH							-	.266**	-.139†	.086	-.320**	.055
9 OUS-IB								-	-.066	.186**	.088	.215**
10 BIS									-	.021	.314**	-.110
11 BAS										-	.190**	.216**
12 MI											-	.089

Note. Trad. Score = Traditional Dilemma Score (higher values indicate stronger preference for utilitarian over deontological judgments). PSYCHO = Primary Psychopathy; EC = Empathic Concern; NFC = Need for Cognition; OUS-IH = Oxford Utilitarianism Scale: Instrumental Harm; OUS-IB = Oxford Utilitarianism Scale: Impartial Beneficence; BIS = Behavioral Inhibition; BAS = Behavioral Activation; MI = Self-Importance of Moral Identity: Internalization. 13 = Religiosity

†: $p < .10$. *: $p < .05$. **: $p < .01$.

Table S14*Correlation Coefficients for the C, N, and I parameter and Process Dissociation Parameters, Study 2a*

	Traditional Score		C Parameter		N Parameter		I Parameter	
	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>
Proscriptive PD U Parameter	.562	<.001	.886	<.001	.170	.017	.253	<.001
Proscriptive PD D Parameter	-.666	<.001	.295	<.001	.868	<.001	.500	<.001
Prescriptive PD U Parameter	.137	.055	.873	<.001	.305	<.001	.362	<.001
Prescriptive PD D Parameter	-.423	<.001	.072	.316	.872	<.001	-.124	.085

Note. Proscriptive PD U Parameter = U Parameter calculated from proscriptive dilemmas; Proscriptive PD D Parameter = D Parameter calculated from proscriptive dilemmas; Prescriptive PD U Parameter = U Parameter calculated from prescriptive dilemmas; Prescriptive PD D Parameter = D Parameter calculated from prescriptive dilemmas. Higher values on traditional score indicate stronger preference for utilitarian over deontological judgments.

Table S15

Correlation Coefficients for the Prescriptive and Proscriptive PD Parameters and Individual Difference Measures, Study 2a

	Proscriptive PD		Proscriptive PD		Prescriptive PD		Prescriptive PD	
	U Parameter	D Parameter	U Parameter	D Parameter	U Parameter	D Parameter	U Parameter	D Parameter
	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>
Psychopathy	-.197	.006	-.467	<.001	-.221	.002	-.351	<.001
Empathic Concern	-.008	.916	.137	.056	-.066	.355	.281	<.001
Need for Cognition	.057	.431	.101	.158	.087	.227	.044	.541
OUS: Instrumental Harm	.034	.636	-.402	<.001	-.041	.565	-.300	<.001
OUS: Impartial Beneficence	-.109	.127	-.260	<.001	-.274	<.001	-.025	.731
Behavioral Inhibition	.160	.025	.089	.213	.121	.091	.173	.015
Behavioral Activation	-.083	.247	-.124	.082	-.137	.056	.062	.387
MI	.107	.135	.286	<.001	.097	.176	.291	<.001
Religiosity	-.122	.087	-.017	.809	-.120	.093	.190	.008

Note. OUS = Oxford Utilitarianism Scale; MI = Self-Importance of Moral Identity: Internalization. Higher values on traditional score indicate stronger preference for utilitarian over deontological judgments.

Table S16

Correlation Coefficients for the C, N, and I parameter and Individual Difference Measures after exclusion of participants for whom the CNI modeling yielded error messages (N = 183, after excluding 13 participants), Study 2a

	Traditional		C Parameter		N Parameter		I Parameter	
	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>
	Score							
Psychopathy	.219	.003	-.227	.002	-.455	<.001	-.158	.033
Empathic Concern	-.101	.174	-.024	.751	.230	.002	-.058	.435
Need for Cognition	-.055	.458	.071	.336	.097	.191	.018	.812
OUS: Instrumental Harm	.377	<.001	.019	.799	-.413	<.001	-.117	.116
OUS: Impartial Beneficence	.139	.061	-.225	.002	-.153	.038	-.169	.022
Behavioral Inhibition	.076	.304	.210	.004	.172	.020	-.013	.863
Behavioral Activation	.014	.848	-.133	.072	-.022	.765	-.086	.246
MI	-.151	.041	.115	.121	.331	<.001	.052	.485
Religiosity	-.046	.539	-.177	.016	.054	.465	-.052	.486

Note. OUS = Oxford Utilitarianism Scale; MI = Self-Importance of Moral Identity: Internalization. Higher values on traditional score indicate stronger preference for utilitarian over deontological judgments.

Table S17

Correlation Coefficients for the C, N, and I parameter and Individual Difference Measures after exclusion of participants for whom the CNI model showed significant model deviations (N = 190, after excluding 6 participants), Study 2a

	Traditional Score		C Parameter		N Parameter		I Parameter	
	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>
Psychopathy	.243	.001	-.204	.005	-.476	<.001	-.183	.011
Empathic Concern	-.151	.038	-.065	.371	.233	.001	-.045	.535
Need for Cognition	-.027	.708	.098	.178	.098	.180	.057	.438
OUS: Instrumental Harm	.387	<.001	.056	.447	-.391	<.001	-.129	.077
OUS: Impartial Beneficence	.142	.051	-.175	.016	-.154	.034	-.160	.027
Behavioral Inhibition	.023	.752	.161	.027	.173	.017	-.032	.666
Behavioral Activation	.020	.780	-.102	.163	-.023	.755	-.079	.281
MI	-.169	.019	.087	.233	.338	<.001	.059	.417
Religiosity	-.103	.156	-.129	.076	.131	.072	.025	.728

Note. OUS = Oxford Utilitarianism Scale; MI = Self-Importance of Moral Identity: Internalization. Higher values on traditional score indicate stronger preference for utilitarian over deontological judgments.

Table S18
Complete Correlation Matrix for All Measures, Study 2b

	2	3	4	5	6	7	8	9	10	11	12	13
1 Trad. Score	.355**	-.608**	-.330**	.355**	-.323**	-.149*	.498**	.203**	-.141†	.143*	-.330**	.071
2 C Parameter	-	.194**	.272**	-.194**	.022	.099	-.029	-.086	.084	.004	.199**	-.237**
3 N Parameter		-	.206**	-.575**	.384**	.232**	-.534**	-.194**	.165*	-.149*	.466**	-.093
4 I Parameter			-	-.211**	.164*	.112	-.239**	-.138†	.098	-.110	.238**	-.170*
5 PSYCHO					-.649**	-.344**	.431**	.112	-.349**	.218**	-.733**	.189**
6 EC					-	.244**	-.251**	.170*	.331**	.141†	.699**	-.028
7 NFC						-	-.319**	-.127†	-.060	.127†	.300**	-.125†
8 OUS-IH							-	.451**	-.067	.185*	-.372**	.152*
9 OUS-IB								-	.064	.232**	-.022	.281**
10 BIS									-	.049	.330**	-.194**
11 BAS										-	.099	.080
12 MI											-	-.162*

Note. Trad. Score = Traditional Dilemma Score (higher values indicate stronger preference for utilitarian over deontological judgments). PSYCHO = Primary Psychopathy; EC = Empathic Concern; NFC = Need for Cognition; OUS-IH = Oxford Utilitarianism Scale: Instrumental Harm; OUS-IB = Oxford Utilitarianism Scale: Impartial Beneficence; BIS = Behavioral Inhibition; BAS = Behavioral Activation; MI = Self-Importance of Moral Identity: Internalization. 13 = Religiosity

†: $p < .10$. *: $p < .05$. **: $p < .01$.

Table S19*Correlation Coefficients for the C, N, and I parameter and Process Dissociation Parameters, Study 2b*

	Traditional Score		C Parameter		N Parameter		I Parameter	
	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>
Proscriptive PD U Parameter	.441	<.001	.873	<.001	.144	.048	.301	<.001
Proscriptive PD D Parameter	-.739	<.001	.279	<.001	.788	<.001	.613	<.001
Prescriptive PD U Parameter	.173	.017	.864	<.001	.239	.001	.188	.010
Prescriptive PD D Parameter	-.216	.003	-.003	.962	.744	<.001	-.340	<.001

Note. Proscriptive PD U Parameter = U Parameter calculated from proscriptive dilemmas; Proscriptive PD D Parameter = D Parameter calculated from proscriptive dilemmas; Prescriptive PD U Parameter = U Parameter calculated from prescriptive dilemmas; Prescriptive PD D Parameter = D Parameter calculated from prescriptive dilemmas. Higher values on traditional score indicate stronger preference for utilitarian over deontological judgments.

Table S20

Correlation Coefficients for the Prescriptive and Proscriptive PD Parameters and Individual Difference Measures, Study 2b

	Proscriptive PD		Proscriptive PD		Prescriptive PD		Prescriptive PD	
	U Parameter		D Parameter		U Parameter		D Parameter	
	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>
Psychopathy	-.223	.002	-.524	<.001	-.191	.009	-.345	<.001
Empathic Concern	.034	.643	.361	<.001	.055	.449	.231	.001
Need for Cognition	.166	.023	.251	<.001	.081	.269	.103	.159
OUS: Instrumental Harm	-.055	.455	-.551	<.001	-.038	.605	-.239	.001
OUS: Impartial Beneficence	-.092	.210	-.264	<.001	-.082	.260	-.008	.910
Behavioral Inhibition	.057	.436	.200	.006	.093	.203	.090	.217
Behavioral Activation	.030	.686	-.126	.083	-.018	.809	-.089	.223
MI	.222	.002	.493	<.001	.213	.003	.204	.005
Religiosity	-.256	<.001	-.247	.001	-.215	.003	.104	.156

Note. OUS = Oxford Utilitarianism Scale; MI = Self-Importance of Moral Identity: Internalization. Higher values on traditional score indicate stronger preference for utilitarian over deontological judgments.

Table S21

Correlation Coefficients for the C, N, and I parameter and Individual Difference Measures after exclusion of participants for whom the CNI modeling yielded error messages (N = 183, after excluding 6 participants), Study 2b

	Traditional		C Parameter		N Parameter		I Parameter	
	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>
	Score							
Psychopathy	.343	<.001	-.185	.012	-.556	<.001	-.184	.012
Empathic Concern	-.317	<.001	-.006	.939	.354	<.001	.136	.067
Need for Cognition	-.171	.021	.098	.188	.267	<.001	.131	.076
OUS: Instrumental Harm	.492	<.001	-.048	.520	-.550	<.001	-.264	<.001
OUS: Impartial Beneficence	.236	.001	-.102	.171	-.265	<.001	-.177	.017
Behavioral Inhibition	-.130	.080	.092	.214	.157	.033	.090	.224
Behavioral Activation	.123	.096	.006	.933	-.120	.105	-.088	.234
MI	-.324	<.001	.193	.009	.455	<.001	.221	.003
Religiosity	.120	.106	-.246	.001	-.164	.026	-.213	.004

Note. OUS = Oxford Utilitarianism Scale; MI = Self-Importance of Moral Identity: Internalization. Higher values on traditional score indicate stronger preference for utilitarian over deontological judgments.

Table S22

Correlation Coefficients for the C, N, and I parameter and Individual Difference Measures after exclusion of participants for whom the CNI model showed significant model deviations (N = 179, after excluding 10 participants), Study 2b

	Traditional Score		C Parameter		N Parameter		I Parameter	
	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>
Psychopathy	.353	<.001	-.163	.029	-.556	<.001	-.189	.011
Empathic Concern	-.323	<.001	-.009	.908	.364	<.001	.151	.043
Need for Cognition	-.137	.068	.074	.327	.208	.005	.079	.291
OUS: Instrumental Harm	.500	<.001	-.016	.827	-.532	<.001	-.243	.001
OUS: Impartial Beneficence	.187	.012	-.087	.245	-.186	.013	-.120	.111
Behavioral Inhibition	-.104	.165	.066	.382	.130	.082	.092	.220
Behavioral Activation	.121	.107	.007	.930	-.139	.064	-.093	.218
MI	-.350	<.001	.164	.028	.460	<.001	.216	.004
Religiosity	.004	.961	-.235	.002	-.073	.331	-.125	.096

Note. OUS = Oxford Utilitarianism Scale; MI = Self-Importance of Moral Identity: Internalization. Higher values on traditional score indicate stronger preference for utilitarian over deontological judgments.

Figure S1. Parameter estimates of sensitivity to consequences (*C*), sensitivity to norms (*N*), and general preference for inaction versus action (*I*) as a function of question framing (acceptability vs. action), Pilot Study 1. Error bars depict 95% confidence intervals.

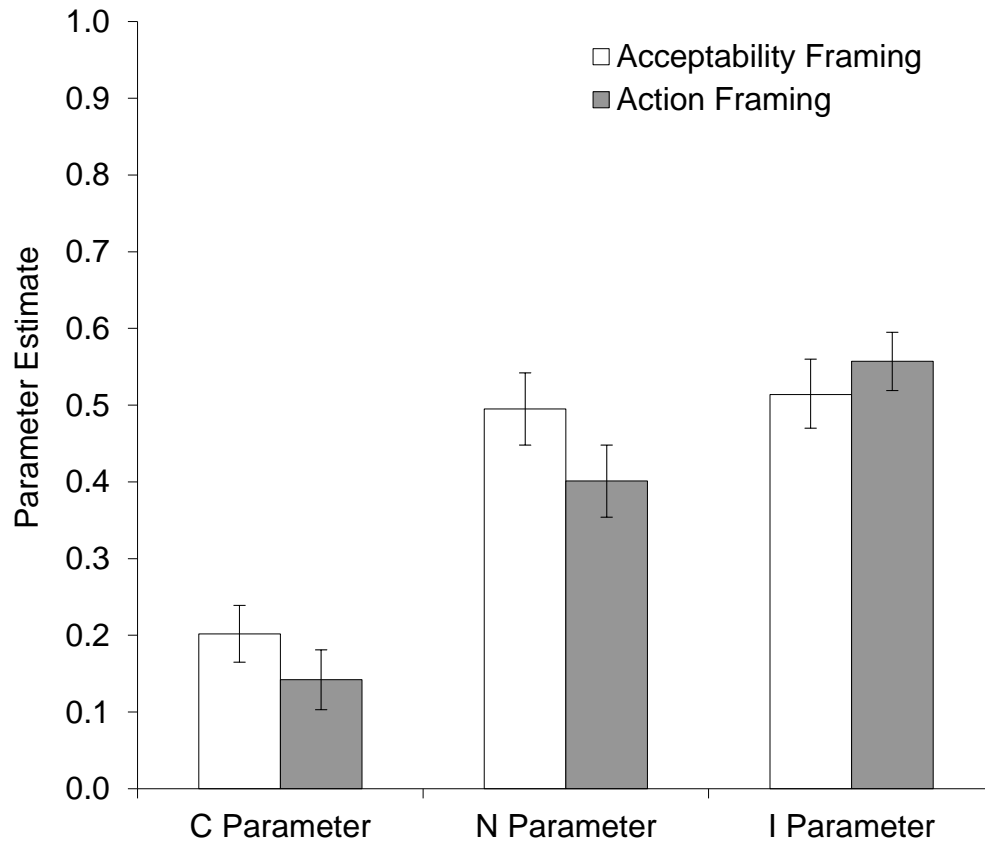


Figure S2. Parameter estimates of sensitivity to consequences (*C*), sensitivity to norms (*N*), and general preference for inaction versus action (*I*) as a function of question framing (acceptability vs. action), Pilot Study 2. Error bars depict 95% confidence intervals.

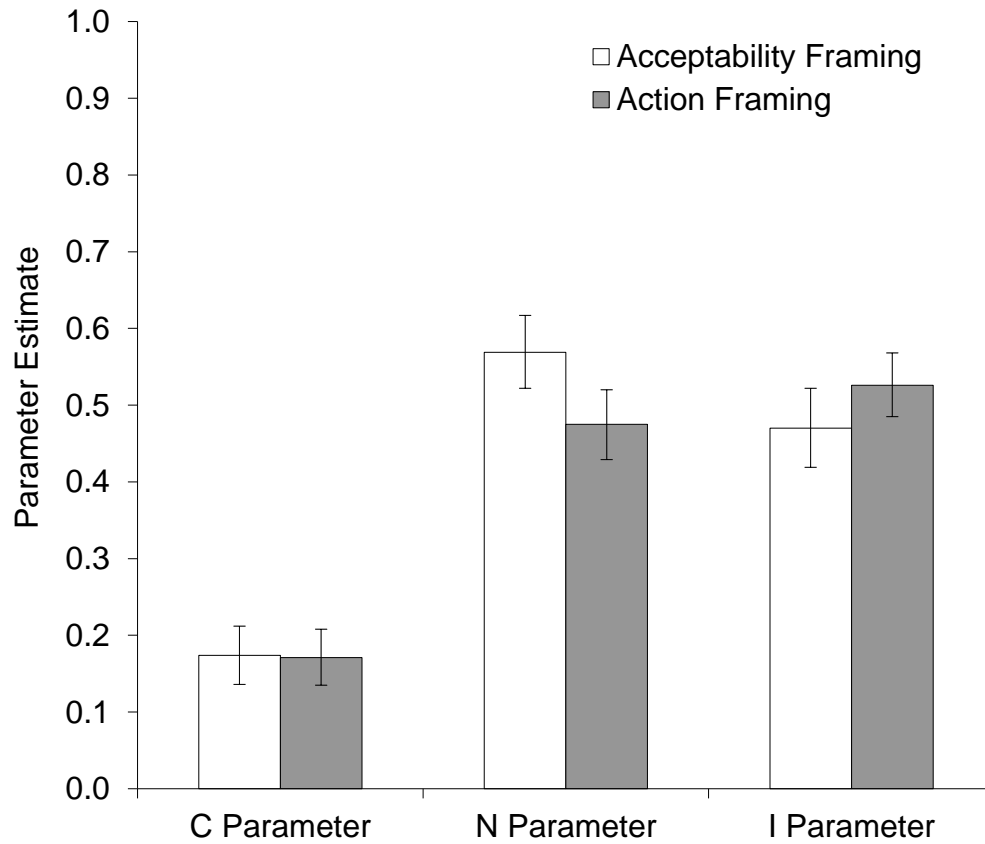


Figure S3. Parameter estimates of sensitivity to consequences (*C*), sensitivity to norms (*N*), and general preference for inaction versus action (*I*) as a function of question framing (acceptability vs. action), integrative data analysis of Pilot Studies 1 and 2. Error bars depict 95% confidence intervals.

