

Experiment 1

Remaining effects

Attitude change

Overall, participants had more positive attitudes before ($M = 3.43$, $SD = 1.44$) than after the message ($M = 2.35$, $SD = 2.51$), $F(1, 147) = 30.20$, $p < 0.001$, $\eta_p^2 = 0.170$.

Experiment 2

Remaining effects

Valence of thoughts

Overall, participants reported more con ($M = 0.31$, $SD = 0.44$) than pro ($M = 0.16$, $SD = 0.28$) thoughts ($F(1, 156) = 12.00$, $p < 0.001$, $\eta_p^2 = 0.071$). The significant interaction of the issue with the number of pro vs. con thoughts reported ($F(1, 156) = 7.84$, $p = 0.006$, $\eta_p^2 = 0.048$) indicates that this was the case only for the GMOs group. Participants reported more thoughts that were con GMOs than pro GMOs ($M = 0.45$, $SD = 0.43$ and $M = 0.18$, $SD = 0.27$, respectively, $F(1, 156) = 18.04$, $p < 0.001$, $\eta_p^2 = 0.104$), but there was no significant difference between the numbers of con and pro euthanasia thoughts ($M = 0.18$, $SD = 0.45$ and $M = 0.15$, $SD = 0.28$, respectively, $F < 1$). Moreover, the interaction of the initial attitude with the number of pro vs. con thoughts reported ($F(1, 156) = 10.46$, $p = 0.002$, $\eta_p^2 = 0.063$) indicates that while the opponents were prone to report more con than pro thoughts ($M = 0.37$, $SD = 0.40$ and $M = 0.08$, $SD = 0.25$, respectively, $F(1, 156) = 37.17$, $p < 0.001$, $\eta_p^2 = 0.192$), there was no significant difference between the numbers of con and pro thoughts reported by the proponents ($M = 0.25$, $SD = 0.42$ and $M = 0.24$, $SD = 0.26$, respectively, $F < 1$).

Attitude change

The interaction of initial attitudes with the time of measurement of the attitudes was significant ($F(1, 156) = 18.10, p < 0.001, \eta_p^2 = 0.104$), where both the proponents' and opponents' attitudes changed after the message in the opposite direction from the participant's initial attitude. Specifically, the proponents' attitudes became less positive after the message than before ($M = 3.30, SD = 1.17$ and $M = 2.62, SD = 2.43$, respectively, $F(1, 156) = 5.77, p = 0.018, \eta_p^2 = 0.036$). Similarly, within the opponents group, the attitudes after the message were less negative than the initial attitudes ($M = -4.37, SD = 1.13$ and $M = -3.60, SD = 2.35$, respectively, $F(1, 156) = 16.74, p < 0.001, \eta_p^2 = 0.097$). Thus, regardless of the frame applied, we have found an overall depolarization of initial attitudes.

Experiment 3

Auxiliary measures

In this case of framing, some form of frame leakage is possible (McKenzie et al., 2006). A frame can be treated as an additional cue informing about the framed object. First, there is a possibility that forbid frame led to the perception of the framed object as more risky (Van 't Riet et al., 2014). And this would cause increasing attentiveness to all available information. Second, it is also possible that the frame can be treated as a cue, suggesting which evaluation of the object prevails in society (Luís & Palma-Oliveira, 2016). Asking about attitude toward forbidding may suggest that negative attitudes are the majority opinion and may lead receiver of the message to concentrate on the rationales for this view of the majority. Third, it is possible that frame affects the expectations about the quality of argumentation that would be demanded by others as a rationale for the attitude toward forbidding vs. allowing. It is possible that people expect they will be forced to explain their attitude toward forbidding more strongly than an attitude toward allowing (especially in a case when the actual status of the object is undetermined – with already forbidden object the

reverse may be true). As a result, they may be inclined toward objectively processing forbid related information (Igou & Bless, 2007). Fourth, the forbid vs. allow framing can influence the perceptions of easiness or fluency of object evaluation, which also may reduce susceptibility to biases (Song & Schwarz, 2008). Moreover, the forbid vs. allow frame can also lead to perceiving decision as more important and consequential, which also should encourage the more objective processing of information (Beller, 2010). Finally, it is possible that the forbid frame increases psychological distance toward the attitude object, while the objects within the allow frame are perceived as psychologically closer. Increasing the psychological distance results in a more abstract level of construal, which is connected with increasing consideration of other points of view and changing attitudes in the direction opposite to the initial attitude (Yang et al., 2012).

Perception of risk associated with GMOs was measured with three scales: *risky – without risk, threatening – non-threatening, unsafe – safe* ($\alpha = 0.94$). Next, the psychological distance toward GMOs was assessed (*incoming – distancing, close – distant, familiar – foreign, unavailable – available*; as the reliability of this index was low, we will analyze each of the items separately). The perception of easiness of evaluating the GMOs was assessed by two scales: *it is easy – it is hard* and *there is no need to wonder about this – I have to wonder about this* ($r = 0.61, p < 0.001$). The certainty of participant attitude toward GMOs was also measured (*I could be wrong – I'm certainly right*). Next, the expected difficulty of explaining one's own view to others was assessed (*it would be easy – it would be hard, I wouldn't have to prepare – I would have to prepare, it would be simple – it would be complicated*, $\alpha = 0.84$). These scales were followed by the questions about perceptions of public attitudes toward forbidding or allowing (depending on the group) GMOs: *unanimous – varied, the majority feels the same way as I – the majority feels different from I* and *the majority is against forbidding (allowing) GMOs – the majority is for forbidding (allowing) GMOs* (the last scale

was reversed for the forbid group, and as a result high scores mean that the majority attitude was perceived as positive toward GMOs). Finally, perception of the importance and consequences of would be taken decision concerned forbidding vs. allowing GMOs was measured. First, the perceived durability of this decision was assessed (*impermanent – permanent, easy to change – hard to change, revocable – irrevocable*, $\alpha = 0.74$). Second, next two scales concerned the impact of this decision on own and others life (*it wouldn't affect my life – it would affect my life, it wouldn't affect others' life – it would affect other's life*, $r = 0.44, p < 0.001$)

From all our auxiliary measures, only two were significantly affected by the forbid vs. allow framing. First, the decision concerning GMOs was less durable when the forbid than allow frame was applied ($M = -0.96, SD = 2.09$ and $M = 0.72, SD = 2.10$, respectively, $t(327) = 7.26, p < 0.001, d = 1.131$). Second, the decision concerning GMOs was more affecting own and others life in the forbid than allow condition ($M = 1.81, SD = 2.45$ and $M = 0.94, SD = 2.53$, respectively, $t(327) = -3.19, p = 0.002, d = 0.349$). However, none of these variables were significantly correlated with the biasing evaluation or interpretation of arguments, as well as with the attitude change. Therefore, these seem to be rather side effects and cannot be used as an alternative explanation of the results.

Remaining effects

Interpretation of arguments

Overall, the con arguments were perceived as more against GMOs ($M = -3.81, SD = 1.80$) than pro arguments ($M = 3.72, SD = 1.72, F(1, 325) = 2206.03, p < 0.001, \eta_p^2 = 0.872$). Moreover, the perceived direction of arguments was moderated by the participants' initial attitudes ($F(1, 325) = 14.69, p < 0.001, \eta_p^2 = 0.043$). The proponents and opponents did not differ in their perception of anti-GMO arguments ($M = -3.87, SD = 1.79$ and $M = -3.75, SD =$

1.77, respectively, $F < 1$). However, the pro arguments were more in favor of GMOs by the proponents than by the opponents ($M = 4.28$, $SD = 1.71$ and $M = 3.16$, $SD = 1.69$, respectively, $F(1, 325) = 34.44$, $p < 0.001$, $\eta_p^2 = 0.096$).

Besides, the proponents were showing a higher tendency toward the preferential evaluation of consistent vs. inconsistent arguments than the opponents ($M = 1.83$, $SD = 2.50$ and $M = 0.79$, $SD = 2.53$, respectively, $F(1, 325) = 13.77$, $p < 0.001$, $\eta_p^2 = 0.041$).

Evaluation of arguments

Overall, the pro arguments were evaluated as more persuasive than the con arguments ($M = 2.42$, $SD = 1.76$ and $M = 1.90$, $SD = 2.08$, respectively, $F(1, 325) = 13.77$, $p < 0.001$, $\eta_p^2 = 0.041$). This effect was, however, qualified by the interaction between the type of arguments and participants' initial attitudes ($F(1, 325) = 87.55$, $p < 0.001$, $\eta_p^2 = 0.021$). A tendency toward a preferential evaluation of arguments consistent with one's point of view was found. Specifically, the pro arguments were more persuasive than the con arguments in the eyes of proponents ($M = 3.13$, $SD = 1.76$ and $M = 1.30$, $SD = 2.07$, respectively, $F(1, 325) = 98.38$, $p < 0.001$, $\eta_p^2 = 0.232$). And the opponents assessed the con arguments as more persuasive than the pro arguments ($M = 2.50$, $SD = 2.05$ and $M = 1.71$, $SD = 1.74$, respectively, $F(1, 325) = 14.08$, $p < 0.001$, $\eta_p^2 = 0.042$).

Attitude change

The interaction of initial attitudes with the time of measurement of the attitudes was significant ($F(1, 325) = 100.81$, $p < 0.001$, $\eta_p^2 = 0.237$), where both the proponents' and opponents' attitudes changed after the experiment in the opposite direction from the initial attitude. Specifically, the proponents' attitudes became less positive at the end than the beginning of the experiment ($M = 3.49$, $SD = 1.24$ and $M = 2.32$, $SD = 2.63$, respectively, $F(1,$

325) = 42.54, $p < 0.001$, $\eta_p^2 = 0.116$). Similarly, the opponents' attitudes after the experiment were less negative than their initial attitudes ($M = - 3.30$, $SD = 1.22$ and $M = - 1.74$, $SD = 2.61$, respectively, $F(1, 325) = 58.28$, $p < 0.001$, $\eta_p^2 = 0.152$).

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