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# Which Message Frames Improve Attitudes Towards Animal Treatment?

## Research Report

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## Summary of findings

The way that information is framed can have a huge influence on the way that it is received, and in turn, influences people's attitudes and behaviours. One challenge that the Animal Freedom movement faces is having a unified narrative that appeals to people's values and shift public support towards Animal Freedom. In this study, we conducted two experiments that tested different ways of framing the topic of why we should give rights or freedom to other animals, and measured their effect on reported attitudes.

In experiment 1, we tested the effect of 24 different message frames on seven measures of attitudes towards animals on a sample of 7,462 UK participants. Each message was framed in terms of rights or freedoms, and gains or losses. Each participant saw one of the messages and then rated how much they agreed with each of the attitude scales. We found no difference in whether the messages were framed in terms of gains or losses, but there was a small effect of framing messages in terms of rights on the extent to which people agreed with the message. Analysing individual messages, we found that some messages were statistically significantly more persuasive than others. In particular, framing messages in terms of social progress, morality, and immorality were the most persuasive at influencing people's attitudes towards animals.

In experiment 2, we tested the effect of ten different message frames on six measures of attitudes towards animals, and support for four potential laws which would give animals greater freedom on a sample of 4,026 UK participants. We also tested the effect of reminding participants how they would be personally impacted if these laws were passed. Each participant viewed one message and then rated their attitudes and support for the laws. The message frames we tested were as follows: We included two control messages. Control 1 contained neutral information (a scientific description of what animals are), whereas control 2 matched the wording of the most influential message from experiment 1, but discussed a different social justice context (LGBT+ rights). We also included the three most influential messages from experiment 1 verbatim (Social progress, moral framing, and immoral framing). We also included four new modifications which constituted modifications of those three most influential messages. One of which was a composite of features from all three messages. Finally, we tested four new exploratory message frames: animal's subjective experiences and their capabilities, animal intelligence, oppression, and specieism.

### **Our key findings were as follows:**

- 1) Some message frames were productive, while others were counterproductive. Specifically, focusing on animal capabilities, social progress, and morality increased agreement with pro-animal attitudes by up to 11%. We also replicated the finding that framing in terms of social progress and morality/immorality seemed to resonate well with people.
- 2) The control condition was another effective message. This message had the same wording as the most effective message from experiment 1, but changed the context to that of LGBT+ rights. Compared to the more neutral control, which did not focus on social justice, a message about LGBT+ rights improved animal-related attitudes by 7%. This represents a spill-over effect, whereby priming values in one context activates the same values in another context. This spillover effect may be useful in campaigns that make reference to other social justice issues, and suggests greater collaboration between movements could be effective.
- 3) We found two message frames in particular were counter-productive, in which support for pro-animal attitudes was lower than that of the neutral baseline condition. Specifically, messages which were framed in terms of speciesism and oppression led to lower attitudes than baseline.
- 4) Support for laws were sensitive to one manipulation: reminders of how animal freedom laws will have personal consequences for ourselves led to significantly lower support for those laws. E.g. support for banning factory farming went from 49% (a near majority) to 35% when reminded that this would affect the cost of certain products.
- 5) None of our message framing manipulations influenced support for changing specific laws to protect animals, despite up to 74% agreeing that the government should impose laws to protect animals.
- 6) The general population seems to hold a contradiction between their reported values, and actions. For example, **57% support all animals having the same rights as humans in not being exploited or harmed, yet only 49% are in support of a ban on factory farms**, an industry which is highly harmful and exploitative towards animals.

# Introduction

The way information is framed can have a huge influence on the way that it is received, and in turn, influences people's attitudes and behaviours. One challenge that the Animal Freedom movement faces is having a unified narrative that appeals to people's values and shifts public support towards Animal Freedom.

The Freedom to Marry campaign achieved rapid success when they shifted from a narrative centring 'rights' to a narrative centring the values of 'freedom' and 'love'. This change in narrative resonated on an emotional level with millions of people across the political spectrum and tapped into their underlying values and beliefs. Adopting this narrative led to a quick turn in public opinion in favour of marriage equality. We expect that a powerful and persuasive narrative which resonates with people's existing emotions and values will move people beyond seeing veganism as a lifestyle identity and shift the focus instead on fellow animals, their lives, and the freedom they long for.

In this study, we conducted two experiments that tested different ways of framing the topic of why we should give rights or freedom to other animals, and measured their effect on reported attitudes.

In experiment 1, we tested 24 different messages, each which varied in whether they focused on rights or freedoms or whether they were gain- or loss-focused. While we did not find any effect of these particular frames on attitude change, there was a noticeable effect due to the specific framing of individual messages. In our second experiment, we re-tested the four most successful messages from experiment 1, as well as some new exploratory messages. **Overall, we found that messages that framed Animal Freedom in terms of social progress, morality, or focused on fellow animals' intelligence and capabilities were the most influential on people's attitudes.**

# Experiment 1

## Framing messages in terms of social progress and morality improves attitudes towards Animal Freedom

### Summary

In experiment 1, **we tested the effect of 24 different message frames on 7 measures of attitudes towards animals** on a sample of 7,462 UK participants. Each message was framed in terms of rights or freedoms, and gains or losses. Each participant saw one of the messages and then rated how much they agreed with each of the attitude scales. **We found no difference in whether the messages were framed in terms of gains or losses, but there was a small effect of framing messages in terms of rights on the extent to which people agreed with the message.** Analysing individual messages, we found that some messages were statistically significantly more persuasive than others. In particular, **framing messages in terms of social progress, morality, and immorality were the most persuasive at influencing people's attitudes towards animals.**

### Method

#### *Design*

This experiment used a 2 (Focus: Rights vs. Freedoms) x 2 (Frame: Gain vs. Loss) between subjects design. Each participant saw one of 24 messages, followed by a series of questions about their attitudes regarding how we should treat animals in our society. The messages varied in whether they were focused on giving rights or freedoms to animals, as well as whether these represented a gain or loss. All participants responded to all 7 response variables on a 1-7 ("Likert") scale (1 = Strongly disagree, 4 = Neither agree nor disagree, 7 = Strongly agree).

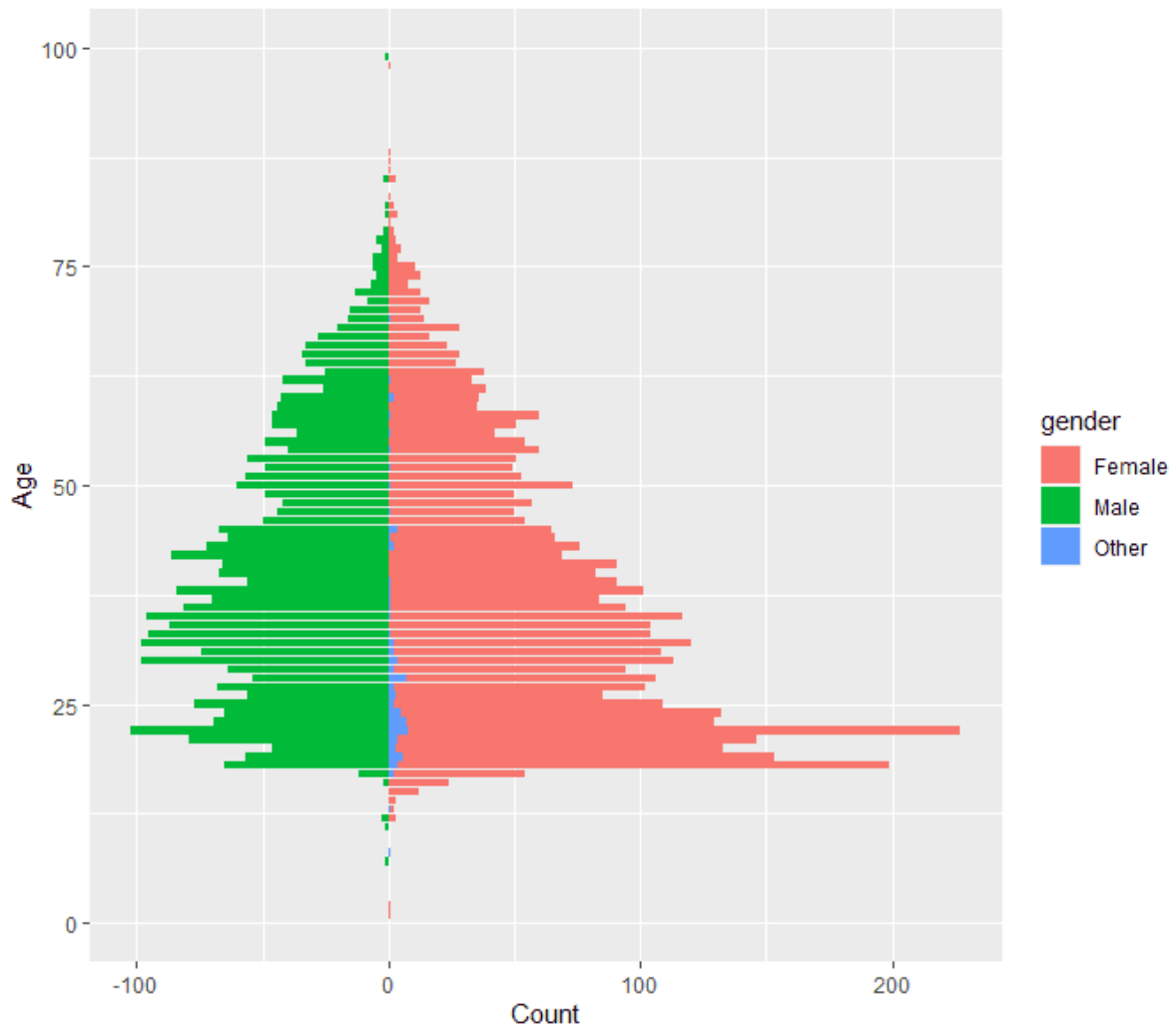
#### *Participants*

7,462 participants were recruited to complete an online survey by Rhetorical (~310 per message),



and were paid for participating. Figures 8 and tables 1-3 show the distribution of the sample (in terms of age, gender, level of education, political ideology, and diet).

**Figure 1.** Population pyramid of the sample



**Table 1.** Percentage of the sample split by highest level of education

Education level	Percentage of sample
Secondary school	19%
Some college	31%
Bachelor's degree	32%
Master's degree	15%
Doctoral degree	3%

**Table 2.** Percentage of the sample split by political ideology when asked the question 'Do you consider yourself more liberal or more conservative (1-7, 1 = Extremely liberal, 4 = Moderate, 7 = Extremely conservative)'

Political ideology	Percentage of sample
1 Extremely liberal	6%
2	16%
3	17%
4 Moderate	43%
	12%
6	4%
7 Extremely conservative	2%

**Table 3.** Percentage of the sample when split according to the question 'Do you eat meat?'

Eat meat	Percentage of sample
Yes	88%
Only seafood (Pescetarian)	3%
No (Vegetarian)	6%
No (Vegan)	2%
No response/Other	1%

## Materials

### *Demographic questions*

All participants answered the following demographic questions at the start of the questionnaire.

1. Age: How old are you? (Open response).
2. Gender: What is your gender? (Male/Female/Other).
3. Education: What is your highest level of education (Secondary school/Some college/Bachelor's degree/Masters degree/Doctoral degree).
4. Ethnicity: What is your ethnicity (White/black/Asian/mixed/other).
5. Political ideology: Do you consider yourself more liberal or more conservative (1-7, 1 = Extremely liberal, 4 = Moderate, 7 = Extremely conservative).

6. Postcode: What is your postcode (Optional, open response).
7. Party: Which party did you vote for in the 2019 general election?  
(Conservative/Labour/Liberal Democrats/Green/SNP/Other/I did not vote).
8. General election: If a general election were held tomorrow, which party would you vote for?  
(Conservative/Labour/Liberal Democrats/Green/SNP/Other/I would not vote).
9. Brexit: Did you vote Leave or Remain in the 2016 EU referendum? (Leave/Remain/I did not vote).
10. Home secretary: Who is the current home secretary? (Nahdim Zahawi/Priti Patel/Suella Braverman/Therese Coffey/I don't know).
11. Diet: Do you eat meat? (Yes/Only seafood (Pescetarian)/No (Vegetarian)/No animal products (Vegan)/Other).
12. Meat frequency: If so, how often do you eat meat? (Daily/A few times a week/Once a week or less/Never).

### *Attitudes towards animals*

All participants responded on a 1-7 scale how much they agreed with the following questions.

1. Article agree: How much do you agree with the article?
2. Animals needs: The needs and interests of animals should be taken into consideration by society.
3. Treated equally: It is important that we treat animals more equally in society.
4. Equality: Equality between humans and animals is unnatural and wrong.
5. Pass laws: The government should pass new laws to protect animals, even if this affects the profits of certain industries.
6. Rights: Animals deserve the same rights as humans in not being harmed or exploited.
7. Freedom: Animals deserve the same freedom as humans to live their lives as they choose.

## **Procedure**

First, all participants answered the demographic questions. Next, they were shown the text 'We are asking people about their opinions on different social issues. Before that, please read the following excerpt.', followed by one of the framed messages. They then answered the animal value questions, followed by the support for law questions. Each participant saw one of two different versions of the

support for law questions, either with or without personal consequences.

The survey started with the message 'We are researching the needs and interests of animals. Click next to read a short article. You will be asked your opinion afterwards.'. This was followed by an image of text designed to look like an article: 'How should animals be treated by society? Should the government pass new laws to protect animals? The general public has a wide range of viewpoints on this issue - for example, some people feel it is very important that we treat animals more equally in society, while others argue that equality between humans and animals is unnatural. Here is what one person said about the issue:'. This was then followed by the tested message.

## Results

### *Comparison of rights vs freedom and gain vs loss framing*

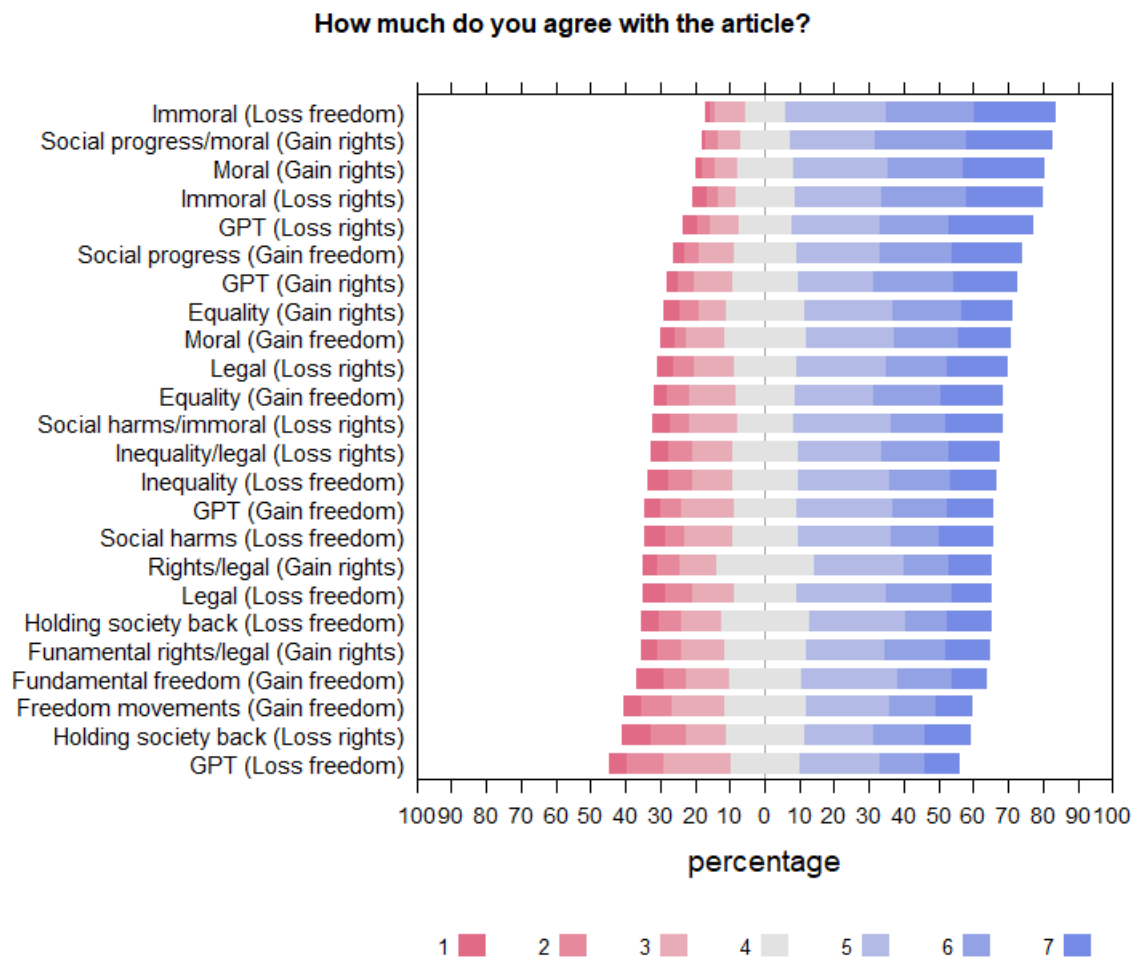
We compared the effect of rights vs. freedom framed messages, as well as the effect of loss vs. gain framed messages. Overall, there were no differences, except that rights framed messages increased the likelihood of the participants reporting that they agreed with the article. To test the effect of rights vs. freedom and loss vs. gain framing, we performed a 2 (Subject: Rights vs. Freedoms) x 2 (Frame: Loss vs. Gain) two-way ANOVA on each dependent variable. We found only one statistically significant effect that of whether there was a focus on rights or freedoms on agreement with the article [ $F(1, 7458) = 29.85, p < .001$ ]. Specifically, rights framing increased the probability of agreeing with the article from 57% to 61%. For the other dependent variables, there were numeric differences of about 1-2pp, but these were not statistically significant.

### *Individual message-testing*

Instead of comparing the effect of common frames across groups of messages together, we next looked at the effect of individual messages. We performed a one-way between subject ANOVA on the response variables (a 1-7 rescale scale, here-on referred to as Likert responses), with message framing as the independent variable. The significance level,  $\alpha$ , was set to 0.007 to correct for multiple comparisons. We found a significant main effect of message frame on all dependent variables, except for animal freedom. Figures 1-7 show the distribution of responses for each message for each response variable. To briefly summarise the results, a focus on social progress, morality, or equality

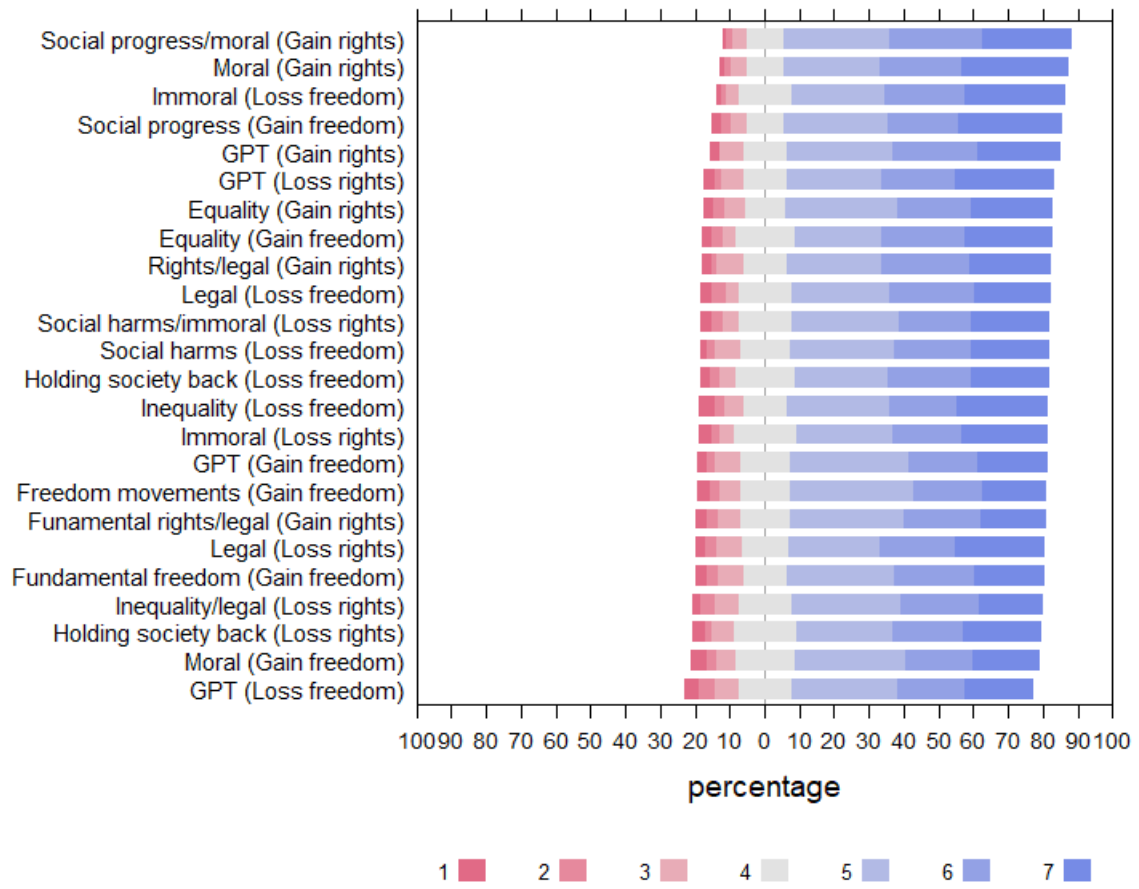
consistently led to higher ratings of agreement with the article, considering animal's needs, treating them fairly, supporting their rights, freedoms, and equality, and passing laws to protect them.

**Figure 2.** Proportion of responses to the question asking 'How much do you agree with the article?'



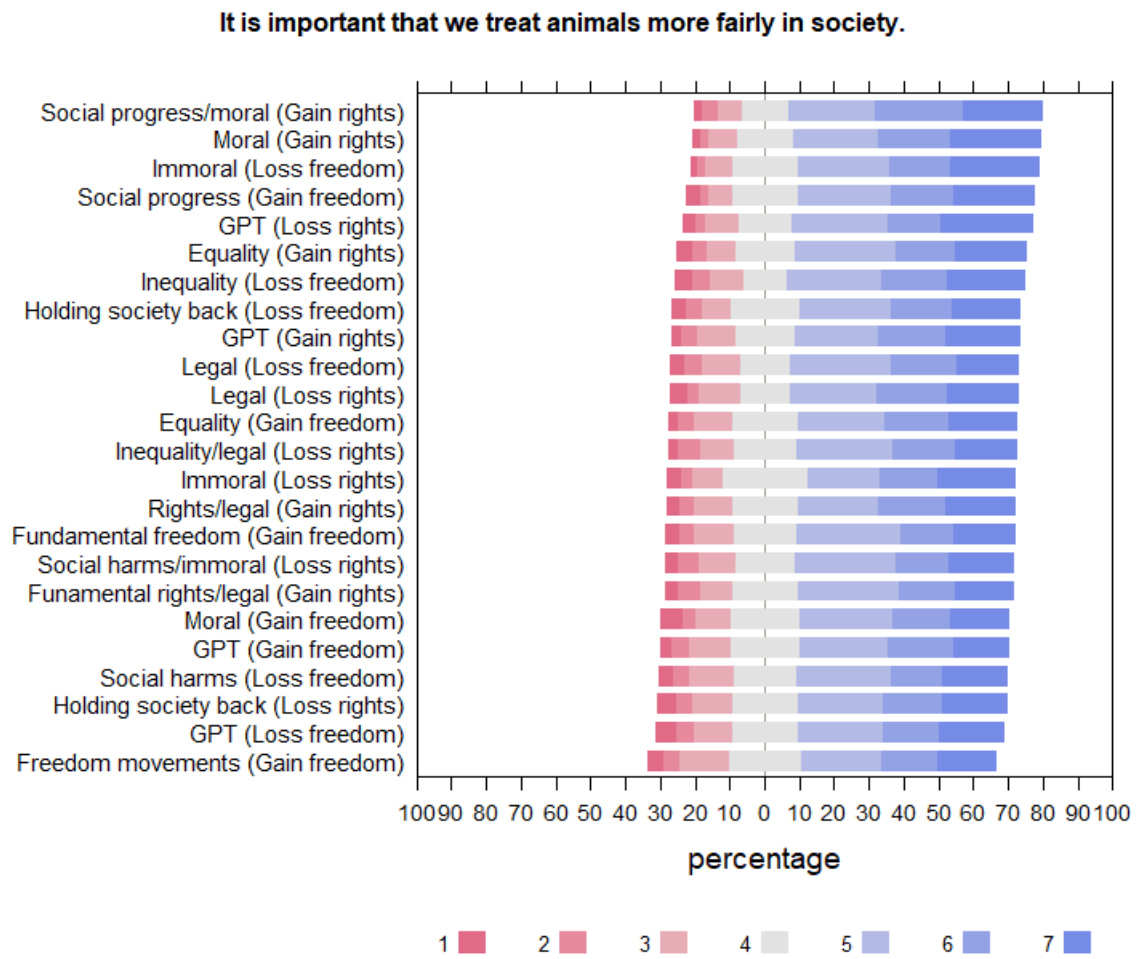
**Figure 3.** Proportion of responses to the question asking how much they agreed with the statement 'The needs and interests of animals should be taken into consideration by society'

**The needs and interests of animals should be taken into consideration by society.**

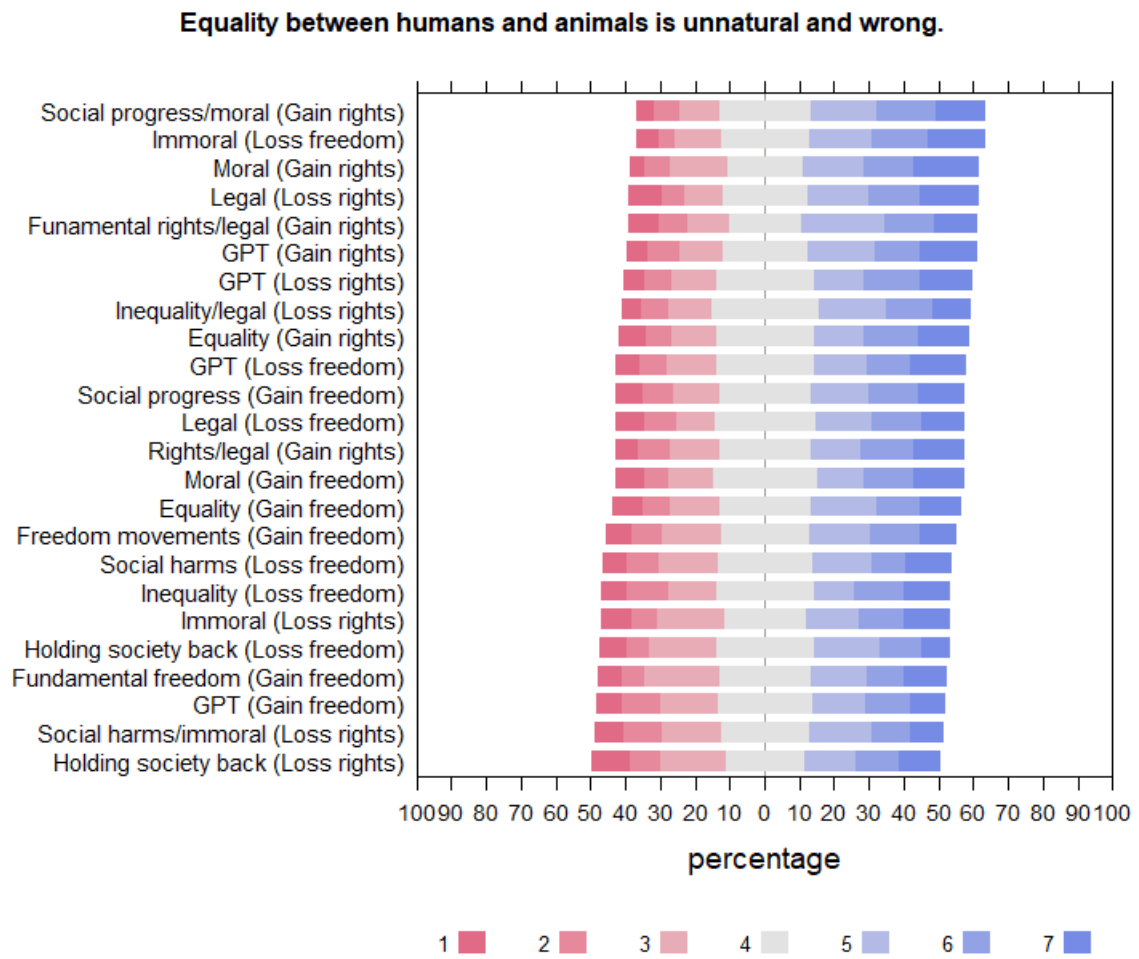




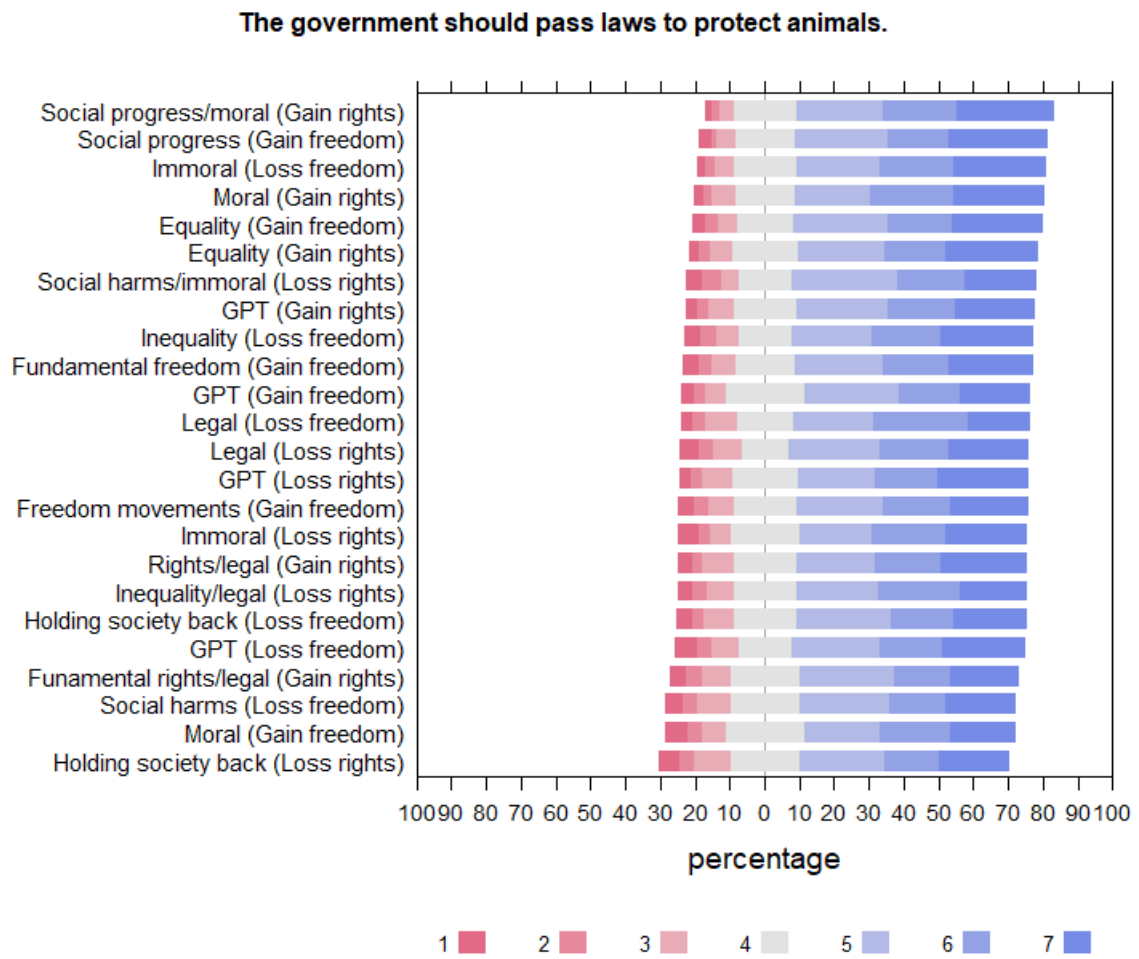
**Figure 4.** Proportion of responses to the question asking how much they agreed with the statement 'It is important that we treat animals more fairly in society'



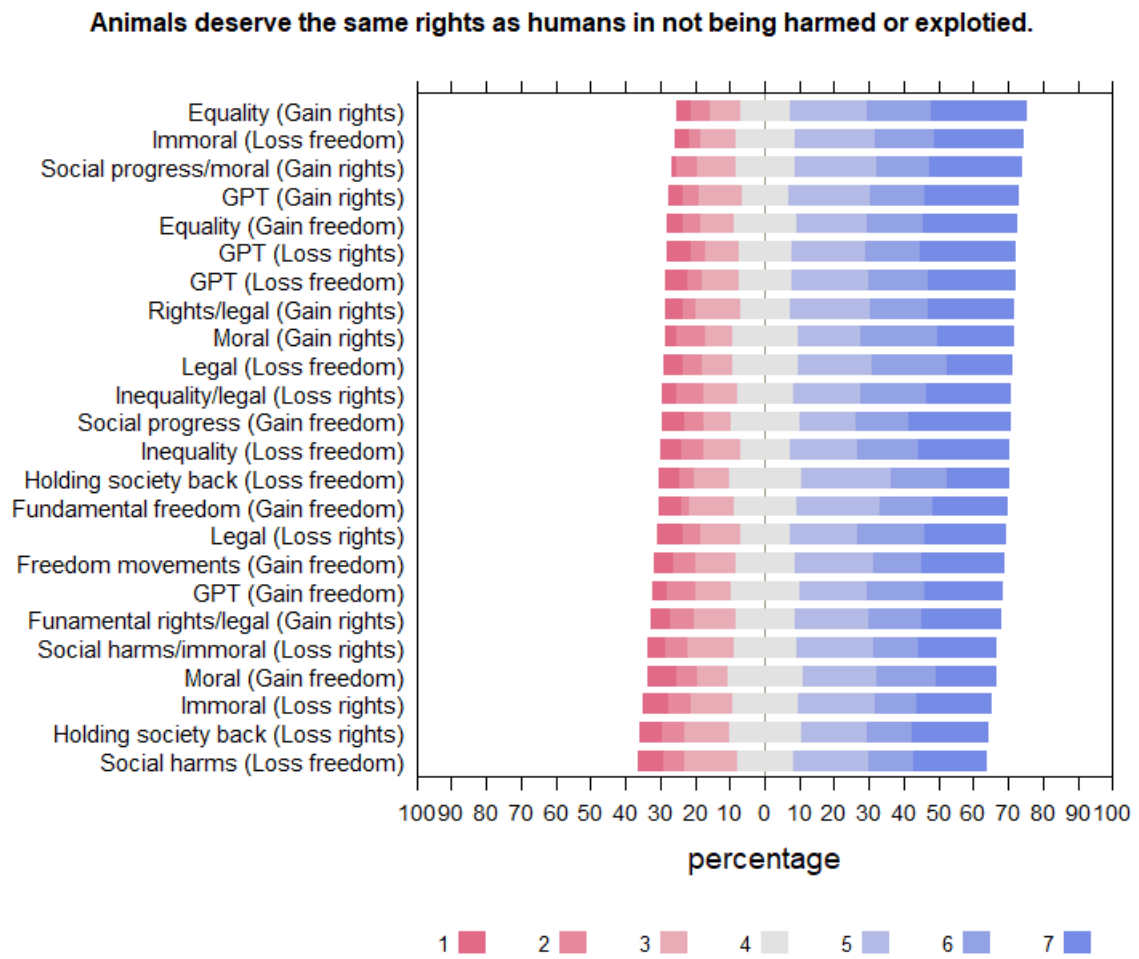
**Figure 5.** Proportion of responses to the question asking how much they agreed with the statement 'Equality between humans and animals is unnatural and wrong'. Responses are reverse coded



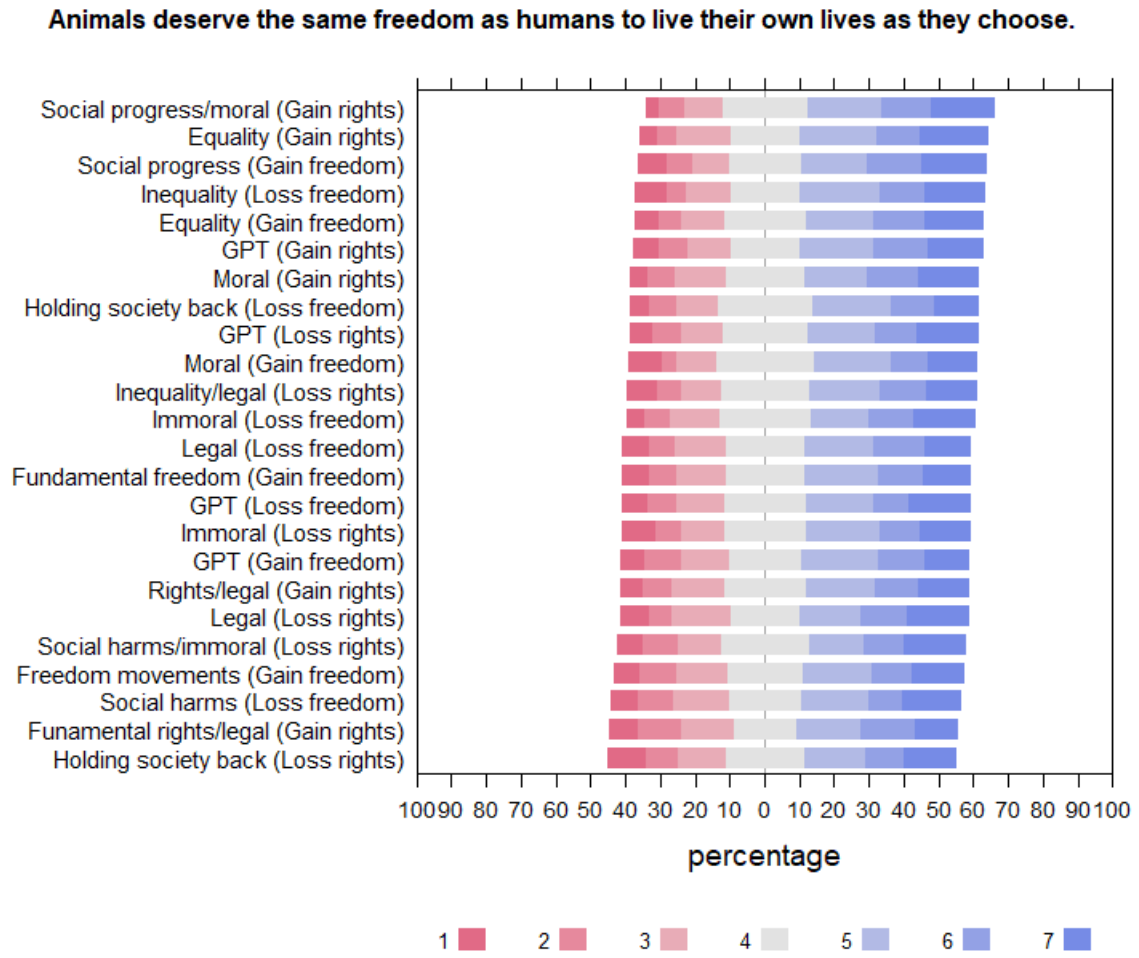
**Figure 6.** Proportion of responses to the question asking how much they agreed with the statement 'The government should pass laws to protect animals'



**Figure 7.** Proportion of responses to the question asking how much they agreed with the statement 'Animals deserve the same rights as humans in not being harmed or exploited'



**Figure 8.** Proportion of responses to the question asking how much they agreed with the statement 'Animals deserve the same freedom as humans to live their own lives as they choose'



## Experiment 2

### **Framing Animal Freedom in terms of social progress, morality, and animal intelligence improve attitudes, but not support for changes in law**

#### **Summary**

In experiment 2, we tested the effect of ten different message frames on six measures of attitudes towards animals, and support for four potential laws which would give animals greater freedom on a sample of 4,026 UK participants. We also tested the effect of reminding participants how they would be personally impacted if these laws were passed. Each participant viewed one message and then rated their attitudes and support for the laws. The message frames we tested were as follows: We included two control messages. Control 1 contained neutral information (a scientific description of what animals are), whereas control 2 matched the wording of the most influential message from experiment 1, but discussed a different social justice context (LGBT+ rights). We also included the three most influential messages from experiment 1 verbatim (Social progress, moral framing, and immoral framing). We also included four new modifications which constituted modifications of those three most influential messages. One of which was a composite of features from all three messages. Finally, we tested four new exploratory message frames: animal's subjective experiences and their capabilities, animal intelligence, oppression, and speciesism.

#### **Our key findings were as follows:**

- 1) We found that some message frames were productive, while others were counterproductive. Specifically, focusing on animal intelligence, social progress, and morality increased agreement with pro-animal attitudes by up to 11%. We also replicated the finding that framing in terms of social progress and morality/immorality seemed to resonate well with people.
- 2) Another effective message was originally intended to be a control condition. This message had the same wording as the most effective message from experiment 1, but changed the context to that of LGBT+ rights. Compared to the more neutral control, which did not focus on social justice, a message about LGBT+ rights improved animal-related attitudes by 7%. This represents a spill-over effect, whereby priming values in one context activates the same values in another context. This spillover

effect may be useful in campaigns that make reference to other social justice issues, and suggests greater collaboration between movements could be effective.

3) We found two message frames in particular were counter-productive, in which support for pro-animal attitudes was lower than that of the neutral baseline condition. Specifically, messages which were framed in terms of speciesism and oppression led to lower attitudes than baseline.

4) Support for laws were sensitive to one manipulation, however: reminders of how animal freeing laws will have personal consequences for ourselves led to significantly lower support for those laws. E.g. support for banning factory farming went from 49% (a near majority) to 35% when reminded that this would affect the cost of certain products.

5) None of our message framing manipulations influenced support for changing specific laws to protect animals, despite up to 74% agreeing that the government should impose laws to protect animals.

6) The general population seems to hold a contradiction between their reported values, and actions. For example, 57% support all animals having the same rights as humans in not being exploited or harmed, yet only 49% are in support of a ban on factory farms, an industry which is highly harmful and exploitative towards animals.

## **Method**

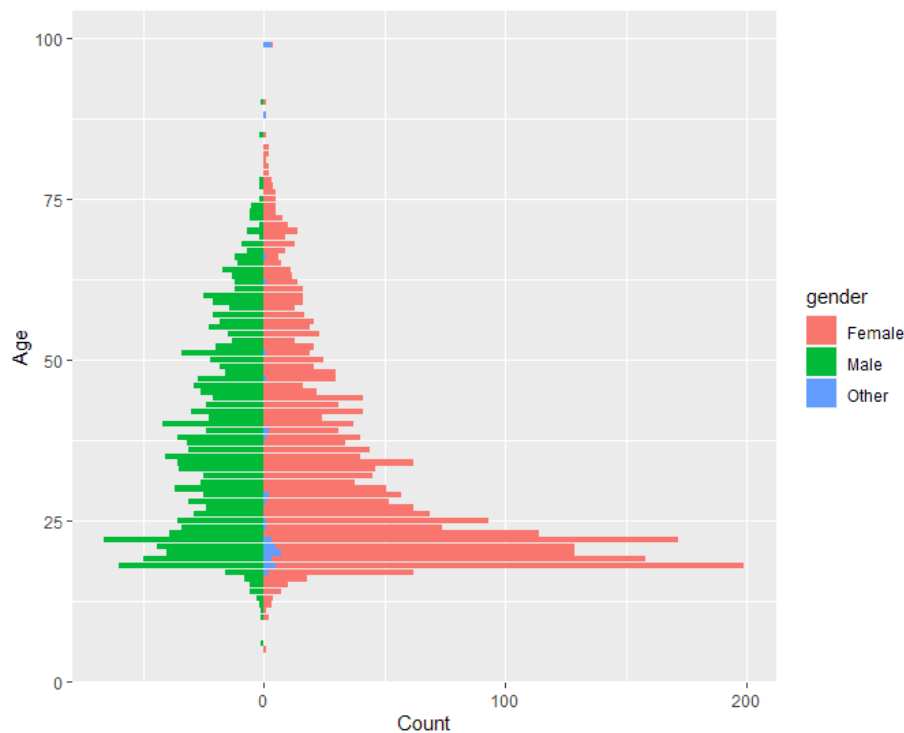
### *Design*

This experiment used a 10 (Message frames) x 2 (Outcome phrasing: with vs. without consequences) between subjects design. Each participant saw one of the ten messages, followed by a series of questions about their beliefs regarding animals. Some of the questions asked whether they would support laws to protect animals (a meat tax, transferring subsidies from meat to plant agriculture, giving rights to all animals, and abolishing animal farming). All participants saw these questions. In the 'with consequences' condition (50% of the sample), the question was followed by a sentence stating how imposing this law could affect them personally. In the 'without consequences' condition (50% of the sample), there was no mention of how the law could impact them personally.

## Participants

4,026 participants were recruited to complete an online survey by Rhetorical (~200 per cell in the design), and were paid for participating. Figures 18 and tables 6-8 show the distribution of the sample (in terms of age, gender, level of education, political ideology, and diet).

**Figure 9.** Population pyramid of the sample



**Table 4.** Percentage of the sample split by highest level of education

Education level	Percentage of sample
Secondary school	22.8%
Some college	39%
Bachelor's degree	22.8%
Master's degree	12%
Doctoral degree	3.2%

**Table 5.** Percentage of the sample split by political ideology when asked the question 'Do you consider yourself more liberal or more conservative (1-7, 1=Extremely liberal, 4 = Moderate, 7 = Extremely conservative)'



Political ideology	Percentage of sample
1 Extremely liberal	5.3%
2	10.5%
3	12.9%
4 Moderate	53.7%
5	11.4%
6	3.3%
7 Extremely conservative	2.8%

**Table 6.** Percentage of the sample when split according to the question 'Do you eat meat?'

Eat meat	Percentage of sample
Yes	88.78%
Only seafood (Pescetarian)	3.19%
No (Vegetarian)	4.5%
No (Vegan)	1.78%
No response	0.2%

## Materials

All participants answered the following demographic questions at the start of the questionnaire:

Age: How old are you? (Open response).

1. Gender: What is your gender? (Male/Female/Other).
2. Education: What is your highest level of education (Secondary school/Some college/Bachelor's degree/Masters degree/Doctoral degree).
3. Ethnicity: What is your ethnicity (White/black/aAian/mixed/other).
4. Political ideology: Do you consider yourself more liberal or more conservative (1-7, 1 = Extremely liberal, 4 = Moderate, 7 = Extremely conservative).
5. Postcode: What is your postcode (Optional, open response).
6. Party: Which party did you vote for in the 2019 general election?  
(Conservative/Labour/Liberal Democrats/Green/SNP/Other/I did not vote).
7. General election: If a general election were held tomorrow, which party would you vote for?  
(Conservative/Labour/Liberal Democrats/Green/SNP/Other/I would not vote).
8. Brexit: Did you vote Leave or Remain in the 2016 EU referendum? (Leave/Remain/I did not vote).

9. Home secretary: Who is the current home secretary? (Nahdim Zahawi/Priti Patel/Suella Braverman/Therese Coffey/I don't know).
10. Diet: Do you eat meat? (Yes/Only seafood (Pescetarian)/No (Vegetarian)/No animal products (Vegan)/Other).
11. Meat frequency: If so, how often do you eat meat? (Daily/A few times a week/Once a week or less/Never).

### *Attitudes towards animals*

All participants responded on a 1-7 scale how much they agreed with the following statements.

1. Article agree: How much do you agree with the article?
2. Consider needs: The needs and interests of animals should be taken into consideration by society
3. Equality: It is important that we treat animals more equally in society.
4. Pass laws: The government should pass new laws to protect animals, even if this affects the profits of certain industries.
5. Rights: Animals deserve the same rights as humans in not being harmed or exploited

### *Support for laws*

The participants were then asked to what extent (1-7 scale) 'Which of the following laws would you support?'

1. Meat tax: 'A law which put a tax on buying meat.' The participants in the With consequences condition additionally read: 'This would make the cost of meat more expensive.'
2. Subsidies: 'A law which increased subsidies for plant-based agriculture, and reduced or removed subsidies to animal-based agriculture.' The participants in the With consequences condition additionally read: 'This would make meat dairy and eggs more expensive to purchase, but plant-food cheaper.'
3. Factory farming: 'A law which banned factory farming.' The participants in the With consequences condition additionally read: 'This would increase the cost of meat, dairy, and eggs, and put strain on farmers.'
4. Abolition: 'A law which protects the rights of all animals in not being harmed, exploited, or killed.' The participants in the With consequences condition additionally read: 'This would

mean that we could no longer use animals for their meat, their excretions (like milk or eggs), or their body parts for clothing.'

### *Procedure*

First, all participants answered the demographic questions. Next, they were shown the text 'We are asking people about their opinions on different social issues. Before that, please read the following excerpt.', followed by one of the framed messages (Appendix two). They then answered the animal value questions, followed by the support for law questions. Each participant saw one of two different versions of the support for law questions: either with or without personal consequences.

## **Results**

### *The effect of message framing on values towards animals*

We analysed the data with by fitting a Bayesian ordinal logistic regression, with the control condition as the referent condition. We used the default priors specified in the BRMS R package, ran 500 warm-up samples, and 2000 posterior samples. Figure 10 show the response distributions, split by message (left) and the posterior probability distributions of the estimated log-odds. We decided that a message was statistically significant if the range of the its credible intervals did not include 0.

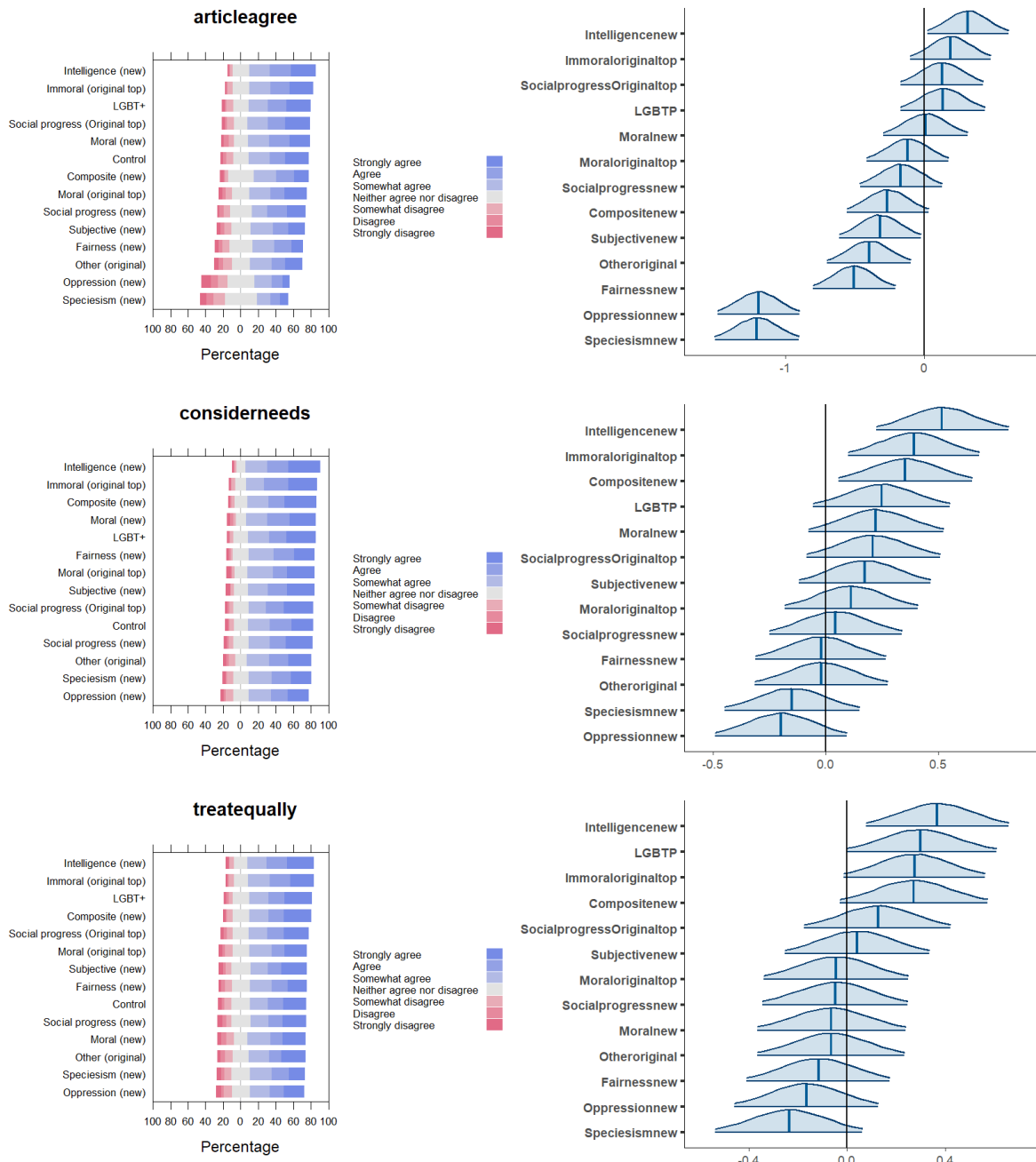
The most effective message was Intelligence, which increased agreement with the article (+9.87%<sup>1</sup>), and the statements about considering needs (+18.9%), treating equally (+11.79%), passing laws (+10.5%), same rights (+14.45%), and support for subsidies (+10.41%). The new composite message was also quite effective, by increasing responses to the statements about considering needs (+10.95%), same rights (+9.67%), and passing laws (+11.9%). Less effective, but statistically significant were the original immorality message (Consider needs +12.78%, Same rights +10.45%), LGBT+(Pass laws +10.76%, Same rights +12.79%), subjectivity (Same rights +9.74%, Abolition +10.22%), and the original social progress message (Same rights +12.35%). Interestingly, the messages which discussed

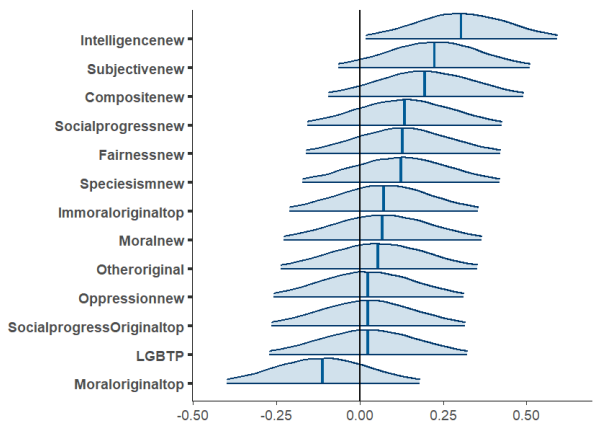
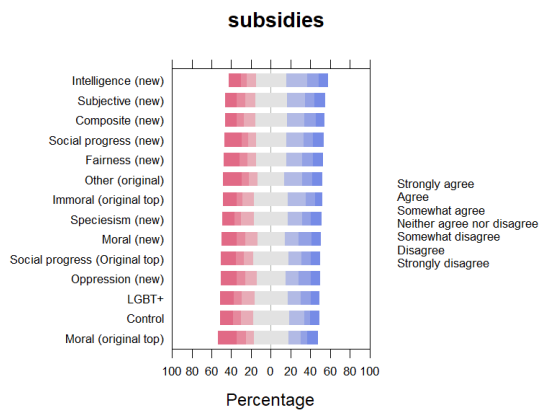
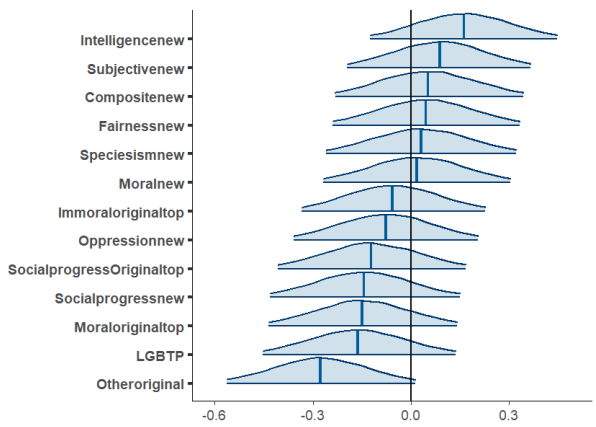
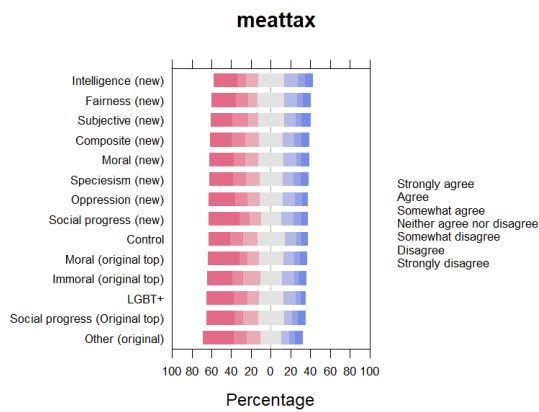
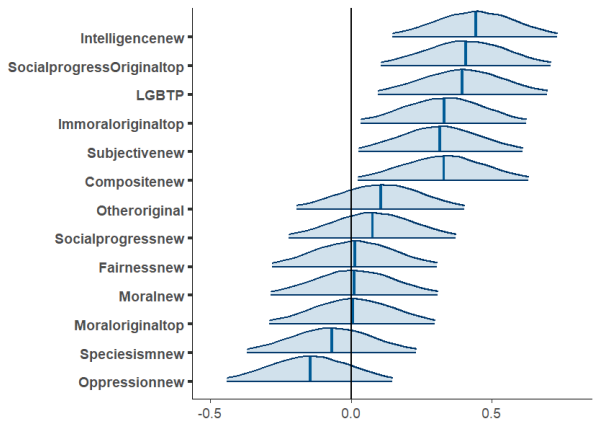
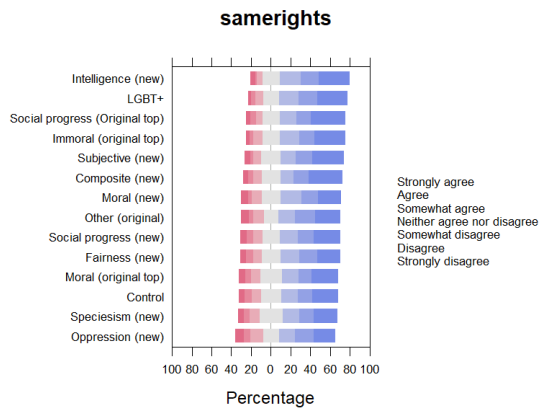
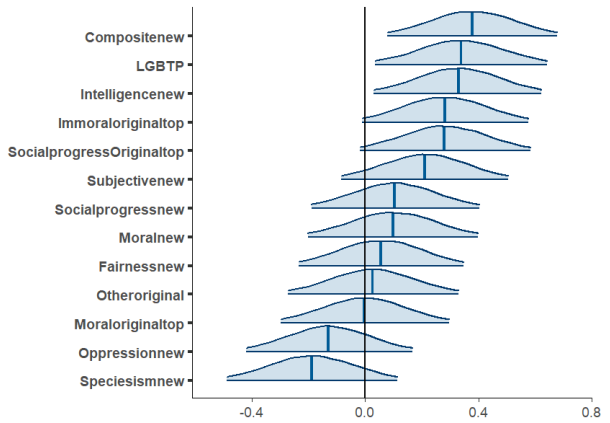
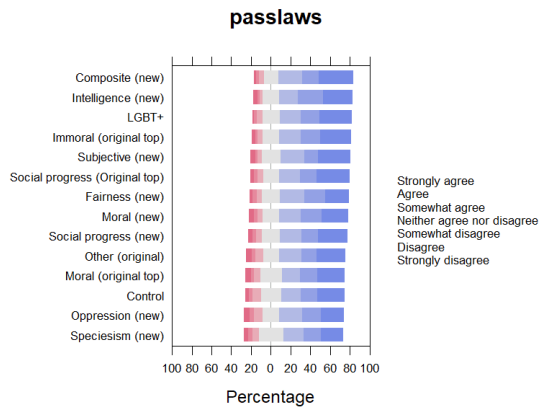
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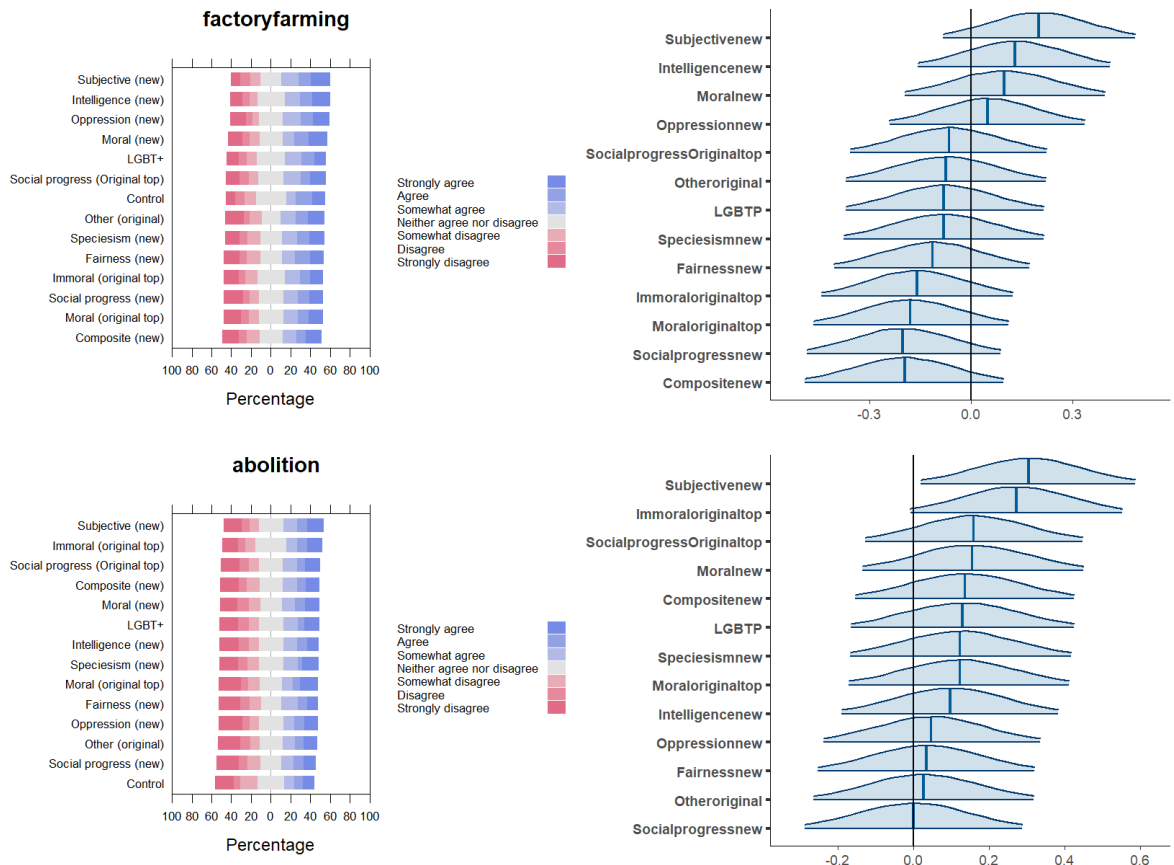
<sup>1</sup> The net percentage of participants who increased their responses. Estimated by averaging 1000 random samples of the average difference between participants who saw the message, and participants who saw the control message.

oppression and speciesism, while having no effect on any of the other dependant variables, did decrease agreement with the message (Oppression -35.69%, Speciesism -36.11%).

**Figure 10.** LEFT: Response distributions, split by dependent variable (sub-plot-wise) and message (row-wise). RIGHT: 95% highest density of the posterior distributions, split by dependent variable and message



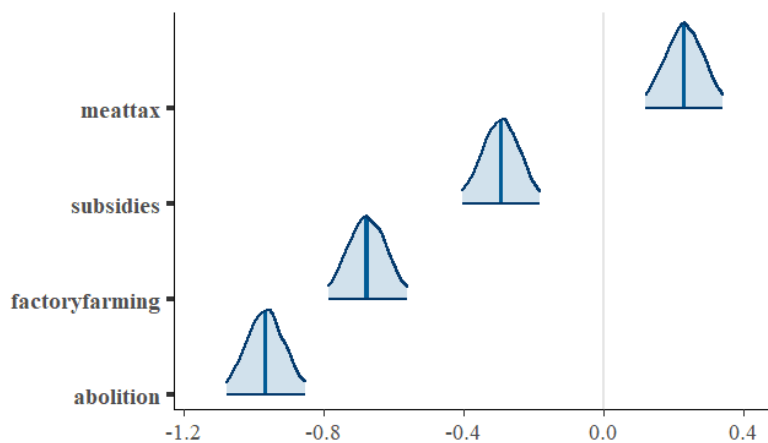




*Effect of negative consequences*

For the questions about which specific laws they would support, we conducted the same analysis, splitting responses by whether the description of the law included a description of its potential effects. Figure 11 shows the posterior distributions of the log-odds for the effect of negative framing (no framing was used as the referent).

**Figure 11.** Posterior distributions for the effect of consequence framing on support for different laws

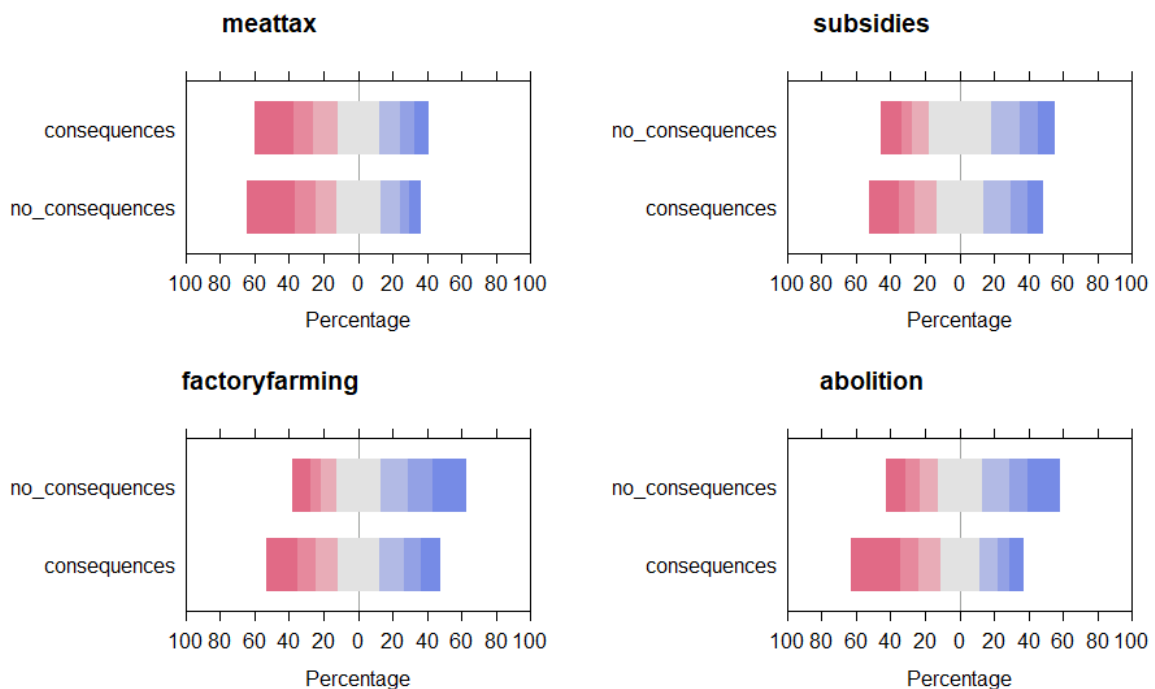


Mentioning the potential negative consequences of subsidies, factory farming, and abolition had a detrimental effect, but interestingly, mentioning the consequences of a meat tax had a slight positive effect. Table 7 shows the percentage of participants who responded at least 'somewhat agree' with and without consequences, and Figure 12 shows the response distributions, split by consequence.

**Table 7.** Percentage of participants who supported each law, split by whether they were reminded of how such a law would impact them personally

Consequence phrasing	Meat tax	Subsidies	Factory farming	Abolition
no consequences	22.49%	36.27%	48.84%	44.13%
consequences	27.85%	33.93%	34.68%	25.07%

**Figure 12.** Support for four different laws, split by whether negative consequences were mentioned within the description. Stronger blue indicates higher support. Stronger red indicates stronger opposition



## Discussion

The aim of experiment 1 was to test whether framing things in terms of Animal Freedom or rights was more effective at changing attitudes towards other animals. Additionally, half of these messages were either framed negatively or positively. While neither of these manipulations showed any effects on attitudes, we did find successful framing approaches when focusing on individual messages. Specifically, framing in terms of social progress and morality/immorality seemed to resonate well with people.

In experiment 2, we aimed to test variants on the successful messages from experiment 1, and to



explore additional frames that may be effective. The success of the social progress and morality frames was replicated again. By including a control condition, we were also able to measure that these frames increased agreement with pro-animal attitudes by 6-9% on average. In this experiment, we also explored additional message frames. We found that some were productive, while others were counterproductive. Specifically, focusing on animal intelligence increased agreement with pro-animal attitudes by 11%.

Another effective message was originally intended to be a control condition. This message had the same wording as the most effective message from experiment 1, but changed the context to that of LGBT+ rights. Compared to the more neutral control, which did not focus on social justice, this message increased support by 7%. This represents a spill-over effect, whereby priming values in one context activates the same values in another context. This spillover effect may be useful in campaigns that make reference to other social justice issues, and suggests greater collaboration between movements would be effective.

We found two message frames in particular were counter-productive, in which support for pro-animal attitudes was lower than that of the neutral baseline condition. Specifically, these were the messages that focused on speciesism and oppression. There are two likely explanations for their poor success:

- 1) These terms may not be widely used in most people's everyday language, and are associated with activists. Using a style of language that is inconsistent with the reader may create psychological reactance.

- 2) These two messages frame humans in a negative light, and therefore may have created cognitive dissonance: the discomfort felt when confronted with information (e.g., that we oppress animals or are prejudiced) that is inconsistent with our perception of ourselves (e.g., that we are fundamentally kind). Because of this cognitive dissonance, our participants may have been less receptive to these types of framing.

While we found that many of the messages influenced people's attitudes to varying extents, support for imposing new laws to protect animals did not change across messages. There are three possible explanations for the lack of a change in attitudes influencing support for real change:

- 1) The change in attitudes might not reflect a real change in attitude, but rather a bias in responding.

For example, messages containing more positive words might prime people towards responding more positively in general.

2) The data reflects real change in attitudes, but that the proposed law changes are not consistent with those attitudes. E.g., if someone takes a welfarist view, they might show a change in support for laws that increase farmed animal welfare, but not necessarily banning factory farming all together.

3) The messages in this study spoke about rights and freedom in a general sense, which though people might agree with, the messages did not focus on making specific real-life changes. In future, we will test whether including a call to action in terms of supporting something concrete will be more influential.

Support for laws were sensitive to one manipulation, however: reminders of how these laws will have personal consequences for individuals. E.g. support for banning factory farming went from 49% (a near majority) to 35% when reminded that this would affect the cost of certain products. Indeed, the laws proposed in which the personal consequences were very salient (meat taxes and subsidies) received very little support (28% and 36% respectively). From this, we learn that messages should highlight how systemic changes improve the lives of animals and ourselves, without framing it as a loss for those who currently benefit from the status quo.

This study has raised some salient questions to be answered in future experiments:

1) We will continue to refine the wording of the attitudes questions. It is possible that our intended meaning of those questions did not match the received meaning by the participants. This is evidenced by the fact that 57% support all animals having the same rights as humans in not being exploited or harmed, yet only 49% are in support of a ban on factory farms. Similarly, the statement 'the needs and interests of animals should be taken into consideration by society' can have drastically different meanings from welfarist or abolitionist perspectives. These issues come down to what needs and considerations people perceive other animals as having. Do people perceive animals as having a right to life? Do they perceive farmed animals as being exploited?

2) None of our message framing manipulations influenced support for changing specific laws to protect animals, despite up to 74% agreeing that the government should impose laws to protect animals. We will make two amendments to future studies. First, we will include a wider range of laws, which may include laws that the public are more amenable to. Secondly, the lack of a specific

call to action in the messages may not have sufficiently linked the message to the proposed law. Therefore, we plan to test the presence or absence of calls to action on changes in support for imposing new laws to protect animals.

3) Why were the speciesism and oppression narratives counter-productive? According to cognitive dissonance theory, these narratives frame humans in a negative light, and therefore may make people less receptive to the messages. Alternatively, the terms of oppression, and particularly speciesism, are quite niche to social justice movements, and the Animal Freedom movement in particular in the case of speciesism. If people do not identify with these terms, this may have an 'othering' effect, in which a divide is drawn between the reader and the messenger. In the future, we plan to test whether framing messages in these terms, but using common everyday language, may prove more fruitful.

4) We have taken quite an exploratory approach in these experiments. In future, we plan to conduct testing which is guided by these findings and existing theoretical frame-works, such as Schwartz's theory of basic values, the trans-theoretical stages of change model, and cognitive dissonance theory. Taking these theories into account, we are currently building a framework of effective narratives and deep narratives for future testing.

# Appendix One

## Experiment One message frames

The following set of messages were randomly assigned to participants. Each participant only viewed one message. Each message was designed to focus on framing animal rights or Animal Freedom in a particular way. We also included 4 messages (1 for each condition) which were generated by a generative pre-trained transformer language model (labelled GPT below).

### **Rights movements/legal framing (Gain rights frame)**

In many countries over the past century, human rights have expanded to include more people. It is due to movements for women's rights and civil rights that women and people of colour now have more rights protected in law. There is a growing movement of people that believe that fundamental rights should be extended to all animals. By expanding who is granted legal rights means everyone can benefit from living in a fairer, more equal society.

### **Social progress/moral framing (Gain rights frame)**

Society is evolving and becoming fairer all the time. Most countries in the world have improved their human rights by outlawing human slavery and child labour. Recognising the rights of animals is the next stage in our progress towards a fairer world. As a civilised society, all animals should have the right to be treated with respect and dignity.

### **Fundamental rights/legal framing (Gain rights frame)**

In many countries, human rights are protected in law. These rights are considered fundamental to human existence, such as the right to move freely, the right to life and safety, and the right to a fair and free world. There is growing support in many countries for animals to have similar fundamental rights protected in law. Many people believe that, just like humans, animals deserve the right to live

their lives as they choose.

## **Equality framing (Gain rights frame)**

Most of us want to live in a more equal society that respects the rights of all of us, no matter our gender, race, or even our species. Animals having greater rights doesn't mean having the same rights as humans (e.g. the right to vote or the right to education). It means having rights that directly benefit animals, such as the right to live their lives as they choose. To create a more equal society, we need to protect the interests of animals in UK law.

## **Moral framing (Gain rights frame)**

Almost everyone cares about animals, whether it's a beloved family companion or the wild animals that share our neighbourhoods. Morally, there's no reason to differentiate the way we treat the animals we share our homes with and those who are farmed for food. They are all individuals, with the same capacity to feel love and joy, and so should be respected by society and protected in law. Animal rights helps us to look beyond species and to respect all animals equally.

## **GPT (Gain rights frame)**

There is a growing movement supporting the idea of granting animals legal rights. This is crucial for creating a fair and equal society for all beings. Recognizing the rights of animals is the next step in our progress towards a fairer world. Protecting the interests of animals in law is crucial for creating a more equal society. Almost everyone cares about animals, and they should be respected and protected in law. Animal rights help us to look beyond species and respect all animals equally.

## **Social harms/immoral framing (Loss rights frame)**

Violence or discrimination against any group in society is wrong, and it harms society. When rights are denied to a certain group based on their identity, it makes society unequal and unfair. Currently,

animals are not protected in the same way humans are. They are eaten, tested on, worn, farmed, taken away from their mothers and forced to perform for the benefit of humans. Animals should have rights that protect them against discrimination and harm, just like humans do.

### **Immoral framing (Loss rights frame)**

All animals can suffer in a similar way and to a similar degree that humans do. They feel pain, fear, frustration, loneliness and sadness. Whenever we consider doing something that would interfere with animals' needs or interests, we are morally obligated to take them into account. It is immoral for any civilised society to mistreat animals in ways that would never be acceptable in relation to humans.

### **Legal rights framing (Loss rights frame)**

In many countries, human rights are protected in law. These rights are considered fundamental to human existence, such as the right not to be tortured or the right not to be enslaved. The vast majority of animals have no legally recognised rights in the UK. A growing number of people believe that animals should have the legal right not to be bred and killed for profit, confined in zoos, hunted or experimented on, but instead have the right to live their lives as they choose.

### **Inequality/legal framing (Loss rights frame)**

Most of us are against social inequality and believe the rights of all of us, no matter our gender, race, or even our species, should be respected and protected in law. Animals having greater rights doesn't mean having the same rights as humans (e.g. the right to vote or the right to education). It means having rights that directly benefit animals, such as the right not to be enslaved, tortured or killed. If we don't protect the interests of animals in UK law, we will continue to live in an unequal society.

## **Holding society back/immoral framing (Loss rights frame)**

Depriving certain groups of rights prevents society from becoming fairer and more equal for everyone. While most countries in the world have improved their human rights by outlawing human slavery and child labour, the rights of animals are still not protected in law. Recognising the rights of animals is the next stage in our progress towards a fairer world. As a civilised society, all animals should have the right not to be enslaved, harmed, or killed.

## **GPT (Loss rights frame)**

Animals should have rights that protect them against discrimination and harm, just like humans do. They feel pain, fear, and other emotions, and we are morally obligated to take their interests into account. The vast majority of animals have no legally recognized rights in the UK. Protecting the rights of animals is crucial for creating a more equal society. Animals having greater rights doesn't mean having the same rights as humans, but rather having rights that directly benefit them. Depriving certain groups of rights prevents society from becoming fairer and more equal for everyone.

## **Freedom movements framing (Gain freedom frame)**

In many countries over the past century, humans are benefitting from greater freedom, such as freedom of expression and freedom to marry who they want. It is due to various freedom movements that women, people of colour and LGBT+ people now have the freedom to live their lives as they choose. There is a growing movement of people that believes that animals, like humans, should also have the freedom to live their lives as they choose. Animals having freedom means everyone can benefit from living in a freer, fairer society.

## **Social progress framing (Gain freedom frame)**

Everyone values their freedom, and society is evolving all the time to reflect this. Most countries in the world have outlawed human slavery and child labour. Recognising that animals also desire and

deserve freedom is the next stage in our progress towards a fairer world. As a civilised society, all animals should have the freedom to live their lives as they choose, and to be treated with respect and dignity.

### **Fundamental freedom framing (Gain freedom frame)**

We all value our freedom, regardless of our gender, race, or even our species. Yet the vast majority of animals are prevented from having the freedom to be with their families, to move freely, or even the freedom to live. Instead they are forcibly bred, confined and killed by industries for profit. A growing number of people are recognising that society will only be truly free when all groups - including animals - have the freedom to live their lives as they choose.

### **Equality framing (Gain freedom frame)**

Most of us want to live in a more equal society that values everyone's freedom, no matter our gender, race, or even our species. Animals, just like humans, want the freedom to live their lives as they choose. Yet the majority of animals are deprived of their freedom, whether that's in farms, zoos, or laboratories. To create a freer, fairer society, we need to ensure animals have the freedom they desire.

### **Moral framing (Gain freedom frame)**

Almost everyone cares about animals, whether it's a beloved family companion or the wild animals that share our neighbourhoods. Morally, there's no reason to differentiate the way we treat the wild animals who visit our gardens and those who are farmed for food. They are all individuals, with the same capacity to feel love and joy, and the same desire to be free. Animal freedom helps us to look beyond species and to respect all animals equally.



## **GPT (Gain freedom frame)**

There is a growing movement supporting the idea of granting animals the freedom to live their lives as they choose. Recognising that animals also desire and deserve freedom is the next step in our progress towards a fairer world. Protecting the interests of animals in law is crucial for creating a more equal society. Almost everyone cares about animals, and they should be respected and protected in law. Animal freedom helps us to look beyond species and respect all animals equally.

## **Social harms framing (Loss freedom frame)**

Violence or discrimination against any group in society is wrong, and it harms society. When certain groups are deprived of freedom based on their identity, it makes society unequal and unfair. Currently, animals are not protected in the same way humans are. They are eaten, tested on, worn, farmed, taken away from their mothers and forced to perform for the benefit of humans. Animals have a desire to be free in the same way humans do, and they should be able to live free from discrimination and harm.

## **Immoral framing (Loss freedom frame)**

All animals can suffer in a similar way and to a similar degree that humans do. They feel pain, fear, frustration, loneliness and sadness, and this is heightened in places where they are confined, such as farms, zoos and laboratories. Whenever we consider doing something that would interfere with animals' needs or interests, we are morally obligated to take them into account. Not respecting animals' desire to be free is immoral for any civilised society.

## **Legal freedoms framing (Loss freedom frame)**

In many countries, human freedoms are protected in law. These freedoms are considered fundamental to human existence, such as freedom from torture and enslavement. The vast majority of animals have no legally recognised freedoms in the UK. A growing number of people believe that animals should have the freedom not to be bred and killed for profit, confined in zoos, hunted or

experimented on, but instead have the freedom to live their lives as they choose.

### **Inequality framing (Loss freedom frame)**

Most of us are against social inequality and believe that everyone's freedom, no matter our gender, race, or even our species, should be considered and respected. Animals, just like humans, want the freedom to live their lives as they choose. Yet the majority of animals are deprived of their freedom, whether that's in farms, zoos, or laboratories. If we don't consider and respect the freedom of animals, we will continue to live in an unequal society.

### **Holding society back framing (Loss freedom frame)**

Depriving certain groups of their freedom prevents society from becoming fairer and more equal for everyone. While most countries in the world have encouraged greater freedom by outlawing human slavery and child labour, the freedom of animals is still not considered or respected. Recognising and protecting animals' need for freedom is the next stage in our progress towards a fairer world. As a civilised society, all animals should have the freedom not to be enslaved or killed.

### **GPT (Gain rights frame)**

A growing number of people believe that animals should have the freedom to live their lives as they choose. Animals, just like humans, want the freedom to live their lives as they choose. If we don't consider and respect the freedom of animals, we will continue to live in an unequal society.

Depriving certain groups of their freedom prevents society from becoming fairer and more equal for everyone.

## Appendix Two

### Experiment Two message frames

The following set of messages were randomly assigned to the participants. Each participant only viewed one message. The message frames we tested were as follows: We included two control messages. Control 1 contained neutral information (a scientific description of what animals are), whereas control 2 matched the wording of the most influential message from experiment 1, but discussed a different social justice context (LGBT+ rights). We also included the three most influential messages from experiment 1 verbatim (Social progress, moral framing, and immoral framing). We also included four new modifications which constituted modifications of those three most influential messages. One of which was a composite of features from all three messages. Finally, we tested four new exploratory message frames: animal's subjective experiences and their capabilities, animal intelligence, oppression, and speciesism. The specific messages are described below.

#### **Control 1 (Neutral information, same context)**

Animals are multicellular organisms in the biological kingdom Animalia. With few exceptions, animals consume organic material, breathe oxygen, can move, and can reproduce sexually. Over 1.5 million living animal species have been identified—of which around 1 million are insects—but it has been estimated there are over 7 million animal species in total.

#### **Control 2 (Matched wording, different context)**

Society is evolving all the time. Most countries in the world have improved their human rights by outlawing human slavery and child labour. Recognising the rights of transgender people is the next stage in our progress towards a more progressive world. As a progressive civilised society, all people should have their rights recognised and protected.

## **Gain rights/Social progress/moral framing (Original top)**

Society is evolving and becoming fairer all the time. Most countries in the world have improved their human rights by outlawing human slavery and child labour. Recognising the rights of animals is the next stage in our progress towards a fairer world. As a civilised society, all animals should have the right to be treated with respect and dignity.

## **Rights gain/moral framing (Original top)**

Almost everyone cares about animals, whether it's a beloved family companion or the wild animals that share our neighbourhoods. Morally, there's no reason to differentiate the way we treat the animals we share our homes with and those who are farmed for food. They are all individuals, with the same capacity to feel love and joy, and so should be respected by society and protected in law. Animal rights helps us to look beyond species and to respect all animals equally.

## **Freedom loss/Immoral framing (Original top)**

All animals can suffer in a similar way and to a similar degree that humans do. They feel pain, fear, frustration, loneliness and sadness, and this is heightened in places where they are confined, such as farms, zoos and laboratories. Whenever we consider doing something that would interfere with animals' needs or interests, we are morally obligated to take them into account. Not respecting animals' desire to be free is immoral for any civilised society.

## **Social progress (New modification)**

Society is evolving all the time. Most countries in the world have improved their human rights by outlawing human slavery and child labour. Recognising the rights of animals is the next stage in our progress towards a more progressive world. As a progressive civilised society, all animals should have their rights recognised and protected.

## **Moral (New modification)**

When it comes to morality, the golden rule is to treat others the way we would like to be treated ourselves. However, we often forget this rule when it comes to our treatment of animals, particularly farmed animals. The way we treat other animals is immoral. We have a moral obligation to respect other animals, and to treat them more morally.

## **Fairness (New modification)**

Society is evolving and becoming fairer all of the time. As society evolves, new laws are enacted that make things fairer for everyone. Fairness is important, but the way we treat animals is often unfair, particularly those that are farmed or tested on in scientific experiments. As a society that values fairness, all animals should have their rights recognised and protected.

## **Composite (New modification)**

Society is evolving and becoming fairer all the time. Most countries in the world have improved their human rights by outlawing human slavery and child labour. Other animals are individuals who feel love, joy, pain, fear, and loneliness just like humans. As a progressive civilised society, we now have the moral obligation to respect other animals' desire to be free and to protect their rights.

## **Subjective experience and animal emotion (New exploratory)**

All animals are individuals who feel love, joy, pain, fear, and loneliness, just like humans do. For example, animals who are confined can become depressed, and cows will mourn the loss of their baby if the calf is taken away from them. Studies have shown that many animals even express laughter, including rats when playing. Because other animals have a rich internal experience just like humans, their rights should be recognised and protected.

## **Animal intelligence (New exploratory)**

Many people feel that humans are uniquely special in the animal kingdom. However, many other animals are highly intelligent, just like us. Crows can solve complex problems, dolphins work together to hunt, and bees can count. Studies have shown that pigs are just as intelligent as dogs. Many animals even have intellectual capabilities that humans do not possess. For example, bats and dolphins can use sonar, and many animals can sense sights and sounds that humans can't. Because of their intelligence, we should protect animals' rights.

## **Oppression (New exploratory)**

Many animals in our society are oppressed by humans - either through farming, which confines them and kills them at a young age, or through scientific testing, which they cannot consent to. Just like the oppression experienced by women, LGBT+ people and people of colour, the oppression of other animals is a moral crime that deeply harms society. Oppression of anyone leaves the door open for the oppression of everyone. Freeing other animals from this oppression would make our society safer and more caring for everyone.

## **Speciesism (New exploratory)**

Speciesism is the widespread belief that humans are morally superior to all other animals. Just like other '-isms', like sexism or racism, it is a prejudice based solely on an arbitrary characteristic, in this case species. Dogs and pigs are just as intelligent as one another, yet we love one while eating the other. This is an example of speciesism in action. Just as we have strived to eradicate sexism and racism, we should also strive to overcome speciesism in our society.

## **Other (original)**

Finally, we also tested the remaining messages from study 1 on a sub-set of participants. The aggregated responses for these are included in the plots as "Other (original)".