

## Replication: Buttlar & Walther (2018) (#86723)

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### 1) Have any data been collected for this study already?

No, no data have been collected for this study yet.

### 2) What's the main question being asked or hypothesis being tested in this study?

This is a (conceptual) replication of the work by Buttlar & Walther (2018) in which we additionally use an online version of the mouse-tracking paradigm (cf. Mathur & Reichling, 2019).

1) We hypothesize that omnivores exhibit more meat-related ambivalence measured in the mouse-tracking paradigm than veg\*ans.

2) We predict that heightened meat-related ambivalence is associated with the lowered attribution of animal minds in omnivores, but not in veg\*ans (especially secondary emotions).

### 3) Describe the key dependent variable(s) specifying how they will be measured.

We will measure pull by using an online version of the mouse-tracking paradigm (cf. Mathur & Reichling, 2019). Participants will evaluate pictures of 20 meat- and 20 plant-based dishes as "positive" or "negative" by using their computer mouse. That is, after pressing the next button in the lower middle of the screen, participants will be presented with one word that they are supposed to evaluate by pressing one of two response buttons (i.e., "positive" and "negative") in the upper right and left corner of the screen. Here, we will quantify pull via the maximum deviation (MD) of the mouse trajectory from an ideal trajectory from the start position to the response button.

We will also collect data on participants response time (RT: the time when a trial started to the time they click on the response button) and the choices they make (i.e., how often they click on positive or negative in respective trials).

For our analyses, we will compute a mean for all 20 stimuli of the respective categories for MD, RT and choices.

To assess primary and secondary emotions, we will use the Human Uniqueness of Emotion Scale. That is, we will measure 8 items pertaining to the following emotions: fear, panic, excitement, happiness (primary) and melancholy, guilt, regret, nostalgia (secondary) (Bilewicz et al., 2011).

### 4) How many and which conditions will participants be assigned to?

Diet [omnivore, non-omnivore]) between subject, quasi experimental

Dish [plant-based, meat] within subject

### 5) Specify exactly which analyses you will conduct to examine the main question/hypothesis.

To test our first hypothesis three 2 (Diet [omnivore, non-omnivore]) × 2 (Dish [plant-based, meat]) repeated measure ANOVAs will be conducted using maximum deviation, choice, and reaction times as the dependent variables. We will scrutinize the interactions by using bonferroni adjusted pairwise comparisons.

To test our second hypothesis we will use hierarchical regression analyses. Attributions of secondary emotions, rationalizations of meat consumption, will be used as dependent variables in separate regression analyses; diet (coded: omnivores = -0.5; veg\*ans = 0.5) and ambivalence (maximum deviation; mean-centred) will serve as predictor variables. Both predictor variables will be entered separately into the regression equation in steps one and two, and the interaction will be entered in step three (see Table 2). If the interaction is significant, we determine the region of significance by using the Johnson-Neyman procedure.

### 6) Describe exactly how outliers will be defined and handled, and your precise rule(s) for excluding observations.

Participants will be pre-screened whether they use a desktop device to complete the study. Only participants who fulfil this criterion will be able to participate in the study.

We will exclude data from trials in which participants' reacted too early (i.e., moved their cursor from the start position before the page was fully loaded). After excluding these trials, we will use the median absolute deviation criterion (i.e., median +/- 3\*MAD; Leys et al., 2013) to exclude outlier trials regarding decision time.

Lastly, we will exclude data from participants who fail to complete both attention checks during the study. These items are integrated within the MAQ and

are worded: "This is a check of your attention: Please select "strongly agree [disagree]".

**7) How many observations will be collected or what will determine sample size? No need to justify decision, but be precise about exactly how the number will be determined.**

Based on feasibility, we aim to collect a sample of 100 omnivores and 100 veg\*ans (including vegetarians and vegans). If we exceeded 36 participants per group but do not achieve the desired sample on the 1st of March, we will terminate data collection. We will compute the achieved power for the effect sizes of the original study (Buttler & Walther, 2018) after the final sample was determined.

**8) Anything else you would like to pre-register? (e.g., secondary analyses, variables collected for exploratory purposes, unusual analyses planned?)**

To assess rationalizations of meat consumption, we will use the Meat-Eating Motivation Inventory (MEMI; Hopwood et al., 2021). We will explore a similar hypothesis as in H2 using the full scale of the MEMI as the dependent variable.

In addition, we will assess other measures of meat-related ambivalence to determine the convergent validity of the mouse-tracking measure via correlations. Therefore, we will ask for participants potential and felt ambivalence and assess the meat ambivalence questionnaire (MAQ). Potential ambivalence will be assessed by two questions asking for participants positive [negative] evaluations of meat, independent of the negative [positive] evaluations. To compute a potential ambivalence score, we will use the following formula  $((P + N)/2) - |P - N|$  (Thompson et al., 1995). We will use three items to measure felt ambivalence referring to the affective, behavioral, and cognitive components of ambivalence (Pauer et al., 2020; Priester & Petty, 1996). From these items, we will compute a mean. Lastly, we will administer the MAQ, which consists of 25 items that refer to five distinct triggers of meat-related ambivalence (i.e., animal-based, socially-based, sustainability-based, health-based, and sensory-based ambivalence).

Moreover, we will vary the whether the food products are shown are processed or unprocessed. We will explore whether there are moderating effects of this factor on our results.

We assess demographic variables, concerning age, gender, the field of studies, education and job status.