

# Supplementary Analysis

## 1. Demographics and exclusion

	Country	N	Age (SD)	Male %	Higher education %	Collectivism <sup>1</sup>
By country						
Eastern	China	1677	24.7 (7.6)	42.7%	88.5%	0.075
Eastern	India	502	22.6 (6.1)	33.7%	63.7%	0.069
Eastern	Iran	235	31.0 (9.6)	55.1%	89.5%	0.059
Eastern	Japan	396	44.0 (10.8)	63.6%	68.2%	0.073
Eastern	Lebanon	20	34.1 (16.6)	50.0%	95.0%	0.069
Eastern	Malaysia	171	20.5 (2.4)	17.0%	54.4%	0.133
Eastern	North Macedonia	282	22.1 (3.8)	55.7%	26.6%	0.066
Eastern	Pakistan	423	22.7 (3.7)	36.4%	87.5%	0.078
Eastern	Thailand	91	19.4 (1.0)	22.0%	53.8%	0.079
Eastern	United Arab Emirates	80	24.8 (3.7)	33.8%	71.2%	—
Southern	Argentina	253	34.3 (14.7)	27.4%	79.0%	0.101
Southern	Chile	54	34.4 (13.3)	40.7%	70.4%	0.079
Southern	Colombia	278	27.8 (12.0)	41.0%	87.6%	0.090
Southern	Czechia	411	28.1 (9.6)	69.8%	50.4%	—
Southern	Ecuador	45	23.3 (4.5)	31.1%	97.7%	0.130
Southern	France	935	33.8 (13.9)	17.6%	71.9%	0.083
Southern	Hungary	941	21.7 (3.8)	21.0%	22.0%	0.100
Southern	Mexico	64	33.1 (5.6)	64.1%	100.0%	0.082
Southern	Peru	141	24.5 (11.4)	36.9%	47.5%	0.102
Southern	Philippines	282	20.3 (3.0)	33.7%	57.0%	0.127
Southern	Slovakia	560	22.4 (6.0)	11.6%	19.7%	—
Southern	Turkey	1369	24.6 (8.1)	24.0%	42.8%	0.069
Western	Australia	1164	21.7 (6.9)	28.2%	25.2%	0.032
Western	Austria	346	24.8 (8.5)	35.1%	27.8%	—
Western	Brazil	267	30.1 (12.1)	36.7%	70.4%	0.097
Western	Bulgaria	316	27.7 (11.0)	14.9%	36.4%	0.066
Western	Canada	751	23.0 (7.6)	40.9%	58.9%	0.029
Western	Croatia	250	21.9 (4.1)	17.2%	19.6%	—
Western	Denmark	1299	36.7 (15.9)	46.6%	57.1%	—
Western	Germany	2887	30.2 (11.6)	29.1%	21.2%	0.047
Western	Greece	515	26.1 (11.0)	20.4%	52.8%	—
Western	Italy	500	35.6 (13.9)	44.4%	61.3%	0.045
Western	Kazakhstan	122	33.5 (9.1)	29.5%	100.0%	0.106
Western	Netherlands	479	20.6 (2.8)	34.4%	18.4%	0.049
Western	New Zealand	214	26.2 (10.6)	21.5%	35.0%	0.032
Western	Poland	1416	30.0 (11.0)	32.5%	49.1%	0.059
Western	Portugal	716	28.5 (9.5)	36.6%	70.0%	—
Western	Romania	755	24.5 (8.5)	14.0%	28.2%	0.078
Western	Russia	426	31.4 (8.2)	35.4%	91.5%	0.071
Western	Serbia	485	27.1 (11.0)	25.6%	52.5%	0.028
Western	Singapore	102	22.6 (1.7)	23.5%	57.8%	0.030

Western	Spain	257	21.5 (6.8)	16.0%	99.2%	0.041
Western	Switzerland	549	23.0 (7.2)	29.9%	22.1%	0.067
Western	United Kingdom	865	25.2 (11.2)	23.2%	42.5%	0.075
Western	United States	3611	20.7 (4.9)	23.4%	22.9%	0.000
By region						
Eastern	—	3877	26.1 (9.7)	42.9%	75.2%	—
Southern	—	5333	26.3 (10.5)	27.2%	48.7%	—
Western	—	18292	25.9 (10.4)	28.4%	38.4%	—
All						
All	—	27502	26.0 (10.3)	30.3%	45.8%	—

<sup>1</sup>Distance from the US in collectivism. Some countries do not have a collectivism score.

## 2. Additional analysis

### Familiar participants

As we registered, we conducted the analysis on familiar participants, the results can be found below.

The effect of personal force on participants familiar with the trolley problem.

Dilemma	Cluster	BF	t	df	p	Cohen d
Trolley	Eastern	9.1e+01	-3.46	536.88	0.0006	-0.30
	Southern	7.2e+06	-6.01	876.02	0.0000	-0.40
	Western	5.2e+05	-5.54	971.30	0.0000	-0.36
Speedboat	Eastern	7.7e+00	-2.53	534.73	0.0120	-0.22
	Southern	3.1e+05	-5.42	874.62	0.0000	-0.36
	Western	2.7e+07	-6.27	970.94	0.0000	-0.40

The interaction effect of personal force and intention on familiar participants.

Dilemma	Cluster	BF	F	df	p	Eta squared	Raw effect
Trolley	Eastern	4.4e+00	5.428	1, 354	0.020	0.015	-1.1891920
	Southern	6.3e+08	48.052	1, 832	0.000	0.055	-2.0400669
	Western	1.6e+27	133.567	1, 6275	0.000	0.021	-1.1706793
Speedboat	Eastern	7.0e-01	0.319	1, 354	0.573	0.001	0.2852528
	Southern	9.4e+01	12.110	1, 832	0.001	0.014	-1.0086484
	Western	1.0e+00	3.827	1, 6275	0.050	0.001	-0.1922321

### Effect of physical contact and intention

In every cluster and for both types of dilemma we found good enough evidence supporting the alternative hypothesis when testing the effect of physical contact and the effect of intention. The summary of the results can be found in the tables below.

### Comparing the standard switch and standard footbridge dilemmas

When comparing the standard switch and standard footbridge dilemmas in all clusters for the trolley and the speedboat tasks we found good enough evidence in every case for the support of the alternative hypothesis. The summary results of each comparison separately can be found in Tables below.

Effect of Physical Contact and Intention

Cluster	Dilemma	Comparison	t	Bf	df	p
Eastern	Trolley	Intention	-4.54	3.73e+03	409.57	< .001
Eastern	Speedboat	Intention	-4.42	1.83e+03	420.70	< .001
Eastern	Trolley	Physical Contact	0.50	2.70e-01	313.27	0.62
Eastern	Speedboat	Physical Contact	-0.01	2.40e-01	311.76	0.99
Southern	Trolley	Physical Contact	1.39	4.30e-01	767.94	0.17
Southern	Speedboat	Physical Contact	1.08	3.00e-01	755.61	0.28
Southern	Trolley	Intention	-8.80	2.60e+14	996.24	< .001
Southern	Speedboat	Intention	-6.37	2.13e+07	973.94	< .001
Western	Trolley	Intention	-12.93	1.96e+36	1,254.89	< .001
Western	Speedboat	Intention	-10.32	1.28e+22	1,287.02	< .001
Western	Trolley	Physical Contact	0.21	1.20e-01	1,450.49	0.83
Western	Speedboat	Physical Contact	-1.41	3.10e-01	1,489.60	0.16

Effect of Physical Contact and Intention

Cluster	Dilemma	Comparison	t	Bf	df	p
Eastern	Trolley	Intention	-3.08	1.69e+01	251.17	< .001
Eastern	Speedboat	Intention	-2.07	1.69e+00	263.92	0.04
Eastern	Trolley	Physical Contact	-0.11	3.30e-01	157.21	0.92
Eastern	Speedboat	Physical Contact	-0.14	3.30e-01	162.08	0.89
Southern	Trolley	Physical Contact	0.55	2.80e-01	411.52	0.59
Southern	Speedboat	Physical Contact	0.32	2.60e-01	420.94	0.75
Southern	Trolley	Intention	-7.40	3.99e+09	498.00	< .001
Southern	Speedboat	Intention	-6.04	3.49e+06	462.53	< .001
Western	Trolley	Intention	-9.08	1.76e+16	543.82	< .001
Western	Speedboat	Intention	-8.59	1.90e+13	585.38	< .001
Western	Trolley	Physical Contact	0.17	1.80e-01	664.44	0.87
Western	Speedboat	Physical Contact	-0.58	2.10e-01	682.22	0.56

Comparing the Standard Switch and Standard Footbridge Dilemmas

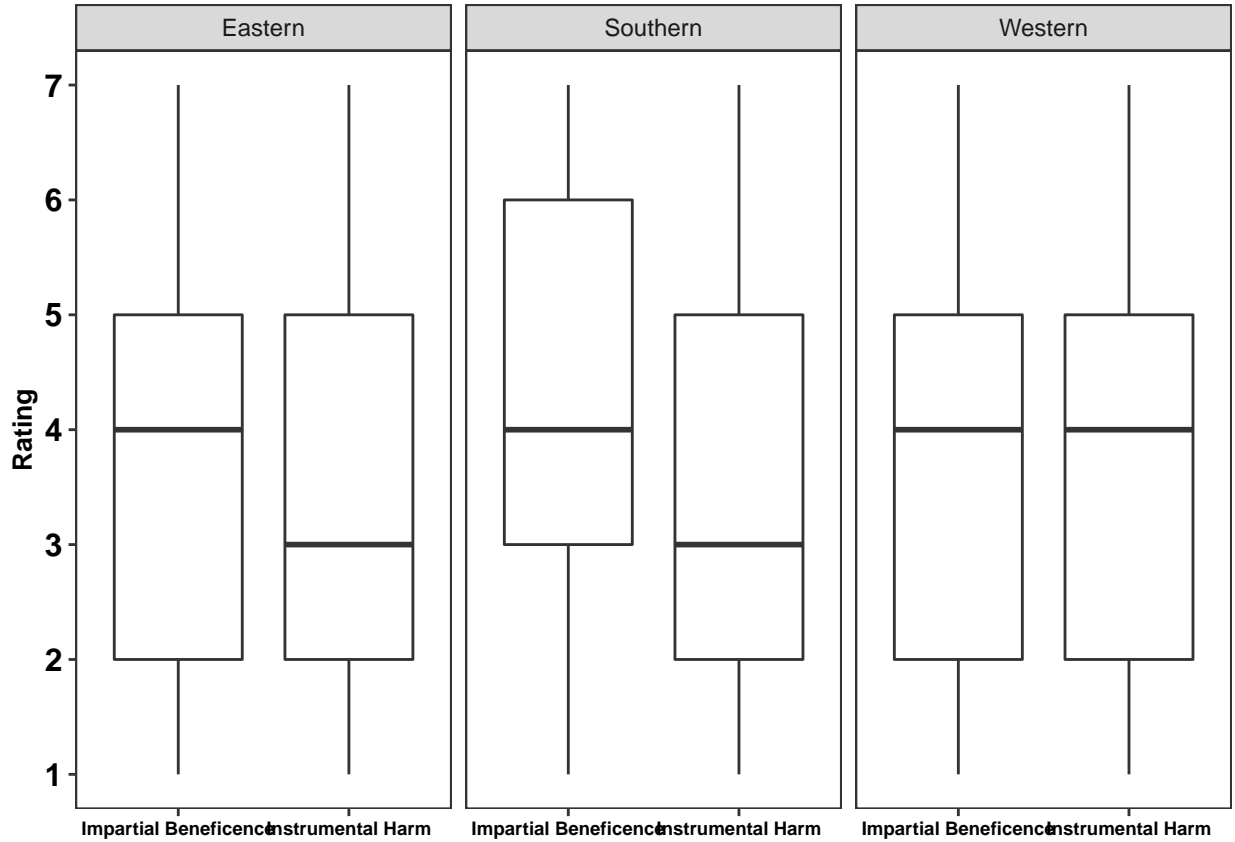
Cluster	Dilemma	t	Bf	df	p
Southern	Trolley	15.57	1.71e+44	839.14	< .001
Southern	Speedboat	11.50	9.17e+24	835.93	< .001
Western	Trolley	32.63	8.38e+207	5,127.27	< .001
Western	Speedboat	25.49	8.82e+130	5,124.41	< .001
Eastern	Trolley	7.40	3.91e+09	401.59	< .001
Eastern	Speedboat	6.90	1.98e+08	399.79	< .001

Comparing the Standard Switch and Standard Footbridge Dilemmas

Cluster	Dilemma	t	Bf	df	p
Southern	Trolley	12.64	2.70e+27	418.91	< .001
Southern	Speedboat	9.25	1.36e+15	420.65	< .001
Western	Trolley	20.15	1.21e+78	1,906.02	< .001
Western	Speedboat	15.93	1.03e+50	1,907.39	< .001
Eastern	Trolley	5.24	1.40e+04	208.09	< .001
Eastern	Speedboat	5.20	1.23e+04	207.50	< .001

## Oxford utilitarianism Scale

As we registered, we simply publish descriptive statistics of the Oxford Utilitarianism Scale in each cultural clusters.



## Exploratory analysis on overall utilitarianism and collectivism

Although not part of the planned analysis, we hypothesized that country-level collectivism would be associated with utilitarian responding (i.e., higher moral acceptability ratings). We found no evidence for this hypothesis, regardless of familiarity exclusion or dilemma context. Interestingly, however, we found strong evidence for the association between vertical individualism and average moral acceptability ratings on moral dilemmas, regardless of dilemma context or exclusion criteria. The positive association means that higher levels of vertical individualism is associated with higher acceptance of the utilitarian response option.

In all of the regression models below, we added the random intercept of countries.

### With all exclusions

Is the interaction of personal force and intention affected by individualism/collectivism on Trolley dilemmas?

variable	BF	b	p
Country-level collectivism	2.246e-01	-2.759	0.409
Vertical Individualism	3.373e+11	0.154	0.000
Horizontal Individualism	3.057e+00	0.068	0.006
Vertical Collectivism	2.303e-01	0.037	0.083
Horizontal Collectivism	8.835e-02	-0.018	0.454

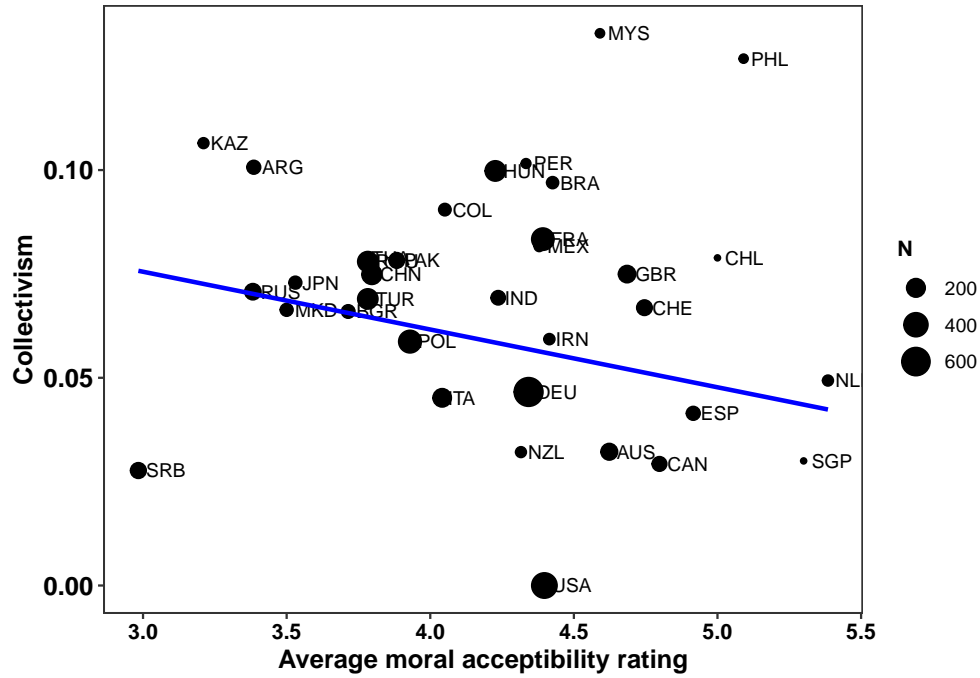


Figure S1: Correlation between country-level individualism/collectivism and moral accessibility ratings on the Trolley dilemmas (higher moral acceptability means higher acceptability of the utilitarian choice).

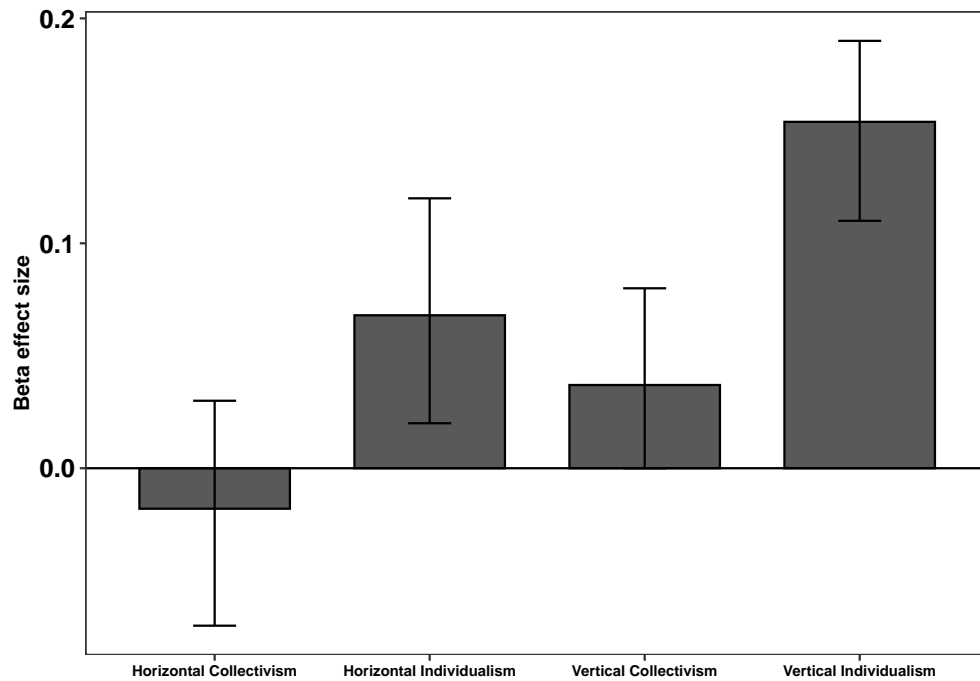


Figure S2: Personal level individualism/collectivism effects on moral acceptability ratings (trolley dilemmas)

Is the interaction of personal force and intention affected by individualism/collectivism on Trolley dilemmas?

variable	BF	b	p
Country-level collectivism	7.382e-01	-6.496	0.048
Vertical Individualism	4.514e+09	0.139	0.000
Horizontal Individualism	8.425e-02	-0.018	0.450
Vertical Collectivism	1.327e-01	0.027	0.200
Horizontal Collectivism	7.320e-02	-0.010	0.679

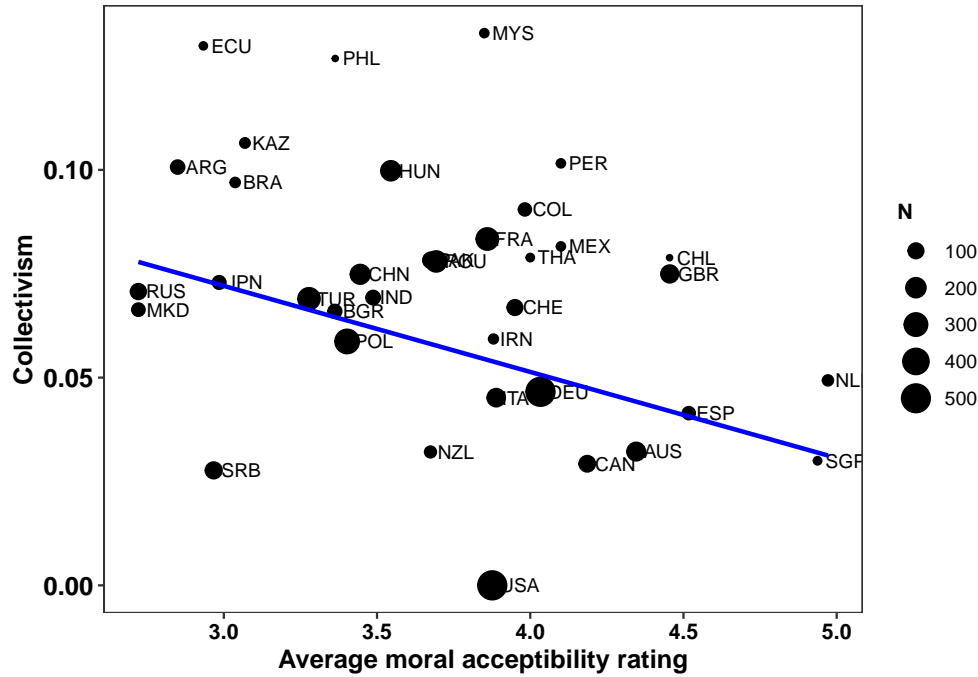


Figure S3: Correlation between country-level individualism/collectivism and moral accessibility ratings on the Speedboat dilemmas (higher moral accessibility means higher acceptability of the utilitarian choice)

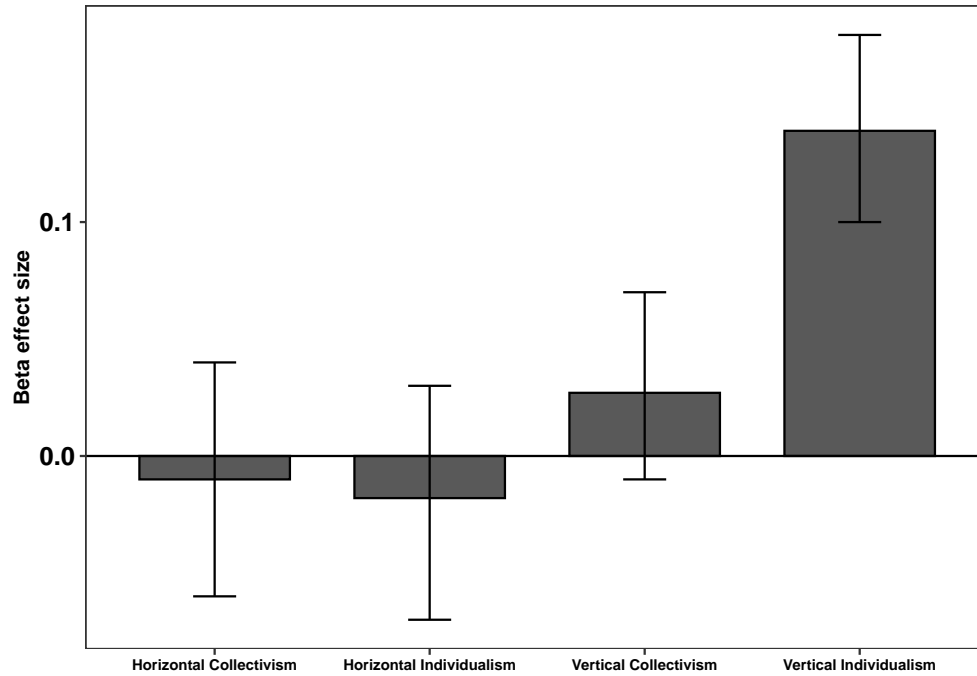


Figure S4: Personal level individualism/collectivism effects on moral acceptability ratings (speedboat dilemmas)

## Without familiarity exclusion

Is the interaction of personal force and intention affected by individualism/collectivism on Trolley dilemmas?

variable	BF	b	p
Country-level collectivism	3.790e-01	-4.637	0.115
Vertical Individualism	2.374e+24	0.122	0.000
Horizontal Individualism	3.962e+01	0.053	0.000
Vertical Collectivism	3.600e-02	-0.001	0.928
Horizontal Collectivism	3.709e-02	0.005	0.741

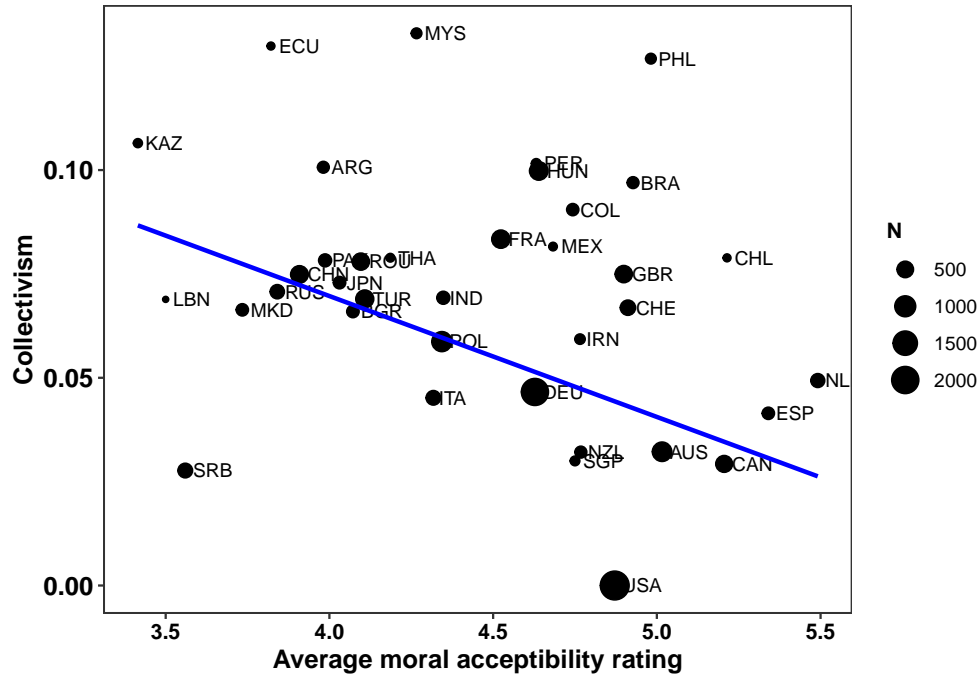


Figure S5: Correlation between country-level individualism/collectivism and moral accessibility ratings on the Trolley dilemmas (higher moral acceptability means higher acceptability of the utilitarian choice)

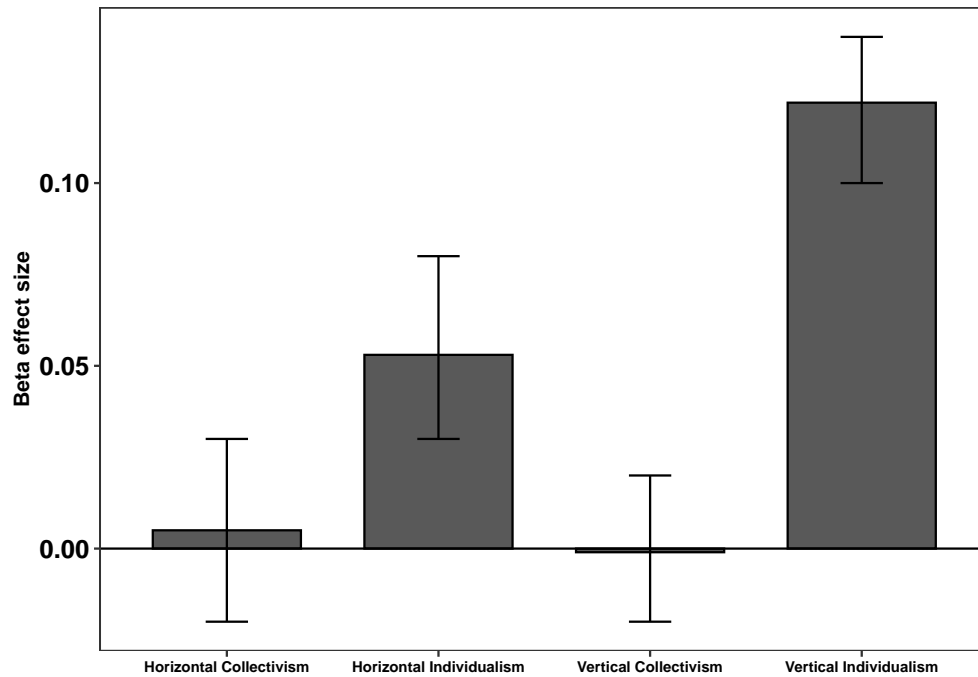


Figure S6: Personal level individualism/collectivism effects on moral acceptability ratings (trolley dilemmas)



Is the interaction of personal force and intention affected by individualism/collectivism on Trolley dilemmas?

variable	BF	b	p
Country-level collectivism	4.093e-01	-4.525	0.069
Vertical Individualism	2.479e+19	0.102	0.000
Horizontal Individualism	6.061e-02	0.013	0.311
Vertical Collectivism	5.598e-02	-0.010	0.357
Horizontal Collectivism	3.591e-02	0.001	0.929

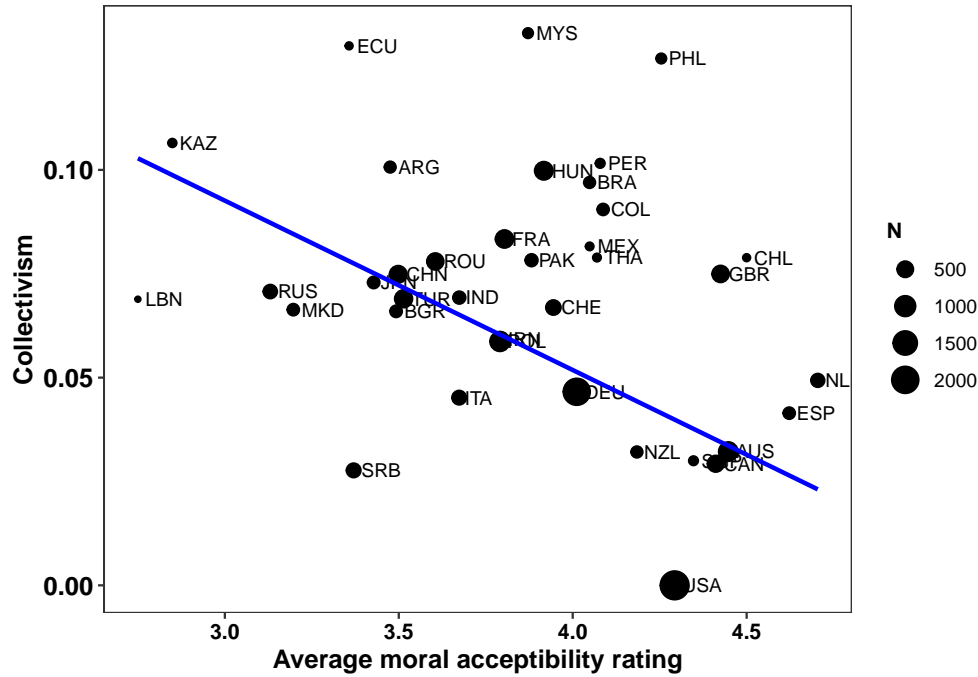


Figure S7: Correlation between country-level individualism/collectivism and moral accessibility ratings on the Speedboat dilemmas (higher moral accessibility means higher acceptability of the utilitarian choice)

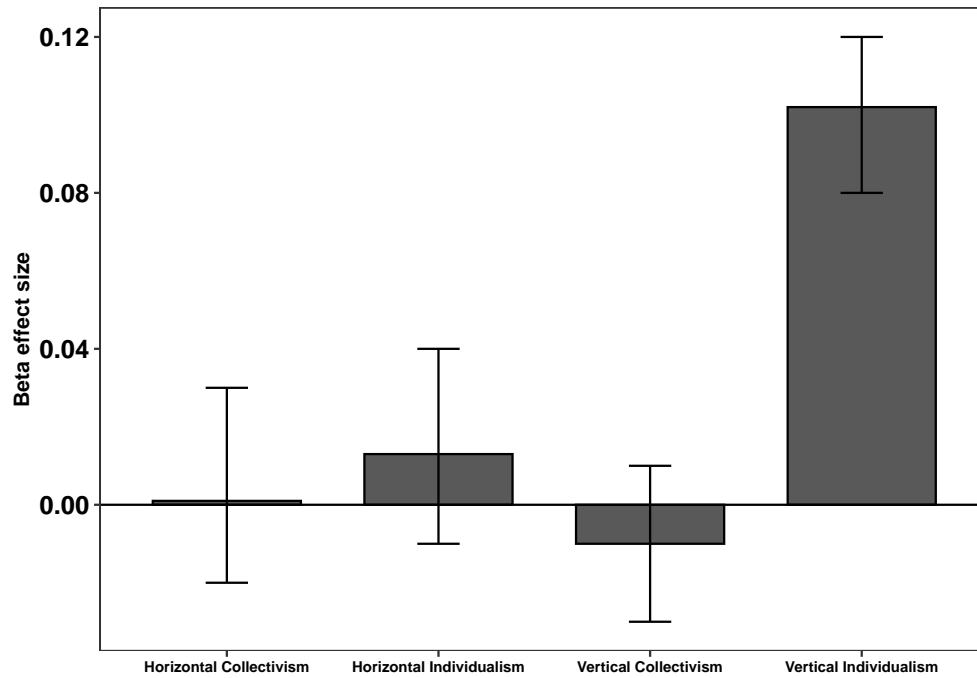


Figure S8: Personal level individualism/collectivism effects on moral acceptability ratings (speedboat dilemmas)