Supplemental Information

for

Lay beliefs about the controllability of everyday mental states

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Study 1

Pairwise differences in behavior/mental state category.

We computed a series of paired t-tests between all categories for Control (Table S1) and Intentionality (Table S2). All p-values were Holm-Bonferroni-corrected within, but not between, control DV.

Table S1
Dependent-sample t-test values between experimental conditions on ratings of control.

	1	2	3	4	5	6	7	8	9	10
1. Uncontrollable										
2. Accident	-9.35									
3. Emotion	-10.23	-2.02								
4. Memory	-12.38	-3.81	-1.91							
5. Desire	-13.64	-6.34	-4.75	-3.67						
6. Evaluation	-17.34	-10.42	-9.79	-9.53	-6.40					
7. Belief	-17.47	-11.24	-9.17	-9.48	-7.77	-0.72				
8. Imagination	-19.56	-13.81	-12.76	-13.25	-10.75	-6.19	-4.38			
9. Deliberation	-18.37	-13.18	-12.46	-11.31	-9.84	-6.08	-4.59	-0.84		
10. Intention	-23.60	-19.78	-17.85	-18.24	-16.01	-14.65	-12.99	-11.21	-9.11	
11. Intentional Act	-23.77	-20.68	-18.20	-18.20	-16.37	-15.20	-12.84	-12.73	-9.86	-2.03

Note: Underlined values are non-significant following Holm-Bonferroni correction. df = 142.

Table S2
Dependent-sample t-test values between experimental conditions on ratings of intentionality.

	1	2	3	4	5	6	7	8	9	10
1. Uncontrollable										
2. Accident	-2.70									
3. Emotion	-10.37	-7.74								
4. Memory	-14.65	-11.03	-4.31							
5. Desire	-17.64	-15.19	-11.16	-8.77						
6. Evaluation	-20.95	-18.39	-14.88	-12.80	-5.15					
7. Belief	-21.18	-19.12	-13.65	-13.63	-6.87	-1.54				
8. Imagination	-23.40	-22.44	-18.00	-15.93	-10.12	-7.18	-4.44			
9. Deliberation	-20.93	-19.34	-15.56	-14.03	-9.40	-6.98	-4.97	-1.31		
10. Intention	-25.98	-25.15	-21.16	-19.93	-15.48	-15.22	-12.37	-12.09	-8.26	
11. Intentional Act	-26.71	-25.69	-21.64	-19.75	-15.05	-15.01	-12.03	-12.10	-8.11	-0.49

Note: Underlined values are non-significant following Holm-Bonferroni correction. df = 142.

Relationship between Agency, Responsibility, and Character

In order to test the robustness of the relationship between our control measures (Control and Intentionality – see main text), and responsibility and character judgments, we ran a series of regressions testing whether control and intentionality independently predicted responsibility and character attributions when accounting for subjects' ratings of the moral status of the mental state, as well as whether the agent should have had the mental state. All data were analyzed using

subject means for each mental state category (see main text for details). Whenever we added a model parameter, we included a random slope for the parameter by-subject. See Tables S3 (Responsibility) and S4 (Character) for model comparisons.

Table S3
Output of different models regressing judgments of responsibility on control and intentionality.

	Model 1		**Model 2**		**Model 3**		**Model 4**		**Model 5**		**Model 6†**	
Parameter	*b*	*(SE)*	*b*	*(SE)*	*b*	*(SE)*	*b*	*(SE)*	*b*	*(SE)*	*b*	*(SE)*
Control	0.73*	-0.02			0.45*	-0.05	0.46*	0.04	0.46*	0.14	0.46*	0.04
Intent.			0.62*	-0.02	0.28*	-0.04	0.28*	0.04	0.28*	0.05	0.28*	0.04
Moral									-0.01	0.03	0.05	0.04
Should							-0.04	0.03			-0.07	0.04
Constant	1.40*	-0.12	1.96*	-0.12	1.41*	-0.11	1.53*	0.16	1.43*	0.14	1.48*	0.16
R^2	0.613		0.694		0.695		0.698		0.695		0.698	
AIC	2426.4		2537.4		2320.3		2308.6		2324.3		2316	
logLik	-1207.2		-1262.7		-1150.2		-1139.3		-1147.1		-1137	
Chi-square			0		225.12		21.737º		0		20.285º	

Notes:
† denotes best model based on model comparison**.**
* $p < .05$.
º denotes that the model significantly improved fit relative to the one before it.

Table S3 shows that control and intentionality predicted responsibility, both by themselves (M1-2) and when accounting for each other (M3-6). These predictors remained significant when adding morality and should judgments to the models (M4-6).

Table S4
Output of different models regressing judgments of character relevance on control and intentionality.

	Model 1		**Model 2**		**Model 3**		**Model 4**		**Model 5†**		**Model 6**	
Parameter	*b*	*(SE)*	*b*	*(SE)*	*b*	*(SE)*	*b*	*(SE)*	*b*	*(SE)*	*b*	*(SE)*
Control	0.29*	-0.03			0.14*	-0.05	0.15*	-0.05	0.13*	-0.05	0.13*	-0.05
Intent.			0.26*	-0.02	0.15*	-0.04	0.09*	-0.04	0.06	-0.05	0.06	-0.05
Moral									0.30*	-0.04	0.05	-0.05
Should							0.22*	-0.03			0.27*	-0.05
Constant	3.24*	-0.14	3.42*	-0.13	3.25*	-0.14	2.50*	-0.19	2.33*	-0.18	2.28*	-0.19
R^2	0.162		0.154		0.17		0.203		0.226		0.225	
AIC	2986.2		2976.1		2970.5		2938		2896.6		2900.8	
logLik	-1487.1		-1482.1		-1475.3		-1454		-1433.3		-1429.4	
Chi-square			10.092º		13.606º		42.494º		41.469º		7.745	

Notes:
† denotes best model based on model comparison**.**
* $p < .05$.
º denotes that the model significantly improved fit relative to the one before it.

As we report in the main text, control and intentionality both predicted character judgments (M1-2), even when including both in the model (M3). However, the best fitting model (M5) showed that, once accounting for how good or bad the mental state is ("moral"), only control significantly predicted character.

Comparing Control and Intentionality in Predicting Character and Responsibility Judgments

Although control predicted both responsibility and character judgments, we were interested in whether the strengths of these relationships differed. To test this, we created a single new variable, "social judgment," that contained each subject's average responsibility and character judgments from each mental state category – each subject contributed 8 responsibility judgments and 8 character judgments to this variable. We also created another variable, "attribution type," which coded whether the judgment was of responsibility or character-relevance. We regressed social judgment on control (or intentionality), attribution type, and the interaction of control (or intentionality) and attribution type. We also included random intercepts for subject and mental state category as well as random slopes for the interaction between them. We ran analyses separately for control and intentionality. See Table S5 and S6 below for model outputs.

Table S5
Output of models regressing social attributions on control and the control x attribution type interaction.

Parameter	Beta	SE	t-value	p-value
Intercept	2.37	0.1	23.37	<.001
Attribution Type	-1.94	0.13	-14.59	<.001
Control	0.50	0.02	23.83	<.001
Attribution Type x Control	0.46	0.04	11.81	<.001
R^2		*0.46*		

See Table S6 for the same analysis with Intentionality as the predictor.

Table S6
Output of models regressing attributions on intentionality and the intentionality x attribution type interaction.

Parameter	Beta	SE	t-value	p-value
Intercept	2.52	0.14	18.50	<0.001
Attribution Type	-1.56	0.12	-12.84	<0.001
Intentionality	0.48	0.02	19.94	<0.001
Attribution Type x Intentionality	0.38	0.04	10.09	<0.001
R^2		*0.45*		

As can be seen in the tables above, control and intentionality both predicted responsibility judgments more strongly than character judgments (*p*s < .001). Highly uncontrollable or unintentional mental states are more likely to be seen as revealing a person's character than to be judged as under the person's responsibility, and vice versa for highly intentional and controllable mental states.

We observed the same relationship between our measures of control and intentionality and character and responsibility judgments when we examined variation within mental states (Table S7, below).

Table S7:
Output of models testing whether control predict responsibility and character attributions, and which attributions they better predict, across emotions, desires, beliefs, and evaluations in Study 1.

		Control DV: Control				***Control DV: Intentionality***			
Mental State	**Parameter**	*Beta*	*SE*	*t-value*	*p-value*	*Beta*	*SE*	*t-value*	*p-value*
Emotion	Intercept	1.75	0.54	3.28	<0.001	1.76	0.51	3.45	<0.001
	Attribution Type	-2.38	0.29	-8.27	<0.001	-2.63	0.32	-8.18	<0.001
	Control DV	0.44	0.06	7.66	<0.001	0.50	0.06	8.83	<0.001
	Moral	0.10	0.12	0.83	0.405	0.10	0.12	0.84	<0.405
	Should	0.13	0.10	1.31	0.190	0.05	0.09	0.50	0.190
	Attribution Type x Control DV	0.51	0.08	6.25	<0.001	0.52	0.08	6.33	<0.001
Desire	Intercept	1.56	0.47	3.31	<0.001	1.68	0.48	3.50	<0.001
	Attribution Type	-2.23	0.35	-6.36	<0.001	-2.23	0.34	-6.50	<0.001
	Control DV	0.57	0.05	1.29	<0.001	0.54	0.05	0.91	<0.001
	Moral	0.16	0.12	1.31	<0.191	0.11	0.13	0.88	<0.379
	Should	-0.05	0.15	0.34	0.736	-0.01	0.15	0.06	0.955
	Attribution Type x Control DV	0.53	0.08	6.31	<0.001	0.52	0.08	6.46	<0.001
Belief	Intercept	1.25	0.39	3.24	<0.001	1.47	0.40	3.64	<0.001
	Attribution Type	-2.08	0.42	-5.00	<0.001	-2.02	0.42	-4.83	<0.001
	Control DV	0.56	0.05	0.90	<0.001	0.53	0.06	9.55	<0.001
	Moral	0.16	0.10	1.58	<0.115	0.17	0.11	1.59	0.112
	Should	0.05	0.10	0.53	0.599	0.03	0.10	0.24	0.809
	Attribution Type x Control DV	0.46	0.09	5.15	<0.001	0.45	0.09	4.97	<0.001
Evaluation	Intercept	0.29	0.34	0.85	0.397	0.57	0.32	1.76	0.078
	Attribution Type	-1.57	0.35	-4.47	<0.001	-1.58	0.34	-4.65	<0.001
	Control DV	0.52	0.04	1.93	<0.001	0.54	0.04	3.02	<0.001
	Moral	0.23	0.10	2.32	0.020	0.23	0.09	2.39	0.017
	Should	0.21	0.10	2.18	0.030	0.13	0.09	1.46	0.143
	Attribution Type x Control DV	0.28	0.07	3.75	<0.001	0.28	0.07	3.92	<0.001

Note: A positive Attribution Type x Control DV beta means that responsibility judgments were predicted better than character judgments. This term was significant in all four analyses.

Figure S1, below, displays the relationship between attributions of control and responsibility and character relevance across emotions, desires, beliefs, and evaluations.

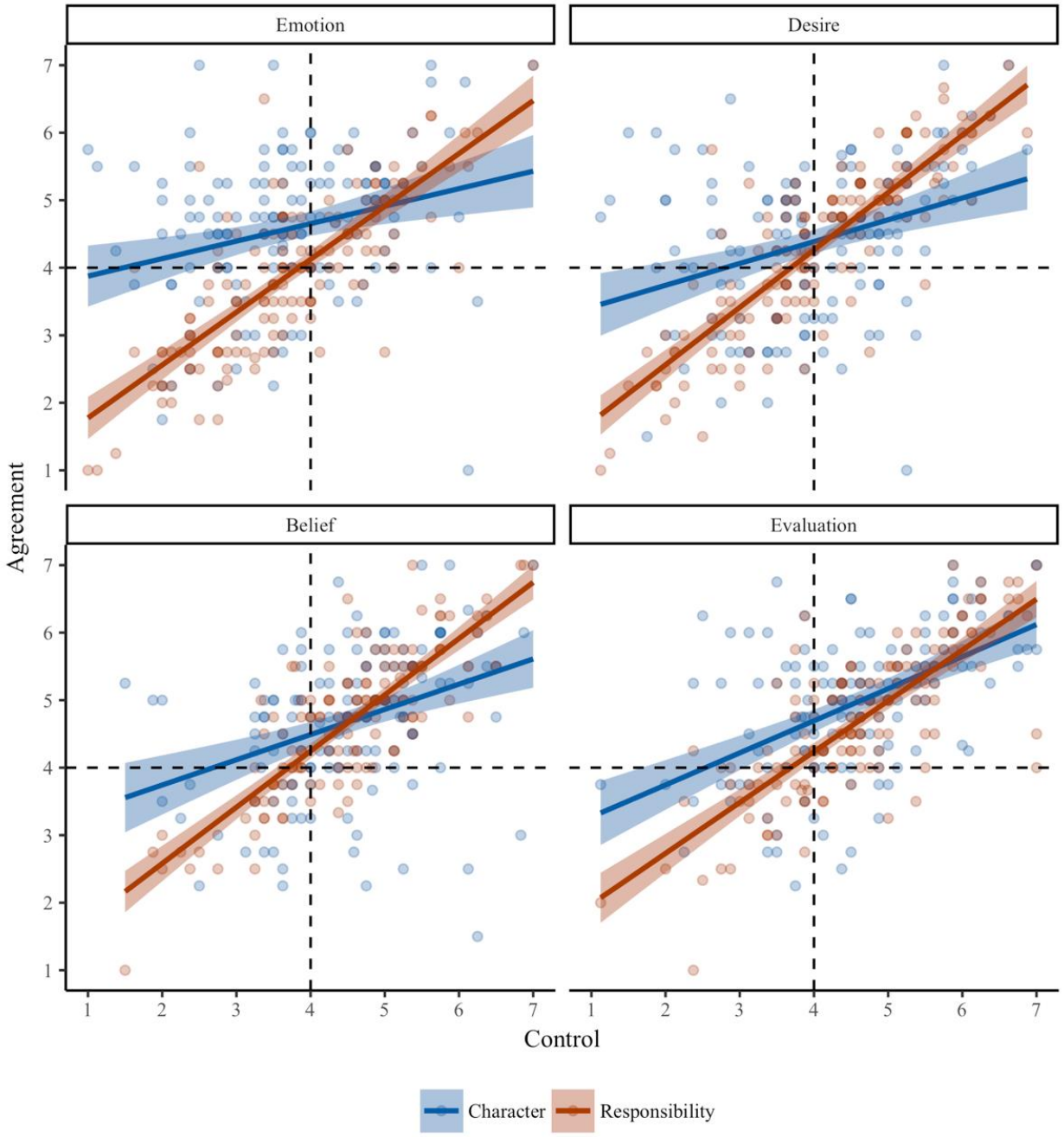

Figure S1. Attributions of control predicting responsibility (red) and character-relevance (blue) judgments across emotions, desires, beliefs, and evaluations in Study 1. Each point is a subject mean for that mental state category. Higher ratings indicate more control, greater responsibility attributions, and stronger agreement that the mental state was revealing of the target's character.

Study 2

Additional detail of study procedures.

At the beginning of the study, we asked subjects to write the initials of the person who had the bad mental state or behavior, as well as to indicate that person's sex and age. We also asked subjects to specify how long ago the event occurred, as well as what their relationship was with this person at the time.

Full text of each condition prompts. Below is the full text of each of the prompts that subjects read prior to writing about the objectionable mental state or act.

Emotion:
Please think of a specific time that someone close to you had an emotion or feeling that you found immoral, dangerous, bad, irritating, or bothersome. This could be any time that this person felt some emotion or was in a certain mood. We will use the term "feeling/emotion" to refer to these attitudes. You may also think of a time that someone close to you didn't have a feeling/emotion, and you found this to be immoral, dangerous, bad, irritating, or bothersome.

Desire:
Please think of a specific time that someone close to you had a desire that you found immoral, dangerous, bad, irritating, or bothersome. This can refer to any recent time they desired, wanted, wished for, or craved (and so on) someone or something. We use the term "desire" to refer to any of these kinds of attitudes. You may also think of a time that someone close to you didn't have a certain desire, and you found this to be immoral, dangerous, bad, irritating, or bothersome.

Belief:
Please think of a specific time that someone close to you had a belief that you found immoral, dangerous, bad, irritating, or bothersome. This could be any recent, specific time that they believed something, decided that something was the case, or felt that something was true. We will use the term "belief" to refer to these kinds of attitudes. You may also think of a time that someone close to you didn't have a certain belief, and you found this to be immoral, dangerous, bad, irritating, or bothersome.

Evaluation:
Please think of a specific time that someone close to you had a liking or disliking that you found immoral, dangerous, bad, irritating, or bothersome. This could be any recent, specific time they liked, disliked, loved, hated, felt respect or disrespect, enjoyed or didn't enjoy (and so on!) someone or something. For the rest of the experiment, we will use the term "attitude" to refer to these sorts of likes and dislikes. You may also think of a time that someone close to you didn't have a certain attitude, and you found this to be immoral, dangerous, bad, irritating, or bothersome.

Action:
Please think of a specific time that someone close to you did something that you found immoral, dangerous, bad, irritating, or bothersome. This can refer to any recent, specific time they behaved

in some way or performed some action. You may also think of a time that someone close to you didn't perform some behavior or action, and you found this to be immoral, dangerous, bad, irritating, or bothersome.

Open-ended descriptions. We provided separate areas for subjects to provide (a) a description of the emotion, belief, desire, evaluation, or action, (b) how they learned about it, (c) why they think this person had this mental state (or performed this behavior), (d), what they found objectionable/bad/offensive about it, and (e) whether this person ever acted on the basis of this mental state and, if so, what the effects were.

After providing these open-ended responses, subjects responded to several questions about the mental state/behavior. The questions were modified slightly in each condition to match the category of mental state that subjects were assigned to. For instance, in the Desire condition, the open-ended questions read "Describe the person's desire. (Be as detailed as possible.)" and "How did you come to learn about this desire?"

Attitude and agent judgments. Using seven-point rating scales, subjects indicated how (a) *unusual*, (b) *bad*, (c) *dangerous*, and (d) *irritating* they considered the mental state or behavior to be (1: *not at all*, 7: *extremely*), then indicated how much (e) control or (f) choice the agent had over the mental state, indicating their agreement with the statements, "This person had control over whether or not he/she had this [desire]," and "This person made a deliberate choice to have this [desire]," on a 7-point rating scale (1: *completely agree*, 7: *completely disagree*). On the next page participants rated how (g) blameworthy they found the agent to be for having the mental state (1: *not blameworthy at all*, 7: *extremely blameworthy*) as well as (h) how this mental state negatively influenced their impression of the person's character (1: *did not negatively influence my impression at all*, 7: *negatively influenced my impression to a great degree*).

Behavior self-reports. Finally, subjects indicated how accurately each of seven statements described their response to the person. These statements included descriptions of four behavioral responses: (a) "Because of this [desire], I tried to avoid this person," (b) "Because of this [desire], I treated this person negatively (e.g., I tried to make them feel bad)," (c) "Because of this [desire], I gossiped about this person," (d) "I tried to convince this person to change this [desire]"; and three emotional responses: (e) "Because of this [desire], I felt angry at this person," (f) "Because of this [desire], I felt pity for this person," and (g) "Because of this [desire], I felt disdain for this person." Subjects responded using a seven-point scale (1 = *not accurate at all*, 7 = *completely accurate*). At the end of the questionnaire subjects filled out basic demographic information. No other information was collected.

Study 2: All pairwise mental state (and observable act) category comparisons

In Table S8 we report independent-samples t-tests comparing each condition in Study 2 to each other condition.

Table S8:
T-tests between each of the five conditions in Study 2 for Control and Choice ratings.

		Control			Choice		
Mental States		*df*	*t-value*	p_a-*value*	*df*	*t-value*	p_a-*value*
Emotion	Desire	133.30	-1.403	0.254	128.79	-2.389	0.055
Emotion	Belief	123.06	-3.861	0.001**	121.06	-5.029	< 0.001**
Emotion	Evaluation	118.19	-5.136	< 0.001**	119.83	-5.629	< 0.001**
Emotion	Action	114.43	-7.135	< 0.001**	121.20	-7.402	< 0.001**
Desire	Belief	155.18	-2.571	0.044*	156.25	-2.867	0.024*
Desire	Evaluation	140.65	-3.962	0.001**	137.61	-3.618	< 0.001**
Desire	Action	148.27	-6.082	< 0.001**	152.93	-5.539	< 0.001**
Belief	Evaluation	134.59	-1.536	0.254	131.25	-0.937	0.350
Belief	Action	149.20	-3.665	0.002**	149.65	-2.826	0.024*
Evaluation	Action	127.17	-1.972	0.152	129.88	-1.742	0.168

Note: We report Holm-Bonferroni adjusted p-values (p_a).
* $p_a < 0.05$, ** $p_a < 0.01$
df = degrees of freedom

Study 2: Correlations within each mental state category

The following table displays correlations between control measures (Control, Choice) and moral judgments (Blameworthy, Character) within each of the conditions.

Table S9

Correlations between control measures and attributions within mental states (Study 2).

Mental State	Attribution	Control DV	df	r	p-value	95 CI Low	95 CI High
Emotion	Blameworthy	Control	61	0.54	<0.001**	0.33	0.69
		Choice	61	0.58	<0.001**	0.39	0.73
	Character	Control	61	0.35	0.005**	0.11	0.54
		Choice	61	0.34	0.007**	0.10	0.54
Desire	Blameworthy	Control	79	0.32	0.003**	0.11	0.50
		Choice	79	0.34	0.002**	0.13	0.52
	Character	Control	79	-0.08	0.501	-0.29	0.15
		Choice	79	0.18	0.104	-0.04	0.39
Belief	Blameworthy	Control	76	0.32	0.004**	0.11	0.51
		Choice	76	0.29	0.011*	0.07	0.48
	Character	Control	76	0.30	0.009**	0.08	0.49
		Choice	76	0.07	0.549	-0.16	0.29
Evaluation	Blameworthy	Control	60	0.30	0.018*	0.06	0.51
		Choice	60	0.46	<0.001**	0.23	0.63
	Character	Control	60	0.04	0.716	-0.21	0.29
		Choice	60	0.33	0.009**	0.09	0.53

Note: * p < 0.05, ** p < 0.01.

Control and choice correlated with Blameworthiness in every mental state condition (*p*s <=0.011). The relationship between control measures and character was less consistent: control significantly correlated with character judgments only in the Emotion and Belief conditions (*p*s <=0.011), while choice correlated with character judgments only in the Emotion and Evaluation conditions (*p*s <=0.011).

Control and Choice ratings were highly correlated within each mental state category, including emotions, $r(61) = 0.66$, $p < 0.001$, 95% CI [0.50, 0.78], desires, $r(79) = 0.61$, $p < 0.001$, 95% CI [0.45, 0.73], beliefs, $r(76) = 0.54$, $p < 0.001$, 95% CI [0.36, 0.68], and evaluations, $r(60) = 0.65$, $p < 0.001$, 95% CI [0.48, 0.78].

Comparing correlations within each mental state category showed that the relationship between control and blame was routinely stronger than the relationship between control and character. Ratings of control were more strongly correlated with blameworthiness than character for emotions ($t = 2.72$, $p = 0.01$), desires ($t = 3.74$, $p < 0.01$), and evaluations ($t = 2.18$, $p = 0.03$), but not beliefs ($t = 0.24$, $p = 0.81$). The pattern was similar, but weaker, for choice ratings, which were more strongly associated with blameworthiness than character for emotions ($t = 3.78$, $p < 0.01$) and desires ($t = 5.2$, $p < 0.01$), but not beliefs ($t = 1.93$, $p = 0.06$) or evaluations ($t = 1.16$, $p = 0.25$).

Study 3

Analyzing pairwise differences in behavior/mental state category

One subject assigned to the "Intentionality" condition did not provide a rating for the memory condition, and therefore had no mean rating. We imputed a value for this participant based on the median value for the other 99 subjects (Median = 4; Mean = 4.05). We computed a series of paired t-tests between all categories (excluding perceptions) for each DV. All p-values were Holm-Bonferroni-corrected within, but not between, control DV.

Table S10
Dependent-sample t-test values between experimental conditions on ratings of control.

	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
1. Uncontrollable Act										
2. Accidental Act	12.74									
3. Emotion	11.37	1.02								
4. Memory	13.04	4.86	4.15							
5. Desire	20.19	9.22	6.75	1.72						
6. Evaluation	20.30	12.09	9.23	4.02	3.51					
7. Belief	21.29	12.11	8.71	4.46	4.16	0.92				
8. Imagination	23.44	14.32	11.33	8.38	7.12	5.08	4.90			
9. Deliberation	24.47	15.65	12.72	6.93	7.09	4.36	3.57	0.66		
10. Intention	30.01	19.19	15.33	8.95	10.66	8.39	7.93	1.94	4.89	
11. Intentional Act	32.05	20.59	15.94	9.90	12.06	10.72	10.37	3.59	6.06	0.92

Notes: Underlined are non-significant following Holm-Bonferroni correction. *df* = 98, except for comparisons to "Imagination" which have *df* = 80.

Table S11
Dependent-sample t-test values between experimental conditions on ratings of intentionality.

	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
1. Uncontrollable Act										
2. Accidental Act	3.56									
3. Emotion	8.90	7.10								
4. Memory	11.18	9.69	5.80							
5. Desire	18.35	16.01	11.04	2.11						
6. Evaluation	22.25	19.72	15.50	6.22	5.08					
7. Belief	22.73	19.58	14.09	5.00	4.47	-0.22				
8. Imagination	20.41	18.42	13.86	8.63	6.52	5.07	4.70			
9. Deliberation	23.07	20.71	15.57	7.43	7.57	3.77	4.10	-1.53		
10. Intention	23.34	21.15	16.73	9.39	9.40	7.23	7.47	2.09	4.98	
11. Intentional Act	30.54	26.75	20.16	10.75	11.96	9.56	10.11	3.65	6.93	1.32

Notes: Underlined are non-significant following Holm-Bonferroni correction. *df* = 99, except for comparisons to "Imagination" which have *df* = 77.

Table S12

Dependent-sample t-test values between experimental conditions on ratings of preventability.

	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
1. Uncontrollable Act										
2. Accidental Act	13.20									
3. Emotion	4.84	-7.17								
4. Memory	6.36	-4.43	2.09							
5. Desire	10.25	-1.47	5.79	2.71						
6. Evaluation	10.43	-1.52	6.46	2.75	-0.11					
7. Belief	10.98	-1.13	6.19	3.29	0.64	0.63				
8. Imagination	8.79	0.59	4.78	3.44	1.49	1.16	1.47			
9. Deliberation	12.50	1.89	8.12	5.37	3.89	4.23	3.79	1.03		
10. Intention	16.71	5.72	11.24	8.25	8.33	8.21	8.15	4.15	3.94	
11. Intentional Act	19.03	8.50	13.08	10.12	9.80	9.85	10.12	5.65	7.25	3.52

Notes: Underlined values are non-significant following Holm-Bonferroni correction. df = 100, except for comparisons to "Imagination" which have df = 81.

Control judgments relative to midpoint of rating scale across Studies 1-3.

Our primary analysis in Studies 1-3 compares mental states to intuitively understood behavioral foils as a way to measure whether people judge mental states as entirely uncontrollable, accidental, or intentional. Another method for assessing lay attitudes is to compare ratings to the midpoint of the scale. If ratings are reliably lower than the midpoint, we may conclude that people judge mental states as "more uncontrollable than controllable". If ratings are reliably above the midpoint of the scale, then we may conclude that that people judge those mental states as "more controllable than uncontrollable". And if ratings are at the midpoint, then it suggests a state of ambivalence. In Table S13, below, we report t-tests comparing ratings of emotion, desire, belief and evaluation toward the midpoint of the scale (*mu* = 4). See Tables 1 and 3, and Figures 1 and 2, in the main text for mean ratings.

Table S13
Comparing ratings of control and intentionality for emotions, desires, beliefs, and evaluations to midpoint of rating scale across Studies 1-3

Mental State	Study	df	Control	Intentionality
Emotion	Study 1	142	-3.07*	-6.95**
	Study 2	62	1.49	-1.11
	Study 3	98	-2.55*	-8.68**
Desire	Study 1	142	0.27	1.09
	Study 2	80	3.81**	2.41*
	Study 3	98	6.03**	3.94**
Belief	Study 1	142	6.16**	5.74**
	Study 2	77	8.23**	6.89**
	Study 3	98	11.8**	10.79**
Evaluation	Study 1	142	6.32**	6.35**
	Study 2	61	10.01**	7.43**
	Study 3	98	9.98**	10.47**

Notes. * $p < 0.05$ ** $p < .001$
df = degrees of freedom.
Rating scale ranged from 1-7, with 4 as midpoint value.

These analyses reveal that everyday beliefs and evaluations are judged to be more controllable (and intentional) than not. Desires were judged as more controllable (and intentional) than not in two out of three studies. By contrast, everyday emotions were judged as more uncontrollable (and unintentional) than not.

Study 4

Power analysis

A simulation power analysis was used to determine the appropriate number of subjects to recruit for Study 4. The simulation reflected a simplified design of Study 3. We simulated a dataset for a design with 10 items and two conditions. Half of N subjects made ratings with items i_1- i_5 in condition A (and i_6- i_{10} in condition B), and half of N subjects ratings in response to items i_1- i_5 in condition B (and i_6- i_{10} in condition A). By-subject and by-item means were randomly sampled from normal distributions, $N(0, e_s)$, with e_s based on by-subject variance observed in a linear mixed-effect model analysis of Study 1. We further increased expected noise by adding residual error to each observation, $N(0, e_o)$, with e_o based on the residual error estimate also obtained from Study 1. Unlike Study 1, we were conducting Study 3 online and so expected a more diverse population and other sources of random error (e.g., possible bot responders). We doubled our error estimates in order to accommodate this. We aimed to achieve high power for an absolute mean difference of $b = .3$ (slightly smaller than the smallest difference observed in Study 1, $b = .38$) between the two conditions in our simulation. To obtain this estimate, we varied N in increments of 10 from 120 to 180. We simulated each set of parameters 5000 times. This process revealed that we would detect our expected difference > 98% of the time by recruiting 150 subjects.

We also conducted a simpler power analysis based on subject-averaged mean differences between conditions (the analyses we performed in Studies 1-3). This indicated that N = 150 yields 95% power to detect small ($d = .3$) effects.

Relationship between different measures of control

Correlations between different measures of control (Full Sample)

Study 4 obtained various control judgments between-subjects, holding the mental state scenarios and descriptions constant. Compared to the first three studies, this offers a better test of the relationship between judgments that someone "chose" to have some mental state (Choose), of how much "control" they have over having the mental state (Control), and of whether he/she could "choose to stop" having the mental state if he/she wanted to (Stop).

To analyze the relationship between these measures of control, we calculated the mean rating for each version of the 30 scenarios, which yielded 180 values for each of the three measures, grouped by scenario and condition. We removed the Uncontrollable Behavior and Intentional Act conditions in order to measure the relationship between our control measures as they applied specifically to mental states. Next, we then regressed control ratings for items in one mental state condition separately on ratings from the other conditions using a mixed-effect model, which included random intercepts for scenario and mental state condition, as well as random slopes for the control variable. This allowed us to assess the relationship between each control measure while accounting for the nested nature of our design.

Results showed that each measure of control strongly predicted each other measure. Choose was significantly predicted by Control, $b = 0.422$, $SE = 0.09$, $t = 4.713$, $p < 0.001$, and vice versa, $b = 0.496$, $SE = 0.065$, $t = 7.643$, $p < 0.001$. Likewise, Control was significantly predicted by Stop, $b = 0.424$, $SE = 0.105$, $t = 4.034$, $p < 0.001$, and vice versa; $b = 0.519$, $SE = 0.089$, $t = 5.841$, $p < 0.001$. Finally, Choose and Stop significantly predicted each other, $b = 0.351$, $SE = 0.106$, $t = 3.31$, $p = 0.001$, $b = 0.449$, $SE = 0.144$, $t = 3.126$, $p = 0.002$. When considered together with the results from Study 3, we have strong reason to believe that there is a positive relationship between the degree to which someone believes someone else chose to have a mental state, the degree to which they could choose to not have it, and the degree of control they have over it.

Correlations between different measures of control (by Condition)

We also analyzed the relationship between each of the dependent measures within each of the behavior conditions (See Table S14 and Figure S2, below). Zero-order correlations within each mental state-control measure cell (see Table S14 below) revealed that, for each of the behavior conditions, "choice" ratings positively correlated with control ratings (*r*s >= 0.48, *p*s <= -.007). Similarly, across all conditions, control ratings positively correlated with the "stop" measure (*r*s >= 0.38, *p*s <= 0.041). Choose and stop were significantly correlated for both observable behavior conditions (*p*s <= 0.006), as well as within the Belief ($p < 0.001$) and Thinking ($p = 0.012$) conditions.

Table S14
Correlations (and 95% CI) between measures of control from Study 4, based on by-item ($i = 30$) means across each condition.

	Choose & Control		**Choose & Stop**		**Control & Stop**	
Condition	***r* [95% CI]**	***p*-value**	***r* [95% CI]**	***p*-value**	***r* [95% CI]**	***p*-value**
Uncontrollable Act	0.62 [0.33, 0.80]	<.001**	0.64 [0.36, 0.81]	<.001**	0.71 [0.48, 0.85]	<.001**
Emotion	0.48 [0.14, 0.72]	.007**	0.18 [-0.19, 0.51]	.346	0.66 [0.39, 0.82]	<.001**
Desire	0.48 [0.15, 0.72]	.007**	0.23 [-0.14, 0.54]	.225	0.53 [0.20, 0.74]	.003**
Belief	0.58 [0.28, 0.78]	.001**	0.69 [0.44, 0.84]	<.001**	0.49 [0.16, 0.73]	.006**
Thinking	0.70 [0.45, 0.85]	<.001**	0.45 [0.11, 0.70]	.012*	0.38 [0.02, 0.65]	.041*
Intentional Act	0.67 [0.40, 0.83]	<.001**	0.49 [0.16, 0.72]	.006**	0.42 [0.06, 0.67]	.023*

Note: $df = 28$,
* $p < 0.05$, ** $p < 0.01$

This analysis is limited by the number of scenarios included in the study. Analyzing the relationship of the means across 30 items provides us power to detect only moderately sized relationships.

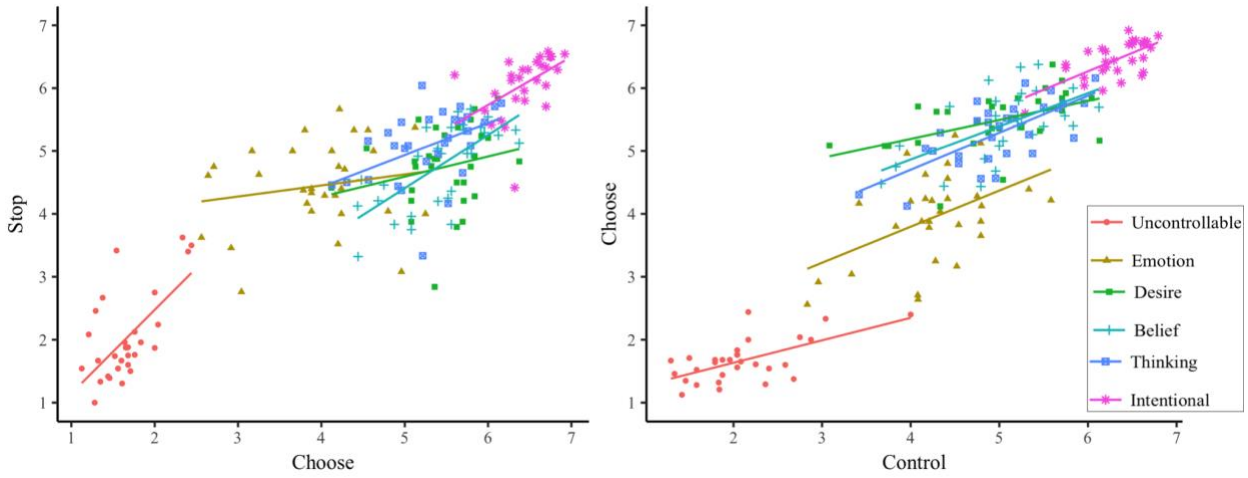

Figure S2: Correlations between DVs by Condition in Study 4. Each point represents item mean for that condition.

Overall mean differences between measures for each condition.

Finally, we conducted a set of exploratory analyses comparing the means across the three different control measures. Our primary interest was to test whether, in any condition, there were significant differences between types of control (e.g., whether some states were rated higher in intentional choice than in the degree to which they were stoppable, or vice versa). For each of the six conditions, we ran a series of mixed-effects analyses comparing ratings of one control type to another, including random intercepts for scenario and subject.

Stop vs Choose. We found that emotions were rated significantly more stoppable than intentionally chosen, $b = 0.49$, $SE = 0.17$, $t = 2.82$, $p = 0.004$. By contrast, for desires and beliefs the reverse pattern was true: desires were seen as more intentionally chosen than stoppable ($b = -0.74$, $SE = 0.16$, $t = -4.73$, $p < 0.001$), with the same pattern for beliefs, $b = -0.66$, $SE = 0.14$, $t = -4.71$, $p < 0.001$. For the thinking condition, there were no detectable differences between intentional choice and the ability to stop, $b = -0.21$, $SE = 0.15$, $t = -1.38$, $p = 0.170$. Uncontrollable behavior foils, like emotions, were rated as more stoppable than chosen, $b = 0.37$, $SE = 0.13$, $t = 2.91$, $p < 0.001$, while intentional behaviors exhibited the reverse pattern, just as desires and beliefs did, $b = -0.37$, SE = 0.12, -3.20, $p < 0.001$.

Control vs Choose. We found that emotions were rated marginally more controllable than intentionally chosen $b = 0.32$, $SE = 0.17$, $t = 1.87$, $p = 0.06$. By contrast, for desires and beliefs the reverse pattern was true: desires were seen as more intentionally chosen than controllable ($b = -0.52$, $SE = 0.15$, $t = -3.48$, $p < 0.001$), with the same pattern for beliefs, $b = -0.35$, $SE = 0.14$, $t = -2.51$, $p = 0.01$. For the thinking condition, control was rated marginally higher than choose, $b = -0.29$, $SE = 0.15$, $t = -1.93$, $p = 0.05$. Uncontrollable behavior foils, like emotions, were rated as more controllable than chosen, $b = 0.43$, $SE = 0.12$, $t = 3.51$, $p < 0.001$, though there was no difference for intentional behaviors $b = -0.13$, $SE = 0.1$, $t = -1.31$, $p = 0.19$.

Control vs Stop. Ability to stop and control ratings were highly similar to each other. Between subjects, overall means were only different in two conditions. Beliefs were judged as more controllable than stoppable (b = -0.31, SE = 0.15, t = -2.16, p = 0.03), as were intentions (b = -0.24, SE = 0.12, t = -2.06, p = 0.04). Given the exploratory nature of these analyses, as well as the relatively modest differences that we observed (namely, ps = .03 and .04), we recommend against drawing strong conclusions from these differences. The remaining comparisons were not significantly different from one another, including uncontrollable behaviors (b = -0.06, SE = 0.12, t = -0.48, p = 0.63), emotions (b = 0.17, SE = 0.16, t = 1.07, p = 0.29), desires (b = -0.21, SE = 0.15, t = -1.38, p = 0.17), and thinking (b = 0.08, SE = 0.16, t = 0.54, p = 0.59). Overall, these findings suggest to us that subjects treat questions of "general control" as equivalent to "ability to stop."

Study 4 Stimuli

Katy is nearing the end of her third year in college. She's studying chemistry and biology in order to eventually apply to medical school. Any low grade will hurt her chances at getting into the top medical schools. Today, however, she struggled through the final exam in her chemistry class. She did not complete it in time and had to guess on the entire last page of questions.

Walking out of the exam, Katy begins shivering in the cold.
Walking out of the exam, Katy fills out a negative course evaluation on her phone.
Walking out of the exam, Katy feels angry at her professor.
Walking out of the exam, Katy wants to leave her professor a poor course evaluation.
Walking out of the exam, Katy believes that her professor deserves a poor course evaluation.
Walking out of the exam, Katy thinks about leaving her professor a poor course evaluation.

Cisco and Bethany are trying to buy a new house. They just found the perfect one and have decided to buy it. Bethany agrees to call the owner while Cisco is at work. However, she gets distracted by chores and forgets. Later, while driving home from work, Cisco calls Bethany to ask how it went and she tells him that she forgot to make the call.

While he listens to her, Cisco squints when the setting sun gets in his eyes.
Immediately after hearing what Bethany said, Cisco berates her.
After hearing what Bethany said, Cisco feels angry at her.
After hearing what Bethany said, Cisco wants her to apologize.
After hearing what Bethany said, Cisco believes that she should apologize.
After hearing what Bethany said, Cisco thinks about whether she is going to apologize.

Brian is in the middle of planning his wedding, which is happening in eight months. Right now he and his fiancé are putting their invitations in pre-marked envelopes. As Brian is stuffing the envelopes, he comes across one marked for his brother. Brian has not spoken to his brother in several years.

When he sees the envelope, Brian inhales some dust from all the paper and starts sneezing.
When he sees the envelope, Brian crumples it up without putting in an invitation.
When he sees the envelope, Brian feels angry at the prospect of his brother coming to the wedding.
When he sees the envelope, Brian wants to exclude his brother from the wedding.
When he sees the envelope, Brian believes that it is okay to exclude his brother from the wedding.
When he sees the envelope, Brian thinks about excluding his brother from the wedding.

Bernard drives a bus for a local high school. He has been driving school buses for almost eight years. Today was a half day at school and the students are excited. In particular, a group of students at the back of bus are yelling loudly and switching seats.

Bernard turns to yell at them but, as he breathes in, starts violently coughing instead.
Bernard yells back at the students to stay quiet.
Bernard feels angry that the students are breaking the rules.
Bernard wants the students at the back of the bus to stop breaking the rules.
Bernard believes that the students at the back of the bus should not be breaking the rules.
Bernard thinks about how the kids at the back of bus are breaking the rules.

Selena is throwing a dinner party tonight and ran to the store to pick up some last-minute supplies. She just made her first stop where she purchased a cheap set of dinner glasses and some expensive wine glasses. But as she is walking through the parking lot to her car, one of her bags rips. One of the boxes falls out, and there is a loud crashing sound on the pavement.

At the sound of the glass shattering, Selena's heart starts pounding.

Selena curses loudly into the air.
Selena feels angry that it might be the expensive wine glasses that broke.
Selena wants it to have been the cheap dinner glasses that broke.
Selena believes that it was the expensive wine glasses that broke.
Selena thinks about whether it was the expensive wine glasses or the cheap dinner glasses that broke.

Martin is eating falafel for lunch. He bought it from a food cart on his lunch break. As he's eating he notices something in his teeth. He reaches into his mouth and pulls out a long hair.

Martin starts gagging.
Martin starts dumping the rest of the falafel in the trash.
Martin feels angry about the hair in the falafel.
Martin wants to throw the rest of the falafel away.
Martin believes that he should throw away the rest of the falafel.
Martin thinks about throwing away the rest of the falafel.

Rachel quit her job this morning. Although it paid well, the people she worked with treated her very poorly. She and her husband have gone out to dinner to talk about what to do next. Now that she isn't working, and they have some money saved up, her husband tells Rachel that he really wants to spend a few months living in another country.

The conversation is stopped short, however, when Rachel starts having an allergic reaction to her food.
The conversation is stopped short, however, when Rachel starts suggesting to her husband that they have a child instead.
Instead, however, Rachel feels excited about the idea of having a child.
Instead, however, Rachel wants to have a child.
Instead, however, Rachel believes that it would be a good time to have a child.
Instead, however, Rachel thinks about having a child.

Isabella works in as a paralegal in a big law firm. She started working there about a year ago after she and her boyfriend graduated from college and moved to the city. The firm just hired a brilliant attorney, fresh out of law school, who seems poised to rise quickly in the ranks. This attorney has also started flirting with Isabella, even though she's told him multiple times that she has a boyfriend. One evening, the attorney leaves a lewd invitation on her desk.

When she smells the cologne on the letter, Isabella starts violently sneezing.
Isabella starts texting the attorney to meet her later.
Isabella feels excited about the idea of having sex with the attorney.
Isabella wants to have sex with the new attorney.
Isabella believes that having sex with the new attorney would be fun.
Isabella thinks about having sex with the new attorney.

Mary's youngest child just graduated from high school. Since her children no longer live at home, she is trying to become a real estate agent and earn some extra money on the side. Her licensing exam is tomorrow, and there are still some rules and procedures she is unfamiliar with. However, her old college friend is in town for business and just texted Mary to invite her for a fun night out.

When her friend texts her a picture of bar food, Mary starts salivating.
Mary gets ready to meet her friend.
Mary feels excited at the prospect of blowing off studying for the night.
Mary wants to blow off studying for the night.
Mary believes that she'll have more fun if she blows off studying for the night.
Mary thinks about blowing off studying for the night.

Wallace works as a bike messenger in New York City, usually ferrying small packages and contracts between big firms downtown. Today he was sent to pick up a package and deliver it to someone in Central Park. When he picked it up, the package was covered in heart-shaped stickers and a large bow.

As he rides his bike to the park, Wallace started sweating through his shirt.
As he rides his bike to the park, Wallace pedals as quickly as he can to deliver the package.
As he rides his bike to the park, Wallace feels excited that the package might be a romantic gift.
As he rides his bike to the park, Wallace wants the package to be a romantic gift.
As he rides his bike to the park, Wallace believes that the package is a romantic gift.
As he rides his bike to the park, Wallace thinks about whether the package might be a romantic gift.

Zoe, a successful financier, helped raise over a million dollars in campaign contributions for her party's presidential nominee. A few months after they won the White House, the newly elected president offered to make Zoe an ambassador to New Zealand, as a reward for her role in the campaign.

Zoe trembles as she tells the president that she accepts.
Zoe tells the president how excited she is for this opportunity.
Zoe feels excited about the idea of living in New Zealand.
Zoe wants to live in New Zealand.
Zoe believes that living in New Zealand would be fun.
Zoe thinks about how much fun it would be living in New Zealand.

Milton was born to a Catholic family, and has been going to church most of his life. A few days ago he was driving home to visit his family when his car was hit by a drunk driver. In addition to other injuries, Milton's hand was badly broken. A priest from his church, who is aware of Milton's situation, is visiting him in the hospital. The priest tells Milton not to worry, because all of this was a part of God’s plan.

As the priest talks to him, Milton's medication starts to kick in and he falls asleep.
As the priest talks to him, Milton starts to pray.
When he hears this, Milton feels excited that God might have a plan for him.
When he hears this, Milton wants God to have a plan for him.
When he hears this, Milton believes that God has a plan for him.
When he hears this, Milton thinks about whether God might have a plan for him.

Rob is about four years older than his little sister, Becca. Becca contracted a rare disease while she was traveling overseas and is now in the hospital. When Rob shows up at the hospital, the doctor informs him that Becca needs a kidney transplant, and that he is a perfect match. The doctors inform Rob that there is a good chance Becca won't live long enough to get a kidney off the normal waiting list, but also warns him that kidney transplants are dangerous for donors.

Sitting in the ice-cold hospital lounge, Rob begins shivering.
Sitting in the hospital lounge, Rob researches wait times for the kidney donor list.
Sitting in the hospital lounge, Rob feels afraid of donating his kidney to Becca.
Sitting in the hospital lounge, Rob wants Becca to wait for a kidney off the donor list.
Sitting in the hospital lounge, Rob believes that Becca has time to wait for a kidney from the donor list.
Sitting in the hospital lounge, Rob thinks about the option of Becca waiting for a kidney off the donor list.

Paul is headed home one night after staying late at work. He lives about five minutes from the subway stop in a safe neighborhood. The streets are quiet and many people have already gone to bed. Walking briskly, Paul notices a man about a block ahead of him walking the opposite direction.

Breathing in the cold night air, Paul begins coughing.

that the man is African American, he starts crossing the street to avoid him.
When Paul notices that the man is African American, he feels afraid.
When Paul notices that the man is African American, he wants to keep a safe distance.
When Paul notices that the man is African American, he believes that the man poses a danger.
When Paul notices that the man is African American, he thinks about whether the man poses a danger.

John is nearing the end of high school. He's always done well at school, consistently getting high marks in all his classes. Toby, a childhood friend of John's, has been struggling in the English class they take together. Today they got back an essay, which Toby failed. Later that day, John notices Toby standing outside waiting for the bus and starts walking out to join him.

When he gets outside, John squints in the bright sunlight.
When he gets outside, John talks to Toby about his recent grades.
As he approaches, John feels worried for Toby.
As he approaches, John wants to tutor Toby.
As he approaches, John believes that he should offer to tutor Toby.
As he approaches, John thinks about tutoring Toby.

Ollie is a painter and handyman in his 40s. The past few days he has been repainting the interior of a large house in the suburbs - one of his most lucrative jobs lately. He just finished one of the smaller bedrooms.

As he inspects the coat of paint, Ollie begins sneezing from the fumes.
As he inspects the coat of paint, Ollie starts touching up a spot he missed.
As he inspects the coat of paint, Ollie feels worried about the coat of paint drying evenly.
As he inspects the coat of paint, Ollie wants the coat of paint to dry evenly.
As he inspects the coat of paint, Ollie believes that the coat of paint may not be drying evenly.
As he inspects the coat of paint, Ollie thinks about whether the coat of paint is drying evenly.

Tiff is a mechanic. Her neighbor, a kind elderly man, has just asked her to take a look at an old bike he's had stored in his garage for years. When Tiff agrees, he wheels it out. The bike is covered in dust and cobwebs, and parts of it are rusted or slightly bent.

When Tiff goes to take a closer look, she starts tearing up when dust from the bike gets in her eye.
Upon seeing the bike, Tiff begins telling him that it might not be salvageable.
As soon as she sees the bike, Tiff, feels nervous about whether the bike can be salvaged.
As soon as she sees the bike, Tiff, wants the bike to be salvageable.
As soon as she sees the bike, Tiff, believes that the bike is salvageable.
As soon as she sees the bike, Tiff, thinks about whether the bike is salvageable.

Marco has been an amateur photographer for several years. He got his start taking photos of landscapes during his travels, then expanded to doing portraits and head shots for his friends. One of Marco's friends, eager to support his professional development, approached Marco and asked if he would be the photographer for her wedding.

As he mulls over her request in his studio, Marco's hands start sweating.
After mulling over her request for a couple days, Marco begins dialing his friend to decline.
Right after his friend asks him, Marco feels anxious about photographing a wedding.
Right after his friend asks him, Marco wants to avoid photographing the wedding.
Right after his friend asks him, Marco believes that he is not capable of photographing the wedding.
Right after his friend asks him, Marco thinks about not photographing the wedding.

Ivan works at one of the largest conglomerates in the world. Over the past ten years he has worked his way up the ranks, occasionally through blackmail or manipulation. Today Ivan's boss, the company's Chief Financial Officer, told the board that he is retiring. The company has not yet announced a successor, but Ivan is likely to be a contender. Ivan goes to the CEO's office to speak to her.

On his way to the CEOÍs office, Ivan squints from bright sunlight coming in through the windows.
On his way to the CEO's office, Ivan stops to examine how he looks in a hallway mirror.
On his way to the CEO's office, Ivan feels pleased about the opportunity to get promoted.
On his way to the CEO's office, Ivan wants to get promoted.
On his way to the CEO's office, Ivan believes that he can now get promoted.
On his way to the CEO's office, Ivan thinks about getting promoted.

Andre works as an exterminator in a small town in Ohio. He primarily deals with termites and other insect infestations, but recently took a call from an old lady who saw a rat in her kitchen. After Andre arrived at her house he placed some poisoned rat food under her counter and left. When he checked back a few days later he saw that the poisoned rat food had been eaten.

Andre looks around the kitchen for signs of the rat, and starts coughing from dust and dirt when he searches beneath the counter.
Andre glances around the kitchen for signs of the rat, and then starts searching beneath the counter.
Andre feels pleased that the rat ate the poisoned food.
Andre wants the rat to die from the poisoned food.
Andre believes that the rat will die from the poisoned food.
Andre thinks about whether the rat will die from the poisoned food.

Amber has been participating in track and field her entire life. In high school she ran cross-country, and went to college on a track scholarship. As an adult, she has been running regularly and generally tries to keep an active lifestyle. She just got back from an 8-mile run.

Coming in from her run, Amber is still sweating.
Coming in from her run, Amber takes a hot shower.
Coming in from her run, Amber feels pleased that she can now take a hot shower.
Coming in from her run, Amber wants to take a hot shower.
Coming in from her run, Amber believes that taking a hot shower will feel great.
Coming in from her run, Amber thinks about taking a hot shower.

Lisa has been working as a teacher for five years. She is good at her work and frequently gets letters from students and parents praising her. Today, however, one of her father's friends emailed her offering her a job. The job would pay a lot more than her teaching job, but she would have to move away from her hometown and stop teaching. Lisa is sitting in her classroom reading the job offer.

She tries to type a response but her hands are shaking from how cold the room is.
She starts writing a response email to accept the offer.
As she reads the offer, Lisa feels pleased that she has an opportunity to make more money.
As she reads the offer, Lisa wants to make more money.
As she reads the offer, Lisa believes that making more money would make her life more comfortable.
As she reads the offer, Lisa thinks about what it would be like to make more money.

Brittany is a first-year college student majoring in physics. She just started a course heavily focused on the topic of physics and outer space, which includes studying the size and composition of galaxies. For one assignment, she needs to use the textbook to calculate the number of planets in the Milky Way galaxy.

When Brittany opens her book, she begins sneezing from all the dust in it.
Brittany follows the book's instructions regarding how to calculate the correct number.
After completing the assignment, Brittany feels pleased with her work.
After completing the assignment, Brittany wants her work to be correct.
After completing the assignment, Brittany believes that her work is correct.
After completing the assignment, Brittany thinks about whether her work is correct.

Amanda is a clerk at a large national bank. She is responsible for record keeping, data entry, and other administrative tasks around the branch. As she is finishing up inputting a bunch of data, she learns that her boss had to leave work four hours early due to a family emergency.

As she sits at her desk, Amanda start yawning.
As she sits at her desk, Amanda starts browsing the internet.
As she sits at her desk, Amanda feels pleased that she can slack off for the rest of the day.
As she sits at her desk, Amanda wants to slack off for the rest of the day.
As she sits at her desk, Amanda believes that she can slack off for the rest of the day.
As she sits at her desk, Amanda thinks about whether she will slack off for the rest of the day.

Brad has been having a bad time with his girlfriend lately. On their latest date, he took her to the movies. It was an action film he had been looking forward to for a while and, while he enjoyed it, she absolutely hated it. This is the not the first time Brad and his girlfriend have had divergent tastes.

When Brad talks to his girlfriend about their different tastes in movies, his voice is hoarse.
As they leave the theater, Brad talks to his girlfriend about their different tastes in movies.
Brad feels sad that he and his girlfriend have different taste in movies.
Brad wants he and his girlfriend to have the same taste in movies.
Brad believes he and his girlfriend should have the same taste in movies.
Brad thinks about the fact that he and his girlfriend have different taste in movies.

Sarah recently finished her first year of college. She put on almost 10 pounds over the course of the year and has started a strict diet to drop all the weight before school starts back up. However, today is her family's annual Fourth of July party, and Sarah's aunt brought her famous homemade red velvet cake. It is almost the end of the party. While most of her family has had a slice, Sarah has not.

Sarah takes a bite of the cake but, as she does so, she starts choking.
Sarah starts eating the last slice of cake.
Sarah feels upset about being on a diet.
Sarah wants to eat a slice of cake.
Sarah believes that eating a slice a cake would go against her diet.
Sarah thinks about whether eating a slice of cake goes against her diet.

Ray just started law school six months ago, having worked very hard to gain entry. However, ever since he started, Ray has regularly been pulling all-nighters just to finish his coursework and has been dealing with his classmates who seem to go out of their way to sabotage him. It is 11:30 on Friday night and he still has a mountain of work to get through.

As he sits in the library late at night, Ray yawns.
As he sits in the library late at night, Ray begins writing an email to the dean telling her that he's going to quit law school.
As he sits in the library late at night, Ray feels despondent at the prospect of staying in law school.
As he sits in the library late at night, Ray wants to quit law school.
As he sits in the library late at night, Ray believes he should quit law school.
As he sits in the library late at night, Ray thinks about quitting law school.

Rebecca goes on long walks with her dog in the afternoons. She lives near a large park in the city. As a part of her normal routine, Rebecca walks about two miles and then sits in the park and reads before returning home. Today is the first time she noticed a homeless shelter down at the end of the street.

Rebecca starts to sneeze due to all the pollen in the air.
Rebecca begins writing a check to the shelter.
Rebecca feels upset about the plight of the homeless people who need the shelter.
Rebecca wants to make a donation to the shelter.
Rebecca believes that she should make a donation to the shelter.
Rebecca thinks about making a donation to the shelter.

Wayne just played his first real gig with his band. His band has been playing together for a couple years now and have built up a small repertoire of punk rock songs. However, after a couple weeks of passing out flyers and posting about their show on Facebook and Twitter, they had only sold about 60 tickets by the night of the show.

At the bar after the show, Wayne starts falling asleep from how busy the day had been.
At the bar after the show, Wayne complains that not enough people showed up.
At the bar after the show, Wayne feels sad that his band has very few fans.
At the bar after the show, Wayne wants his band to have more fans.
At the bar after the show, Wayne believes that his band has very few fans.
At the bar after the show, Wayne thinks about how his band has very few fans.

Wendy works as a paramedic. She and her partner just got a call that a man has been shot. When they arrive on the scene the man is in critical condition. They quickly load him in the ambulance but, on their way to the hospital, he goes into cardiac arrest and needs CPR.

As she is performing CPR on the injured man, Wendy's arm begins to spasm.
Wendy starts performing CPR on the injured man.
As she is performing CPR on the injured man, Wendy feels upset that the man might not live.
As she is performing CPR on the injured man, Wendy wants to keep the man alive.
As she is performing CPR on the injured man, Wendy believes that she can keep the man alive.
As she is performing CPR on the injured man, Wendy thinks about the man's chances of living.

Studies 5 and 6: Correlations within mental state categories

Below we report correlations between control measures and social judgments in studies 5 (immoral mental states) and 6 (morally permissible mental states) within each mental state.

Table S15
Correlations between control measures and attributions within mental states (Study 5).

Mental State	Attribution	Control DV	df	r	p-value	95 CI Low	95 CI High
Emotion	Blameworthy	Intentional	197	0.62	<0.001	0.53	0.70
		Stop	197	0.48	<0.001	0.36	0.58
	Character	Intentional	196	0.41	<0.001	0.28	0.52
		Stop	196	0.31	<0.001	0.18	0.43
Desire	Blameworthy	Intentional	196	0.56	<0.001	0.46	0.65
		Stop	196	0.42	<0.001	0.30	0.53
	Character	Intentional	196	0.50	<0.001	0.38	0.59
		Stop	197	0.40	<0.001	0.27	0.51
Belief	Blameworthy	Intentional	196	0.51	<0.001	0.40	0.60
		Stop	194	0.44	<0.001	0.32	0.55
	Character	Intentional	194	0.36	<0.001	0.24	0.48
		Stop	192	0.38	<0.001	0.25	0.50
Evaluation	Blameworthy	Intentional	195	0.51	<0.001	0.40	0.61
		Stop	195	0.33	<0.001	0.20	0.45
	Character	Intentional	196	0.43	<0.001	0.31	0.54
		Stop	196	0.26	<0.001	0.13	0.39

Note: variation in *df* indicates that some subjects did not provide a response to one of the two judgments.

Table S16
Correlations between control measures and attributions within mental states (Study 6).

Mental State	Attribution	Control DV	r	p-value	95 CI Low	95 CI High
Emotion	Responsibility	Control	0.52	<0.001*	0.41	0.61
		Choice	0.37	<0.001*	0.24	0.48
	Character	Control	0.25	<0.001*	0.11	0.37
		Choice	0.04	0.560	-0.10	0.18
Desire	Responsibility	Control	0.51	<0.001*	0.40	0.61
		Choice	0.42	<0.001*	0.30	0.53
	Character	Control	0.35	<0.001*	0.22	0.46
		Choice	0.11	0.130	-0.03	0.24
Belief	Responsibility	Control	0.57	<0.001*	0.47	0.66
		Choice	0.35	<0.001*	0.23	0.47
	Character	Control	0.31	<0.001*	0.18	0.43
		Choice	0.13	0.070	-0.01	0.26
Evaluation	Responsibility	Control	0.58	<0.001*	0.48	0.67
		Choice	0.37	<0.001*	0.25	0.49
	Character	Control	0.25	<0.001*	0.12	0.38
		Choice	0.04	0.570	-0.10	0.18

Note: $df = 200$
* $p < 0.05$

Graphing variation within mental state category

The graphs below depict means for all 215 scenarios used in Study 1, grouped by mental state/behavior and mental state/behavior category. Each colored circle is the mean of one of five scenarios used for a specific mental state which were distributed across five lists. The goal of these graphs is to depict the high variation within mental state category. For instance, the lowest rated belief was the item "She felt she was one of the only people with depression" ($M_{control}$ = 2.94) and the highest was "She believed that unicorns were real" ($M_{control}$ = 5.48) (see Figure S3). While the paper focused on average ratings of control and intentionality by mental state category, we believe it behooves researchers to keep in mind that these averages obscure a high degree of variation in perceived control.

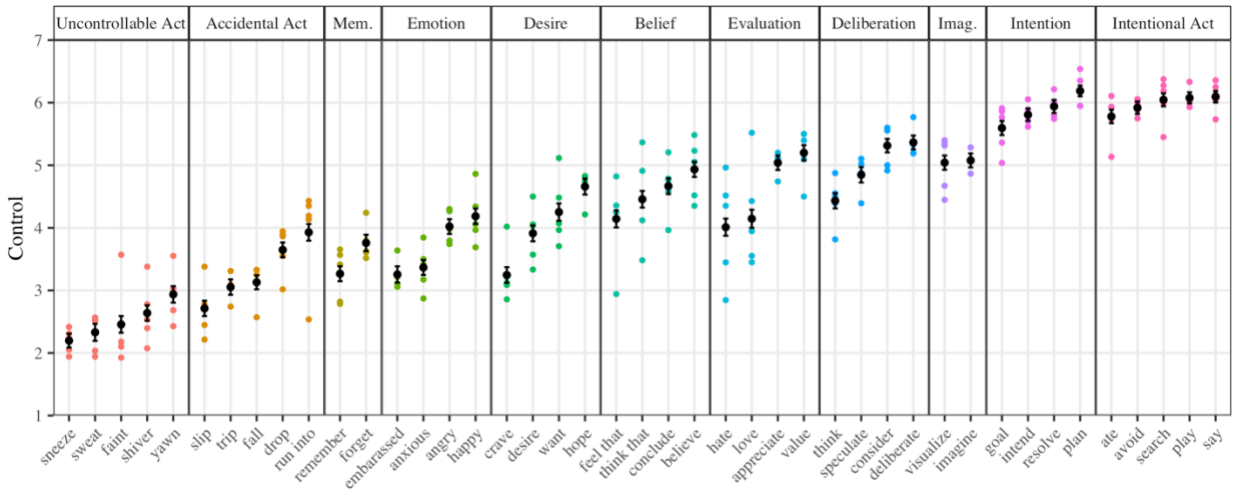

Figure S3. Control ratings across all 140 mental state scenarios and 75 observable behavior scenarios. Black circles (with error bars) represent mean rating (with standard error) across five scenarios. Colored points represent mean ratings for each of the five scenarios (see Appendix A for full text). Color differentiates mental state/observable behavior category. ("Mem." = "Memory", "Imag." = "Imagination")

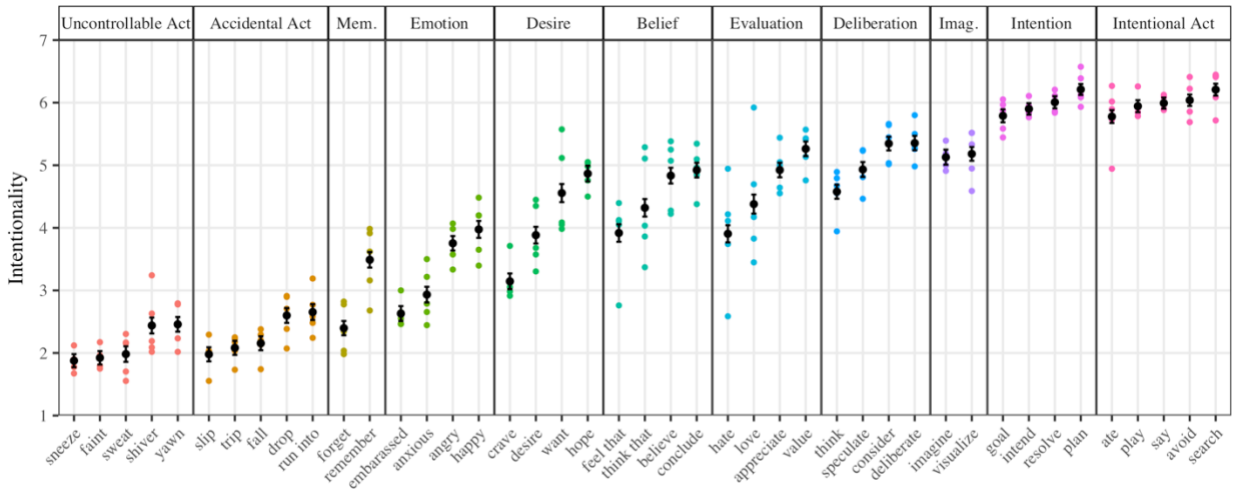

Figure S4. Intentionality ratings across all 140 mental state scenarios and 75 observable behavior scenarios. Black circles (with error bars) represent mean rating (with standard error) across five scenarios. Colored points represent mean ratings for each of the five scenarios (see Appendix A for full text). Color differentiates mental state/observable behavior category. ("Mem." = "Memory", "Imag." = "Imagination")