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DATA PAPER

Psychological Perturbation Data on Attitudes Towards the Consumption of Meat

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We present a dataset on participants' attitudes towards the consumption of meat (N = 30). Participants were presented with a baseline questionnaire entailing 11 statements. After a baseline measurement, we perturbed the participant's opinion on one of the 11 items, after which the participant completed the same questionnaire. By repeating this procedure for each of the 11 items, we measured to what extent the perturbation changed the participant's baseline score.

In addition, we asked participants to draw the influence of a specific item onto the other items in a network format. The data are suitable for various purposes, like causal inference and the malleability of attitudes.

Keywords: Attitude; perturbation; causality

Overview

Context

Collection Date(s)

The data were collected between June 8, 2017, and July 7, 2017.

Background

We present a dataset of 30 participants on their attitudes towards the consumption of meat. The complexity of the issues surrounding meat consumption in this era is extensive. The consumption of meat is linked to several health problems such as heart and vascular disease [8], has a negative influence on the wellbeing of animals [3], and is highly damaging for the environment [6]. Consumers should arguably consider the influence the consumption of meat has on their wellbeing, animal welfare and their environmental footprint.

The aim of the original study was to investigate to what extent causal influences between different components of attitudes toward the consumption of meat can be estimated. For this study we adapted a questionnaire developed by Dorresteijn (2017): "*Attitude Towards the Consumption of Meat Questionnaire*". Following the tripartite model of attitudes [1], the questionnaire captures three important aspects of attitudes: cognition, affect and behavior.

Methods

Sample

The sample consists of 30 participants recruited through the psychology lab at the University of Amsterdam from June 8, until July 7, 2017. Participants ranged in age from 19 to 57, with a median age of 20 (SD = 9 years). The majority of the participants were female (21). Of the 30 participants, 15 reported to perceive their dietary life style to be omnivores, 14 flexitarians (dietary life style in which individuals choose not to eat meat at least 3 days a week [7]) one participant reported to be vegetarian and no participants reported to perceive their dietary life style as vegan. Participation was either compensated with 10 euros per hour or research credit.

Materials

The dataset consists of data collected with an altered version of *"The Attitude Towards the Consumption of Meat Questionnaire"*, developed by Dorresteijn (2017). The original questionnaire contained 22 items regarding affect (6), behavior (10), cognition (6), and six demographic questions. We selected 11 items (6 cognition items and 5 affect items) that we felt were the easiest to perturb. Furthermore, we used 15 behavior items and selected three demographic items that were asked at the end of the experiment.

Note that we have more behavior items than the original questionnaire, since we created separate items to investigate how many days of the week a participant eats cheese, dairy products or eggs. These three items were combined into one item in the original questionnaire.

Baseline questionnaire

The baseline questionnaire consists of 11 items regarding the participants' attitude towards the consumption of meat, which was measured on a 6-point Likert-scale ranging from 1 (completely disagree) to 6 (completely agree),

four behavioral questions measured on a 7-point scale (days of the week), and three demographic questions, namely, age, gender, and perceived lifestyle (omnivore, flexitarian, vegetarian, vegan). The baseline questionnaire demonstrated internal consistency (α = 0.70), assessed with Cronbach's alpha, using the omega() function in the R-package *psych* (version 1.8.4). The omega hierarchical estimate, determined with the same function was 0.51. The questionnaire can be found in the supplementary file "questionnaire.pdf".

Hypothetical scenarios

Each of the 11 questionnaire items corresponds to a hypothetical scenario. These scenarios were written with the intention to perturb the participant's initial response, i.e., to alter their answer on the baseline questionnaire, either positively or negatively. The goal of the hypothetical scenario was to perturb the participant's attitude in the opposite direction of their initial attitude regarding the particular statement. Participants were asked to identify themselves with the hypothetical scenario and to contemplate how this would change other aspects of their attitude towards the consumption of meat. After the participant was presented with a hypothetical scenario, the participant completed the questionnaire again (including the item that was perturbed), keeping the hypothetical scenario in mind. This procedure was repeated for each of the 11 items.

For example, after a participant answered the item "*The production of meat is harmful for the environment*" in the baseline questionnaire with "*completely disagree*" (value = 1), they would receive a hypothetical scenario that would alter their initial statement positively (values 4–6). In this case the participant would receive the following hypothetical scenario: "*The meat and dairy industry has a huge CO-2 emission and is therefore harmful for the environment. How does this influence your attitude towards the consumption of meat?*" All the 22 hypothetical scenarios can be found in the supplementary file "scenarios.pdf".

Adjacency matrix

When participants completed the questionnaire after an individual item was perturbed, participants drew their own network to visualize the effect of the statement on remaining items of the questionnaire. Participants received instructions and a blue print of a network containing 11 nodes (corresponding to the 11 items) and no edges. They were asked to draw an arrowhead line from node A to B if they thought node A had a causal influence on node B. **Figure 1** (upper panel) shows an example of an empty network that was presented to the participants. The middle panel of **Figure 1** depicts a network of a participants who drew the effect of item 7 ("I like/do not like the taste of meat") on all remaining items of the questionnaire. In order to create one adjacency matrix for each participant, we summed all 11 adjacency matrices (one for each of the statements). The lower panel of **Figure 1** shows a network that depicts all causal influences that one participant drew.

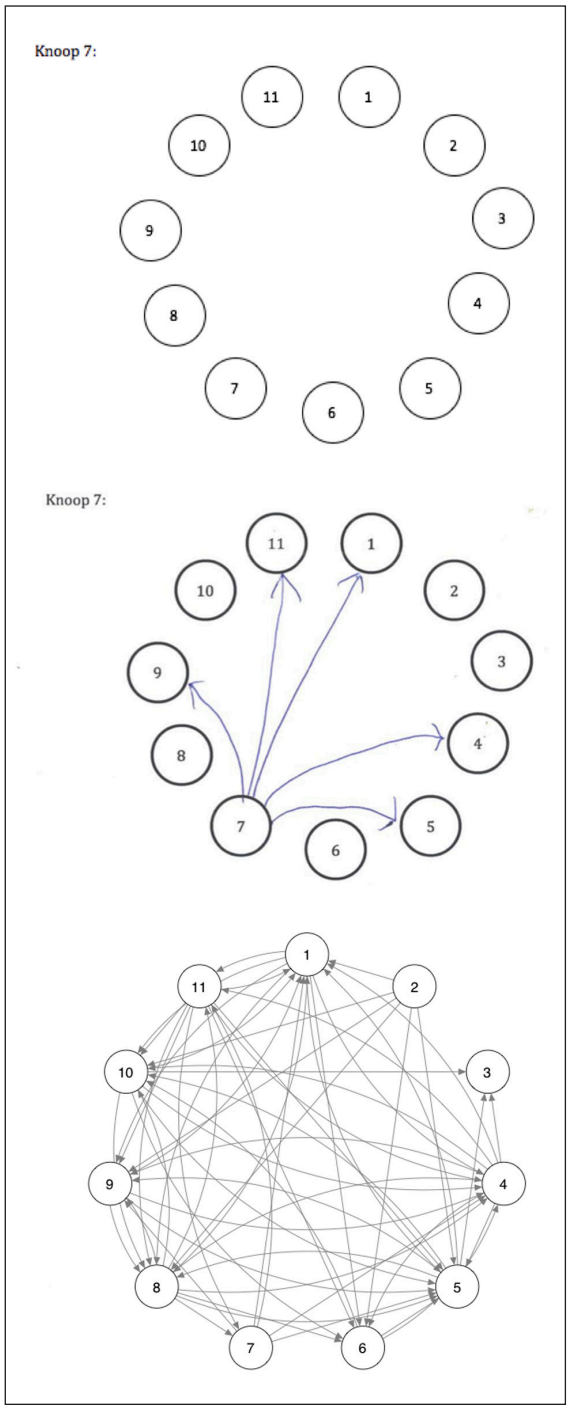

Figure 1: The upper panel depicts an empty network that was presented to the participants. The middle panel depicts a network of a participant who drew the effect for item 7 ("I do/don't like the taste of meat"). The lower panel depicts all causal influences a participant drew.

Procedures

Participants first received a baseline questionnaire regarding their attitude towards the consumption of meat. Based upon these scores, participants received 11 hypothetical scenarios, which correspond to the 11 items, and after each scenario the participant completed the questionnaire again. In addition to the questionnaire that had to be filled out after each hypothetical scenario, participants were asked which items were influenced by

the item that was perturbed and had to draw these causal influences in an empty network. The questionnaire items were randomized for each hypothetical scenario. We also randomized the order of the hypothetical scenario per participant.

Quality Control
The questionnaire was administered on paper. Hypothetical scenarios (positive/negative) were selected and administered based on the baseline measurement for each individual participant. The data were digitalized by Ria Hoekstra and checked by Jolanda Kossakowski.

Ethical issues
This study was approved by the ethical review board of the University of Amsterdam. All participants signed an informed consent form before participating in the study. The data were anonymized before publication.

Dataset description
Object name
The datafile is named "data.zip". This zip file contains the data "PerturbationData.xls", "PerturbationData.csv", "PerturbationData.txt", the individual adjacency matrices "adj1.txt – adj30.txt", a codebook "Codebook.pdf", a supplement holding the used hypothetical scenarios "scenarios.pdf", and a supplement containing the questionnaire "questionnaire.pdf".

Data type
All data files are primary data.

Format names and versions
The primary data are provided in three different formats: .xls, .csv, and .txt format. The individual adjacency matrices are provided in one format: .txt. The accompanying codebook, the scenario supplement and the questionnaire are provided in .pdf format.

Data Collectors
Ria Hoekstra, Jolanda Kossakowski and Han van der Maas designed the entire study and the experiment. Ria Hoekstra was responsible for the actual data collection.

Language
English.

License

Embargo
Not applicable

Repository location
http://osf.io/8tm5f

Publication date
The data have been published online since February 21, 2018.

Reuse potential
This dataset contains data from 30 participants who completed the same questionnaire 12 times. We perturbed the participant's opinion on each of the 11 items and measured to what extent this changed the participant's scores on the questionnaire. The dataset also contains adjacency matrices for each individual, holding information about their perceived causal relations between questionnaire items. It is a unique dataset that can be used for several purposes. First, the questionnaire data can aid research that aims to infer causal relations between variables. Since the data contain both observational and experimental data, algorithms like the downward ranking of feed-forward loops (DR-FFL; [4]), the invariant causal prediction (ICP; [5]), or newly created algorithms can be used to investigate to what extent questionnaire items causally influence each other. Second, this data can be used to study the malleability of a person's attitude towards meat consumption, a "hot topic" [2]. Third, these data are suitable for studies that look into attitude difference between participants that maintain different dietary lifestyles, like vegetarians and omnivores. Lastly, the adjacency matrices can aid research that aims to combine information from different participants on perceived causal relations between items into one set of perceived causal relations.

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Competing Interests
The authors have no competing interests to declare.

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