

Online Appendix:  
**Change My View**  
Do Moral Appeals Facilitate Compromise?

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## **Appendix A    Basic Rules on the Subreddit ChangeMyView**

Below is a summary of the set of rules to participate in discussions on /r/ChangeMyView as described in April 2018. The current rules can be viewed at <https://www.reddit.com/r/changemyview/wiki/rules>

### **Rules for submission of new discussion posts:**

- A Explain the reasoning behind your view, not just what that view is (500+ characters required).
- B You must personally hold the view and demonstrate that you are open to it changing.
- C Submission titles must adequately sum up your view and include "CMV:" at the beginning.
- D Posts cannot express a neutral stance, carry a risk of personal endangerment, be self-promotional, or discuss this subreddit (visit r/ideasformcv instead).
- E Only post if you are willing to have a conversation with those who reply to you, and are available to start doing so within 3 hours of posting.

### **Rules for commenting in existing discussions:**

- 1 Direct responses to a CMV post must challenge at least one aspect of OPs stated view (however minor), or ask a clarifying question.
- 2 Don't be rude or hostile to other users.
- 3 Refrain from accusing OP or anyone else of being unwilling to change their view.
- 4 Award a delta if you've acknowledged a change in your view. Do not use deltas for any other purpose.
- 5 Comments must contribute meaningfully to the conversation.

## Appendix B Moral Foundations Dictionary

*Sources:*

Graham, Haidt, and Nosek (2009), as well as <http://www.moralfoundations.org/>

*Note:*

Terms with (\*) indicate that the word stem rather than the exact word was matched in the open-ended survey responses.

### Care

amity, benefit\*, care, caring, compassion\*, defen\*, empath\*, guard\*, peace\*, preserve, protect\*, safe\*, secur\*, shelter, shield, sympath\*, abandon\*, abuse\*, annihilate\*, attack\*, brutal\*, cruel\*, crush\*, damag\*, destroy, detriment\*, endanger\*, exploit, exploited, exploiting, exploits, fight\*, harm\*, hurt\*, impair, kill, killed, killer\*, killing, kills, ravage, ruin\*, spurn, stomp, suffer\*, violen\*, war, warl\*, warring, wars, wound\*

### Fairness

balance\*, constant, egalitar\*, equable, equal\*, equity, equivalent, evenness, fair, fair-\*, fairly, fairmind\*, fairness, fairplay, homologous, honest\*, impartial\*, justice, justifi\*, justness, reasonable, reciproc\*, rights, tolerant, unbias\*, unprejudice\*, bias\*, bigot\*, discriminat\*, dishonest, disproportion\*, dissociate, exclud\*, exclusion, favoritism, inequitable, injust\*, preference, prejud\*, segregat\*, unequal\*, unfair\*, unjust\*, unscrupulous

### Loyalty

ally, cadre, cliqu\*, cohort, collectiv\*, communal, commune\*, communis\*, communit\*, comrad\*, devot\*, familial, families, family, fellow\*, group, guild, homeland\*, insider, joint, loyal\*, member, nation\*, patriot\*, segregat\*, solidarity, together, unison, unite\*, abandon\*, apostasy, apostate, betray\*, deceiv\*, deserted, deserter\*, deserting, disloyal\*, enem\*, foreign\*, immigra\*, imposter, individual\*, jilt\*, miscreant, renegade, sequester, spy, terroris\*, traitor\*, treacher\*, treason\*

### Authority

abide, allegian\*, authorit\*, bourgeoisie, caste\*, class, command, complian\*, comply, control, defer, defere\*, duti\*, duty, father\*, hierarch\*, honor\*, law, lawful\*, leader\*, legal\*, loyal\*, mother, mothering, motherl\*, mothers, obedien\*, obey\*, order\*, permission, permit, position, preserve, rank\*, respect, respected, respectful\*, respects, revere\*, serve, status\*, submi\*, supremacy, tradition\*, venerat\*, agitat\*, alienate, apostasy, apostate, betray\*, defector, defian\*, defy\*, denounce, deserted, deserter\*, deserting, disloyal\*, disobe\*, disrespect\*, dissent\*, dissident, heretic\*, illegal\*, insubordinat\*, insurgent, lawless\*, mutinous, nonconformist, obstruct, oppose, protest, rebel\*, refuse, remonstrate, riot\*, sediti\*, subver\*, traitor\*, treacher\*, treason\*, unfaithful

## **Sanctity**

abstemiousness, abstention, abstinence\*, austerity, celibacy\*, chastity\*, church\*, clean\*, decency\*, holiness, holy, immaculate, innocent, integrity, limpid, maiden, modesty, piety, pious, preserve, pristine, pure\*, purity, refined, sacred\*, saint\*, sterile\*, unadulterated, upright, virgin, virginal, virginity, virgins, virtuous, wholesome\*, adulter\*, apostasy, apostate, blemish, contagion\*, debase\*, debauchery\*, defile\*, depravity\*, desecrate\*, dirt\*, disease\*, disgust\*, exploit, exploitation\*, exploited, exploiting, exploits, filth\*, gross, heretic\*, impiety, impious, indecent\*, intemperate, lax, lewd\*, obscene\*, pervert, profane\*, profligate, promiscuity\*, prostitute\*, repulse\*, ruin\*, sick\*, sin, sinful\*, sinned, sinner\*, sinning, sins, slut\*, stain\*, taint\*, tarnish\*, tramp, trashy, unchaste, unclean\*, wanton, whore, wicked\*, wretched\*

## **General Morality**

bad, blameless, canon, character, commendable, correct, decency\*, doctrine, ethic\*, evil, exemplary, good, goodness, honest\*, ideal\*, immoral\*, indecent\*, integrity, laudable, lawful\*, legal\*, lesson, moral\*, noble, offend\*, offensive\*, piety, pious, praiseworthy, principle\*, proper, righteous\*, transgress\*, upright, upstanding, value\*, wholesome\*, wicked\*, worth\*, wretched\*, wrong\*

## Appendix C    Distribution of Moral Foundation Proportions in Paired Data

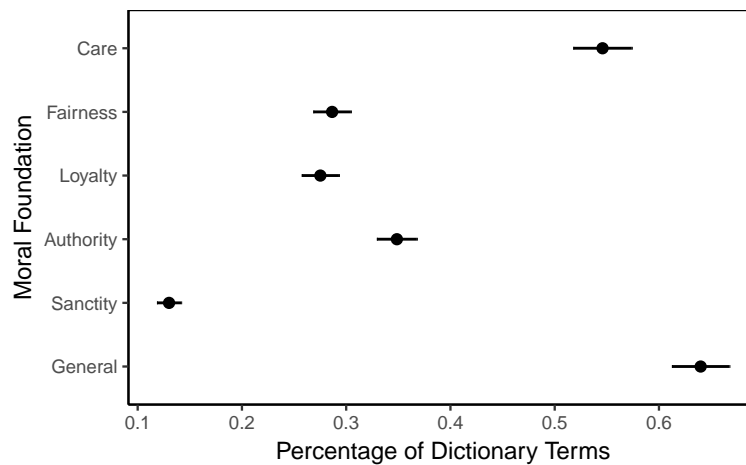


Figure 1: Moral Foundations in Paired Data: Average percentage of dictionary terms relative to the total number of words in each original post starting a discussion (including 95% confidence intervals). Compared to the figure in the main text, this plot only includes opening statements that are part of the matched pair selection to analyze persuasive arguments.

# Appendix D Structural Topic Model Results

## I Original Posts

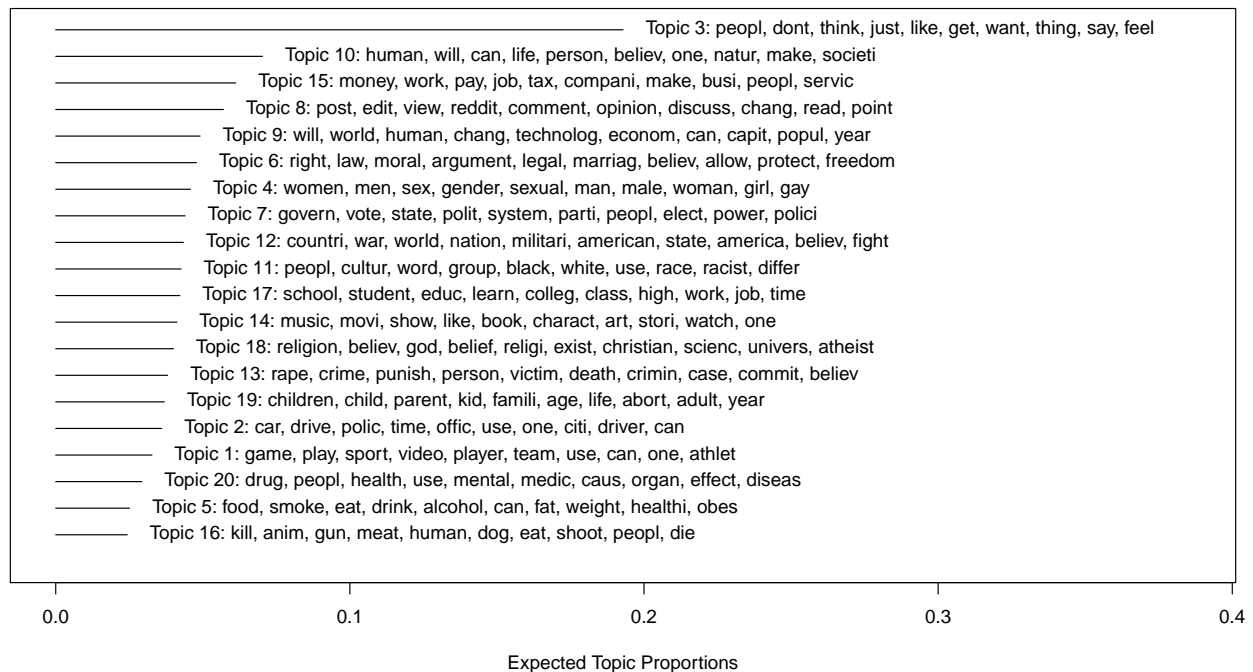


Figure 2: Average topic proportions in opening statements on /r/ChangeMyView/ based on a structural topic model with 20 topics (c.f., [Roberts et al., 2014](#)). The plot additionally displays the ten most likely terms associated with each respective topic.

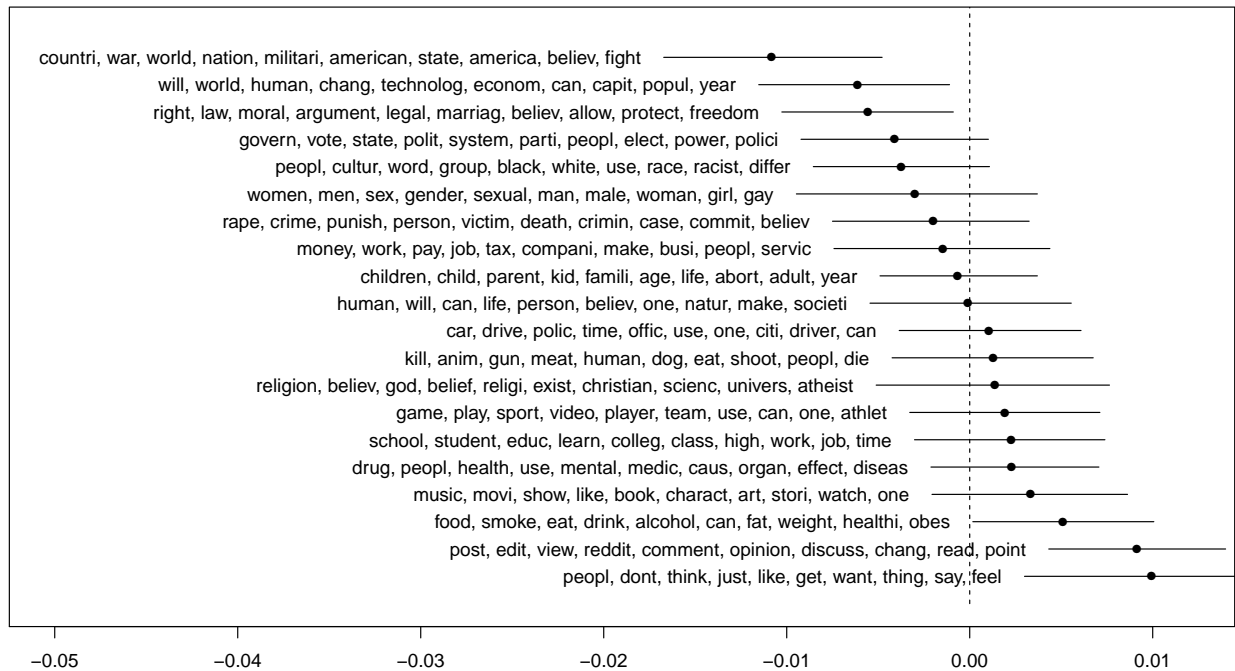


Figure 3: Differences in topic proportions between opening statements on /r/ChangeMyView/ that resulted in opinion change ( $\Delta$  awarded) versus not (including 95% confidence intervals). Estimates are based on the structural topic model described in the previous figure. Positive values indicate higher topic prevalence among discussions that resulted in opinion change and vice versa. Labels are based on the ten highest probability terms related to the topic.

## II Responses Challenging the OP

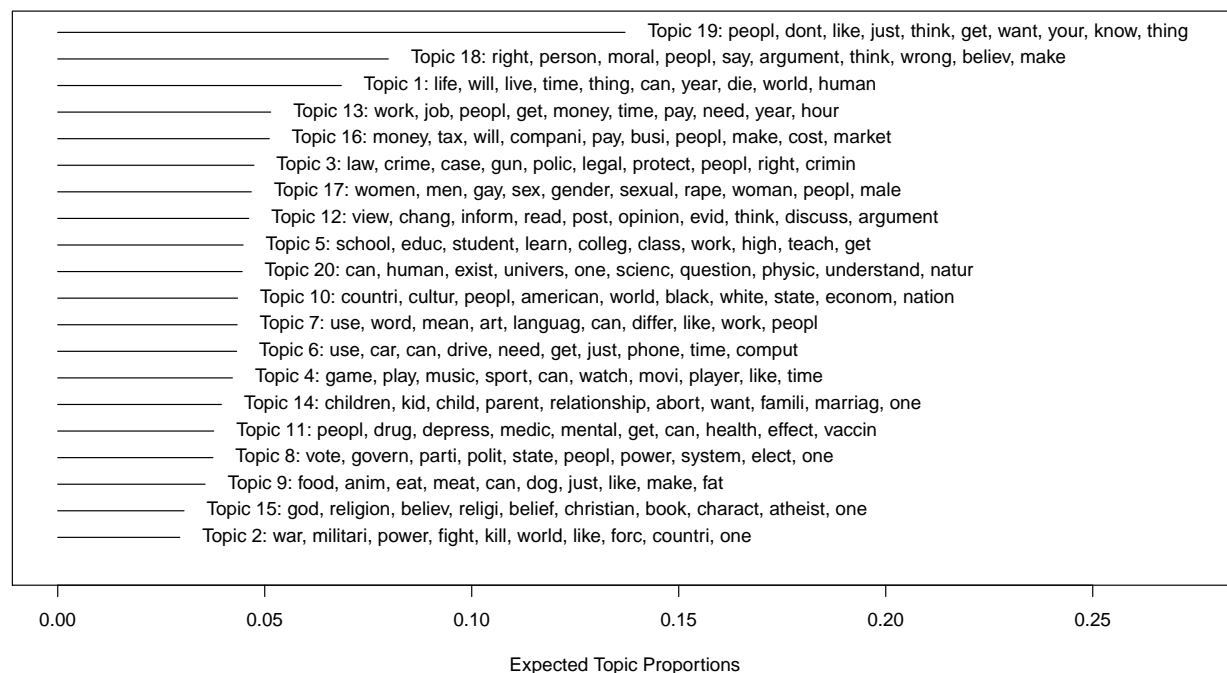


Figure 4: Average topic proportions in posts challenging the OP on /r/ChangeMyView/ based on a structural topic model with 20 topics (c.f., [Roberts et al., 2014](#)). The plot additionally displays the ten most likely terms associated with each respective topic.



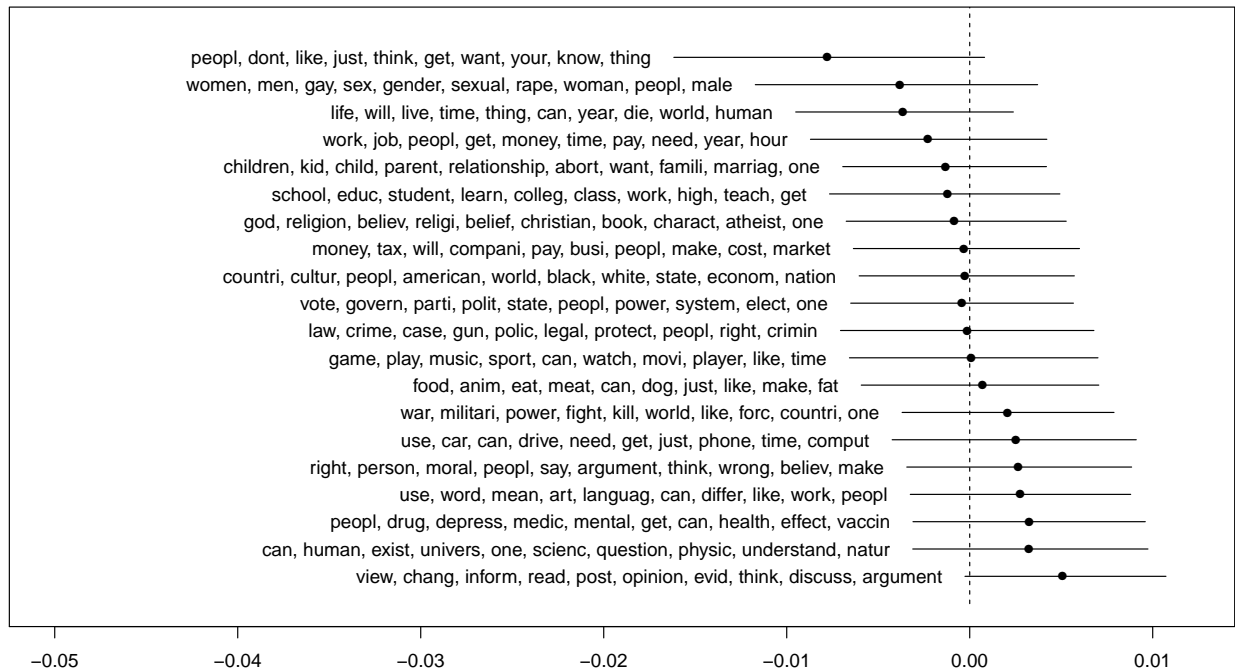


Figure 5: Differences in topic proportions between persuasive and non-persuasive responses challenging the OP (including 95% confidence intervals). Estimates are based on the structural topic model described in the previous figure. Positive values indicate higher topic prevalence among posts that received a  $\Delta$  by the OP and vice versa. Labels are based on the ten highest probability terms related to the topic.

## Appendix E Tables of Model Estimates

Table E.1: Logit models predicting argument persuasiveness as a function of moral word use (measured via MFT dictionary proportions). Positive coefficients indicate higher probability of changing the OPs' mind ( $\Delta$  awarded). Standard errors (clustered by discussion thread) in parentheses. Estimates are used for Figure ?? in the main text.

Variable	Full Response Path	Root Response	Truncated Root Response
Care	-0.004 (0.025)	-0.009 (0.023)	-0.007 (0.023)
Fairness	-0.029 (0.036)	-0.024 (0.033)	-0.032 (0.031)
Loyalty	0.005 (0.035)	0.017 (0.033)	0.018 (0.03)
Authority	0.003 (0.03)	-0.005 (0.028)	0.009 (0.027)
Sanctity	-0.033 (0.047)	-0.005 (0.046)	-0.022 (0.044)
General	-0.010 (0.024)	-0.010 (0.023)	-0.004 (0.022)
Intercept	0.018 (0.024)	0.015 (0.023)	0.009 (0.022)
N	6304	6304	6304
Log-Likelihood	-4369	-4369	-4369

Table E.2: Logit models predicting argument persuasiveness as a function of moral congruence with OPs' opening statements (measured via cosine similarity in MFT dictionary results). Positive coefficients indicate higher probability of changing the OPs' mind ( $\Delta$  awarded). Standard errors (clustered by discussion thread) in parentheses. Estimates are used for Figure ?? in the main text.

Variable	Full Response Path	Root Response	Truncated Root Response
Moral Congruence	0.290 (0.056)	0.188 (0.056)	0.019 (0.054)
Intercept	-0.147 (0.028)	-0.092 (0.027)	-0.008 (0.024)
N	6304	6304	6304
Log-Likelihood	-4361	-4366	-4370

## Appendix F Excluding Non-political Discussions

For the purpose of this paper, I decided against filtering out subsets of discussions based on their thematic (or political) relevance since such a strategy could raise additional concerns about potential selection bias. However, it is worth exploring whether the substantive results are robust when focusing only on discussions revolving around politics. In the following, I therefore replicate all major analyses of the paper after excluding discussions related to distinctly non-political topics (e.g., “Food” or “Entertainment”). The following figure shows the total number of discussions that focus on political versus non-political issues (based on the LDA results).

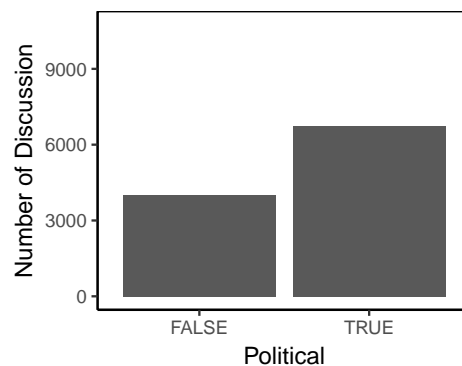


Figure 6: Number of discussions on /r/ChangeMyView/ that focus on political versus non-political issues (based on the LDA results).

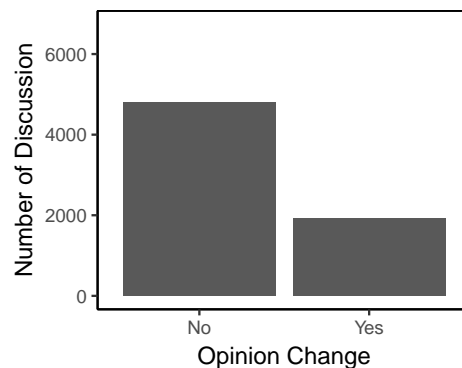


Figure 7: Political discussions only – Number of discussions on /r/ChangeMyView/ that resulted in opinion change (at least one  $\Delta$  awarded by OP) versus not.

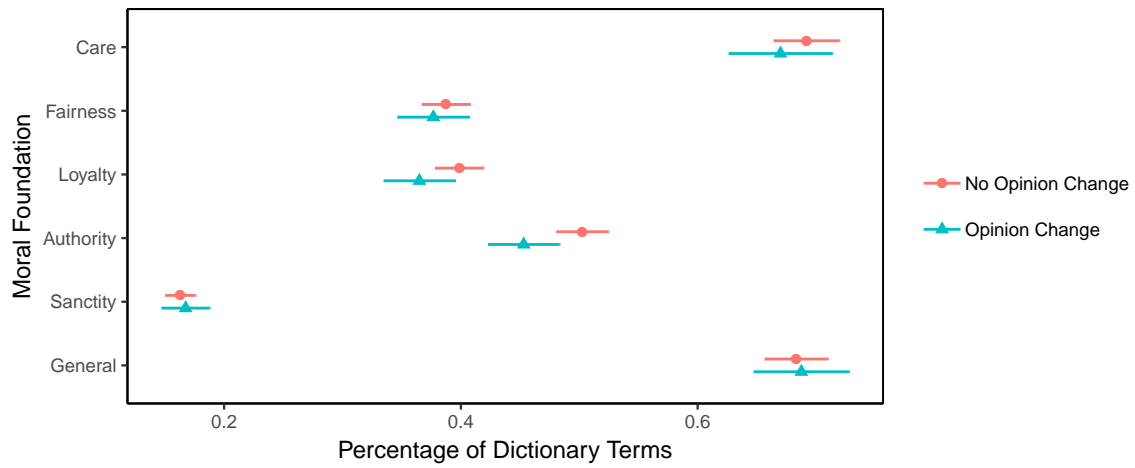


Figure 8: Political discussions only – Moral foundations and persuadability: Average percentage of dictionary terms relative to the total number of words in each opening statement beginning a discussion, comparing discussions where the OP subsequently awarded a  $\Delta$  (opinion change) or not (including 95% confidence intervals).

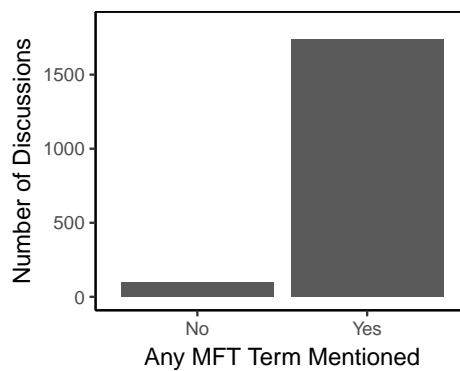


Figure 9: Political discussions only – Number of opening statements in the paired argument data that included *any* term mentioned in the MFT dictionary.

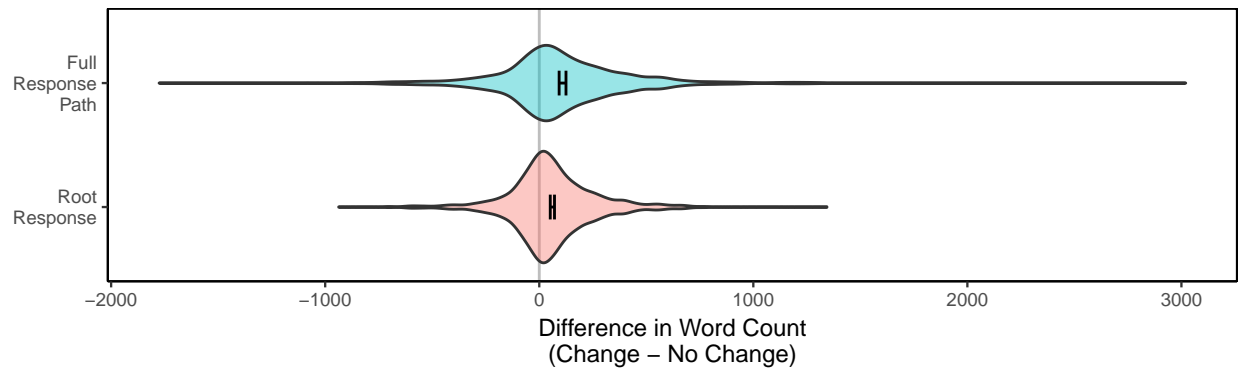


Figure 10: Political discussions only – Difference in response lengths between successful and unsuccessful counterarguments. The narrow black bars display the 95% confidence interval of mean differences.

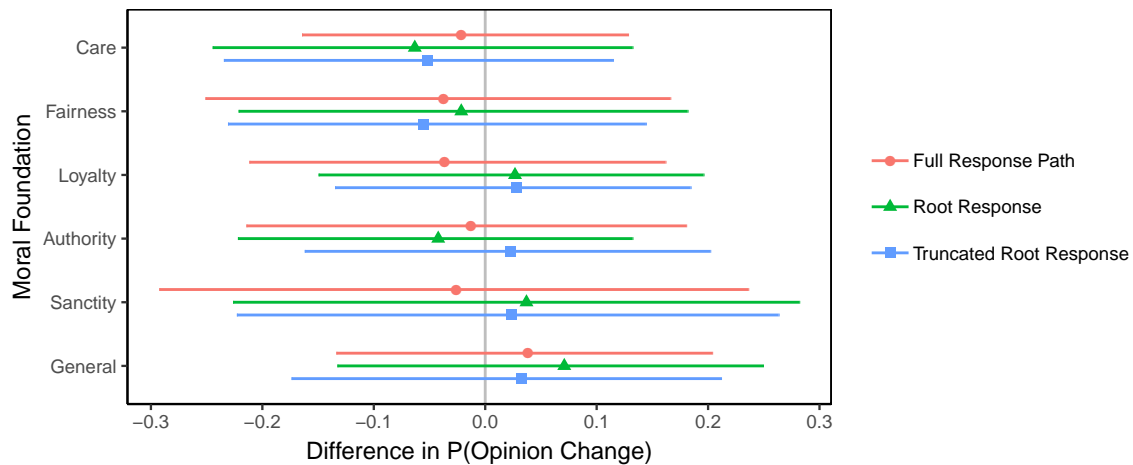


Figure 11: Political discussions only – Moral foundations and persuasiveness: Change in predicted probability of opinion change ( $\Delta$  awarded) when MFT dictionary term proportions are increased from their minimum (no moral terms mentioned) to their empirical maximum, holding the remaining foundations constant at their mean (including 95% confidence intervals). Estimates are based on logit models with standard errors clustered by discussion thread.

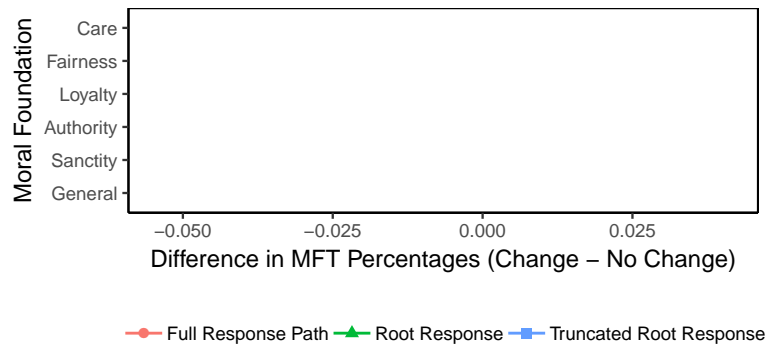


Figure 12: Political discussions only – Moral congruence and persuasiveness: Change in predicted probability of opinion change ( $\Delta$  awarded) when MFT congruence is increased from its minimum (no overlap in moral terms) to their empirical maximum (equal emphasis on each moral foundation) (including 95% confidence intervals). Estimates are based on logit models with standard errors clustered by discussion thread.

## References

- Graham, Jesse, Jonathan Haidt, and Brian A. Nosek. 2009. "Liberals and Conservatives Rely on Different Sets of Moral Foundations." *Journal of Personality and Social Psychology* 96 (5): 1029–1046.
- Roberts, Margaret E., Brandon M. Stewart, Dustin Tingley, Christopher Lucas, Jetson Leder-Luis, Shana Kushner Gadarian, Bethany Albertson, and David G. Rand. 2014. "Structural Topic Models for Open-Ended Survey Responses." *American Journal of Political Science* 58 (4): 1064–1082.