Meat Consumption and Resistance to Change: Does Psychological Threat Play a Role?

MSc Thesis Strategic Innovation Management

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25 - 06 – 2018

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Word count: 10,859

ABSTRACT

People like to view themselves as competent and moral. This makes them very sensitive to information that implies they behave immorally, such as peers who act more ethical than people do themselves. This article looks at the willingness of consumers to reduce their meat consumption after comparing their own consumption behavior to that of others; will meat eaters abandon their intentions to reduce their meat consumption after they realize they eat meat more often than average? This was tested via a multiple regression analysis with a sample of 181 US citizens. The defensive response called *do-gooder derogation* was used as a template to test whether the response was caused by psychological threat. However, none of the hypotheses were supported. The results showed that only one's own frequency of cooking vegetarian positively affected the intention to reduce meat consumption. Furthermore, psychological threat may negatively and directly affect people's intentions to reduce meat consumption. Contrary to hypothesis 1, how often others cook vegetarian may positively affect people's intentions to reduce meat consumption.

Key words: psychological threat; meat consumption; innovation diffusion; do-gooder derogation

Acknowledgements

I would like to thank dr. Thijs Broekhuizen for supervising me during the writing of this thesis. He always managed to help me forward when I was lost. Furthermore, I would like to thank dr. Jan Willem Bolderdijk for his generous offer of his time, skills, and financial support. His comments have made this thesis a much more pleasant read. Lastly, I would like to thank Karin Rozendal and Justin Timmer for their helpful feedback on an earlier version of this thesis.

INTRODUCTION

Meat consumption per capita is slowing to a halt in Western countries, and in some countries decreasing (Ritchie & Roser, 2018). When some consumers choose to reduce their meat consumption, how do others react to this? This article looks at the willingness of consumers to reduce their meat consumption after comparing their own consumption behavior to that of others.

In most cases, when some consumers adopt a new product it becomes more attractive to those who have not (yet) adopted it. This results in an exponentially growing rate of diffusion the product – a snowball effect (Rogers, 2010). In these cases, the fact that others have adopted the product serves as social proof and as an opportunity to learn from the early adopters. In this article, the 'product' is actually a *consumption pattern*: a diet that is flexitarian[1] (low in meat) or even vegetarian (no meat at all). If flexitarianism follows a standard pattern of diffusion, an s-curve, one would expect that people are inclined to reduce their meat consumption when they believe others are already doing this.

However, meat consumption is different from many other products. The reduction of eating meat has *strong moral connotations*; some people believe it is immoral to eat a lot of meat because of animal welfare concerns and the effects of animal agriculture on the environment (De Backer & Hudders, 2015). As a result, the decision of one consumer to reduce meat consumption on moral principles implies that the decision of other consumers to eat meat often might be immoral (Monin, Sawyer, & Marquez, 2008). This makes reducing meat consumption a sensitive issue; choosing to eat less meat might be interpreted by people who do not reduce their meat consumption as moral criticism. For example, earlier research shows that meat eaters feel judged by vegetarians (Minson & Monin, 2012). In fact, people may become so defensive that they engage in *do-gooder derogation*: the deprecation of others who behave more morally than oneself (Monin et al., 2008; Parks & Stone, 2010).

The positive self-concept of meat eaters can be threatened when they believe that they might be (perceived as) morally shortcoming (Sherman & Cohen, 2006; Steele, 1988). To deal with this threat, meat eaters can either change their behavior by reducing their meat consumption, or they can react defensively by neutralizing the source of the threat (Harmon-Jones & Mills,

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[1] A flexitarian diet is any diet that contains meat, but excludes meat at least once a week. Therefore, any diet that excludes meat 14% to 99% of the cases can be regarded as flexitarian. In this article, "more flexitarian" or "more vegetarian" mean the same thing: a move towards excluding meat more often.

1999). Because changing one's own behavior is effortful, the defensive response is more attractive. One way to respond defensively is to not go along with the reduction of others, or to even *increase* one's meat consumption. After all, reducing one's meat consumption implies admitting their current behavior was morally shortcoming and that is hard to admit. As a result, even when people were intending to reduce their meat consumption, once they believe that their current behavior is criticized on moral grounds they might show a rebellious response.

Therefore, I hypothesize that people abandon their intentions to reduce meat consumption in response to perceptions about how often others eat vegetarian. This would contradict current theories such as innovation diffusion theory (Rogers, 2010) and social influence (Cialdini & Trost, 1998). Knowing whether such a defensive response exists helps to understand and predict the diffusion of flexitarianism and vegetarianism. Companies and other actors who want to speed up this diffusion would need to take this into account in their marketing, communication, and innovation efforts.

This article contributes to innovation diffusion theory by taking a *consumption pattern* as the unit of analysis, whereas innovation diffusion studies often focus on the diffusion of a single product or practice. Secondly, I suggest that the diffusion pattern of moral innovations might be significantly distinct from nonmoral innovations.

LITERATURE

In this section, I discuss how moral comparisons can create a threat to one's positive self-concept. Afterwards I discuss when to expect a *defensive* response, and I argue that we might expect meat eaters to abandon their intentions to reduce meat consumption.

Psychological threat

People's sense of self-worth is frequently threatened. People may fail a task at work, compare unfavorably to a friend or family member, or have insufficient knowledge to warrant an opinion on a topic of conversation. All these events can be interpreted as information showing that one is not good enough. The need for a positive self-concept can be split into two parts. Steele (1988) distinguishes between a need for *moral* adequacy (whether one adheres to important values and norms) and a need for *adaptive* adequacy (whether one competently and successfully deals with their surroundings). It is often perceived worse to be *morally* inadequate than to be *adaptively* inadequate (Täuber, van Zomeren, & Kutlaca, 2015). Since moral adequacy is so

important to people, there is a strong sensitivity to information that might indicate that one is behaving immorally, especially if it indicates that one behaves less morally than others. In the case of meat consumption, it can be painful when one is confronted with a growing number of vegetarians. The increasing number of vegetarians might indicate that one is behaving morally inadequate when eating meat, threatening the positive self-concept.

Researchers have posited that people have a range of strategies available to deal with threats to protect their self-worth (Sherman & Cohen, 2006). Cognitive dissonance theory sheds a light on how a positive self-concept is maintained (Festinger, 1962). Individuals want their positive self-concept to be *consistent*; dissonant cognitions – beliefs that do not fit within one's overall belief structure – are eliminated or altered to no longer create dissonance (Harmon-Jones & Mills, 1999). When one believes "I am a good person and I often eat meat", dissonance is created by the information "others think that often eating meat is morally bad."

Many responses to cognitive dissonance are defensive, altering the meaning of the threat through cognitive distortions rather than changing one's behavior to accommodate the new information. For instance, when one's actions are criticized, a defensive response would be to deny that one's actions have negative consequences. A more accommodating response is to improve one's behavior. However, changing behavior is more difficult than the defensive response and thus it is less frequently used.

Resistant behavior as a defensive response to psychological threat

People deal with psychological threats in different ways. According to cognitive dissonance theory, most people choose the pathway with the least resistance (Festinger, 1962; Harmon-Jones & Mills, 1999). If people feel threatened because they believe they eat meat too often, they can reduce their meat consumption. But when behavioral change is difficult, other responses are easier and produce the same result: a removal of the threat. One can for example ignore the source of the threat, distort the information so it no longer forms a threat, or deny the validity of the information. This article, however, leaves the cognitive responses aside and looks at behavioral intentions: do people's intentions change when they think about how often others eat vegetarian?

When people observe the moral behavior of others, some researchers suggest people feel good and become inspired by it (Haidt, 2003). However, as described above, when people's self-concept is threatened they act differently. In that case, the do-gooder is disliked (Minson &

Monin, 2012; Monin et al., 2008) and the moral behavior itself will become less appreciated. As described by Zane, Irwin, and Reczek (2016), people sometimes infer their own attitudes from their own behavior. In this case, if people feel negatively towards meat reducers, then they can infer that they do not care much about reducing meat consumption, even if this inference is incorrect. Additionally, once an issue is moralized it is much more difficult to 'switch sides', because it is essentially admitting moral failure.

For these reasons, it is possible that meat eaters will abandon their meat reduction intentions as a defensive response to the morally progressive behavior of others (i.e. others eating vegetarian more often). Although the social influence literature predicts that the lower meat consumption of peers will strengthen one's intention to reduce meat consumption, I predict the opposite in hypothesis 1. I suggest that when meat consumers who were planning to reduce their meat consumption are confronted with a higher frequency of vegetarianism of others, they abandon these good intentions. Moreover, it might even replace their intentions with intentions to increase meat consumption.

Hypothesis 1: A higher believed frequency of vegetarianism of others decreases one's intent to reduce meat consumption.

Necessary context variables for the main effect

Recent research has discovered the phenomenon of *do-gooder derogation* (Monin et al., 2008). It is a fitting example of a defensive response to morally implicating information. The phenomenon of do-gooder derogation refers to the deprecation of others who behave more morally than oneself (Monin et al., 2008; Parks & Stone, 2010). Researchers believe that this occurs either because an observer's positive self-concept is threatened when seeing the more moral behavior of others, or because they imagine being judged by the do-gooder (Minson & Monin, 2012; O'Connor & Monin, 2016). For example, in one study meat eaters imagined that vegetarians judged themselves as morally superior to meat eaters, and meat eaters believed that vegetarians would judge meat eaters negatively (Minson & Monin, 2012).

Research on do-gooder derogation has identified three context variables which together lead to a specific defensive response: the derogation of others. These variables are broad enough that they could be predictive of other defensive responses as well, such as the one hypothesized in this article. This article uses the context variables that give rise to do-gooder derogation as a template for other defensive responses to morally implicating information. If the results show

that the presence of these context variables exacerbates the effect of hypothesis 1, there will be support that the underlying process is a defensive response and that it is similar to how do-gooder derogation works (via psychological threat).

For do-gooder derogation to occur, there are three context variables that play a prominent role. First, the information must be interpreted as being *moral* in nature. For example, when vegetarians gave 'principled reasons' (e.g. animal welfare and climate change concerns) for their deviation, the vegetarians were rated less favorably than if they presented non-principled reasons such as the dislike for the taste of meat (Cramwinckel, van Dijk, Scheepers, & van den Bos, 2013). Non-principled deviants do not pose a threat to observers' self-image because no social comparison in moral adequacy is made salient. Furthermore, it is not necessary for observers to agree with the moral argument, only that they recognize that the argument has a moral nature. Therefore, this article hypothesizes that people's intentions to reduce meat consumption are more sensitive to others' behavior when people believed others acted on morally motivated grounds instead of more practical reasons.

Hypothesis 2: Belief that others deviate on principled grounds (instead of non-principled grounds) exacerbates the negative relationship between believed frequency of vegetarianism of others and one's intent to reduce meat consumption.

Figure 1.   Visualization of hypothesis 2
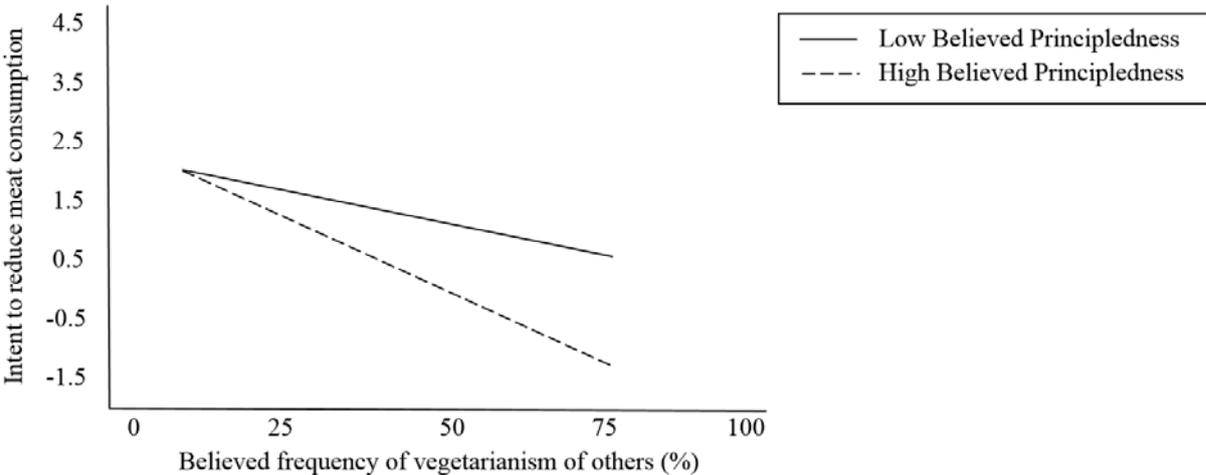
Note: a zero score on Intent corresponds to 'intending to eat the same amount of meat' and no likelihood to reduce meat consumption.

The second context variable necessary for do-gooder derogation is that observers must be implicated as doing worse than others in the moral domain. For example, people appreciate the hero in the newspaper who rescued a child. However, if they had been in the same situation and

did nothing, they would have felt bad when hearing about the efforts of the hero. This social comparison is only made when both parties have been in the same position. *If observers could have done the right thing but did not do it*, they dislike the do-gooder. On the other hand, uninvolved observers appreciate moral behavior of others (Bolderdijk, Brouwer, & Cornelissen, 2018). In earlier studies information is made morally implicating by making observers self-involved, i.e. giving them the choice before exposing them to the moral behavior of others (Monin et al., 2008). In the case of meat consumption involvement is already present for most people: they have had the chance to cook vegetarian (even if it was hard to do so, or valid reasons existed to not cook vegetarian).

Therefore, people could have done the ostensibly right thing. But did they do it? This cannot be answered with a yes or a no, because cooking vegetarian is not an either/or choice. People might differ in how often they cook vegetarian. If people rarely cook vegetarian, other flexitarians are much more confronting than if people already cook vegetarian relatively often. Concluding, this article hypothesizes that the more often people cook vegetarian, the less they feel morally implicated by the behavior of others. Conversely, when people rarely cook vegetarian they will feel more strongly morally implicated by the behavior of others and as a consequence respond more defensively by limiting their intentions to reduce meat consumption.

Hypothesis 3: A higher frequency of vegetarianism of self attenuates the negative relationship between believed frequency of vegetarianism of others and one's intent to reduce meat consumption.

Figure 2. Visualization of hypothesis 3
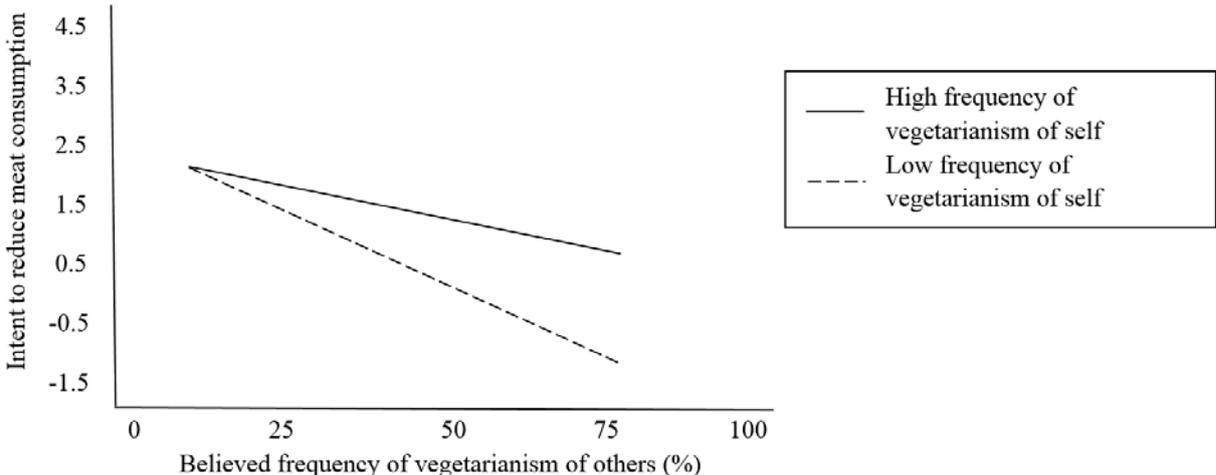
**Positive self-affirmation enables an assertive response**

If people indeed abandon their intentions to reduce meat consumption because their positive self-concept is threatened, then this defensive response is not necessary when people feel good and secure about themselves. Self-affirmed individuals feel more secure and are not easily threatened by morally implicating information (Monin et al., 2008; Sherman & Cohen, 2006). Therefore, psychological threat can be varied by an experimental manipulation. If people who are positively self-affirmed do not abandon their intentions to reduce meat consumption, the defensive response was most likely driven by psychological threat.

Whereas defensive reactions restore one's self-worth by dealing directly with the threat and often distorting it, self-affirmation deals with it indirectly by enhancing one's self-worth in other domains (Steele, 1988). This allows individuals to remain open to the source of the threat and evaluate the information on the basis of the arguments that are provided or inferred (Sherman & Cohen, 2006). Self-affirmation has been shown to help with many different processes, ranging from an increased sensitivity to good arguments (Correll, Spencer, & Zanna, 2004) to changing behavior to reduce sexual health risks (Sherman, Nelson, & Steele, 2000). In the moral domain self-affirmation reduces do-gooder derogation; self-affirmed individuals reward moral behavior rather than punish it, even if they did the 'wrong' thing themselves (Cramwinckel, 2016; Monin et al., 2008).

If observers are asked to focus on a positive aspect of themselves they will not evaluate principled do-gooders negatively because their self-image is robust enough to simply accept the moral shortcoming (Monin et al., 2008). This paper hypothesizes that self-affirmed individuals do not, or to a limited amount, show the defensive reactions spoken of above.

Hypothesis 4: Self-affirmation attenuates the negative relationship between believed frequency of vegetarianism of others and one's intent to reduce meat consumption.

Figure 3.   Visualization of hypothesis 4.
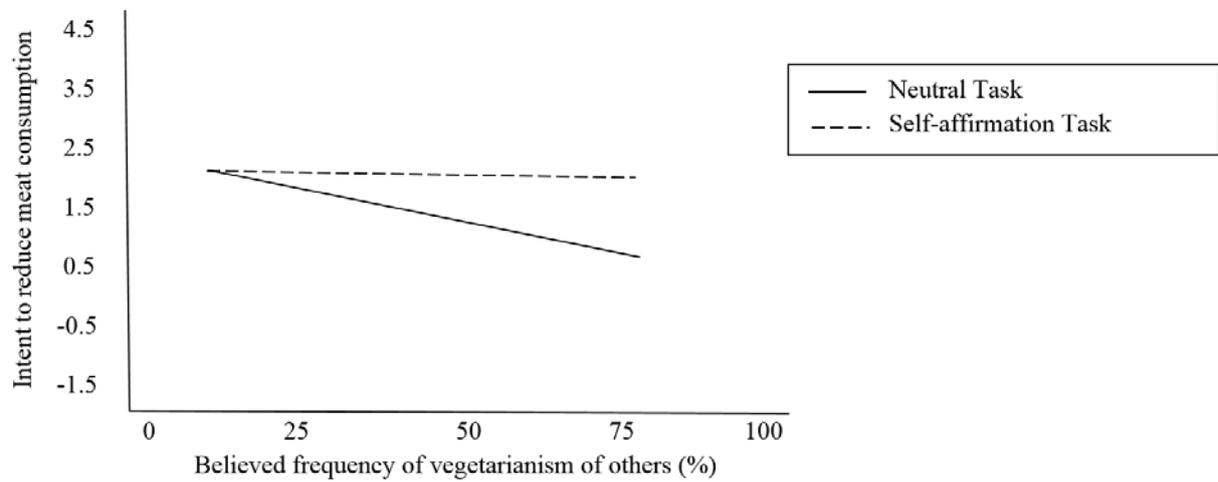
The hypotheses above culminate into the following conceptual model (Figure 4). There is a main negative effect (Hypothesis 1) moderated by the three context variables that stem from the literature about do-gooder derogation (Hypothesis 2, 3, and 4).

Figure 4.   Conceptual Model
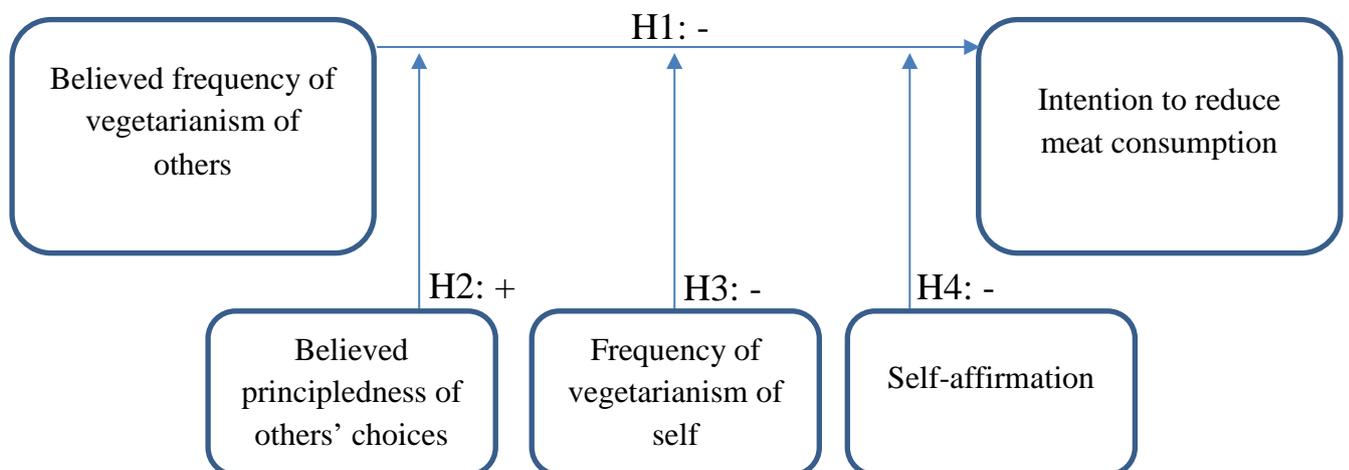
METHODOLOGY AND RESULTS STUDY 1

Two studies were conducted for this paper. The first study was a pilot study with a relatively small sample. The pilot study shows initial support for the first hypothesis. Because of the limited sample size and scope of the pilot study, I report it only briefly. The second study is the main study of this article and receives most attention.

Subjects. The study subjects were 69 students from a business and economics faculty of a large European university. They all took the same class, so were relatively familiar with each other.

Design. Subjects were asked to report on seven different meat-related questions about their own diet and to estimate the average answer their peers (other students following the same class) would give on these same questions. Two of these questions were: "when cooking for yourself, how often do you cook vegetarian?" (in percentages). This resulted in a reported frequency for respondents themselves (labelled 'VegetarianSelf') and an estimated frequency of others (labelled 'VegetarianOthers'). The second question was "In the coming year I intend to… (1) eat meat much more often, (7) eat meat much less often" (rated on a scale from 1 to 7; labelled IntentAmount).

Results. A multiple regression analysis was performed with VegetarianSelf and VegetarianOthers as independent variables to explain the dependent variable IntentAmount. The variables explained close to 9% of the variance in IntentAmount (adjusted R^2 = .089; $F_{(2,65)}$=4.279, p <.05). The effect of VegetarianOthers is negative and highly significant (β= -.382, p <.01), while the effect of VegetarianSelf is not (β= .185, p =.164). This shows initial support for Hypothesis 1: people limit their intentions to reduce their meat consumption the more they believe others cook vegetarian very frequently.

Discussion. The findings show initial support for Hypothesis 1. In contrast to earlier literature that suggests people are positively influenced by others' behavior (Rogers, 2010) and conform to what others do (Cialdini & Trost, 1998), people's intentions to reduce meat consumption weaken when they compare themselves to their peers. The pilot study was not set up to investigate by which mechanism this effect occurred. Furthermore, the sample size was small (n=69) and the effect found could have been a spurious correlation.

METHODOLOGY STUDY 2

Study design

The purpose of study 2 was to replicate the relevant part from study 1 and test whether *psychological threat* is the driving mechanism behind the found effect. Therefore, a larger sample size (n=200) was aimed for and a manipulation was introduced. The exact same questions were asked about the frequency of cooking vegetarian dinners oneself and estimating the frequency of cooking vegetarian of others, and the exact same question regarding intentions to reduce meat consumption was asked. The same questions were asked to make the studies more comparable. However, the reference group was slightly different: in the pilot study respondents were asked about the behavior about their class mates. In this study respondents were asked about other respondents answering this survey, given only the information that all respondents were US citizens. This choice was made because it was unfeasible to find a larger sample in which respondents knew each other and interacted regularly like the sample of study 1 did.

In order to test the first context variable for threat to self-concept, participants were asked to rate how morally loaded, or *principled,* others' choice was to cook vegetarian (see Hypothesis 2). Regarding the second context variable (whether the information was morally implicating), it was assumed that all participants were implicitly involved in the choice; i.e. they believed they could have chosen to act differently (such as cooking vegetarian more often). Still, variation might exist in the level of threat experienced. Hence, a proxy was used for how morally implicating others' behavior was experienced to be: people's own frequency of cooking vegetarian (see Hypothesis 3). For the full survey, see Appendix 2.

Manipulation

The subjects were divided into two conditions (control and treatment: self-affirmation) to test whether threat to self-concept indeed played a role. As stated in Hypothesis 4, when self-affirmed, the negative influence of how often others cook vegetarian should weaken or disappear, because people do not feel threatened by it. The division into conditions was done after the items about the frequencies of cooking vegetarian, and before asking about respondents' intentions, in order to not introduce any confounds.

In the treatment condition, participants were given a self-affirmation task like the one in Monin, Sawyer, and Marquez (2008, p. 85). Participants were also given a minimum amount of

characters (200) in addition to a maximum amount of time (5 minutes). Participants were presented the following instructions:

> "Please write at least 200 characters about a recent experience in which you demonstrated a quality or value that is very important to you and which made you feel good about yourself. Please do not spend more than 5 minutes on this task.

> Examples of "personally important values or qualities" might include (but are not limited to) artistic skills, sense of humor, social skills, spontaneity, athletic ability, musical talent, physical attractiveness, creativity, business skills, or romantic values."

In the control condition, participants were asked to describe their previous day. Here this study diverged from the neutral task in Monin, Sawyer and Marques (2008), because that task involved food intake which would not be neutral in the context of this study. Again, participants were given a minimum amount of characters (200) in addition to a maximum amount of time (5 minutes). Participants were presented the following instructions:

> "Please write at least 200 characters (~ 3 sentences) about what your day looked like yesterday. For example, when you got up, where you went, who you met, etc. Please leave out identifiable information such as (company) names and addresses. Please do not spend more than 5 minutes on this task."

Sample

The sample was approached via Amazon Mechanical Turk. Samples via this platform are reliable and more demographically diverse than college samples (Buhrmester, Kwang, & Gosling, 2011). Respondents were paid $0.95 for the complete questionnaire, which took approximately four minutes to complete (*Mean* = 224 seconds). From the initial sample of 208, 12 respondents were eliminated because they always cooked vegetarian or vegan and hence could not form intentions to reduce meat consumption further. Another 15 respondents were eliminated from the analysis because the self-affirmation or neutral task was not executed properly or had undesirable properties (e.g. reflection on a highly unpleasant experience, or a strongly meat-related interaction). This resulted in a final sample of 181 respondents who were split up in a control condition (neutral task; n = 97) and a treatment condition (self-affirmation task; n = 84). In the treatment condition a further 12 participants rated their chosen personal quality or value of low personal importance, indicating that they might not have been properly self-affirmed as intended. However, the results did not change when these respondents were

eliminated from the analysis. Similarly, 11 respondents answered that they cooked vegetarian more than 80% of the times. Including or removing them yielded highly similar results. For simplicity reasons, this study reports the values of the bigger sample (n = 181). In the final sample, 53% of respondents were male, 47% female, 69.1% had a college degree or higher, and 99.4% had at least a high school degree.

Procedure

Participants were first asked to give a percentage estimate of the frequency with which they cook vegetarian dinner for themselves. In a later stage, they were asked to estimate the average answer of the total sample of participants on this same question, as well as whether others' choices to cook vegetarian are principled in nature. Consequently, participants were divided into two conditions (neutral vs. self-affirmation). After the task, participants were asked their intentions to reduce meat consumption and consequently go through a manipulation check ("When performing the task earlier, I felt good about myself.").

Measures

The following measure were included in the survey and are listed in the same order as they were presented to the subjects.

Frequency of vegetarianism of self (Moderator Variable)

Subjects were presented with a slider to place at the right percentage. The question they were asked was "Please answer the following question for yourself. "When I cook dinner for myself, I cook vegetarian ...% of the cases." "

Believed frequency of others' vegetarianism (Independent Variable)

Subjects were presented with a slider to place at the right percentage. The question they were asked was "Please estimate **the average answer of others taking this survey**. For your information, this survey is distributed only to MTurkers who are US citizens. "When I cook dinner for myself, I cook vegetarian ...% of the cases." "

Believed principled deviation of others (Moderator Variable)

Subjects were asked to what extent they agreed with "Most people cook vegetarian for principled reasons" on a scale from 1 (completely disagree) to 7 (completely agree). A

principled reason is defined as "a motivation based on fundamental values, such as justice or compassion. In contrast, a non-principled reason is more pragmatic."

Intent to reduce meat consumption (Dependent Variable)

Intent to reduce meat consumption, the dependent variable, was measured by two items. The first was *amount* "In the coming year I intend to [1: eat meat much more often – 7: eat meat much less often]" (based on Zey & McIntosh (1992)). The second item measured *likelihood*: "Within the next 12 months, how likely is it that you will reduce the amount of meat you eat" (1: not at all – 7: absolutely sure; adopted from Sparks, Shepherd, Wieringa, & Zimmermanns, 1995). A reliability analysis was conducted to test whether the items measuring intent to reduce meat consumption could be combined into a single scale. The variables had a Cronbach's alpha of .751, meeting the pre-set threshold of .700. The items were combined into IntentAverage by averaging IntentAmount and IntentLikelihood. To improve the interpretability of the variable, 2.5 was subtracted from the average. This score reflects the answers that people will 'keep eating the same amount of meat' (scored 4 on IntentAmount) and do not at all intend to change their meat consumption (scored 1 on IntentLikelihood).

Manipulation checks

In order to test whether respondents in the treatment condition executed the task as instructed, they were asked directly after the task how important their described personal value or quality was to them on a scale from 1 (not at all important) to 5 (extremely important), adopted from Monin et al. (2008).

Furthermore, to test whether the manipulation had the intended effect, each respondent was also asked at the end of the questionnaire to what extent they agree with the statement "When performing the task earlier, I felt good about myself" on a scale of 1 (completely disagree) to 7 (completely agree).

Demographics

Three variables were measured to better understand the demographics of the sample and to check whether the random assignment to conditions yielded two similar groups. The variables are age (in years), gender (M/F/Prefer not to say), and education. Education had 8 categories: {1, Less than high school degree}, {2, High school graduate}, {3, Some college but no degree}, {4, Associate degree in college (two years)}, {5, Bachelor's degree in college (four years}, {6,

Master's degree}, {7, Doctor's degree}, {8, Professional degree (Doctor of Law, Doctor of Medicine)}.

RESULTS STUDY 2

Descriptives

In Table 1 the descriptives and correlations can be found of the tested variables. Noteworthy is the, on average, accurate estimate about how often others eat vegetarian (*Mean difference =* .33). However, 12 respondents were excluded from this sample because they always cooked vegetarian or vegan. If these vegetarians are included, the difference between the two means rises to nearly 4% ($Mean_{VegetarianSelf} = 27.93\%$. $Mean_{VegetarianOthers} = 23.95\%$, $t(191) = 1.806$). However, this difference was only marginally significant ($p = .072$), suggesting that as a collective people can estimate meat consumption rather accurately.

Table 1 displays the correlations between the variables for both conditions. VegetarianSelf correlates with VegetarianOthers in both conditions ($r = .411$, p $<.01$; $r = .320$, $p <.01$). Furthermore, VegetarianOthers correlates with IntentAverage in the control condition ($r = .287$, p $<.01$), but not in the self-affirmed condition ($r = .156$, $p = .155$). This indicates that the self-affirmation task might have affected the influence of VegetarianOthers on people's intentions, as hypothesized by hypothesis 4. However, this was further analyzed in a multiple regression analysis where the effect disappeared. Furthermore, all three demographic variables were positively correlated with VegetarianSelf, indicating that those who cook vegetarian more often are more likely to be older, female, and higher educated.

Table 1: Descriptives and correlation matrix

	Mean	SD	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) Frequency of vegetarianism of self (%)	23.55	26.05		.411**	.020	.216*	.218*	.264**	.406**	.128
(2) Believed frequency of vegetarianism of others (%)	23.82	16.77	.320**		.078	-.084	-.038	-.009	.287**	-.069
(3) Believed principledless of others' vegetarianism	4.90	1.36	.079	-.046		.067	.038	-.094	.106	.165
(4) Age	36.91	11.65	.176	.093	.228*		.168	.171	.097	.128
(5) Gender (0 male, 1 female)	-	-	.127	.181	.178	.144		.159	.200*	.105
(6) Education	4.35	1.25	.245*	-.051	-.024	.098	.030		-.050	.162
(7) Averaged intention to reduce meat consumption	1.60	1.45	.398*	.156	.049	.219*	-.047	.173		.041
(8) Feeling during task	5.48†	1.20	.103	.099	.249*	.260*	.026	-.100	.182	

Correlations for the self-affirmed condition are noted below the diagonal.

Correlations for the neutral condition are noted above the diagonal.

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

† Significant difference in means between conditions.

Manipulation check

An independent samples t-test was conducted to test for differences in means across the self-affirmed and control conditions. The only significant difference found was in the manipulation check whether people felt good during the task: as expected, the self-affirmed group felt better than the control group ($Mean_{self}$ = 5.83, $Mean_{control}$ = 5.16, $t(179)$= -3.88, p <.001). This implies that the self-affirmation procedure was successful. There was no significant difference across conditions in the intentions (neither likelihood, amount, nor average). This implies that self-affirmation had no direct effect on intentions to reduce meat consumption. There were also no other significant differences between the conditions, indicating that the random assignment to conditions yielded two comparable groups.
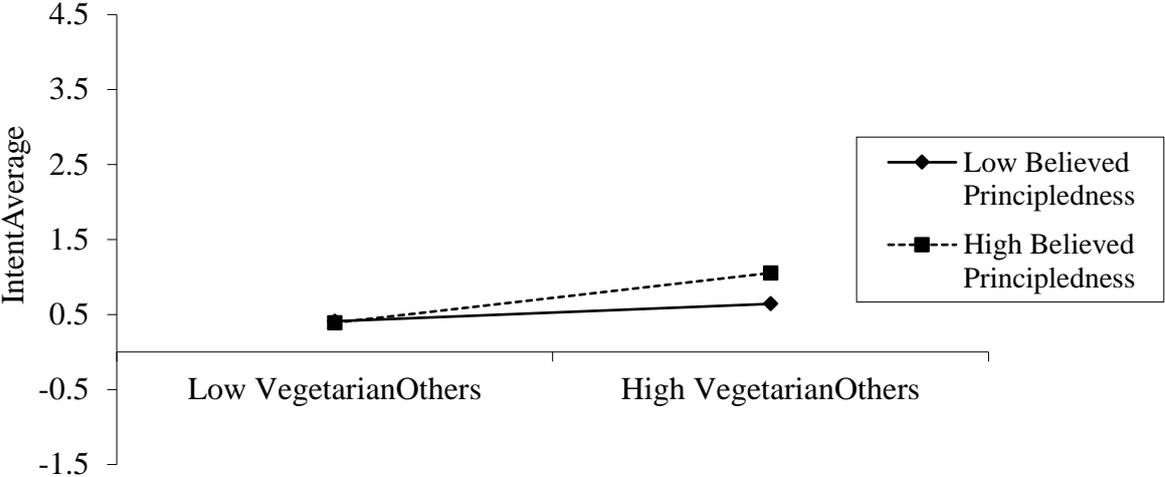
Hypothesis testing

In order to test Hypothesis 1, a regression analysis was conducted with VegetarianOthers as independent variable and IntentAverage as dependent variable (Model 1, Table 2, p. 21). The believed frequency of vegetarianism of others explained 5% of the variance (Change in R^2

=.050, F change (1, 179) = 9.411, $p <.01$). A significant effect was found, but in the opposite direction than hypothesized (β= .223, $p < .01$). Therefore, in contrast to study 1, the results of study 2 do not support Hypothesis 1. This suggests that how often one thinks others eat vegetarian does not elicit a defensive response. It might even have a motivating effect as earlier literature has suggested, by which people intend to reduce their consumption even more when they believe others cook vegetarian more often. The different results between study 1 and study 2 are further explored in the discussion.

Although a main effect was not found, there could still be the hypothesized moderation effects. To test for the moderating effect of believing that others cook vegetarian for principled reasons (hypothesis 2), a regression model was built (Model 2, Table 2, p. 21). First, an interaction variable was computed after standardizing the independent variable (VegetarianOthers) and the moderator variable (Believed Principledness). Adding the moderator variable and the interaction variable did not explain any additional variance significantly (Change in R^2 =.050, F change (1, 179) = 2.142, p =.145) and the interaction effect was found insignificant (β= .108, p= .145). This means that hypothesis 2 was not supported: how strongly people believe that others cook vegetarian for principled reasons has no influence on the relationship between how often they believe others cook and their intentions to reduce meat consumption. In addition, believed principledness had no direct effect on intentions to reduce meat consumption (β= .077, p = .293).

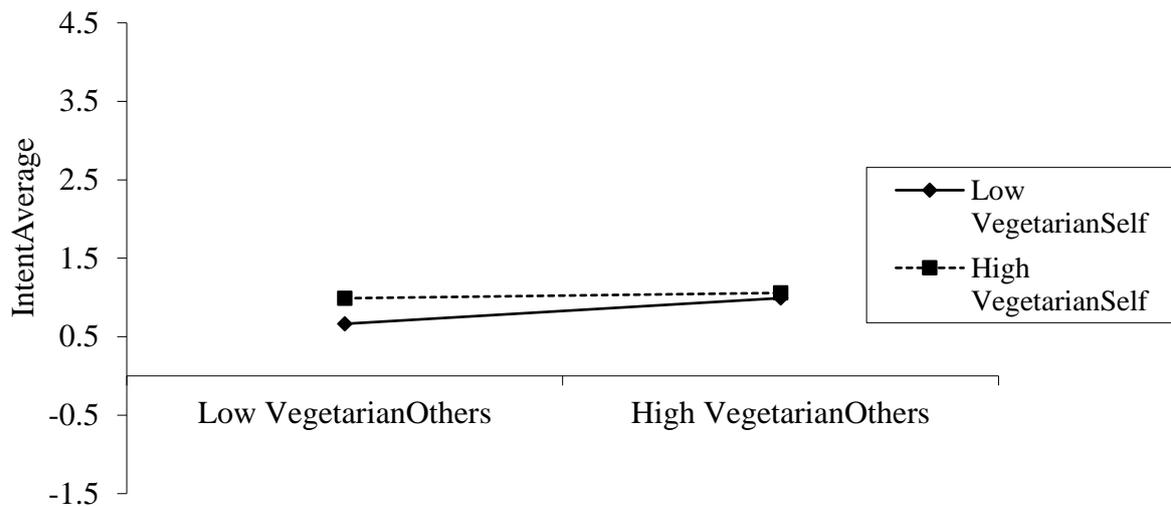**Figure 5.   Results of hypothesis 2.**

Note: believing others eat vegetarian for principled reasons does not significantly moderate the effect of other's frequency of cooking vegetarian on one's own intentions to reduce meat consumption. Hypothesis 2 is not supported.

The third hypothesis predicted that how often one cooks vegetarian themselves attenuates the relationship between how often others cook vegetarian and one's intentions to reduce meat consumption. This was tested in a separate regression analysis with VegetarianOthers as independent variable, VegetarianSelf as moderating variable, and IntentAverage as dependent variable (Model 3, Table 2, p. 21). Adding the interaction variable did not explain any extra variance (Change in R^2 =.004, F change(1, 177) = .795, p =.374) and the interaction effect did not meet the significance threshold of .05 (β= -.065, p= .374). Therefore, the third hypothesis was not supported either. This suggests that the effect of how often others cook vegetarian on one's meat reduction intentions does not change when one's own frequency of cooking vegetarian changes.

However, VegetarianSelf did have a significant and positive direct effect on IntentAverage and explained an additional 11.8% of variance (Change in R^2 =.118, F change (1, 178) = 25.272, p <.01). This suggests that one is more inclined to reduce their meat consumption if they already cook vegetarian frequently. Moreover, when VegetarianSelf was entered into the model, VegetarianOthers had no more explanatory power and its effect on IntentAverage became insignificant (β= .087, p=.236). This suggests either that people's intentions are overdetermined - there are more causes present than necessary to obtain the effect - by how often one cooks vegetarian and what one believes how often others cook vegetarian. Another explanation is that VegetarianSelf and VegetarianOthers are causally related; either one causes the other, or there is a common underlying factor that affected both variables. This is further explored in the discussion of this article.

Figure 6.   Results of hypothesis 3

Note: one's own frequency of cooking vegetarian does not significantly moderate the effect of other's frequency of cooking vegetarian on one's own intentions to reduce meat consumption. Hypothesis 3 is not supported.

The fourth hypothesis was meant to (dis)confirm whether the defensive response from hypothesis 1 was driven by psychological threat. If people were positively self-affirmed they would be less sensitive to information about the behavior of others. A regression analysis was conducted (Model 4, Table 2, p. 21) with the conditions as a binary moderator variable (control = 0, treatment = 1). Adding the condition to the regression model did not significantly explain any additional variance (Change in R^2 =.011, F change $(1, 177)$ = .919, p =.339) and the interaction effect was not at all significant (β= -.098, p= .339). Therefore, hypothesis 4 was not supported. This suggests that whether or not someone felt secure in their self-concept did not affect how information about others' consumption behavior influenced their own intentions to reduce meat consumption. It suggests there was no psychological threat experienced.

Figure 7.   Results of hypothesis 4
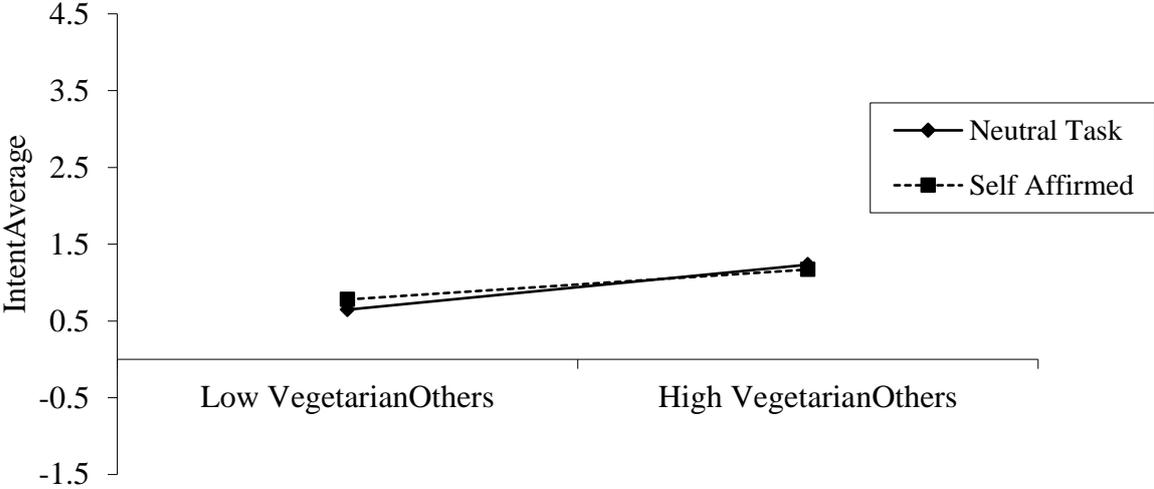
Note: being self-affirmed does not moderate the effect one's own frequency of cooking vegetarian has on one's intentions to reduce meat consumption. Hypothesis 4 is not supported.

Additional complete multiple regression analysis

In addition to the separate regression analyses, a complete multiple linear regression analysis was conducted to test which variables would best predict IntentAverage together. The method used was a confirmatory method of model building. This method is heavily informed by theory, rather than trying to find the model with the best fit to the data (Hair, Black, Babin, Anderson, & Tatham, 1998).

The results from the multiple regression analyses are more reliable when some assumptions must be satisfied (Hair et al., 1998). These assumptions are linearity, no multicollinearity of independent variables, and whether the residuals of the errors were homoscedastic. The linearity assumption and homoscedasticity assumption were roughly met, although not completely. The no-multicollinearity assumption was met. For an elaboration on these assumptions, see Appendix 1.

A four-step model was used. Step 1 introduced the independent variable VegetarianOthers. Step 2 introduced the moderator variables as independent variables to test for direct effects. Step 3 contained the moderator variables entered as interaction terms between the variables and VegetarianOthers. Before creating the interaction term, the moderator and independent variables were all standardized to allow for easier interpretation and to reduce multicollinearity issues (Hair et al., 1998). Step 4 introduced the control variables age, gender, and education

into the regression. For ease of interpretation, only the last step is reported in Table 2 (p. 21, Model 5).

The results of the multiple regression analysis show two things: first, introducing VegetarianOthers in step 2 accounts for a significant change in R^2 (Change in $R^2 = .049$, $F_{(4, 176)} = 3.767$, $p < .01$) and significantly and positively predicts IntentAverage ($\beta = .221$, $p < .01$). Just as in Model 1, this suggests that people might respond to information about others' meat consumption by increasing their intentions to reduce meat consumption, contrary to hypothesis 1. However, in step 3 this predictive potential disappears when VegetarianSelf is included, just like Model 3. The regression coefficient of VegetarianOthers on IntentAverage becomes insignificant ($\beta = .090$, $p = .234$), suggesting that it does not have any prediction power above and beyond VegetarianSelf.

The only remaining significant effect on the dependent variable IntentAverage in steps 2, 3 and 4 is VegetarianSelf. This means that there were no interaction effects found, thereby rejecting hypotheses 2, 3 and 4. This suggests, again, that the influence that the belief about others' frequency of meat consumption is not affected by any of the moderators: neither by believed principledness, nor by how often one cooks vegetarian themselves, nor by whether one is self-affirmed or not.

Table 2: Summary of four-step multiple regression model of variables predict IntentAverage (n=181)

|	Model 1			Model 2			Model 3			Model 4			Model 5		
	B	SE	β	B	SE	β	B	SE	β	B	SE	β	B	SE	β
(Constant)	1.136**	.183		.624**	.425		.926**	.177		.940**	.640		.249**	.657	
VegetarianOthers	.019**	.006	.223**	.019**	.006	.224**	.009	.006	.099	.025**	.009	.293**	.015	.009	.168
BelievedPrincipled				.104	.079	.098							.073	.077	.068
VegetarianSelf							.021**	.004	.384**				.021**	.005	.371**
Self-Affirmed										.103	.212	.035	.094	.201	.032
VegetarianOthers x BelievedPrincipled				.155	.106	.108							.154	.107	.107
VegetarianOthers x VegetarianSelf							-.084	.094	-.065				-.136	.100	-.105
VegetarianOthers x Self-Affirmed										-.213	.212	-.098	-.159	.204	-.076
Age													.012	.009	.094
Gender													-.012	.208	-.004
Education													-.058	.084	-.050
Adjusted R²	.045			.051			.158			.040			.151		
F	9.411**			4.247**			12.237**			3.509*			4.203**		

Note: Moderator variables were standardized before entered in the interaction variable.

*$p < .05$ **$p < .01$

Additional analysis and robustness checks

During the inspection of the data, it appeared that the intentions to reduce meat were not distributed normally. Figure 8 displays the distribution for the likelihood to reduce meat consumption which resembles a bimodal distribution. This suggest there are two distinct categories: in the first category (scores = 1-2, 38.7%) are those who are very unlikely to reduce meat consumption and who do not plan to change the amount of meat they eat, in the second category (scores = 3-7, 61.3%) are those who are somewhat to extremely likely to reduce their meat consumption. The same categories of non-reducers and reducers can be found also in Figure 9 (non-reducers: 1-4, 59.1%; reducers: 5-7, 40.9%) and Figure 10 (non-reducers: -1.5-0, 21.5%; reducers: >0, 78.5%). Figure 9 also demonstrates that very few people reportedly intend to eat *more* meat than they currently do (IntentAmount < 4, 6.1%). These respondents were not labelled as outliers because their scores became more normal when averaged with IntentLikelihood.

Figure 8.   Frequency distribution of IntentLikelihood (n=181)
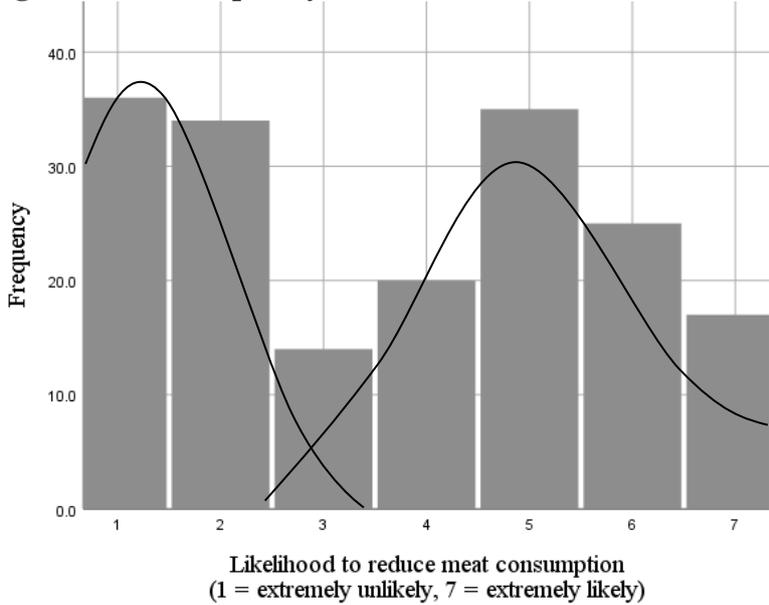
Likelihood to reduce meat consumption
(1 = extremely unlikely, 7 = extremely likely)

Note: the data may indicate a bimodal distribution as represented by the two overlapping bell curves.

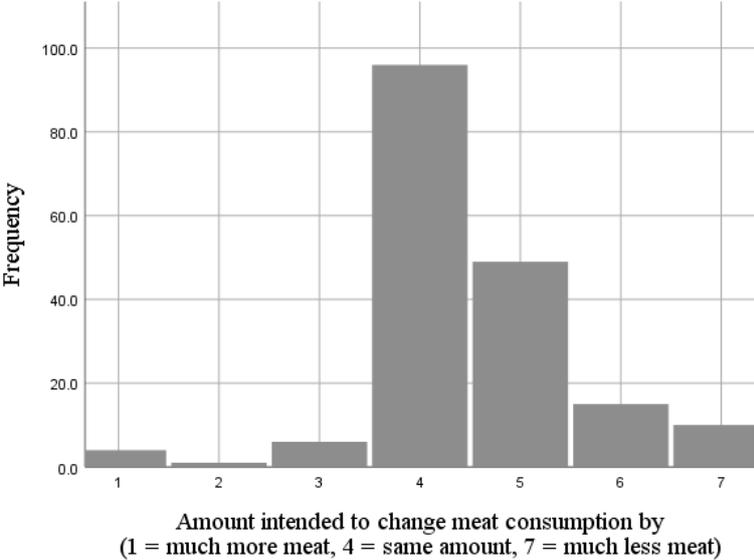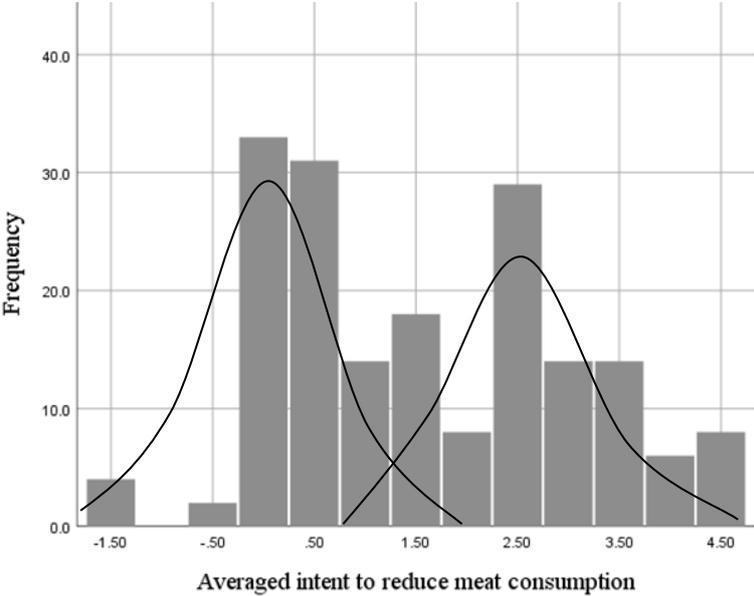**Figure 9.   Frequency distribution of IntentAmount (n=181)**

Amount intended to change meat consumption by
(1 = much more meat, 4 = same amount, 7 = much less meat)

Figure 10.   Frequency distribution of IntentAverage (n=181)

Averaged intent to reduce meat consumption

Note: the data may indicate a bimodal distribution as represented by the two overlapping bell curves.

A number of robustness checks were executed to improve the robustness of the findings. First, do-gooder derogation only occurs when at least all three context variables listed are present: deviation for principled reasons, involvement of observer, and the observer must not be self-affirmed. A dummy variable was created that was 0 if not all context variables were present (n = 143), and 1 if all were fulfilled (i.e. BelievedPrincipled > 4, VegetarianSelf <

VegetarianOthers, condition = neutral; n = 38). When introduced into a regression model with VegetarianOthers as independent variable and IntentAverage as dependent variable, the dummy variable showed a significant direct effect on IntentAverage (β= -.193, p <.01), but not a significant interaction effect (p=.189). This suggests that people who feel psychologically threatened do limit their intentions to reduce their meat consumption. To answer the subtitle of this article: yes, psychological threat plays a role. However, this result does not show that psychological threat creates more sensitivity to the behavior of others as hypothesized. Furthermore, when VegetarianSelf was added in a later step to the model, the dummy variable that represented psychological threat no longer had a significant regression coefficient. This might indicate that VegetarianSelf was the driver of the effect of the dummy variable, because the two are also significantly and negatively related (r= -.238, p <.01). This is further discussed in the conclusion.

Second, a further robustness check was to examine effects of the mean difference between one's own frequency of vegetarianism and the frequency believed of others. Another interpretation of hypothesis 3 is not whether one cooks vegetarian often, but whether one cooks vegetarian *more often than others*, making it a relative score. Thus, a dummy variable SelfOtherDifference was created by subtracting VegetarianOthers from VegetarianSelf. Although SelfOtherDifference significantly and positively correlated with IntentAverage (r = .266, p < .01), this effect was explained by VegetarianSelf. When both were added stepwise into a regression model, only VegetarianSelf remained a significant predictor of IntentAverage (β = .505, p < .001). VegetarianSelf and SelfOtherDifference were highly correlated (r=.787, p < .01), suggesting that the first result was driven by VegetarianSelf and not independently by SelfOtherDifference.

Third, the results may have been influenced by using a composite score for intentions. Although the two items were combined into one on the basis of a high Cronbach's alpha (α = .751), their distributions were sufficiently different that items as different dependent variables might yield different results. Therefore, two four-step regression models were made with either only IntentLikelihood or only IntentAmount as dependent variable. Results show that the models did not have different significance levels for any regression coefficient, providing robustness for the findings and showing that the composite score is useful.

Fourth, interaction effects between VegetarianOthers and the control variables (age, gender and education) were tested. It is possible that conformity pressure differs between age groups,

genders, or education levels. None of these effects were significant at the .05 level. At the .10 level the interaction between VegetarianOthers and education level was significant and positive (β=.124, p = .077). Thus, it is possible that a higher level of education makes people more sensitive to information about others meat consumption. However, the effect is positive instead of negative as hypothesized, suggesting that conformity pressure increases at higher education levels. Considering the finding is surprising, and considering that it was found in additional analysis and that the significance level is marginal, I do not draw any conclusion from this result.

Lastly, as roughly two distinct groups exist (reducers and non-reducers) an independent samples t-test was conducted to test whether these two groups differ on specific variables. The groups were divided into a dummy variable for which the classification was based on scores on IntentAverage. Scores of 1.5 and lower[2] were classified as *non-reducers* (coded 0, n = 102), higher scores were classified as *reducers* (coded 1, n = 79). The only significant results between the groups were VegetarianSelf ($M_{Non-Reducers}$ = 16.66, $SD_{Non-Reducers}$ = 22.82, $M_{Reducers}$ = 32.46, $SD_{Reducers}$ = 27.37, t(179) = -4.233 , p < .001) and VegetarianOthers ($M_{Non-Reducers}$ = 20.98, $SD_{Non-Reducers}$ = 15.71, $M_{Reducers}$ = 27.48, $SD_{Reducers}$ = 17.48, t(179) = , p < .01). These variables were also the only ones to have significant coefficients in the regression models. Therefore, this check did not generate additional information and corroborated the earlier results.

CONCLUSION AND DISCUSSION

Conclusion

The purpose of this article was to shed more light on how people react to the morally progressive behavior of others, with a focus on meat consumption. How people's consumption behavior influences each other's behavior is an important component for the diffusion of a new consumption pattern (Rogers, 2010). Could the diffusion of flexitarianism be different from innovations with fewer moral connotations? I hypothesized that meat eaters would respond negatively to the 'morally progressive' behavior of others. When confronted with information about others' behavior, people would no longer intend to reduce their meat consumption, or

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[2] This score of 1.5 was based on a visual distinction, rather than a conceptual distinction. In figure 7 one can imagine there to be two bell curves, and the 1.5 score seems to be in between the two curves. Conceptually, this means that in the category Non-Reducers respondents were also included if they answered they were planning to keep eating the same amount of meat, but were somewhat likely to reduce their meat consumption.

even increase it. If I had found support for this hypothesis, it would have meant that the diffusion of moral innovations is much slower, or much less likely to occur.

However, no support was found for this hypothesis. Instead, the results show that if one believes others eat vegetarian often, then one is more likely to reduce meat consumption. This finding is in line with innovation diffusion theory and social influence: people try to do what others do (Cialdini & Trost, 1998; Rogers, 2010). However, the result comes with a caveat. People's estimations about the consumption behavior of others may have been influenced by how often they eat meat themselves. Consequently, people's intentions may actually be driven only by their current behavior. This is further addressed in the limitations section. There are four other findings I shall discuss here.

First, the best predictor of intent to reduce meat consumption is how often one currently cooks vegetarian; the higher one's frequency of cooking vegetarian, the more likely one is to reduce meat consumption further. There are two possible explanations for this finding. On the one hand, how often one cooks vegetarian may *cause* one to intend to reduce meat consumption even further. However, there could also be a *common underlying factor* that causes both one's own frequency of cooking to increase and one's intent to change. This common factor could be many things, such as what a person values or what others in their environment are doing. This would make the intent to reduce meat consumption and the frequency of cooking vegetarian correlated without being causally related. Because the studies in this article were not designed to find such an underlying factor, it cannot be determined if it exists and what it is.

The strong and positive effect of one's frequency of cooking vegetarian on people's intentions to reduce meat consumption is accompanied by two other effects. First, the negative direct effect of psychological threat and, second, the positive direct effect of how often others cook vegetarian. When one's own consumption behavior was added to the regression models these effects disappeared; they no longer explained additional variance. However, this does not necessarily mean they do not affect people's intentions. The three variables (one's own meat consumption, psychological threat, and the believed meat consumption of others) might overdetermine people's intentions - there might be more causes present than necessary to obtain the effect. However, the variables are also correlated with each other, which may imply some effects are just driven by the strongest variable: how often one cooks vegetarian. Given the set-up of the studies, I cannot conclude which one of these interpretations is the correct one.

Furthermore, there appear to be two roughly distinct categories: people that intend to reduce their meat consumption (*reducers*), and people that do not intend to reduce their meat consumption (*non-reducers*). However, the concepts used in this study have little predictive power to explain whether someone is a reducer or non-reducer. If the stark distinction between reducers and non-reducers is the result of political and moral values, this suggests a strong value difference in the population; whereas some people want to curtail global meat consumption, others may want to protect it. It is not unthinkable that this is a future political divide, just like immigration is now in many Western countries (Bornschier, 2010).

Lastly, the frequency of cooking vegetarian was positively correlated with the believed frequency of others cooking vegetarian. This means that those that eat vegetarian (in)frequently believe that others also eat vegetarian (in)frequently. This correlation has two possible explanations. First, how often others cook vegetarian might have already affected one's own behavior. On the other hand, one's estimate may be biased towards one's own behavior, either through an anchoring effect (Tversky & Kahneman, 1974), through assuming others are more similar to oneself than is the case (*false consensus*, see Prentice & Miller, 1993), or by taking one's peers as representative of the whole population even if they are not. Nonetheless, collectively people estimated consumption behavior rather accurately, showing a 'wisdom of the crowds' effect (Surowiecki, 2005).

Concluding, this research suggests that intentions to reduce meat consumption are difficult to explain, because most variance (over 80%) in people's intention to reduce meat consumption was left unexplained in study 2. This suggests it is hard for companies to affect the intentions and behavior of consumers. Furthermore, the findings are in line with innovation diffusion theory, rather than in contrast to it as hypothesized.

Theoretical implications

The findings of this article imply that psychological threat may play a role in people's intentions to change their consumption. The more threatened people are, the less likely they are to 'improve' their behavior. This is in line with other research suggesting that highlighting the moral aspects of an issue may be demotivating (Täuber et al., 2015). People have multiple tools to deal with psychological threat, and it appears that reinforcing one's criticized behavior (instead of intending to reduce it) is one of those tools.

This research suggests that one's behavior influences one's intentions more strongly than beliefs about others' behavior and morally implicating information. Consequently, one could infer that people make decisions independently and are not strongly influenced by their peers, in contrast to literature that suggests consumers do influence each other's decisions (Childers & Rao, 1992; Rogers, 2010; Zane et al., 2016). However, the findings of this article are based on beliefs about anonymous others, rather than about people's peers. Therefore, these findings should be interpreted with care.

Finally, I used the research on do-gooder derogation (Minson & Monin, 2012; Monin et al., 2008) as a template to predict whether people would respond defensively. If the context variables – moral issue, free choice, not self-affirmed – are present, any kind of defensive response could be used. When a dummy variable was created for psychological threat, a significant negative effect was found on people's intentions to reduce meat consumption. This suggests that earlier research on do-gooder derogation may be a useful template to predict or create psychological threat.

Managerial implications

Help people to take the first steps

This article's findings suggest that an increase in the market share of meat substitutes is likely to come from people who already cook vegetarian frequently, because those people intend to reduce their meat consumption further. Therefore, it is important to correctly and easily identify this target group. Moreover, attempts to induce flexitarians to increasingly cook vegetarian are more likely to succeed than attempts to convince consumers who eat meat at almost every meal. However, if cooking vegetarian sometimes *causes* people to reduce their meat consumption further, it may be worthwhile to focus efforts on converting non-reducers to reducers and helping them taking the first steps, even if the conversion rate is low. Once people belong to the latter category (flexitarians), further reductions might happen even without any marketing efforts.

Avoid creating psychological threat

People do not like to be criticized for their behavior, especially if it makes them feel morally inadequate (Sherman & Cohen, 2006; Steele, 1988). This research supports the notion that inducing psychological threat creates weaker intentions to reduce meat consumption. Companies that want to motivate people to reduce their meat consumption or increase their

consumption of vegetarian products need to avoid psychologically threatening their audience. This can be done by framing their products in a nonmoral context or by framing consumption of a new vegetarian product as a 'new opportunity.' In that way, consumers will not feel as if they had failed to make the right choice before, because the opportunity did not yet exist.

Limitations and further research

There are a number of limitations to this research. First of all, the significant effects were hard to separate from each other, because one's own behavior could have affected both the experienced psychological threat and one's estimates about others' consumption behavior. Information about others' consumption behavior could have been presented differently. In this research, people were asked to make their own estimates. Future research should address this by presenting the information in a different way making the information more salient (e.g. "On average, other respondents cook vegetarian 25% of the times"). Similarly, a separate and direct measure of psychological threat would have been better, because then it would no longer have to be deduced from people's own behavior. Consequently, this would have made it easier to separate the effects of the different independent variables.

A second limitation was that study 2 was not an exact replication of study 1. Although this is not always necessary, a crucial component was different: the two studies had two different reference groups. Whereas in study 1 respondents were asked about the meat consumption behavior of their classmates (people they knew and interacted with), in study 2 the reference group was other people from the Amazon Mechanical Turk platform (people they did not know and did not interact with). Therefore, I cannot exclude the possibility that information about others' meat consumption only matters when it concerns others *within the relevant reference group*. Earlier research has shown that different reference groups have different influences (Childers & Rao, 1992; Göbel, Schneider, & Thomas, 2010). However, the current sample was chosen because it would be difficult to find a sample with the similar social influence of a university class, but a larger size. Furthermore, choosing a specific reference group limits the generalizability of the findings. There might even be a direct tradeoff between the size of a reference group and its social influence. For example, information about the average of a person's ten closest connections is probably much more influential than the average of two hundred people they have something in common with. Future research should examine this. For example, information about the consumption behavior of which types of reference group (e.g.

affiliation, aspirational, dissociative) has the strongest influence on a person's change in consumption behavior?

Thirdly, although self-affirmation has been employed often in experimental research and its short term effects have been corroborated (McQueen & Klein, 2006; Sherman & Cohen, 2006), less is known about the long-term effects of temporary self-affirmation. Considering that medium-term changes (the next twelve months) were examined, affirmation might either not have affected the intentions, or it might have affected the intentions that are considered in the short term, but not the behavior that is executed in the medium term. Future research that examines self-affirmation could employ medium and long-term behavior measures to test whether any effects persist.

Another limitation to this study is that this study measured people's intentions instead of measuring actual behavioral change. Intentions are not the only factor affecting actual behavior. Environmental support and ability to execute the behavior also play a role (Fishbein & Ajzen, 2011). Furthermore, self-reported intentions might not be highly reliable. Respondents' answers may have been influenced by attempts to look good, either to the researcher or to themselves. After all, people have a need to think of themselves as morally adequate (Steele, 1988). Future research that directly measures behavior, either through observation or self-report, is preferred.

Furthermore, the likelihood to change consumption behavior was measured only in one direction: the likelihood of *reducing* meat consumption. A more accurate measurement would have asked additionally the likelihood of *increasing* meat consumption.

Lastly, this study did not measure many variables that could predict the intentions to reduce meat consumption, as maximizing predictive power was not the purpose of this study. Therefore, it cannot explain what drives the difference between reducers and non-reducers. Is it driven by (political) values, social influence, or something else? It can neither explain why one's frequency of cooking vegetarian is correlated with intentions to reduce meat consumption. Future research could test whether there is an underlying cause, or whether cooking vegetarian causes further intentions to reduce meat consumption and how that mechanism works.

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APPENDIX 1.   Assumptions of multiple regression analyses

Three assumption needs to be met to make a multiple regression interpretable. The first assumption is linearity: the relationships between the independent variables and the dependent variable must be linear, so they were inspected visually. The scatterplots are presented below. The relationship between VegetarianOthers and IntentAverage is roughly linear (see Figure 11a, 11b, 11c). The relationship between VegetarianSelf and IntentAverage, on the other hand, was non-linear: the slope flattened the larger VegetarianSelf became (see Figure 12a, 12b, 12c). This should not be surprising: the more often one eats vegetarian, the less there is to reduce (something like a 'ceiling effect').

Figure 11a, 11b, 11c: Scatterplots to check the linearity assumption of VegetarianOthers on Intentions
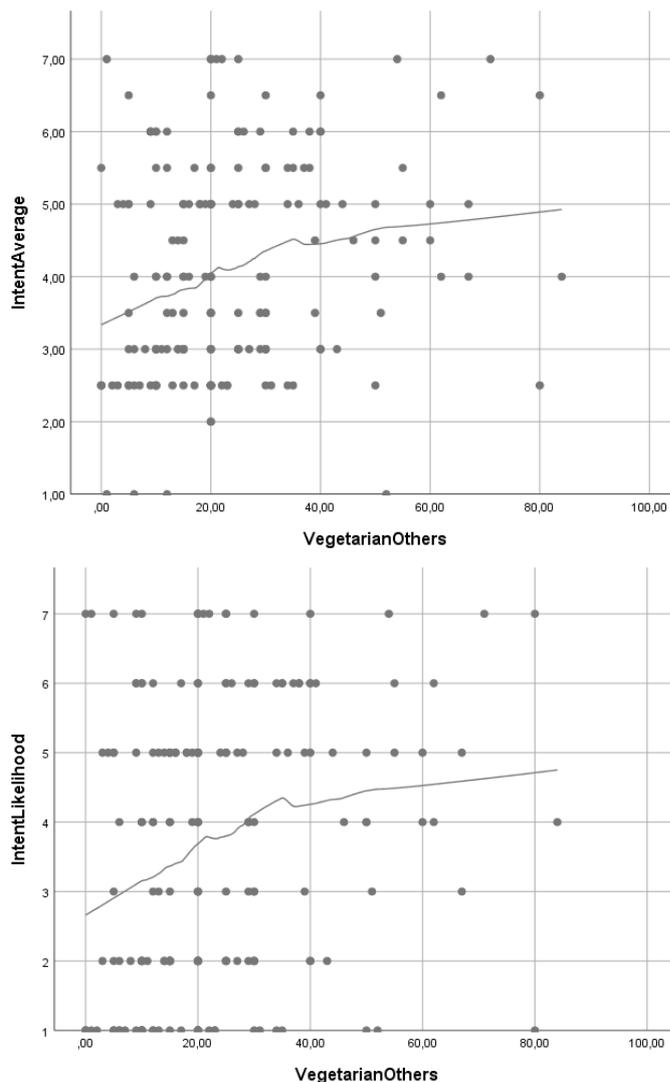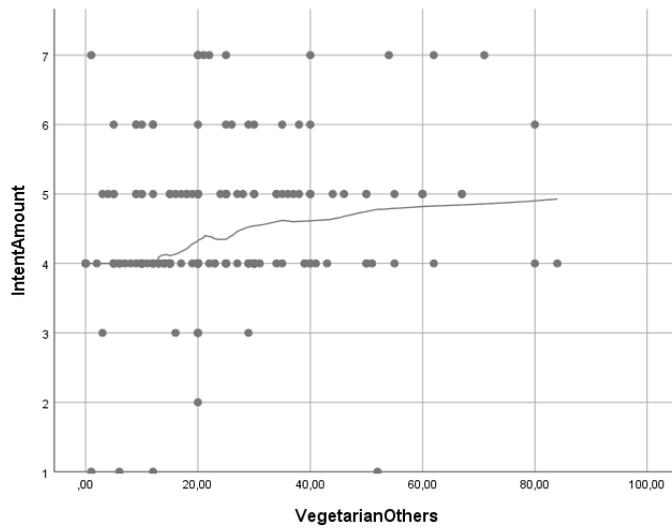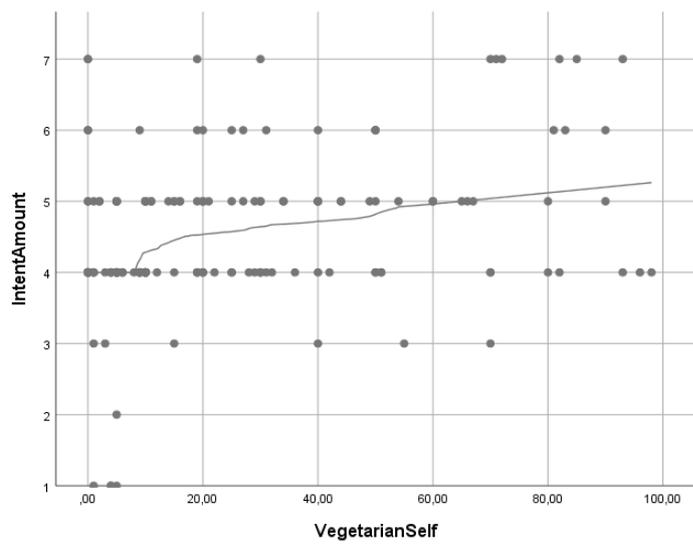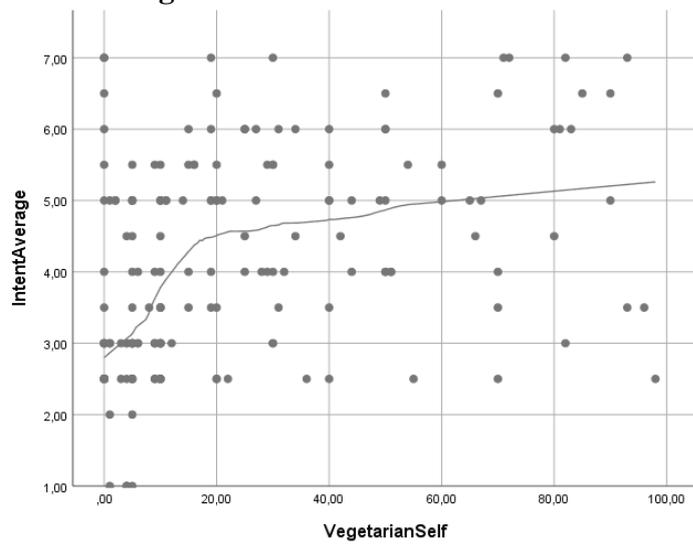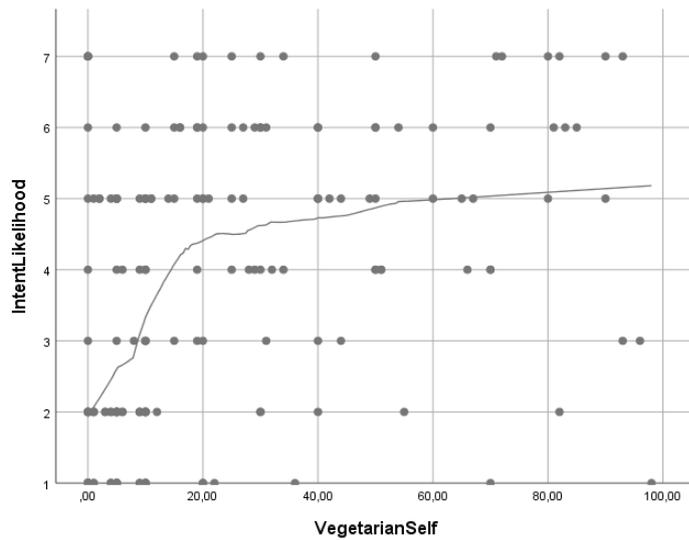
**Figure 12a, 12b, 12c: Scatterplots to check the linearity assumption of VegetarianSelf on IntentAverage**

The second assumption is no multicollinearity of independent variables. This was tested by the variance inflation factor, which must be below the threshold of 5 (Craney & Surles, 2002). No variables exceeded this threshold (highest VIF = 1.964).

The third assumption tested is whether the residuals of the errors are homoscedastic. This was again inspected visually (see Figure 10), where the residuals should not diverge too much from the normal distribution slope of 45 degrees. The residuals differed somewhat from the normal distribution but this was deemed within acceptable proportions.

Figure 13:   Residuals of four-step model plotted against normal distribution line
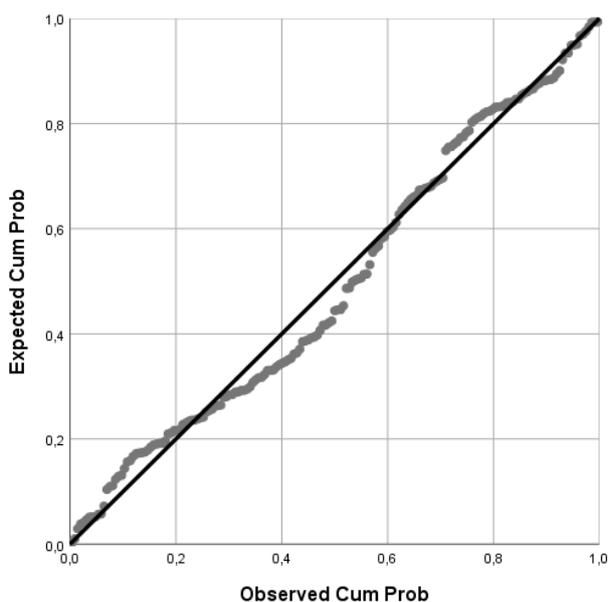
APPENDIX 2

Figure 14:   Page 1 survey

The following study concerns consumption habits of US citizens. We are interested in whether reflecting on past events affects your consumer decisions.

Participating in this study is voluntary, and will take about 6 minutes to complete. There are no risks involved. You can abort at any point.

Do you agree with these conditions?

○ Yes, I agree.
○ No, I don't.

→

Figure 15:   Page 2 survey

Please answer the following question for yourself.

| 0 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |

When I cook dinner for myself, I cook vegetarian ...% of the cases.

Please estimate **the average answer of others taking this survey.**

For your information, this survey is distributed only to MTurkers who are US citizens.

| 0 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |

"When I cook dinner for myself, I cook vegetarian ...% of the cases."

→

Figure 16:   Page 3 survey

A principled reason is a motivation based on fundamental values, such as justice or compassion. In contrast, a non-principled reason is more pragmatic.

To what extent do you agree with the following statement?

"Most people cook vegetarian for principled reasons."

Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
○	○	○	○	○	○	○

→

Figure 17:   Page 4 survey (neutral task)

Please write at least 200 characters (~ 3 sentences) about what your day looked like yesterday. For example, when you got up, where you went, who you met, etc. Please leave out identifiable information such as (company) names and addresses. Please do not spend more than 5 minutes on this task.

Timing

These page timer metrics will not be displayed to the recipient.

First Click	1.146 seconds
Last Click	6.094 seconds
Page Submit	0 seconds
Click Count	7 clicks

0451

→

Figure 18:   Page 4 survey (self-affirmation task)

Please write at least 200 characters (~ 3 sentences) about a recent experience in which you demonstrated **a quality or value that is very important to you and which made you feel good about yourself**. Please do not spend more than 5 minutes on this task.

Examples of "personally important values or quality" might include (but are not limited to) artistic skills, sense of humor, social skills, spontaneity, athletic ability, musical talent, physical attractiveness, creativity, business skills, or romantic values.

Timing

These page timer metrics will not be displayed to the recipient.

First Click	19.462 seconds
Last Click	24.432 seconds
Page Submit	0 seconds
Click Count	2 clicks

```
0 4 3 4
```

How important is your chosen quality or value to you?

Not at all important	Slightly important	Moderately important	Very important	Extremely important
○	○	○	○	○

→

Figure 19: **Page 5 survey**

Please finish this sentence.

"In the coming year, I intend to ...

Eat meat much more often	Eat meat rather more often	Eat meat a bit more often	Keep eating meat the same amount of times	Eat meat a bit less often	Eat meat rather less often	Eat meat much less often
◯	◯	◯	◯	◯	◯	◯

How likely is it that you would reduce your meat consumption within the next 12 months?

Extremely unlikely	Moderately unlikely	Slightly unlikely	Neither likely nor unlikely	Slightly likely	Moderately likely	Extremely likely
◯	◯	◯	◯	◯	◯	◯

→

Figure 20: **Page 6 survey**

To what extent do you agree with the following statement?

"When performing the task earlier, I felt good about myself."

Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
◯	◯	◯	◯	◯	◯	◯

→

Figure 21:   Page 7 survey

What is your age?

[   ]

What is your gender?

○ Male

○ Female

○ Other

○ Prefer not to say

What is the highest level of school you have completed or the highest degree you have received?

○ Less than high school degree

○ High school graduate (high school diploma or equivalent including GED)

○ Some college but no degree

○ Associate degree in college (2-year)

○ Bachelor's degree in college (4-year)

○ Master's degree

○ Doctoral degree

○ Professional degree (JD, MD)

[→]