Not Our Kind of Crowd!

How Partisan Bias Distorts Perceptions of Political Twitter Bots

--- Online Appendix ---

A) Supplementary Analyses for Study 1

A.1)

Table 1a (Supp.): Results based on pre-registered analytical strategy

Item	Mean and Standard Deviation				ANCOVA	Tukey HSD		
	Full Sample	Dem.	Rep.	Indep.	Omnibus Difference	Dem. (-) Rep.	Indep. (-) Rep.	Indep. (-) Dem.
To what extent would you say that social Bots <u>are created to influence political viewpoints</u> of…								
Democrats	*M* = 3.45 *SD* = 1.09	*M* = 3.19 *SD* = 1.07	*M* = 3.88 *SD* = 1.04	*M* = 3.56 *SD* = .95	***F*(2, 440) = 20.22** ***p* < .001, *f* = .30**	**- .67** **95% CI** **[-.94, -.41]** ***p* < .001**	-.33 95% CI [-.70, .45] *p* = .097	.35 95% CI [-.01, .69] *p* = .051
Republicans	*M* = 3.81 *SD* = 1.10	*M* = 4.01 *SD* = 1.05	*M* = 3.43 *SD* = 1.12	*M* = 3.83 *SD* = 1.06	***F* (2, 440) = 12.88** ***p* < .001, *f* = .24**	**.57** **95% CI** **[.29, .84]** ***p* < .001**	**.39** **95% CI** **[.01, .78]** ***p* = .045**	-.18 95% CI [-.53, .18] *p* = .473
Independents	*M* = 3.06 *SD* = 1.06	*M* = 3.12 *SD* = 1.05	*M* = 3.05 *SD* = 1.05	*M* = 2.87 *SD* = 1.10	*F*(2, 440) = 1.43, *p* = .241, *f* = .08	-	-	-
To what extent would you say that social Bots <u>are created to support political goals</u> of…								
Democrats	*M* = 3.41 *SD* = 1.20	*M* = 3.02 *SD* = 1.19	*M* = 4.06 *SD* = .98	*M* = 3.54 *SD* = 1.06	***F*(2, 440) = 39.39** ***p* < .001, *f* = .42**	**-1.03** **95% CI** **[-1.31, -.74]** ***p* < .001**	**-.54** **95% CI** **[-.94, -.14]** ***p* = .005**	**.49** **95% CI** **[.12, .86]** ***p* = .005**
Republicans	*M* = 3.79 *SD* = 1.12	*M* = 4.06 *SD* = 1.05	*M* = 3.26 *SD* = 1.12	*M* = 3.89 *SD* = 1.06	***F*(2, 440) = 26.21** ***p* < .001, *f* = .35**	**.79** **95% CI** **[.52, 1.06]** ***p* < .001**	**.63** **95% CI** **[.25, 1.01]** ***p* < .001**	-.16 95% CI [-.51, .19] *p* = .538
Independents	*M* = 2.89 *SD* = 1.04	*M* = 2.94 *SD* = 1.03	*M* = 2.95 *SD* = 1.03	*M* = 2.65 *SD* = 1.08	*F*(2, 440) = 2.15, *p* = .118, *f* = .10	-	-	-
Which users would you expect to be <u>most vulnerable to Bot influence</u>? (i.e., not knowing that they are dealing with Bots)								
Democrats	*M* = 3.23 *SD* = 1.11	*M* = 2.83 *SD* = 1.00	*M* = 3.86 *SD* = 1.04	*M* = 3.44 *SD* = 1.01	***F*(2, 440) = 46.15** ***p* < .001, *f* = .46**	**-.99** **95% CI** **[-1.25, -.72]** ***p* < .001**	**-.39** **95% CI** **[-.76, -.03]** ***p* = .032**	**.59** **95% CI** **[.25, .93]** ***p* < .001**
Republicans	*M* = 4.05 *SD* = 1.06	*M* = 4.42 *SD* = .84	*M* = 3.31 *SD* = 1.11	*M* = 4.21 *SD* = .90	***F*(2, 440) = 63.05** ***p* < .001, *f* = .54**	**1.06** **95% CI** **[.82, 1.30]** ***p* < .001**	**.88** **95% CI** **[.55, 1.22]** ***p* < .001**	-.18 95% CI [-.49, .14] *p* = .382

Independents	*M* = 3.09 *SD* = .98	*M* = 3.13 *SD* = .96	*M* = 3.13 *SD* = .99	*M* = 2.84 *SD* = 1.03	*F*(2, 440) = 2.41, *p* = .091, *f* = .10	-	-	-
Which users would you expect to be <u>most willing to help social Bots spread through social media</u>? (i.e., knowing that they are dealing with Bots)								
Democrats	*M* = 3.22 *SD* = 1.22	*M* = 2.73 *SD* = 1.10	*M* = 4.05 *SD* = .99	*M* = 3.30 *SD* = 1.14	***F*(2, 440) = 69.37** ***p* < .001, *f* = .56**	**-1.36** **95% CI** **[-1.64, -1.09]** ***p* < .001**	**-.79** **95% CI** **[-1.17, -.40]** ***p* < .001**	**.58** **95% CI** **[.23, .93]** ***p* < .001**
Republicans	*M* = 3.82 *SD* = 1.17	*M* = 4.12 *SD* = 1.02	*M* = 3.13 *SD* = 1.19	*M* = 4.14 *SD* = 1.06	***F*(2, 440) = 42.89** ***p* < .001, *f* = .44**	**.89** **95% CI** **[.62, 1.16]** ***p* < .001**	**.95** **95% CI** **[.57, 1.33]** ***p* < .001**	.06 95% CI [-.29, .42] *p* = .904
Independents	*M* = 2.82 *SD* = .89	*M* = 2.86 *SD* = .88	*M* = 2.82 *SD* = .91	*M* = 2.62 *SD* = .85	*F*(2, 440) = 1.93, *p* = .146, *f* = .09	-	-	-

Table 1b (Supp.): Results for survey items not reported in the main manuscript.

Item	Mean and Standard Deviation				ANCOVA	Tukey HSD		
	Full Sample	Democrat Participants	Republican Participants	Independent Participants	Omnibus Difference	Dem. (-) Rep.	Dem. (-) Indep.	Rep. (-) Indep.
How concerned are you about the presence of social bots in social media?								
	M = 3.36 *SD* = .97	*M* = 3.35 *SD* = 1.01	*M* = 3.36 *SD* = .95	*M* = 3.41 *SD* = .891	*F*(2, 440) = .119 *p* = .888, *f* = .02	-	-	-
How likely would you say is it that you <u>have unwillingly followed</u> social bots in the past?								
	M = 2.59 *SD* = 1.27	*M* = 2.51 *SD* = 1.27	*M* = 2.54 *SD* = 1.16	*M* = 3.54 *SD* = 1.06	*F*(2, 440) = 2.006 *p* = .136, *f* = .10	-	-	-
How likely would you say is it that you <u>have unwillingly liked or shared information</u> from social bots in the past?								
	M = 2.75 *SD* = 1.24	*M* = 2.71 *SD* = 1.19	*M* = 2.82 *SD* = 1.32	*M* = 2.76 *SD* = 1.27	*F*(2, 440) = .348 *p* = .706, *f* = .04	-	-	-
To what extent would it bother you knowing that you may unwillingly be following social bots?								
	M = 3.55 *SD* = 1.12	*M* = 3.55 *SD* = 1.13	*M* = 3.50 *SD* = 1.14	*M* = 3.67 *SD* = 1.08	*F*(2, 440) = .50 *p* = .607, *f* = .05	-	-	-
To what extent would it bother you knowing that you may unwillingly be liking or sharing information from social bots?								
	M = 3.65 *SD* = 1.08	*M* = 3.68 *SD* = 1.08	*M* = 3.59 *SD* = 1.07	*M* = 3.71 *SD* = 1.11	*F*(2, 440) = .437 *p* = .646, *f* = .04	-	-	-
How often have you <u>willingly followed</u> social bots in the past?								
	M = 1.46 *SD* = .87	*M* = 1.45 *SD* = 1.08	*M* = 1.49 *SD* = 1.07	*M* = 1.41 *SD* = 1.11	*F*(2, 440) = .222 *p* = .801, *f* = .03	-	-	-

Item	Mean and Standard Deviation				ANCOVA	Tukey HSD		
	Full Sample	Democrat Participants	Republican Participants	Independent Participants	Omnibus Difference	Dem. (-) Rep.	Dem. (-) Indep.	Rep. (-) Indep.
Conditional Item if other response than "never": What motivates you to follow social bots? (n = 118)								
Stay up to date with political matters.	*M* = 2.74 *SD* = 1.26	*M* = 2.57 *SD* = 1.28	*M* = 3.07 *SD* = 1.23	*M* = 2.58 *SD* = 1.17	*F*(2, 114) = 2.212 *p* = .114, *f* = .20	-	-	-
Stay up to date with activities of my preferred political group.	*M* = 2.53 *SD* = 1.24	*M* = 2.40 *SD* = 1.20	*M* = 2.93 *SD* = 1.25	*M* = 2.11 *SD* = 1.15	***F*(2, 114) = 3.799** ***p* = .025, *f* = .26**	-.504 *p* = .116	.271 *p* = .675	.775 *p* = .065
Stay up to date with activities of political opponents.	*M* = 2.42 *SD* = 1.23	*M* = 2.16 *SD* = 1.10	*M* = 2.95 *SD* = 1.28	*M* = 2.16 *SD* = 1.26	***F*(2, 114) = 6.122** ***p* = .003, *f* = .33**	**-.789** ***p* = .005**	-.073 *p* = .97	.716 *p* = .088
Join other people who were already following the same bot.	*M* = 2.33 *SD* = 1.03	*M* = 2.33 *SD* = 1.09	*M* = 2.44 *SD* = 1.05	*M* = 2.05 *SD* = .71	*F*(2, 114) = .961 *p* = .386, *f* = .13	-	-	-
*Other**	*M* = 2.83 *SD* = 1.42	*M* = 2.87 *SD* = 1.41	*M* = 2.51 *SD* = 1.38	*M* = 3.37 *SD* = 1.42	*F*(2, 114) = 2.447 *p* = .091, *f* = .13	-	-	-
How often have you <u>willingly liked or shared information</u> from social bots in the past?								
	M = 1.48 *SD* = .84	*M* = 1.47 *SD* = .853	*M* = 1.49 *SD* = .89	*M* = 1.38 *SD* = .71	*F*(2, 440) = .41 *p* = .664, *f* = .04	-	-	-
Conditional Item if other response than "never": What motivates you to like or share information from social bots? (n = 131)								
Share important political information with others.	*M* = 2.73 *SD* = 1.23	*M* = 2.82 *SD* = 1.23	*M* = 2.68 *SD* = 1.21	*M* = 2.47 *SD* = 1.33	*F*(2, 122) = .625 *p* = .537, *f* = .10	-	-	-
Express my political views.	*M* = 2.54 *SD* = 1.27	*M* = 2.71 *SD* = 1.22	*M* = 2.49 *SD* = 1.38	*M* = 1.94 *SD* = 1.03	*F*(2, 122) = 2.655 *p* = .074, *f* = .21	-	-	-
Support my political group.	*M* = 2.63 *SD* = 1.27	*M* = 2.71 *SD* = 1.27	*M* = 2.76 *SD* = 1.32	*M* = 2.00 *SD* = .94	*F*(2, 122) = 2.5 *p* = .086, *f* = .20	-	-	-

"Hurt" political opponents.	*M* = 1.82 *SD* = .98	*M* = 1.96 *SD* = .95	*M* = 1.76 *SD* = 1.09	*M* = 1.41 *SD* = .62	*F*(2, 122) = 2.399 *p* = .095, *f* = .20	-	-	-
Motivate others to follow the same bot.	*M* = 1.86 *SD* = 1.01	*M* = 1.9 *SD* = .95	*M* = 2.05 *SD* = 1.20	*M* = 1.24 *SD* = .44	***F*(2, 122) = 4.358** ***p* = .015, *f* = .27**	-.247 *p* = .423	**.736** ***p* = .019**	**.983** ***p* = .003**
*Other**	*M* = 2.72 *SD* = 1.4	*M* = 2.62 *SD* = 1.39	*M* = 2.80 *SD* = 1.45	*M* = 2.94 *SD* = 1.39	*F*(2, 122) = .479 *p* = .621, *f* = .09	-	-	-

*Participants who provided qualitative (i.e. textual) information about conscious bot engagement mainly indicated entertainment-related purposes.

A.2) Additional Survey Items in Study 1 (not analysed)

Survey 1 included three additional items that assessed affective representations of democrats, republicans, and independents, respectively via feeling-thermometer scales.

B) Supplementary Material for Experiment 2

B1.) List of models corresponding to the results in the main manuscript

Table 2a (Supp.): Misidentifying Bots as Humans (H1)

Predictors	*Log-Odds*	*95% CI*	*Statistic*	*p value*
(Intercept)	.69	[.29; 1.1]	3.39	**.001**
Participant Partisanship (Democrats)	-.52	[-.81; -.23]	-3.47	**.001**
Stimuli Partisanship (Pro-Democrat)	.05	[-.43; .54]	.21	.833
Participant x Stimuli Interaction	1.10	[1.01; 1.2]	22.92	< **.001**
Random Effects				
σ^2	3.29			
$\tau_{00\ id}$	3.23			
$\tau_{00\ stimuli}$	.10			
ICC	.50			
N_{id}	619			
$N_{stimuli}$	6			
Observations	41016			
Marginal R^2 / Conditional R^2	.026 / .516			

Table 2b (Supp.): Misidentifying Bots as Humans (H1) - Model with covariates

Predictors	*Log-Odds*	*95% CI*	*Statistic*	*p value*
(Intercept)	.47	[-.64; 1.58]	.82	.411
Participant Partisanship (Democrats)	-.63	[-.94; -.33]	-4.1	< **.001**
Stimuli Partisanship (Pro-Democrat)	.05	[-.45; .56]	.2	.839
Twitter Use	.08	[-.13; .30]	.76	.445
Gender (female)	.05	[-.27; .38]	.33	.742
Gender (non-binary)	1.41	[.03; 2.80]	2.00	**.046**
Age	-.01	[-.02; .01]	-1.21	.226
Race	.34	[-.05; .73]	1.71	.087
SES	.03	[-.07; 0.13]	.52	.601
Participant x Stimuli Interaction	1.10	[1.01; 1.20]	22.91	< **.001**
Random Effects				
σ^2	3.29			
$\tau_{00\ id}$	3.17			
$\tau_{00\ stimuli}$	.10			
ICC	.50			
$N_{\ id}$	619			
$N_{\ stimuli}$	6			
Observations	41016			
Marginal R^2 / Conditional R^2	.036 / .516			

Note: Race was dummy coded with 0 = *"white"*, 1 = *"else"*.

Table 3a (Supp.): Misidentifying Humans as Bots (H2)

Predictors	*Log-Odds*	*95% CI*	*Statistic*	*p value*
(Intercept)	-1.25	[-1.84; -.65]	-4.1	**< .001**
Participant Partisanship (Democrat)	.55	[.28; .82]	3.99	**< .001**
Stimuli Partisanship (Pro-Democrat)	.18	[-.61; .96]	.44	.661
Participant x Stimuli Interaction	-1.23	[-1.33; -1.14]	-24.95	**< .001**
Random Effects				
σ^2	3.29			
$\tau_{00\ id}$	2.66			
$\tau_{00\ stimuli}$	.26			
ICC	.47			
$N_{\ id}$	618			
$N_{\ stimuli}$	6			
Observations	41700			
Marginal R^2 / Conditional R^2	.025 / .483			

Table 3b (Supp.): Misidentifying Humans as Bots (H2) – Model with covariates

Predictors	*Log-Odds*	*95% CI*	*Statistic*	*p value*
(Intercept)	-1.38	-2.48; -.27	-2.44	**.015**
Participant Partisanship (Democrat)	.53	.25; .81	3.72	< **.001**
Stimuli Partisanship (Pro-Democrat)	.18	-.65; 1.0	.42	.676
Twitter Use	-.03	-.23; .16	-.31	.755
Gender (female)	.05	-.24; .35	.36	.721
Gender (non-binary)	.29	-.9; 1.49	.48	.629
Age	.01	-.01; .01	.26	.795
Race	.09	-.27; .44	.47	.641
SES	.02	-.07; 0.12	.48	.628
Participant x Stimuli Interaction	-1.24	-1.33; -1.14	-24.92	< **.001**
Random Effects				
σ^2	3.29			
$\tau_{00\ id}$	2.65			
$\tau_{00\ stimuli}$	.26			
ICC	.47			
$N_{\ id}$	618			
$N_{\ stimuli}$	6			
Observations	41700			
Marginal R^2 / Conditional R^2	.025 / .483			

Note: Race was dummy coded with 0 = *"white"*, 1 = *"else"*.

Table 4 (Supp.): Profile Engagement (H3 & H4)

Predictors	*Log-Odds*	*95% CI*	*Statistic*	*p value*
(Intercept)	-5.88	[-6.78; -4.98]	-12.81	< **.001**
Participant Partisanship (Democrat)	-6.60	[-7.79; -5.41]	-10.90	< **.001**
Stimuli Partisanship (Pro-Democrat)	-3.84	[-4.33; -3.34]	-15.28	< **.001**
Stimuli Evaluation (Human)	3.00	[2.84; 3.15]	37.76	< **.001**
Participant x Stimuli Partisanship	9.49	[8.89; 10.09]	30.95	< **.001**
Participant x Stimuli Evaluation	-.33	[-.87; .21]	-1.20	.232
Stimuli Partisanship x Stimuli Evaluation	-1.24	[-1.54; -.94]	-8.08	< **.001**
Participant x Stimuli Partisanship x Stimuli Evaluation	1.27	[.65 ; 1.89]	4.03	< **.001**
Random Effects				
σ^2	3.29			
$\tau_{00\ id}$	31.53			
$\tau_{00\ stimuli}$	.13			
ICC	.91			
N_{id}	619			
$N_{stimuli}$	12			
Observations	82716			
Marginal R^2 / Conditional R^2	.219 / .926			

Table 4 (Supp.): Profile Engagement (H3 & H4) – Model with Covariates

Predictors	*Log-Odds*	*95% CI*	*Statistic*	*p value*
(Intercept)	-16.08	[-19.58; -12.59]	-9.02	< **.001**
Participant Partisanship (Democrat)	-6.48	[-7.56; -5.38]	-11.49	< **.001**
Stimuli Partisanship (pro-Democrat)	-3.85	[-4.34; -3.36]	-15.41	< **.001**
Stimuli Evaluation (Human)	3.00	[2.85; 3.16]	37.76	< **.001**
Twitter Use	3.56	[2.86; 4.26]	9.97	< **.001**
Gender (female)	-1.24	[-2.29; -.19]	-2.32	**.020**
Gender (non-binary)	-1.97	[-6.25; 2.31]	-.90	.368
Age	.04	[-.01; .08]	1.67	.096
Race	.87	[-.38; 2.11]	1.37	.171
SES	-.24	[-.57; .09]	-1.44	.151
Participant x Stimuli Partisanship	9.52	[8.92; 10.13]	30.90	< **.001**
Participant x Stimuli Evaluation	-.33	[-.87; .22]	-1.17	.243
Stimuli Partisanship x Stimuli Evaluation	-1.24	[-1.54; -.94]	-8.04	< **.001**
Participant x Stimuli Partisanship x Stimuli Evaluation	1.26	[.64; 1.88]	3.97	< **.001**
Random Effects				
σ^2	3.29			
$\tau_{00\ id}$	27.18			
$\tau_{00\ stimuli}$	.13			
ICC	.89			
N_{id}	619			
$N_{stimuli}$	12			
Observations	82716			
Marginal R^2 / Conditional R^2	.353 / .930			

Note: Race was dummy coded with 0 = *"white"*, 1 = *"else"*.

Table 5 (Supp.): Profile Engagement → Alternative Model with (objective) Stimuli Category

Predictors	*Log-Odds*	*95% CI*	*Statistic*	*p value*
(Intercept)	-3.69	[-4.53; -2.85]	-8.61	< **.001**
Participant Partisanship (Democrat)	-6.40	[-7.41; -5.40]	-12.47	< **.001**
Stimuli Partisanship (Pro-Democrat)	-4.15	[-4.67; -3.64]	-15.84	< **.001**
Stimuli Category (Bot)	.36	[-.14; .86]	1.42	.155
Participant x Stimuli Partisanship	10.07	[9.74; 10.40]	59.74	< **.001**
Participant x Stimuli Category	.01	[-.32; .33]	.03	.979
Stimuli Partisanship x Stimuli Category	-.43	[-1.15; .29]	-1.18	.238
Participant x Stimuli Partisanship x Stimuli Category	-.29	[-.67 ; .09]	-1.49	.136
Random Effects				
σ^2	3.29			
$\tau_{00\ id}$	26.98			
$\tau_{00\ stimuli}$	.09			
ICC	.80			
$N_{\ id}$	619			
$N_{\ stimuli}$	12			
Observations	82716			
Marginal R^2 / Conditional R^2	.185 / .912			

Table 6 (Supp.): Profile Engagement → Alternative Model with (objective) Stimuli Category + Covariates

Predictors	*Log-Odds*	*95% CI*	*Statistic*	*p value*
(Intercept)	-12.90	[-16.12; -9.67]	-7.84	**< .001**
Participant Partisanship (Democrat)	-6.32	[-7.26; -5.38]	-13.23	**< .001**
Stimuli Partisanship (pro-Democrat)	-4.16	[-4.67; -3.65]	-15.99	**< .001**
Stimuli Evaluation (Bot)	.36	[-.13; .85]	1.44	.151
Twitter Use	3.25	[2.60; 3.90]	9.79	**< .001**
Gender (female)	-1.12	[-2.08; -.15]	-2.27	**.023**
Gender (non-binary)	-1.60	[-5.55; 2.34]	-.80	.426
Age	.03	[-.01; .07]	1.69	.091
Race	.77	[-.37; 1.91]	1.33	.184
SES	-.24	[-.55; .06]	-1.55	.120
Participant x Stimuli Partisanship	10.09	[9.76; 10.42]	59.72	**< .001**
Participant x Stimuli Evaluation	.01	[-.32; .33]	.04	.968
Stimuli Partisanship x Stimuli Evaluation	-.43	[-1.14; .28]	-1.19	< .232
Participant x Stimuli Partisanship x Stimuli Evaluation	-.29	[-.67; .09]	-1.49	< .135

Random Effects

σ^2	3.29
$\tau_{00\ id}$	23.12
$\tau_{00\ stimuli}$	.09
ICC	.88
N_{id}	619
$N_{stimuli}$	12
Observations	82716
Marginal R^2 / Conditional R^2	.321 / .916

Note: Race was dummy coded with 0 = *"white"*, 1 = *"else"*.

B.2) Additional Survey Items in Study 1 (not analysed)

Survey 1 included three additional items that assessed affective representations of democrats, republicans, and independents, respectively via feeling-thermometer scales.

C) Stimuli Example

Conservative Bot

Democrat Bot