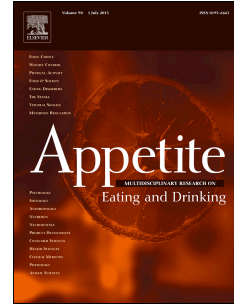# Journal Pre-proof

Meat-related cognitive dissonance: A conceptual framework for understanding how meat eaters reduce negative arousal from eating animals

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Running head: MEAT-RELATED DISSONANCE

Meat-Related Cognitive Dissonance: A Conceptual Framework for Understanding how Meat

Eaters Reduce Negative Arousal from Eating Animals

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Abstract

Meat eaters encounter a conflict between their eating behavior and their affections toward animals. Because this "meat paradox" highlights discrepancies between behavior and various ideals, a number of experts have focused on cognitive dissonance theory to explain the psychology of eating meat. The present work presents a framework to understand the phenomenon of *meat-related cognitive dissonance* (MRCD), herein defined as occurring when the dissonant state involves recognition of one's behavior as a meat eater and a belief, attitude, or value that this behavior contradicts. The proposed framework explains how individuals attempt to prevent this form of dissonance from occurring (e.g., *avoidance, willful ignorance, dissociation, perceived behavioral change, and do-gooder derogation*) and how they reduce it once it has occurred in the form of motivated cognitions (e.g., *denigrating animals, offering pro-meat justifications, or denying responsibility for eating meat*). The MRCD framework posits that which of a possible fifteen outlets is chosen to prevent and reduce the moral guilt associated with eating meat depends on (a) the aspect of meat consumption that produces MRCD; (b) the motivation created by MRCD; (c) individual differences in gender, values, affinity toward animals and meat, and exposure to animals; and (d) culture. Implications of the framework for those seeking to curtail meat consumption are discussed and important questions are highlighted for theorists to resolve.

Meat-Related Cognitive Dissonance: A Conceptual Framework for Understanding how Meat Eaters Reduce Negative Arousal from Eating Animals

"The shift from traditional hunting to progressively more and more intensive systems of animal exploitation has been accompanied by the evolution of increasingly sophisticated methods of evading guilt…we are confronted with a hideous moral dilemma…our highly developed social awareness allows us to understand and empathize with animals…it also allows us to use animals and manipulate them to our own advantage." (Serpell, 1986, pp. 209-210)

The recent decade has witnessed a boom in research investigating the psychology of eating meat, as a diverse set of contingents have become interested in how meat eaters are able to justify and rationalize their eating behavior in the face of external threats. Animal rights proponents, environmentalists, and others have sought to identify the psychological underpinnings behind the maintenance of meat consumption, with the aim of countering such resistance in more effective influence campaigns. Theorists have viewed meat eating as a compelling case of how individuals make moral decisions and rationalize morally problematic behavior, as meat has come to be framed. It also provides an opportunity to examine how individuals negotiate intrapersonal conflicts – as noted researcher Paul Rozin once commented, "meat should be of special interest to psychologists, because it is a quintessential example of the interesting and important state of ambivalence" (2007, p. 404).

This ambivalence, or what some legal scholars have more strongly termed "moral schizophrenia" (Francione, 2004) or "moral hypocrisy" (Sunstein, 2004), is manifested in the frequent misalignment between expressed attitudes and behavior toward animals. Numerous studies show that while individuals want farmed animals to be humanely treated, they simultaneously eat meat derived almost entirely from factory farms documented for their abysmal treatment of animals (e.g., Clark, Stewart, Panzone, Kyriazakis, & Frewer, 2016; Knight, Nunkoosing, Vrij, & Cherryman, 2003; Miele, 2010; Te Velde, Aarts, & Woerkum, 2002; Vanhonacker, Verbeke, Van Poucke, & Tuyttens, 2007). That individuals love animals and wish them no harm yet simultaneously eat them has been termed the *meat paradox* (Bastian,

Loughnan, Haslam, & Radke, 2012; Loughnan, Bastian, & Haslam, 2014; Loughnan & Davies, in press; Loughnan, Haslam, & Bastian, 2010). Because this paradox highlights discrepancies between behavior and various ideals, an increasing number of experts have focused on *cognitive dissonance theory* (CDT) to explain the psychology of eating meat (e.g., Bastian & Loughnan, 2017; Rothgerber, 2014a; Rothgerber, 2019; Rothgerber, in press).

CDT is widely held to involve a three-step process: an inconsistency generates an aversive arousal (i.e., the cognitive dissonance state) that will then motivate reduction strategies (Vaidis & Bran, 2018). The present work defines the phenomenon of *meat-related cognitive dissonance* (MRCD) as occurring when the arousal is specifically related to one's status as a meat eater; that is, the cognitive dissonance state involves recognition of one's behavior as a meat eater and a belief, attitude, or value that this behavior contradicts, such as the aforementioned love of animals. For individuals who care about the well-being of animals, the question may be economically modeled as a trade-off between the utility gained from eating meat and the psychological disutility implied by their awareness of the suffering inflicted upon farm animals (Hestermann, Yaouanq, & Treich, 2018; Rabin, 1994). Although related to the meat paradox, MRCD refers to a more encompassing phenomenon; that is, MRCD can also be experienced over concerns that eating meat is harmful to the environment or to personal health, but in keeping with the literature on the meat paradox, here I largely focus on animal welfare-related triggers and cognitions.

The goal of the current work is to offer a framework to better understand MRCD, in particular (a) explaining how individuals attempt to prevent this dissonance from occurring and how they reduce it once it has occurred, i.e., what Serpell (1986) referred to in the opening quote as the "sophisticated methods of evading guilt," and (b) identifying what specific factors may

predict the popularity of these dissonance prevention and reducing mechanisms. Implications for those seeking social change are identified as are important questions remaining for theorists to resolve.

Overview of the MRCD Framework and Its Propositions

In developing the MRCD framework, the author drew upon classical dissonance theory but also borrowed insights from several theories describing mechanisms that enable individuals to act in immoral or non-normative ways: Bandura's (1990, 1999) theory of moral disengagement and Sykes and Matza's (1957) work on techniques of neutralization. Bandura suggested that while actions are typically governed by an individual's moral standards, there are processes that disengage these self-sanctions and allow for inhumane conduct. Sykes and Matza (1957) examined justifications of deviant behavior (i.e., "techniques of neutralization") that allow disapproval from others or from violating internalized norms to be blunted in advance. The processes proposed by these scholars from different disciplines converge on three basic guilt-reducing mechanisms enabling problematic behavior: (1) hiding or avoiding the injury, possibly by making the victim invisible; (2) denying one's role/responsibility in causing the harm; and (3) denigrating the victim.

The present work also assimilates and elaborates on techniques identified by several authors who have explored the paradox of meat eating: Serpell (1986), whose quote begins the article and who first identified four "distancing devices" by which meat eaters separate themselves from the morally dubious consequences of eating meat; Rothgerber (2014a), who more recently articulated eight mechanisms to mitigate MRCD; and Joy (2011), who developed the notion of carnism, a dominant ideology conditioning people to consume certain animal products and supported by a variety of defense mechanisms and mostly unchallenged

assumptions. This suggests that much of the time, eating meat is not a troubling, encumbering behavior and that individuals are able to co-exist with significant contradictions arising from their eating behavior on a daily basis. The current framework offers that there are a number of mechanisms to suppress the moral inconsistencies inherent in eating certain animals and that it is only when some situation or event disrupts the invisibility of carnism or calls eating meat into question that individuals will partake in what Joy (2011) refers to as defense mechanisms, i.e., what the present work considers MRCD reduction mechanisms.

Critical assumptions of the MRCD framework are rooted in the influential psychological theory of motivated cognition (Kunda, 1990). There is considerable evidence that people are unwittingly more likely to arrive at conclusions that they desire through a biased process of memory search and belief construction (Kunda, 1990). Although beliefs are often motivated to satisfy psychic or instrumental needs (Benabou & Tirole, 2016), individuals attempt to be rational and to construct a justification of their preferred conclusion that would persuade others (Kunda, 1990). Motivated reasoning also applies to situations which feature morally problematic behavior: Individuals will adopt self-serving beliefs when facing moral dilemmas to maintain a sense of having a moral self-concept (Barkan, Ayal, & Ariely, 2015; Shalvi, Barkan, & Ayal, 2015). These justifications may occur before an event, lessening the anticipated threat to one's moral self by defining questionable behaviors as excusable, or after an event, lessening the experienced threat to the moral self by compensating for the committed violation (Barkan et al., 2015; Shalvi et al., 2015). Although this distinction between anticipated and experienced dissonance may not be critical in the case of such a frequently occurring behavior as eating meat, the moral dissonance research portends the assertion that beliefs about farm animals and meat eating are not objective but instead are motivated, and hence susceptible to fluctuation. A

general implication of the dissonance perspective is that the very act of consuming meat determines perceptions related to meat and to animal welfare.

Figure 1 presents a general outline of the MRCD framework. As shown on the left side of Figure 1, the framework speculates that MRCD is typically experienced by certain situational triggers, such as being reminded of farm animals, being exposed to information about farm animal welfare, connecting meat to these farm animals, recognizing oneself as an eater of these animals, or being in the presence of vegetarians, who make the above reminders salient. The framework proposes that individuals will be motivated to use avoidance, willful ignorance, dissociation, perceived behavioral change, and do-gooder derogation to block MRCD from occurring. Research examining each of these tactics is reviewed. If individuals prevent these triggers from ever occurring, the framework postulates that their meat-eating behavior will be maintained with no further psychological justifications or distortions necessary.

If these catalysts are unchecked though, the framework proposes that individuals will experience MRCD and its unpleasant arousal. To counter MRCD once it has occurred, the framework suggests that individuals may change their behavior, or more likely, strategically distort their perceptions to reduce the moral guilt associated with eating meat. These motivated cognitions are expected to focus on denigrating animals, offering pro-meat justifications, or denying responsibility for eating meat. Empirical evidence reviewing these strategies is considered. An important implication of the framework is that the outcome is predicted to be quite different depending on which MRCD mechanism is adopted. In the case of behavioral change, reduced meat consumption is expected to result and any ensuing MRCD ameliorated; when perceptual distortions are endorsed, the meat-eating behavior is not only expected to be

maintained but strengthened, as increased psychological justification has occurred, and individuals need to remain vigilant about preventing future MRCD.

The MRCD framework posits that which outlet is chosen to reduce MRCD depends on (a) the aspect of meat consumption that produces MRCD; (b) the motivation created by MRCD; (c) individual differences in gender, values, ideology, affinity toward animals and meat, and exposure to farm animals; and (d) culture. Current evidence pertaining to these hypothesized predictors of preferred perceptual strategy largely focus on individual differences; hence, the discussion of these other factors remains largely speculative. The manuscript concludes with an exploratory discussion on implications of the framework for researchers and activists. It reviews research aimed at targeting certain prevention and reduction strategies, highlights a methodological implication of the framework, and discusses exogenous factors that have relevance for the framework, including the price of meat, the rise of plant-based meat substitutes, and the role of campaigns to increase the moral awareness of animal suffering. It is suggested that each of these three factors may potentially increase negative arousal from eating meat and will subsequently activate motivational processes to reduce this unpleasant cognitive dissonance state.

Triggers of, and Mechanisms to Prevent MRCD

Because MRCD is defined as producing an unpleasant emotional state, a chief premise is that meat eaters will be highly motivated to avoid the experience in the first place. Indeed, in Festinger's (1957) classic formulation of cognitive dissonance, one of the main postulates was that individuals will actively avoid situations and information that would likely increase dissonance. The *MRCD prevention mechanisms* are designed the help the individual forget that they eat meat or that eating meat entails animal suffering. These strategies have been termed

"apologetic" (Rothgerber, 2013) and essentially seek to avoid recognizing and acknowledging that a behavior and belief are at tension. The individual acts ambivalently, without rationalizations, and merely attempts to proceed without confronting the issue. Avoidance of dissonance-producing stimuli precludes the need for behavioral or psychological amendments to diet, which could prove stressful and costly.

Thus, it is proposed that the first strategy to eliminate MRCD is to avoid and respond to triggers that threaten to bring the tension to consciousness. Although there are a multitude of such situations that can threaten meat eaters and remind them that their behavior is under question, and such events can vary in their intensity, triggers are considered to fall into one of five general categories: (1) exposure to information about the treatment of factory-farmed animals; (2) reminders that meat originates from an animal; (3) admission that one eats meat; (4) admission that one eats meat from an animal that was harmed; and (5) the presence of vegetarians. Triggers and corresponding preventive mechanisms are considered in detail along with supporting evidence.

Information Exposure: Avoidance and Willful Ignorance

The MRCD framework espouses that are two preliminary lines of psychological defense against exposure to the information needed to produce MRCD in the first place. The initial psychological shield is *avoidance*; that is, to avoid dissonance by refusing to acknowledge or think about eating meat or animal welfare. The sheer physical isolation of factory farms from the rest of society is one way that individuals are assisted in avoiding thoughts about the treatment of animals used for food (Plous, 1993; Serpell, 1986; Singer, 2002). As Bandura (1999) notes, harming others is made easier when their suffering is not visible. Serpell (1986) labels his first distancing device *detachment* and notes that this removal of animals from our

moral concern is in part accomplished by the lack of physical contact with them. Detachment also works in concert with *concealment* (Serpell, 1986), whereby farmed animals are kept in anonymous-looking, windowless buildings hiding them from public view. The invisibility continues as they are surreptitiously transported to slaughter, which is almost always concealed away from residential areas.

Print and visual media also promote avoidance of the reality of meat production by socializing American children that meat originates from happy farm animals living in peaceful settings; as a result, children believe that farm animals are less likely to be unhappy relative to companion animals and wild animals (Plous, 1993). Avoidance of MRCD has also been culturally enabled by institutions in American society that make gaining more information about the welfare of farm animals nearly impossible, including legal guidelines protecting the privacy and secrecy of factory farms (Foer, 2009). Finally, if individuals allow themselves exposure to information about farmed animals, social pressure discourages spreading this knowledge to others – the very topic of factory farms is considered a taboo conversation (Iaccobo & Iaccobo, 2006). In essence, avoidance has become a cultural norm protected by powerful institutions (see Bastian & Loughnan, 2017).

Given these protections, it is not surprising that individuals are largely unaware of the treatment of animals that are eaten as meat. Majorities in the U.S. believe that farmed animals are treated humanely or well (The Sentience Institute, 2017), and the majority of Europeans across several nations believe that animal welfare is "good," at least for cows (Mayfield, Bennett, Tranter, & Wooldridge, 2007); moreover, the majority of these European consumers believe that farmed animal welfare is improving in their country (Mayfield et al., 2007; Miele, 2010). Many consumers candidly admit that they are not as well informed about animal welfare

issues as they wish to be (Mayfield et al., 2007), especially food production processes (Kriflik & Yeatman, 2005). Several interview studies have revealed that individuals are too ignorant of animal use procedures to reach informed opinions, or that they have a negative perception of the life of meat livestock without concrete knowledge of the circumstances in which these animals lived (Knight and Barnett, 2008; Te Velde et al., 2001). Several studies in Australia have also emphasized widespread ignorance of routine practices subjected to farmed animals (Coleman & Toukhsati, 2006; Worsley, Wang, & Ridley, 2015). Meat eaters are particularly ignorant of the conditions faced by farm animals, displaying less knowledge than vegetarians of harsh farming practices commonly employed and underestimating the degree of suffering inflicted on livestock (Hestermann et al., 2018). This study's finding that meat eaters with greater education were as equally ignorant as those with less education suggests that meat consumption is not approached objectively where greater access to information impacts decisions.

Rather, the MRCD framework would speculate that this ignorance is motivated, i.e., a *willful ignorance* designed to prevent individuals from experiencing aversive arousal from MRCD. In this sense, it may be interpreted as a second line of defense against exposure to information about farm animal welfare and may serve as the individual-level counterpart to the structural forces enabling avoidance of MRCD. Standard models of economics specify that consumers are advantaged when they receive information about the consequences of their actions, but here, knowledge of farm animal treatment increases the costs of eating meat by requiring greater self-deception to justify it (Hestermann et al., 2018). Evidence for willful ignorance in the domain of farmed animal welfare is fairly limited but increasing. In several investigations, interviewees explicitly claimed they did not know about farming practices and animal welfare because they wished to remain ignorant (Knight et al., 2003), and in some cases,

because they knew that such information would make it more emotionally difficult to purchase meat (Knight & Barnett, 2008; Miele, 2010). Te Velde et al. (2002) described a "functional ignorance," among their Dutch interviewees in that neither farmers nor consumers actively sought information concerning animal welfare because both parties would be better off not knowing too much. To some extent, such motivated ignorance is an effective barrier, as one study found that the less respondents knew about various animal use procedures, the more they supported these procedures (Knight et al., 2003). Taking a decidedly more quantitative approach using cluster analysis, Onwezen and van der Weele (2016) found that 27-28% of individuals displayed willful ignorance in the context of meat, deliberately ignoring information about the treatment of farmed animals.

Overall, inhibiting thoughts of farm animals and their welfare from reaching consciousness appears to be a highly successful strategy for preventing MRCD from ever taking root. In one study, 67% of respondents indicated that they do not think about animal suffering when they purchase meat (Signicom, 1997). Of those who consider animal welfare to be highly important, only about half report thinking about it when purchasing meat (Mayfield et al., 2007). Consistently, studies have shown that participants report being willing to pay extra for animal welfare-friendly products, yet these products only capture a small share of the market (Norwood, 2011; Roex & Miele, 2005). Similarly, voters in California overwhelmingly rejected farming practices that were represented in products that at that time dominated the market (Norwood & Lusk, 2011). Elaborating on Hestermann et al.'s (2018) suggestion that the salience of the moral aspects of these decisions depends on the environment in which individuals make their decisions (e.g., grocery store vs. voting booth), one may add that avoidance has largely rendered consumer

decision makers not conscious of animal welfare when purchasing meat, in effect muting much

MRCD.

Reminders that Meat Originates from an Animal: Dissociation

Meat eaters' avoidance of thinking about eating meat or animal welfare is potentially

challenged whenever they confront animal flesh on their plate. The present framework asserts

that individuals can also prevent MRCD by pretending that no animal is involved during meat

consumption. This disconnect is accomplished by *dissociating* the animal from the food product.

Even though they consume animal flesh, a delusion suggesting otherwise is promoted.

According to Adams (1990), one way that individuals render animals absent from their

consciousness is to change language about them as food products. Words like bacon,

hamburger, and sirloin become substitutes for the animal flesh people consume allowing meat

eaters to maintain the illusion that animals are not involved. The need for verbal concealment

decreases the further the animal is from a human being, thus "chicken," and "fish" are called by

their actual animal names (Serpell, 1986). Plous (1993) discusses a number of ways in which

language depicts animals as inanimate (e.g., hunters do not kill animals, they "harvest" them –

see also, Serpell, 1986), including usage by the military and legal system. The United States

Department of Agriculture (USDA) has helped people feel more comfortable about eating meat

by referring to chickens, cows, and pigs as "grain-consuming animal units." As Bandura (1999)

notes, such euphemistic labeling is often used to disguise objectionable activities.

Supporting this dissociation strategy, many consumers do not like to think that meat

comes from a live animal (Mayfield et al., 2007), and this explains why the more meat resembles

the actual animal, in terms of being red, bloody, and fatty, the more individuals are disgusted by

it (Kubberoed, Ueland, Tronstad, & Risvik, 2002a). Pieces of meat that clearly remind the

consumer that they were from an animal (e.g., eyes, tongues, brains, etc.) are unwillingly

handled by consumers (Kubberoed et al., 2002b). Explicitly reminding shoppers about the

animal origins of meat lead them to purchase less meat or prefer free range and organic meat

(Hoogland, de Boer, & Boersema, 2005).

Kunst and Hohle (2016) manipulated dissociation experimentally by depicting meat as

more rather than less processed, minced as opposed to having a head, as advertised without a

picture of an animal as opposed to with, in more euphemistic terms (harvest) than less

(slaughter), and described in food terms (pork, beef) rather than as the animal (pig, cow). As

expected, greater dissociation led to more willingness to eat the animal, and less empathy,

perceived animal capacity, and disgust in eating the animal. Subsequent research showed that

this effect was moderated by cultural exposure to unprocessed meat (Kunst & Haugestad, 2018).

At least in certain cultures, therefore, ignoring the link between animals and meat serves to spare

the individual from experiencing uncomfortable dissonance by making it seem as though no

victim was involved.

Admission that One Is a Meat Eater: Perceived Behavioral Change

The first two MRCD prevention tactics ultimately attempt to disrupt thoughts that meat

eaters are bringing harm to animals. The framework contends that dissonance may also be

prevented by convincing oneself that even if meat involves animals, the individual does not

consume very much of it. This is in effect a tactic to suppress MRCD by pretending that the

troubling behavior does not really apply to them. In one study, when threatened with the

prospects of watching a PETA documentary about meat production, women (but not men)

reported eating less meat than did a control condition not expecting to watch such a documentary

(Rothgerber, 2019). As a substitute to actual change and in an effort to eliminate the belief "I eat

meat" despite evidence to the contrary, individuals strategically attempted to convince themselves and others that they avoid meat consumption. Also attesting to the motivated nature of self-report, three times as many Americans indicated that they had decreased meat consumption as opposed to increased it during the last three years (Neff et al., 2018), and 54% expressed that they were attempting to reduce consumption of animal-based products (The Sentience Institute, 2017), claims difficult to reconcile with a general pattern of increased meat consumption in the U.S. as reported by the USDA.

This *perceived behavioral change* strategy may be common and affect reported dietary identity: At least a dozen studies have documented that some people claim they are vegetarian but then simultaneously acknowledge that they eat red meat, chicken, and/or fish (see Rothgerber, 2014b). As an example, a survey of 10,000 American adults found that 60% of vegetarians admitted that they had eaten red meat, poultry, or seafood within the last twenty-four hours (Time/CNN/Harris Interactive Poll, 2002). It is clear that estimates of vegetarianism are predicated upon how vegetarianism is defined, with self-identification yielding higher estimates than behavioral reports. Across several representative studies in the U.S., approximately 7% self-identified as vegetarian, yet when asked about their specific eating habits, only somewhere between 1-2.5% were strict vegetarians (Maurer, 2010). Although some of this discrepancy may arise from genuine confusion about what defines a vegetarian, from a dissonance perspective some of it may also reflect wishful thinking designed to make oneself feel less guilty about harming animals, the environment, or personal health.

Admission that One Eats Meat from an Animal that Was Harmed: So-called Humane Meat Eater

The aforementioned strategies converge on muting thoughts about animals or that one eats animals. The MRCD framework also contends that individuals may embrace their meat consumption but prevent MRCD by emphasizing that the meat that they eat is not associated with harming animals because it is humanely produced. These so called "conscientious omnivores" (COs) have been on the rise since the merits of the position were argued in an essay by Michael Pollan (2002). Of relevance here, COs are less likely to perceive their diet as something that they absolutely need to follow and report violating their diet more (Rothgerber, 2015a). Thus, although COs may have multiple motives for their position, the MRCD framework interprets the movement in some ways as providing a shield against dissonance for those who still consume meat derived from cruel treatment. To a lesser extent, individuals may convince themselves that traditionally raised food animals do not have it so bad ("the pigpens are nice and warm," "the chickens always have enough to eat"), reasoning identified by Te Velde et al. (2002) in interviews with Dutch consumers and farmers. As further evidence of this wishful thinking, Worsley et al. (2015) found that the majority of Australians believed that farmers take good care of livestock.

The Presence of Vegetarians: Do-gooder Derogation

The mechanisms reviewed so far are hypothesized to impede MRCD by eliminating the awareness that individuals harm animals through their eating behavior. MRCD may also be activated by the presence of or reminders of vegetarians (Rothgerber, 2014a). Because they are a meaningful category that carries strong associations, the presence of vegetarians may encourage self-categorization as a meat eater, especially to the extent that that the context emphasizes differences between vegetarians and omnivores and similarities within each group (fit: see Turner, Hogg, Oakes, Reicher, & Wetherell, 1987). In such cases, it is speculated that

omnivores will temporarily think of themselves as meat eaters and as a result of diet being

salient, will be reminded of the dissonance they experience from eating meat. This would be an

unusual occurrence because as members of a very large majority, meat eaters almost never

define themselves in these terms (see Joy, 2011). Carnism is a largely invisible ideology, but

vegetarians potentially reduce this invisibility and threaten the prevailing belief system that

encourages meat consumption. Vegetarians not only encourage reminders of dissonance, they

also may threaten to make it harder to alleviate the dissonance and to morally disengage from the

harm inflicted upon animals used for food. That is, vegetarians are particularly threatening

because they undermine the dissonance-reducing strategies used by meat eaters (see Rothgerber,

2014a). For example, vegetarians undercut the notion that meat eaters have no choice but to

consume meat for their well-being and survival (Rothgerber, 2014a).

Vegetarians also potentially represent a counter ideology to carnism, through the

promotion of a belief system that killing animals for food is unethical. The rejection of

traditional values that is associated with vegetarians helps explain why the symbolic foods of

holidays are notable sources of tension between vegetarians and family members (Beardsworth

& Keil, 1991, 1992; Jabs, Sobal, & Devine, 2000) and why some parents interpret their

children's vegetarianism as a rejection of their upbringing (Beardsworth & Keil, 1991, 1992). In

short, it is in large measure what vegetarians signify that threatens meat eaters.

There is accumulating evidence that individuals are threatened by those they perceive as

taking moral positions that they themselves are unwilling to take (Monin, Sawyer, & Marquez,

2008; O'Connor & Monin, 2016). In a study of consumer behavior, Zane, Irwin, and Reczek

(2016) found that those seeking out ethical product information were denigrated as morally

superior rebels by those ignoring such information. Sykes & Matza (1957) label this strategy

"condemning the condemner." The transgressor shifts the focus of attention from their own deviant acts to the motives and behavior of those who disapprove of their violations, who may be "hypocrites, deviants in disguise, or impelled by personal spite" (Sykes & Matza, 1957, p. 668).

By failing to engage in normative eating behavior, often for ethical reasons, vegetarians would seemingly qualify as moral rebels concerned with the ethical attributes of food and subject to the same denigration. Indeed, MacInnis and Hodson (2017) found that vegetarians and vegans were evaluated as or more negatively than other commonly studied targets of prejudice (e.g., homosexuals, Blacks) – only drug addicts were evaluated more negatively.   Minson and Monin (2012) found that nearly half of meat eaters generated negative associations of vegetarians. Consistent with their concept of "*do-gooder derogation*," this effect was stronger for participants who believed vegetarians considered themselves superior to the participant or to meat eaters in general, and for those participants who anticipated moral reproach from vegetarians before making judgments about them. Manipulating anticipated moral reproach from vegetarians also led meat eaters to report greater dissonance-related negative emotions (Rothgerber, 2014a). This same study found further evidence of vegetarian-induced dissonance to be reduced in part by critiquing or focusing on deficiencies of the vegetarian. Specifically, exposure to vegetarians that were imposters, presented as having allergies necessitating their vegetarianism, and inconsistent in their practice led meat eaters to give less endorsement to dissonance reducing strategies, presumably because these "weaker" vegetarians provoked less arousal (Rothgerber, 2014a). In summary, the present framework postulates that denigrating vegetarians helps prevent meat eaters from experiencing or contemplating MRCD and instead diverts attention elsewhere.

As shown in Figure 1, the framework expects that when individuals prevent MRCD from occurring in the first place, they will continue eating meat at the same incidence. The lack of a conflict or aversive arousal from their eating behavior would suggest that in these instances individuals have not undergone additional pressures to convince themselves that eating meat is moral. The lack of further psychological justifications would suggest that they should continue to eat meat regularly, habitually (see Bastian & Loughnan, 2017) without scrutiny.

Mechanisms to Reduce MRCD: Behavioral Change and Perceptual Change

Thus far, the paper has reviewed six mechanisms by which meat eaters avoid and respond to triggers that threaten to bring to consciousness the tension between their eating behavior and a belief, attitude, or value related to animal welfare, environmental protection, or the promotion of personal health. Despite efforts to prevent MRCD from taking root, however, there are situations in which meat eaters experience aversive arousal. On these occasions, as shown in Figure 1, it is proposed that at least one of the *MRCD reduction mechanisms* will likely be employed to dissipate the cognitive dissonance state. It seems unlikely that individuals would choose to reduce dissonance by decreasing what classical dissonance theory terms discrepant cognitions. This would involve either the individual (a) convincing themselves that they do not love animals or want them to be treated well, or at least that these attitudes are unimportant, or (b) changing their eating behavior so that it becomes consistent with their pro-animal beliefs. While *behavioral change* is the goal of non-governmental organization (NGO) activism, statistics indicate that abandoning a meat-based diet is not an entirely popular mode of dissonance reduction.

Over the last 30-35 years, average meat consumption in the U.S. actually increased from 176 to 240 pounds a year (Herzog, 2011), increasing at the fastest rate in four decades during

2015. In animal terms, the number of creatures killed to satisfy a family of four ballooned from 56 animals a year to 132 animals during the same time period. According to the USDA, per capita meat consumption in the U.S. neared a record high in 2018. An upward trajectory is also predicted to continue in the rest of North America and globally, where meat consumption has likewise been on the rise (Organisation for Economic Co-Operation and Development, 2014); projections estimate that meat consumption will increase in North America by 8%, in Europe by 7% and in Asia by 56% from 2011-2020 (OECD, 2014). Conversely, rates of vegetarianism are low – the practice is estimated at 5% in both the U.S. (Gallup, 2018) and in Europe (Statista, 2016).

Rather, the framework posits that individuals are likely to live with the significant contradictions posed by their eating behavior and instead reduce MRCD through *perceptual change* by adopting motivated, unapologetic justifications, rationalizations, and other strategic perceptions that explain away the troubling eating behavior – what classical dissonance theory (Festinger, 1957) would term consonant cogitions. In Serpell's (1986) terms, "We fabricate elaborate and often mythological justification for their suffering that absolves us of blame" (p. 211). Researchers have developed several measures that identify the justifications that meat eaters endorse to convince themselves that eating meat is defensible, including the Meat-Eating Justification Scale (MEJ; Rothgerber, 2013), the 4N Scale (Piazza et al., 2015), Graca's Meat Attachment Questionnaire (Graca, Calheiros, & Oliveira, 2015) and Moral Disengagement in Meat Questionnaire (Graca, Calheiros, & Oliveira, 2016), and the Carnism Inventory (Monteiro, Pfeiler, Patterson, & Milburn (2017) – see Rosenfeld (2018) for a more detailed review of these five measures.

The MRCD framework formulates that the consonant cognitions that these scales identify can be grouped into three categories: those focused on animals themselves as entities separate from meat; those focused on meat itself; and those focused on denying responsibility for eating meat. From a dissonance perspective, endorsement of these justification scales helps individuals feel better about eating meat and reduces guilt over doing so, hence facilitating greater consumption (Piazza, in press). These perceptions allow individuals to act on a moral imperative and maintain their view of themselves as moral actors who do not inflict harm on others (Bandura, 1999).

Animal Based Reduction: Denial of Animal Mind and Dichotomization

A first set of MRCD prevention strategies are proposed to focus on the denigration of consumed animals. Individuals who trample over the rights of others often do so be degrading their victims as unworthy of proper regard (Bandura, 1990; 1999). Dissonance theory suggests that the more people hurt others, the more they vilify their victims in order to maintain their own self-justification, and the more they are resistant to evidence that what they have done is wrong. Sykes and Matza (1957) describe a process in which the transgressor neutralizes moral indignation at the self by denying the humanity of the victim and maintaining that the injury is not really an injury at all. To the extent that targets are not capable of suffering, judgments that moral harm has been committed against them diminish (Gray, Young, & Waytz, 2012). More specific to eating meat, Serpell (1986) notes that individuals distort facts about farm animals so that their death seems appropriate, necessary or deserved. For example, the fact that pigs survive and seem outwardly healthy despite the inhumane living conditions they endure leads individuals to conclude that they are debased, insensitive creatures unworthy of moral concern. Serpell (1986) attributes this tendency to view farm animals as objects rather than subjects as the

primary reason why livestock producers are resistant to humane reforms even when these

changes could be implemented without substantially increasing cost. The present framework

proposes that one technique, therefore, to reduce MRCD is to *deny animal mind*; that is, by

claiming that animals do not think, feel, and suffer the same way as humans do, meat eaters

reduce the aversive arousal brought on by eating them. In this view, beliefs about animals are

strategically malleable to suit an individual's motivational needs.

This argument has been directly supported by several experiments demonstrating that

when MRCD is triggered by some seemingly trivial psychological manipulation, individuals will

reduce dissonance perceptually by denigrating animals, which is frequently the option provided

for them. Bastian, Loughnan, and colleagues have found that eating meat during an experiment

(Loughnan et al., 2010), being reminded of a link between meat and animal suffering, being

expected to consume an animal in the imminent future, and judging animals rated as more

appropriate to eat (Bastian et al., 2012) all led participants to perceive animals as less capable of

experiencing sensations (e.g., hunger, pleasure, pain, etc.) and intellectual states (e.g., thinking,

planning, imagining, etc.). When dissonance was triggered by breaking the dissociation between

animal and meat, French participants attributed less mind to cows (Tian, Hilton, & Becker,

2016); in Rothgerber (2014a), the trigger was exposure to unimpeachable vegetarians, and it

produced a similar lowering of perceived animal capacity.

These experimental studies reinforce work demonstrating that meat eaters perceive less

human-animal similarity (Bilewicz, Imhoff, & Drogosz, 2011) and believe animals to possess

lower mental capacities than do vegetarians (Ang, Chan, & Singh, 2019). They are also

supported by recent work showing that the more meat eaters experience ambivalence toward

meat, the more likely they are to downplay the ability of animals to possess emotional and

intellectual states (Buttlar & Walther, 2018). Similarly, greater meat consumption is related to stronger beliefs that animals do not suffer and experience pain the same way as humans (Monteiro et al., 2017; Rothgerber, 2013). Together, these strategic perceptions help eliminate aversive consequences for behavior and thus, help participants resolve the conflict between eating animals and concern for their welfare; in Bandura's (1999) terminology, they help individuals achieve moral disengagement through denigrating the victim. When this process is disrupted and individuals think about psychological attributes of animals, especially their intelligence, they report greater disgust at the thought of eating them (Ruby & Heine, 2012).

Another strategy to reduce dissonance proposed by the MRCD framework involves a more subtle form of debasement that allows individuals to maintain positive connections with selected animals while justifying consuming others. *Dichotomizing* animals into those we love and those we eat explains all sorts of inconsistencies in the way animals are treated (see Herzog, 2010; Joy, 2011) and helps account for why Americans express outrage at dogs being eaten in some cultures while simultaneously disregarding the moral worth of chickens, cows, pigs, and other frequently consumed animals in their own. This selective application of the moral sphere to certain animals but not others is found in other cultures and in some cases, even within the same species. The native inhabitants of Polynesia, for example, become attached to pet dogs that are exempt from slaughter but remain detached from dogs that are to be eaten (Serpell, 1986). Recent evidence suggests that the aforementioned denial of animal mind among meat eaters only applies to animals that individuals consume. That is, the objects of consumption are denigrated but animals that serve human needs as pets are not perceived to have lower mental capacities (Ang et al., 2019).

Subtly creating different categories of animals based on human eating behavior appears to be a key mechanism to facilitate meat consumption in children. Stewart and Cole (2009) argued that all representations of nonhuman animals are defined according to their usefulness to humans and propose two independent dimensions by which humans define animals: in terms of their visibility and how objectified they are. The most privileged status is attached to pets who are both highly visible and treated as subjects with whom children form a close relationship. On the opposite extreme lie farmed animals, who are nearly invisible and who are objectified. To support the invisibility notion, Plous (1993) reported that only 3% of stuffed animal varieties from a major manufacturer were commonly eaten animals, i.e., cows, pigs, or chickens. Of the thirty-four stuffed animals offered by a large retail toy catalogue in the U.S., none featured a cow, pig, or chicken. Anderson and Henderson (2005) noted that in the majority of children's stories, there is a separation between consumed animals such as chickens, sheep, cows, and pigs, which are largely invisible and treated as replaceable commodities, and domesticated animals and pets, which become humanized. Stewart and Cole (2009) specified several story and communication techniques that blur the boundary between humans and these latter animals, thereby elevating our sympathy and fondness for them. Cruelty to domesticated animals is scorned, teaching children that while it is wrong to harm certain animals, it is simultaneously acceptable to eat others (Paul, 1996).

Meat-based Reduction: Meat as Natural, Normal, and Nice

The aforementioned strategies focus on the animal that constitutes the meat, but meat is an entity onto itself as well. The current framework proposes that some justifications do not focus exclusively on farmed animals and their derogation, but instead center on an understanding of meat itself with or without a recognition of the animals involved. These strategies generally

direct attention to meat consumption, rather than meat production. One pro-meat justification is the claim that eating meat is *natural*. This rationalization focuses on human relationships with animals and depicts the relationship, whether it be through religious or evolutionary forces, as one characterized by human dominance and animal subordination (see Piazza et al., 2015; Rothgerber, 2013). Appeals to biology, biological hierarchy, natural selection, human evolution, and to God him/herself represent abstractions that intellectually distance individuals from their eating habits. By focusing on human's standing in relation to animals, it is speculated that the meat eater is excused for outcomes that would otherwise be objectionable; animal suffering is rendered irrelevant, as a cost to the expression of being human. Indeed, greater endorsement that it is natural to eat meat is related to greater meat consumption, less inclination to change eating habits, and less willingness to try meat substitution products (Graca et al., 2015; Piazza et al., 2015; Rothgerber, 2013).

The MRCD framework suggests that there is also a pro-meat justification that derives an understanding of what it means to be human not from abstract theories of biology or religion but from considering the behavior of others, in this case what most others seem to be doing. Not specific to MRCD, social support acts as a consonant cognition (McKimmie et al., 2003; Stroebe & Diehl, 1981). That is, having someone else also commit a problematic behavior lessens the need to reduce dissonance through attitude change (Stroebe & Diehl, 1981), provided the behavioral support came from someone who shared a salient ingroup membership (McKimmie et al., 2003). The self-standards model of dissonance (Stone & Cooper, 2001) posits that people define what constitutes unwanted and therefore dissonance-provoking behavior by referencing commonly and consensually agreed benchmarks (Cooper, 2007). Dissonance only occurs when an event contradicts culturally shared norms. It is proposed, therefore, that MRCD is lessened to

the extent that meat eating is rationalized as a *normal* human activity, a deeply-ingrained habitual behavior that largely transcends culture. This social proof version of dissonance-reduction appeals to dominant societal norms and attempts to placate guilt by social reassurance. Because it is culturally acceptable to eat meat, the individual is speculated to feel less aversive arousal even when made aware of how their eating behavior may contradict a belief or lead to harmful consequences. In support of this argument, greater endorsement of meat as normal led to less guilt about eating meat and less drive to restrict meat from diet (Piazza et al., 2015).

A third pro-meat justification is speculated to emphasize gustation and that meat is simply too delicious, or *nice*, to avoid. Endorsement of such hedonic sentiments has been shown to be positively related to meat consumption, to great commitment to maintain eating meat, and to less guilt over doing so (Piazza et al., 2015; Rothgerber, 2013). Fondness for the taste and sensory qualities of meat may seem like a weak moral defense, but it is proposed that individuals convince themselves that the personal pleasure from eating meat makes its problematic nature more tolerable. The importance placed upon the taste of meat and how fulfilling and satisfying it is can be seen as drawing social identity boundaries between meat eaters and abstainers. Vegetarians frequently display revulsion and disgust toward meat, especially its sensory characteristics such as taste and smell (Barr & Chapman, 2002; Beardsworth & Keil, 1992; Kenyon & Barker, 1998). Even more, what distinguished strict vegetarians from similar groups – conscientious omnivores and semi-vegetarians – was the degree to which the former was disgusted by meat and disliked its sensory characteristics (Rothgerber, 2014b; Rothgerber, 2015b). Attesting to the importance of taste, in several studies participants perceived taste to be the biggest barrier to reduce meat consumption and adopt a vegetarian diet (Lea & Worsley, 2003; Pohjolainen, Vannari, & Jokinen, 2015).

Denial of Responsibility: Meat as Necessary, Third Party Blame, and Moral Outrage

It is possible that individuals may view meat as involving animals that experience pain and have capacity and eschew pro-meat justifications for meat consumption, yet still not experience MRCD by denying their responsibility in the matter. Early in dissonance theory it was discovered that lacking the freedom to avoid a dissonant act would serve as an important consonant cognition (Linder, Cooper, & Jones,1967), and the new look dissonance also incorporates this as it posits that the individual must feel personally responsible for bringing about the aversive event if dissonance is to occur (Cooper & Fazio, 1984). Without responsibility, disapproval of self or others is sharply reduced as a restraining influence (Sykes & Matza, 1957).

The MRCD framework posits that one way to deny responsibility is to perceive oneself as having no choice in the matter because of beliefs that meat is *necessary for good health*. This may explain why meat eaters strongly believe that it is unhealthy to forego meat consumption and why the more this view is endorsed, the more individuals reported eating meat (Piazza et al., 2015; Rothgerber, 2013). By convincing themselves that meat is necessary for survival, the individual does not feel responsible for harming animals. Meat as necessary is one of the 4N's of meat justification (Piazza et al., 2015) and its endorsement has also been correlated with lower drive to restrict animal products from diet, greater commitment to eating meat, and less guilt about animal-product decisions (Piazza et al., 2015).

Beyond convincing oneself that eating meat is not a choice at all, the framework also suggests that individuals may obscure personal responsibility for the mistreatment of farmed animals by minimizing their own influence and blaming other entities in the food system. Consumers generally claim that they are powerless to improve animal welfare standards (Harper

& Henson, 2001), with majorities in a European sample believing that their voice matters little

(Mayfield et al., 2007). Majorities also indicate that they would like more information about the

treatment of farm animals when making purchasing decisions (European Commission, 2006;

Harper & Henson, 2001), which in part seems a self-protective claim to reduce dissonance

because individuals avoid such information when made available (Harper & Henson, 2001).

Only a small minority believe that farm animal welfare is primarily a matter for consumers

(European Commission, 2015). Responsibility is instead abrogated to other agents, such as

governments (Harper & Henson, 2001; Miele, 2010; te Velde et al., 2002) for failing to

implement sufficient and effective laws and to retailers for failing to offer humanely produced

meat (Miele, 2010; te Velde et al., 2002). This *third party blame* or "shifting the blame"

(Serpell, 1986) is an age-old device to distance individuals from the killing of animals and place

responsibility elsewhere. In New Guinea, for example, a division of labor allows women to care

for and nurture pigs and remain blameless for their death, a task which befalls the men who have

no prior relationship with the animals. In many industrialized societies, a division of labor

within animal farming (e.g, breeder, growing to slaughter weight, transport to slaughter, etc.)

allows each farmer to evade the full burden of responsibility (Serpell, 1986).

At times, the framework speculates that individuals may also express *moral outrage* at

third party transgressors in the food system or even at others who mistreat animals outside the

food context as a way to reduce MRCD. Such moral outrage has been shown in part to be

motivated by an effort to assuage personal guilt and cast dispersions on others (Rothschild &

Keefer, 2017). For example, Rothschild, Landau, Sullivan, and Keefer (2012) found that

reminders of participants' own environmentally destructive behavior increased their willingness

to blame corporations for harming the environment. Affirming participants' moral identity in an

unrelated context eliminated this guilt-driven blame. The opportunity to express outrage reduced

guilt and restored perceived personal morality (Rothschild & Keefer, 2017). This suggests that

individuals may express defensive outrage over the treatment of farmed animals in part to restore

a moral identity, in this case reducing MRCD by convincing oneself that their eating behavior is

regrettable, but not really under their control. This is related to the phenomenon of distancing, a

way of coping with ethical dissonance by hiding one's own moral violation while pointing to

other people's moral failings (Barkan et al., 2015).

As shown in Figure 1, the current framework proposes that when individuals reduce

MRCD through perceptual distortions about meat and animals, these justifications become

practiced and more accessible, thus strengthening individuals' commitment to and belief in them.

It is speculated that such justifications allow individuals to continue consuming meat with less

guilt or aversive arousal. What may be less apparent is the suggestion that activating and

elaborating on these justifications for eating meat likely causes individuals to increase their meat

consumption. Essentially, by reassuring themselves that eating meat is morally justifiable, the

behavior becomes more attractive. In essence, the MRCD framework proposes that experiencing

MRCD is double-edged: It may lead some to assuage guilt by abandoning meat consumption, but

for many others, it will increase meat consumption through the formulation and strengthening of

justifications.

Although increasing attention is being paid to delineate and expound upon the strategies

by which meat eaters prevent and reduce MRCD, research is less informative about the relative

popularity of each of these dissonance prevention and reducing mechanisms and about

specifying upon what this popularity depends. Most often, investigators will only make

available one means of reducing MRCD (but see Tian et al., 2016), preventing conclusions about

whether participants would have chosen that means of dissonance reduction if others had been available. Given the importance of which mechanisms meat eaters employ to negotiate MRCD, the next section sets out to identity some factors that may predict these choices and generates predictions awaiting further tests.

Predicting the MRCD Prevention/Reducing Mechanisms

The Aspect of Meat Eating that Produces MRCD

In keeping with the attention given to the meat paradox, the manuscript has focused on concerns that eating meat is harmful to animals, but MRCD may also originate from reminders that eating meat is harmful to the planet or to personal well-being. Some individuals may be more susceptible to one form given their unique values and priorities, and the context itself may encourage one form of MRDC to be activated, as would occur if a publicized study found meat to be harmful to health, or a new report cited meat as a major contributor to climate change. That said, consistent with the current emphasis, there is reason to believe that MRCD is most likely to emerge with concerns related to animal welfare. For example, environmental science graduate students in the Czech Republic were more likely to cite animal welfare concerns as problematic for meat consumption than environmental concerns, even though the latter was their area of study and they were knowledgeable about meat's danger to the environment (Šedová, Slovák, & Ježková, 2016). To speculate, perhaps MRCD seems strongly tied to animal harm because this link is most obvious and visible, while feeling guilty about eating meat because of environmental or personal health concerns may be based on more remote factors and may require greater knowledge. One hypothesis is that MRCD based on threats to personal health may be the least common, as one dissonance-reducing mechanism is the previously noted widespread belief that animal protein is necessary to promote good health.

This distinction about what issue directs MRCD has typically been ignored as investigators of the meat paradox have focused on unpleasantries related to animals. But centrally, the framework emphasizes that how individuals reduce MRCD depends on what is salient in the first place. When environmental and personal health concerns compel MRCD, mechanisms related to animals – denial of animal mind, dichotomization, and dissociation – are hypothesized to disappear as motivated cognitions and prevention tactics. In general, one could speculate that concerns over personal health may be likely to be prevented by perceiving oneself as restricting meat intake and strategically avoiding information linking meat eating with negative health outcomes and reduced by justifying meat as necessary for health and by emphasizing other healthy behaviors one practices. Environmentally-activated MRCD may be speculated to be prevented by perceiving oneself as restricting meat intake, strategically avoiding information liking meat with negative environmental outcomes, and derogating vegetarians who pose a moral threat, and reduced by denying responsibility. In part, which mechanism is preferred is hypothesized to depend on the specific motivation created by MRCD. The next section discusses the impact of motivation for the prototypical cases of MRCD, those involving concern for animal welfare.

The Motivation Created by MRCD

MRCD – like other forms of dissonance – seems to involve arousal, as anticipating moral reproach from vegetarians increased negative emotions (Rothgerber, 2014a) and thinking about the intelligence of lamb along with typical conditions of its life, death, and processing increased negative affect in women (Dowsett, Semmler, Bray, Ankeny, & Chur-Hansen, 2018). There are various motivations that may cause the arousal state associated with MRCD, a source of

theoretical contention for CDT historically. The current framework proposes that what motivates MRCD is important because it helps determines how it is resolved.

Next, I consider the versions of dissonance theory that seem to have the most relevance for MRCD and hypothesize on different MRCD prevention and reduction mechanisms most likely to be associated with each. This entire section should be viewed as speculative because to date, there has been little, if any, research on what type of dissonance motivation is associated with MRCD.

Inconsistency. Classical dissonance theory (Festinger, 1957) posits that cognitive dissonance occurs when an individual believes that two of their cognitions (beliefs, opinions, attitudes, perceptions, or knowledges about persons, objects, issues, and so forth) are inconsistent with each other. Most often the inconsistency results from discrepancies between what people think (i.e., attitudes, beliefs, etc.) and what people do (i.e., behaviors). From this perspective, MRCD could arise from knowledge that "I eat meat," which is incongruent with the recognition that "I don't like to hurt animals." The more discrepant the cognitions, and the more they matter to the individual, the greater the magnitude of dissonance. Formally, dissonance magnitude can be defined as the SUM (all discrepant cognitions x importance)/SUM (all consonant cognitions x importance). If meat eating is the troubling behavior, then consonant cognitions would involve motivated perceptions that are consistent with or help explain away eating meat.

In Festinger's (1957) original version of CDT, all the reviewed prevention and reduction strategies would be hypothesized to alleviate the cognitive dissonance state because they all (a) serve to help avoid thinking about eating meat or animal welfare (i.e., the prevention strategies), (b) qualify as consonant cognitions (i.e., the strategic perceptions to reduce MRCD), or (c) reduce discrepant cognitions (i.e., behavioral change). While certain individual differences may

bias people toward one strategy over another, they should all be attractive because they reduce

the magnitude of dissonance, noting that people generally prefer perceptual to behavioral change.

Responsibility based revisions. According to the New Look model of dissonance

(Cooper & Fazio, 1984), the cognitive dissonance state occurs when a behavior produces

aversive consequences individuals want to avoid (Cooper & Worchel, 1970; Goethals & Cooper,

1972) for which they feel personally responsible (Beauvois & Joule, 1981). Perceived personal

responsibility is absolved if individuals believe they had no choice in committing the behavior

(Linder et al.,1967) and/or the consequence was unforeseeable when they made that choice

(Cooper, 1971). From this perspective, MRCD would arise from knowledge that "I eat meat"

along with a belief that "eating meat harms animals," provided the individual perceives

themselves to have made the choice to eat meat freely and that they could have known it was

harmful to animals when they decided to eat meat. The responsibility revisions focus on

rationalizing the behavior through a change in attitudes as the primary way to reduce cognitive

dissonance state. Attitude change here is not motivated to restore consistency, but to render the

consequences of behavior non-aversive.

If MRCD occurs because an individuals' eating behavior produces aversive consequences

they wish to avoid and for which they feel personally responsible, then the goal of dissonance

reduction is to convince individuals that the consequences of their behavior are non-aversive or

that they are not responsible for their behavior. One primary option, therefore, is hypothesized to

involve trivializing the consequences of eating meat by denying mind capacity to animals. If

animals cannot suffer the same way as humans and their perceived capacity is diminished, then

the animal welfare consequences of eating meat seem negligible. Of course, it may also be

possible to deny that individuals are causing harmful consequences to animals by preventive

strategies such as avoiding thinking about animal welfare, willfully remaining ignorant of it, dissociating meat from the animal, and preserving the illusion that they are not really eating that much meat. Denying personal responsibility is also hypothesized to be achieved by claims that meat is necessary for good health, and by expressing moral outrage at other implicated constituencies in the food production process, such as governments, farmers, and retailers for not curtailing abuses against animals.

     Self-based revisions. Some revisions of CDT emphasize the effect of threats to self-integrity in activating negative arousal. According to self-based modifications, the cognitive dissonance state occurs when an individual's behavior is inconsistent with their self-concept (self-consistency; Aronson, 1968), or when it threatens their sense of self as worthy, morally rectitude, or competent (self-affirmation; Steele, 1988). From these accounts, MRCD may arise from the knowledge that "I eat meat," along with a belief that "compassionate people don't hurt animals." Both these approaches connect dissonance reduction to restoring an individual's threatened self-conception although there is an important distinction between them.

     In the self-consistency view, the restoration must be targeted at the specific inconsistency producing the cognitive dissonance state. Individuals may decide, for example that they are not moral or competent for eating animals, but more likely they would seek to change other attitudes or relevant cognitions about animals or meat to feel more worthy. In the self-affirmation view, anything that reaffirms the integrity of the self, even if it does not directly resolve the inconsistency, will reduce the cognitive dissonance state. An even more inclusive perspective on CDT is the Meaning Maintenance Model (Proulx, Inzlicht, & Harmon-Jones, 2012), which outlines that the cognitive dissonance state does not require a self-threat and could be reduced by any process that reduces the arousal if not the inconsistency. This view suggests

that dissonance reduction can occur by means unrelated to the inconsistency, such as regaining control, looking for rules, or affirming familiar values and beliefs.

If self-consistency is implicated, restoring a threatened sense of self in the face of MRCD may be accomplished by perceptually emphasizing that one does nice things for (non-consumed) animals – a process relying on dichotomization, that one is morally outraged by the immoral actions of others, and that one is offended by vegetarians and their claims of moral superiority. While these perceptions all help the individual feel better about themselves by focusing attention specifically on eating meat, self-affirmation accounts (and even more broadly, the meaning maintenance model) would also emphasize that individuals may consider any good actions that they do, even behavior unrelated to eating meat itself, an example of what Barkan et al. (2015) term moral licensing. Whether self-consistency or self-affirmation is involved, prevention mechanisms such as avoidance, willful ignorance, and dissociation would also help protect the self from recognition that the individual is doing something unworthy and immoral when eating meat.

Individual Differences

While the popularity of MRCD prevention and reducing mechanisms may depend on somewhat context-driven factors such as the aspect producing MRCD and the motivation created by it, the use of these mechanisms is also speculated to be connected to more enduring individual differences. The individual difference approach has received some attention in the meat eating literature, as there has been recent interest in identifying different types of meat eaters (see Graca et al., 2015; Onwezen & van der Weele, 2016), in part because of the logic of segmentation, the idea that different groups of people will be more or less persuaded by different messages. These types of analyses differ in what factors differentiate between different types of meat eaters, but

most place individuals on a continuum from more meat attachment to less. The present framework would predict that those more attached to meat derive more value from it and would be more likely to reduce MRCD perceptually through motivated cognitions. Those less attached to meat derive less satisfaction from meat and should rely on preventive strategies to reduce MRCD, and if those fail, would be predicted to be more likely to embrace behavioral change than those more committed to meat. Below are a few individual differences that may impact how MRCD is handled, along with relevant research.

Gender. There is reason to suspect that gender is an important predictor of an individual's proclivity to adopt a particular technique to reduce MRCD. A number of studies have found that gender is the single biggest predictor of attitudes toward animals and consumption of animals (e.g., Gossard & York, 2003; Kellert & Berry, 1987; Vollum, Buffington-Vollum, & Longmire, 2004). Women form stronger emotional attachments to pets, revealed greater anthropomorphic feelings toward animals, are more concerned about the suffering of lab animals, favor more the animal protection movement, and favor increased restrictions on animal use (Broida, Tingley, Kimball, & Miele, 1993; Eldridge & Gluck, 1996; Kellert & Berry, 1987; Knight, Vrij, Cherryman, & Nunkoosing, 2004). In contrast, Kellert and Berry (1987) found that men expressed stronger support for utilitarian and dominionistic attitudes toward animals. The former is indicated by a willingness to agree with the exploitation of animals while the latter is related to deriving personal pleasure from achieving control over animals.

Perhaps not surprisingly, these gender differences in attitudes toward living animals affect attitudes and behavior toward meat. Women expressed more disgust and negative attitudes toward eating meat than men (Kubberod et al., 2002a; Kubberod et al., 2002b) and

reported eating less meat across samples from different nationalities (Allen, Wilson, Ng, & Dunne, 2000; Kubberod et al., 2002; Prattala et al., 2006; Rozin, Hormes, Faith, & Wansink, 2012; Santos & Booth, 1996). Among flexitarians, gender predicted openness to going vegetarian, even beyond identity, motivational, or social contextual factors (Rosenfeld, Rothgerber, & Tomiyama, 2019). Additionally, a number of researchers have discovered that a greater percent of women report being vegetarian (e.g, Cramer et al., 2017; Forestell & Nezlek, 2018; Kalof, Dietz, Stern, & Guagnano, 1999); attesting to the strength of the effect, gender (femaleness) was the single biggest predictor of vegetarianism in a large-scale American database (Gossard & York, 2003).

One of the reasons that women are more likely to disavow meat is that animal flesh is associated with power, dominance, and masculinity, attributes embraced by men (Adams, 1990; Allen & Ng, 2003; Lea & Worsley, 2001; Rothgerber, 2013). When the values symbolized by a product are incongruent with personal values, individuals like the taste of the product less and have less favorable attitudes and behavioral intent to purchase the product (Allen, Gupta, & Monnier, 2008). The importance of value differences in affecting the evaluation of meat was confirmed in one study revealing that gender differences in vegetarianism disappeared after controlling for differences in values and beliefs (Kalof et al., 1999).

Because of their greater affection and compassion toward animals and greater distancing from meat and the values it represents, women display different ways of handling the contradictions instigated by meat consumption than men. In contrast to men who relish opportunities to display mastery over animals, women find it more difficult to justify eating animals, giving less endorsement to justification strategies that reduce MRCD (Rothgerber, 2013). Women prefer "look-the-other-way" strategies that prevent MRCD by dissociating the

animal from the food on their plate and by avoiding thinking about how the animal was treated before arriving to the plate (Rothgerber, 2013). They also deliberately underreport their meat consumption when the context leads them to anticipate MRCD (Rothgerber, 2019). Men, on the other hand, are less apologetic and uncomfortable eating meat. They prefer to reduce MRCD by endorsing pro-meat justifications (Piazza et al., 2015; Rothgerber, 2013) and by denying animal mind (Rothgerber, 2013).

Values. As noted, men and women differ in how they negotiate MRCD largely because they hold different values. Independent of gender, values have been shown to influence attitudes toward animals and meat. Relative to meat eaters, vegetarians reject social power, social dominance, inequality, and authoritarianism (Allen et al., 2008; Allen et al., 2000; Bilewicz et al., 2011; Kalof et al., 1999). This seems logical given that meat symbolizes these attributes and that plant-derived foods represent a rejection of these values (Adams, 1990; Allen & Ng, 2003; Allen et al., 2008; Lea & Worsley, 2001). Individuals who endorse ideologies such as right-wing authoritarianism and social dominance orientation (SDO) are more likely to justify the exploitation of other species, tolerate animal cruelty, and report high levels of meat consumption (Dhont & Hodson, 2014; Dhont, Hodson, Costello, & Macinnis, 2014; Dhont, Hodson, & Leite, 2016). Even after controlling for SDO, political conservatives hold more negative animal welfare attitudes, offer less support for animal welfare, and harbor greater speciesism than liberals (Hoffarth, Azevedo, & Jost, in press; Smith, Marsden, & Kim, 2017). Because of these documented differences, even though there is no data comparing liberals and conservatives in how they respond to MRCD, the framework would hypothesize that conservatives would behave more like men and would embrace direct, unapologetic justifications for eating meat such as denying animal mind and espousing pro-meat justifications; liberals, who hold greater

sympathies toward animal welfare would be hypothesized to be more motivated to prevent

MRCD from occurring in the first place, adopting similar mechanisms as employed by women

and would be more adverse to handling MRCD perceptually, opting instead to curtail meat

consumption.

Affection toward animals and toward meat. From a dissonance perspective, two types

of meat-eaters stand to experience the most tension when confronted with reminders that their

eating behavior is harmful to animal welfare: those that love animals the most and those that love

meat the most. Meat eaters with particular affection toward animals would likely perceive

MRCD to be especially troubling, as either the inconsistency would be difficult to ignore, the

aversive consequences of their eating behavior perceived as large, or the violation of self-

standards poignant. The framework would speculate that similar to women and liberals, such

individuals would likely find many of the MRCD reduction strategies unappealing, especially

denying animal mind and pro-meat justifications, and thus, attempts would be made to prevent

MRCD from ever occurring. Those loving the taste of meat would be predicted to be pulled in a

different direction. For such individuals, the value gained in eating meat is large, and therefore,

such individuals would likely be highly motivated to engage in motivated psychological

distortions about animals and meat to maintain the desired behavior.

Exposure to farm animals. Serpell (1986) notes that although farmers, livestock

herders, and hunters all exert dominion over animals, the former groups have a vested interest in

identifying the individual temperament, moods, and other characteristics of each animal under

their care. Farmers become acquainted with individual animals and may become attached to

them; thus, the eventual deliberate infliction of suffering on these animals produces greater guilt.

Because of the bond between farmer and animal that Serpell (1986) describes, the framework

would predict that farmers would be unlikely to reduce their MRCD by denying animal mind; after all, it promotes their livelihood and well-being to distinguish between the animals they raise. Support for this prediction was recently attained by Peden et al. (in press), who found no evidence that pig farmers denigrated the capacities of pigs to experience various emotional states. Others working in the food production process, whether it be in the slaughterhouse or the chef's kitchen, may experience large amounts of MRCD but lack the intimacy with animals experienced by farmers. These groups would likely score high on strategic perceptions to reduce MRCD although this remains untested.

Culture

The experience of cognitive dissonance is not only shaped by individual difference factors but also by cultural heritage. An examination of how and whether cognitive dissonance is manifested in different cultures is a relatively recent addition to mainstream cognitive dissonance work, and it has been given little attention in relation to MRCD. After some controversy, cognitive dissonance is now understood to potentially affect anyone, but what activates dissonance varies by culture (see Cooper, 2007; Hoshino-Browne et al., 2005; Kitayama, Snibbe, Markus, & Suzuki, 2004). Of specific relevance to MRCD, there is considerable diversity across cultures in the extent to which it is considered acceptable to exploit and harm certain animal species (Joy, 2011). More generally, to the extent that MRCD involves considering one's behavior and discovering that it falls short of personal or normative standards, and that culture affects these standards, the MRCD framework proposes that MRCD will be experienced differently depending on cultural background.

There is tentative support for this general hypothesis. Tian et al. (2016) examined whether French and Chinese participants would show evidence of dissonance reduction

following conditions designed to heighten MRCD. Following exposure to visual stimuli making the animal origin of meat explicit, French but not Chinese participants rated cows as being lower in agency-related mental states. These dissociation-disrupting conditions led participants, without distinction of national origin, to express less willingness to eat beef in two studies. Participants' cultural origins predicted their reactions to the study, at least in terms of beliefs about animal mind; the trouble lies in explicating what accounts for the detected effects.

One possibility is that French participants were more sensitive to MRCD in general, because as Tian et al. (2016) note, eating behavior may be tied more to their self-concept than for Chinese participants. A second possibility is that cultures may not differ in general susceptibility to MRCD but that what specifically triggers MRCD may differ culturally. Because food production is more hidden in France than China, it may have evoked greater dissonance in the French sample (Tian et al., 2016). That cultures may differ in their sensitivity to dissociation has been shown in other studies (Kunst & Haugestad, 2018; Mayfield et al., 2007). For example, Mayfield et al. (2007) found that the majority of Swedes were not bothered by thinking of the animal origin of meat when eating it, that British consumers were ambivalent about it, and that Italians were more polarized in their reactions to undoing dissociation. Kunst & Haugestad (2018) claim that the potency of the dissociation mechanism seems to depend on how accustomed consumers in a country are to viewing unprocessed meat, as Ecuadorians were less impacted by seeing a pork roast with its head on than were Americans. The cultural specificity in activating MRCD has also been shown in a study that found reminding consumers about animal's psychological attributes led to more disgust in North America (i.e., Canada or the US) than in Asia (i.e., China or India; Ruby and Heine, 2012). A third possibility for the results attained by Tian et al. (2016) is that Chinese participants experienced as much MRCD as French

participants, but that they preferred to reduce it in a different manner. Perhaps their greater

familiarity with animals in the production process or other deeper cultural values made them feel

more connected to animals in a way that made them averse to denying animal mind.

Although much more empirical work is needed to explore how MRCD is experienced,

blunted, and reduced in different cultures, I would speculate that a critical factor seems to be the

extent to which it is considered culturally acceptable to exploit and harm certain animal species.

In addition, the following are posited to be a few likely moderators: exposure to unprocessed

meat; exposure to farm animals; the treatment received by these farm animals; the way the

culture represents relationships with animals including pets; the importance of taste; beliefs

about personal responsibility; and beliefs about God and human standing relative to animals.

Each of these likely impacts the overall MRCD experienced by a culture, what would trigger

MRCD, and preferred options to prevent and reduce MRCD.

Researchers, therefore, need to be very careful in interpreting cross-cultural data on

MRCD. Cultural differences on some outcome could be attributable to overall differences in

MRCD susceptibility, to differences in the way that MRCD is activated within a culture, or to

differences in the way that MRCD is prevented or reduced. Ideally, these differences would be

systematically built into the study design and tested. Even a null finding does not necessarily

indicate equivalence. The lack of difference in willingness to eat beef between French and

Chinese in Tian et al. (2016) may indicate that both groups experienced similar amounts of

MRCD, but it could also result from one group experiencing higher MRCD than the other

combined with a lower desire to reduce MRCD behaviorally.

Implications of the MRCD Framework

The present work has offered a framework for understanding how meat eaters are able to dissipate negative arousal given that their eating behavior has potentially negative consequences for animals, the environment and personal health. It has reviewed research examining how MRCD is prevented and reduced and identified factors that may predict the popularity of these mechanisms, citing empirical evidence when available. This next section is more speculative and attempts to outline several possible implications of the current framework. Specifically, I examine the implications of the framework on reducing meat consumption, on methodological factors affecting how to measure MRCD reduction, on the importance of seeking behavioral commitment first, and on how MRCD is impacted by outside factors including the price of meat, the prominence of plant-based substitutes, and the rise of campaigns to increase moral awareness of animal suffering, suggesting that each will likely lead some individuals to eat less meat but others to consume even more of it.

Targeting MRCD Prevention and Reducing Strategies

There are a variety of approaches to reducing societal meat consumption, including levying pressure on institutions and organizations to change policy and on the political system to seek changes to legislation that subsidizes inexpensive meat. The current work concentrates on the individual psychological level, and the current framework suggests that it is advantageous to confront the strategic perceptions and distortions that meat eaters endorse when their eating behavior is threatened. That is, the MRCD framework implies that actors and stakeholders seeking to curtail meat consumption would benefit by challenging and delegitimizing the very mechanisms by which meat eaters will bolster meat eating when they believe it be questioned.

Although this approach could conceivably target any motivated cognition, such as pro-meat justifications or denying responsibility, the few published interventions seem to focus on

the denigration of animal mechanism. For example, to interfere with the denial of animal mind,

Wang and Basso (2019) had participants read about a restaurant where customers or the staff

played with piglets or where there were reminders that pigs were similar to humans. Across

several experiments, individuals had less favorable attitudes toward pork, generated greater guilt

in thinking of consuming pork, and were less likely to buy and to eat pork when they were

induced to think about pigs in humanizing terms. Although the treatment conditions disrupted

the dissociating of pigs from pork products, the comparison conditions did this as well. What

seems to make this intervention successful, therefore, is that anthropomorphisizing animals

likely has the effect of undoing the denial of animal mind. While meat eating is bolstered by

minimizing the perceived mental and sensory experiences of animals, encouraging the opposite

thinking makes it harder to justify eating an animal who would be perceived as more capable of

pain and suffering. Preventing the denigration of farm animals offers promise, but there are still

numerous questions to explore such as how long these effects persist and why these

manipulations did not transfer to cows (Wang & Basso, 2019).

Interventions may also target the mechanisms that allow meat eaters to prevent

experiencing MRCD in the first place. When it comes to attitudes and behavior toward eating

meat, individuals act very differently as citizens than they do as customers (Schröder &

McEachern, 2004; te Velde et al., 2002; Verbeke, Pérez-Cueto, de Barcellos, Krystallis, &

Grunert, 2010). As citizens, they value farmed animal welfare, desire better treatment for

animals, and want greater transparency and assistance in making purchasing decisions (Knight et

al., 2003; Miele, 2010; te Velde et al., 2002; Vanhonacker et al., 2007). They may even vote in

support of referendums mandating more humane treatment of farmed animals. As consumers

though, individuals do not want to be reminded of the life and death of animals or their welfare

when shopping (Mayfield et al., 2007; Miele, 2010). They are able to divert their own attention away from the moral consequences of their purchasing behavior at little psychological cost (Hestermann et al., 2018).

This suggests a couple of actions. Ballot initiatives may not only achieve favorable legislative outcomes, they may make animal welfare salient to citizens – increasing their MRCD – and in turn, influence their behavior as consumers. For example, demand for free range eggs rose dramatically during the ballot period in which an initiative called for reducing the confinement of farm animals (Norwood & Lusk, 2011). Another approach is to intentionally disrupt dissociation in the grocery store, as Hoogland et al. (2005) achieved in finding that reminders of the animal origin of meat led to a decrease in meat purchasing for some participants. Their manipulation cannot ordinarily be accomplished without outside cooperation, but one may speculate that repeated reminders in other media may eventually affect the consciousness of shoppers. Making salient that meat is derived from animals may also be realized by food labels on meat that could also reveal information about farm animal treatment, potentially disrupting avoidance and willful ignorance in the process. To force individuals to grapple with inconsistencies between their attitudes and values on the one hand and behavior on the other, the present framework would suggest that campaigns attempt to increase awareness of the conditions under which farm animals live and die. Such presentations potentially make it more costly to maintain dishonest beliefs (see Hestermann et al., 2018; Rabin, 1994) and force individuals to confront that their eating behavior and sentiments toward animals are misaligned. They also counter a phenomenon whereby meat eaters reject on moral grounds many of the specific practices involving animals they consume (e.g., Miele, 2010; te Velde et al., 2002).

Unchecked, these expressions seemingly allow individuals to gain moral validation while simultaneously eating meat, and their ignorance may allow them to evade feelings of hypocrisy.

Together, these tactics would help make animal welfare stand out as a primary ethical concern among consumers, and this transformation may lead to purchasing patterns more consistent with people's expressed affection toward animals. Research on the ethical consumer intention-behavior gap shows that even ethical consumers are quick to rationalize unethical purchasing behavior (Szmigin, Carrigan, & McEachern, 2009), but that this changes for the one or two ethical concerns embedded into their shopping habits. Consuming in violation of these primary ethical concerns creates cognitive dissonance, and ethical consumers are in the process of integrating primary issues into their shopping habits or have already embedded them into their routine choices (Carrington, Neville, & Whitwell, 2014).

The proposed framework also implies that there is utility in targeting different MRCD strategies in different populations. In general, the present work suggests that the intervention should correspond to the MRCD prevention or reduction mechanism most likely embraced by the target. When trying to reduce meat consumption among those whose MRCD is motivated by, or is suspected of being motivated by a concern over aversive consequences, the framework speculates that appeals should proactively counter beliefs that farm animals lack capacity, that meat is necessary for good health, and that consumers play no responsibility in harming animals. In addition, it would suggest exposing MRCD prevention mechanisms that enable individuals to pretend that animals are not harmed when they consume meat. Among those likely to experience MRCD because of concerns with self-violations, the framework offers that arguments should undermine dichotomization by emphasizing similarities between consumed and non-consumed animals and should remind individuals how eating meat violates their notions of themselves,

regardless of how much they express outrage at other transgressors, ridicule vegetarians, or think of other positive actions they have committed.

When targeting women, those holding values encouraging empathy toward animals, and those less attached to eating meat, the framework suggests that actors and stakeholders working to decrease meat consumption should target prevention strategies, specifically trying to remind individuals that they consume regular amounts of meat derived from an animal that is treated inhumanely. Increasing MRCD in this population would be predicted to be more likely to lead to behavioral change, as the cost of maintaining dishonest beliefs is potentially high, and reduction strategies focused on denigrating animals would seemingly be distasteful.

When targeting men, those holding more conservative attitudes discouraging empathy toward animals, and those more committed to eating meat, the framework implies that triggering MRCD is likely to backfire, as such individuals would likely respond with motivated perceptions reducing the cognitive dissonance state, resulting in even greater subsequent meat consumption. Trying to define meat eating as an immoral activity may, therefore, cause those favorable to it to consume even more meat. Alternatively, one could venture that it may be possible to take advantage of differences between conservatives and liberals in what domains of morality they value most. While liberals endorse the harm/care and fairness/reciprocity domains more than conservatives do, conservatives value purity/sanctity, among others, more than do liberals (Graham, Haidt, & Nosek, 2009). Thus, while emphasizing that eating meat is cruel and involves treating animals unfairly may resonate with liberals, it likely would not with conservatives. To speculate, underscoring how contaminated and polluted factory farmed animals are with antibiotics, hormones, unnatural feed, and other toxins, and how the industry leads to a contaminated and polluted physical environment may offer greater appeal to

conservatives. Appealing to the purity/sanctity moral domain was successful in influencing

conservatives to hold more favorable attitudes and support for policies on a related domain,

protecting the physical environment (Feinberg & Willer, 2013). Another suggestion is to frame

social change messages about eating meat to conservatives as preserving, rather than replacing

traditional culture and institutions. The protection of animal welfare could be framed as patriotic

in that it preserves traditional values and highlights the way in which the recent industrial

practice of factory farming is undesirable compared to older farming practices (Hoffarth et al., in

press). In general, the framework would predict that frames are more likely to succeed with

those highly committed to eating meat to the extent that they match other values held by such

individuals and that they provoke as little MRCD as possible, lest the intervention potentially

increase motivated justifications and subsequent meat eating.

Measuring Dissonance Reduction

The MRCD framework not only has implications for stakeholders aiming to curtail meat

consumption, it has relevance for academic researchers seeking to understand how individuals

make moral decisions and rationalize potentially problematic behavior. The framework makes it

clear that individuals have wide latitude in how they reduce MRCD and also offers an initial step

in outlining factors affecting the popularity of these mechanisms. Unfortunately, research

activating MRCD has not allowed participants to express their most preferred choice of

dissonance reducing mechanism by generating their own responses; rather, the options for

dissonance reduction are produced a priori by the experimenter. Even more problematic,

participants are typically only given one outlet with which to relieve the cognitive dissonance

state. The particular dissonance reducing mechanism available may not be individuals' first

choice, or to speculate, even one that would be endorsed in a real-world setting where there may be a number of available options.

When individuals are given multiple ways of alleviating the cognitive dissonance state, the order in which the MRCD reducing mechanisms are presented may be important. For example, following a dissonance manipulation in Tian et al. (2016), participants reported less willingness to eat beef when it was assessed before but not after a measure of the perceived capacities of cows. This reaction is understandable given that participants felt tension and arousal, were motivated to reduce this dissonance, and did not necessarily know what questions were coming next. In such a scenario, it seems logical to reduce dissonance the first way possible.

This suggests that methodologically, researchers may need to be careful in drawing conclusions from studies in which participants are afforded a single way of reducing MRCD. But the difficulty of assessing MRCD reduction may not end there, for researchers potentially need to be careful about interpretations when there are multiple outcomes assessing dissonance reduction. To speculate, if scores on one measure affect scores on the other, the last outcome measured may potentially be compromised with inflated or depressed scores depending on its relationship to the first outcome. When assessing multiple outlets for dissonance reduction, therefore, the current framework suggests that researchers need to incorporate the order of outcome measure into the design and analysis.

Seeking Behavioral Commitment First

In Tian et al. (2016), participants reported lower behavioral commitment to meat when they were given the opportunity to reduce MRCD behaviorally before perceptually. Although more empirical work is needed to substantiate this finding, one interpretation is that when first

given a chance to reduce dissonance behaviorally, individuals do so by reporting that they would eat fewer animal products in the future, but first allowing individuals to perceptually reduce their dissonance led them in the next instance to report that they would consume more meat products in the future. Once the perceptual denigration has occurred, consistency demands that behavior follows.

For those striving to inhibit meat consumption, the framework proposes that if you want individuals to respond to MRCD in a positive way, it is critical that they immediately be asked to make some behavioral commitment, or else they may reduce their arousal by perceptually denigrating animals. In the absence of a behavioral commitment, then, appeals to vegetarianism or meat reduction will not only be neutralized, one may speculate that they may backfire by increasing negative sentiment toward animals. Research on the foot-in-the-door phenomenon (Freedman & Fraser, 1966) implies that it would be wise to initially ask for modest behavioral commitment and then subsequently seek larger changes. Flexitarianism is less threatening than vegetarianism is (Rosenfeld, 2018), and such an approach would likely be more agreeable and may allow individuals to develop self-efficacy as non-meat eaters, begin to identify themselves as such, and gradually build increasing disgust toward meat (see Rozin, Markwith, & Stoess, 1997).

Linking MRCD to external factors and the polarizing nature of these factors

In addition to providing insight to researchers interested in measuring MRCD and to actors tasked with reducing meat consumption, the current framework proposes that MRCD may be connected to and relevant in predicting individuals' reactions to broader societal changes implicating meat. It speculates that certain situations (e.g., cost of meat, prominence of plant-based substitutes, and campaigns to increase awareness of animal suffering) heighten

individuals' awareness that they are meat eaters and the aversive arousal associated with their eating behavior. The MRCD framework suggests that these situations will subsequently trigger motivated processes to reduce this unpleasant cognitive dissonance state, inducing behavioral change in some but increasing strategically negative perceptions about animals in other individuals. Thus, individuals' perceptions of animals may be shaped by seemingly unrelated outside factors.

Price of meat. From a classical dissonance perspective, the more that something costs psychologically or materially, the more that individuals need to justify behavior through strategic perceptions. This would suggest that as the price of meat increases, so too would individuals' need to convince themselves that meat is worth it – that it tastes delicious, is nutritious – and the more they would need to discount criticisms such as animal suffering. But this prediction is not entirely clear because even when the cost of meat is lowered, the basics of the meat paradox remain, as opposed to classic dissonance tests of increased cost that feature truly low or no cost conditions (e.g., Aronson & Mills, 1959).

Economists who study the meat paradox have reached alternative conclusions about the impact of the price of meat (Hefferman et al., 2018; Rabin, 1994). As meat prices increase, they posit that individuals experience less utility for the behavior and purchase less meat. This frees the conscience, lowering the pressure to convince themselves that eating meat is morally defensible, which means engaging in less motivated perceptions defending the practice. That is, the incentives to deny the negative consequences of meat consumption shrink. As meat price is lowered, however, the benefits of self-deception increase as do justifications. This proposition needs further testing.

Prominence of plant-based meat substitutes. The meat substitute market reached an estimated $4.63 billion USD in 2018 (https://www.marketsandmarkets.com/PressReleases/meat-substitutes.asp), and has even influenced traditionally meat heavy restaurants such as the fast food chain Burger King to feature a vegetarian burger option. As alternatives to meat become more prominent, accessible, and visible, some MRCD prevention strategies such as avoidance and dissociation become harder to maintain. The framework would speculate that that these product trends will further exacerbate a decline in meat consumption for individuals ambivalent about eating meat and who rely on MRCD prevention mechanisms. Conversely, individuals who are more attached to meat may be predicted to react quite differently to the prominence of plant-based meat substitutes. For such individuals, these products will likely increase MRCD, increasing the need for motivated perceptions to reduce the cognitive dissonance state, ultimately increasing meat consumption. One may speculate that committed meat eaters would be less likely to purchase these meat alternatives or even try them because in doing so, they would be generating more MRCD on future occasions when they did consume meat. Experimenting with plant-based foods would be an implicit acknowledgment of accepting the arguments against meat, and this would be expected to make it psychologically more difficult for these individuals to eat meat in the future.

Campaigns to increase moral awareness of animal suffering. In the last decade, NGO activists have increasingly pursued advertising campaigns to increase moral awareness of animal suffering with the goal of reducing meat consumption. These influence efforts increase the moral costs associated with eating meat. From the perspective of the current framework, what is critical about these messages is that they heighten collective MRCD – by appealing to the immorality or harm in eating meat, they are predicted to cause meat eaters to experience greater

aversive arousal from their eating behavior. Consistent with the activists' aims, for some individuals, most notably women holding liberal values and sensitive to animal welfare, the MRCD prompted by these messages would be expected to likely produce some degree of behavioral change, from going completely vegan to reducing meat intake more incrementally. On the other hand, for individuals with greater attachment to meat, men holding conservative values and less sensitive to animal welfare, the increase in moral pressure and MRCD produced by these messages is predicted to most likely be psychologically reduced, through motivated cognitions designed to alleviate the cognitive dissonance associated with their eating behavior. Such justifications in turn are thought to make eating meat feel more compelling and legitimate, which in turn is speculated to lead these individuals to consume more meat. Thus, moralizing meat eating is proposed to have the effect of polarizing reactions to it: Some will behaviorally reduce MRCD by eating less meat, but others will psychologically reduce MRCD and end up consuming more meat (see Bastian, 2019; Hefferman et al., 2018; Rabin, 1994). This proposition awaits empirical tests.

Conclusion

The subtitle of McWilliams' (2017) The Modern Savage: Our Unthinking Decision to Eat Animals has it partially correct. Individuals do not like to think about the moral complexities involved in eating meat and would rather push these considerations aside, lest they risk experiencing aversive arousal. But if unthinking implies that individuals do not expend any mental energy when it comes to eating animals, the present work suggests something different. Situations that trigger MRCD dictate that individuals think in motivated ways to lessen the cognitive dissonance state. The specific perception endorsed depends on a number of factors delineated here, but the important point is that such perceptions are not rational or objective.

Information-based appeals to reduce meat consumption may produce behavioral change in those

receptive to it, but for many individuals these appeals will only bolster meat consumption

through increased justification. The challenge for stakeholders, therefore, is how to properly

massage MRCD given its polarizing impact.

References

Adams, C. (1990). *The sexual politics of meat: A feminist vegetarian critical theory*. New York: Continuum.

Allen, M. W., & Hung Ng, S. (2003). Human values, utilitarian benefits and identification: The case of meat. *European Journal of Social Psychology*, *33*, 37-56.

Allen, M. W., Gupta, R., & Monnier, A. (2008). The interactive effect of cultural symbols and human values on taste evaluation. *Journal of Consumer Research*, *35*, 294-308.

Allen, M., Wilson, M., Ng., S., & Dunne, M. (2000). Values and beliefs of vegetarians and omnivores. *Journal of Social Psychology, 140,* 405-423.

Anderson, M. V., & Henderson, A. J. (2005). Pernicious Portrayals: The impact of children's attachment to animals of fiction on animals of fact. *Society & animals*, *13*, 297-314.

Ang, C. S., Chan, N. N., & Singh, L. (2019). A comparison study of meat eaters and non-meat eaters on mind attribution and moral disengagement of animals. *Appetite*, *136*, 80-85.

Aronson, E. (1968). Dissonance theory: Progress and problems. In R. P. Abelson, E. Aronson, W. J. McGuire, T. M. Newcomb, M. J. Rosenberg, & P. H. Tannenbaum (Eds.), Theories of cognitive consistency: A sourcebook (pp. 5-27). Chicago: Rand McNally.

Aronson, E., & Mills, J. (1959). The effect of severity of initiation on liking for a group. *The Journal of Abnormal and Social Psychology*, *59*(2), 177-181.

Bandura, A. (1990). Selective activation and disengagement of moral control. *Journal of Social Issues*, *46*, 27-46.

Bandura, A. (1999). Moral disengagement in the perpetration of inhumanities. *Personality and social psychology review*, *3*, 193-209.

Barr, S. I., & Chapman, G. E. (2002). Perceptions and practices of self-defined current

vegetarian, former vegetarian, and nonvegetarian women. *Journal of the American Dietetic

Association*, *102*(3), 354-360.

Barkan, R., Ayal, S., & Ariely, D. (2015). Ethical dissonance, justifications, and moral

behavior. *Current Opinion in Psychology*, *6*(DEC), 157-161.

Bastian, B. (2019). Changing Ethically Troublesome Behavior: The Causes,

Consequences, and Solutions to Motivated Resistance. *Social Issues and Policy Review*, *13*, 63-

92.

Bastian, B., & Loughnan, S. (2017). Resolving the meat-paradox: A motivational account

of morally troublesome behavior and its maintenance. *Personality and Social Psychology

Review*, *21*, 278-299.

Bastian, B., Loughnan, S., Haslam, N., & Radke, H. (2012). Don't mind meat? The

denial of mind to animals used for human consumption. *Personality and Social Psychology

Bulletin, 38,* 247-256.

Beardsworth, A. D., & Keil, E. T. (1991). Vegetarianism, veganism, and meat avoidance:

Recent trends and findings. *British Food Journal*, *93*, 19-24.

Beardsworth, A., & Keil, T. (1992). The vegetarian option: varieties, conversions,

motives and careers. *The Sociological Review*, *40*, 253-293.

Bénabou, R., & Tirole, J. (2016). Mindful economics: The production, consumption, and

value of beliefs. *Journal of Economic Perspectives*, *30*, 141-64.

Beauvois, J. L., & Joule, R. (1981). *Soumission et idéologies: psychosociologie de la

rationalisation*. Presses universitaires de France.

Bilewicz, M., Imhoff, R., & Drogosz, M. (2011). The humanity of what we eat: Conceptions of human uniqueness among vegetarians and omnivores. *European Journal of Social Psychology, 41,* 201-209.

Broida, J., Tingley, L., Kimball, R., & Miele, J. (1993). Personality differences between pro-and anti-vivisectionists. *Society and Animals, 1,* 129-144.

Buttlar, B., & Walther, E. (2018). Measuring the meat paradox: How ambivalence towards meat influences moral disengagement. *Appetite*, *128,* 152-158.

Carrington, M. J., Neville, B. A., & Whitwell, G. J. (2014). Lost in translation: Exploring the ethical consumer intention–behavior gap. *Journal of Business Research*, *67*, 2759-2767.

Clark, B., Stewart, G. B., Panzone, L. A., Kyriazakis, I., & Frewer, L. J. (2016). A systematic review of public attitudes, perceptions and behaviours towards production diseases associated with farm animal welfare. *Journal of Agricultural and Environmental Ethics*, *29*, 455-478.

Coleman, G., & Toukhsati, S. (2006). Consumer attitudes and behaviour relevant to the red meat industry. *North Sydney NSW: Meat and Livestock Australia Limited*.

Cooper, J. (1971). Personal responsibility and dissonance: The role of foreseen consequences. *Journal of Personality and Social Psychology*, *18*, 354-363.

Cooper, J. (2007). *Cognitive dissonance: 50 years of a classic theory*. Sage.

Cooper, J., & Fazio, R. H. (1984). A new look at dissonance theory. In L. Berkowitz (Ed.), Advances in experimental social psychology (Vol. 17, pp. 229-262). New York: Academic Press.

Cooper, J., & Worchel, S. (1970). Role of undesired consequences in arousing cognitive dissonance. *Journal of Personality and Social Psychology*, *16*, 312-320.

Cramer, H., Kessler, C. S., Sundberg, T., Leach, M. J., Schumann, D., Adams, J., & Lauche, R. (2017). Characteristics of Americans choosing vegetarian and vegan diets for health reasons. *Journal of Nutrition Education and Behavior*, *49*, 561-567.

Dhont, K., & Hodson, G. (2014). Why do right-wing adherents engage in more animal exploitation and meat consumption?. *Personality and Individual Differences*, *64*, 12-17.

Dhont, K., Hodson, G., & Leite, A. C. (2016). Common ideological roots of speciesism and generalized ethnic prejudice: The social dominance human–animal relations model (SD□ HARM). *European Journal of Personality*, *30*, 507-522.

Dhont, K., Hodson, G., Costello, K., & MacInnis, C. C. (2014). Social dominance orientation connects prejudicial human–human and human–animal relations. *Personality and Individual Differences*, *61*, 105-108.

Dowsett, E., Semmler, C., Bray, H., Ankeny, R. A., & Chur-Hansen, A. (2018). Neutralising the meat paradox: Cognitive dissonance, gender, and eating animals. *Appetite*, *123*, 280-288.

Eldridge, J., & Gluck, J. (1996). Gender differences in attitudes toward animal research. *Ethics and Behavior, 6,* 239-256.

European Commission. Special Eurobarometer 270, September–October 2006. Available online: http://ec.europa.eu/public_opinion/archives/ebs/ebs_270_en.pdf (accessed on 15 January 2018)

Feinberg, M., & Willer, R. (2013). The moral roots of environmental attitudes. *Psychological science*, *24*, 56-62.

Festinger, L. (1957). *A theory of cognitive dissonance* (Vol. 2). Palo Alto, CA: Stanford University press.

Foer, J.S. (2009). *Eating animals*. New York, NY: Little, Brown and Company.

Forestell, C. A., & Nezlek, J. B. (2018). Vegetarianism, depression, and the five factor model of personality. *Ecology of Food and Nutrition*, *57*, 246-259.

Francione, G. L. (2004). Animals--Property or Persons? In C.R.Sunstein and M.C. Nussbaum (eds.), Animal rights: Current debates and new directions. Oxford University Press.

Freedman, J. L., & Fraser, S. C. (1966). Compliance without pressure: the foot-in-the-door technique. *Journal of Personality and Social Psychology*, *4*, 195-202.

Gallup. (2018, August 1). Snapshot: Few Americans vegetarian or vegan. *Gallup*. Retrieved from https://news.gallup.com/poll/238328/snapshot-few-americans-vegetarian-vegan.aspx?g_source=link_NEWSV9&g_medium=NEWSFEED&g_campaign=item_&g_content=Snapshot%3a%2520Few%2520Americans%2520Vegetarian%2520or%2520Vegan

Goethals, G. R., & Cooper, J. (1972). Role of intention and postbehavioral consequence in the arousal of cognitive dissonance. *Journal of Personality and Social Psychology*, *23*, 292-301.

Gossard, M. H., & York, R. (2003). Social structural influences on meat consumption. *Human Ecology Review*, 1-9.

Graça, J., Calheiros, M. M., & Oliveira, A. (2015). Attached to meat?(Un) Willingness and intentions to adopt a more plant-based diet. *Appetite*, *95*, 113-125.

Graça, J., Calheiros, M. M., & Oliveira, A. (2016). Situating moral disengagement: Motivated reasoning in meat consumption and substitution. *Personality and Individual Differences*, *90*, 353-364.

Graham, J., Haidt, J., & Nosek, B. A. (2009). Liberals and conservatives rely on different sets of moral foundations. *Journal of Personality and Social Psychology*, *96*, 1029-1046.

Gray, K., Young, L., & Waytz, A. (2012). Mind perception is the essence of morality. *Psychological inquiry*, *23*(2), 101-124.

Harper, G., & Henson, S. (2001). Consumer concerns about animal welfare and the impact on food choice. *EU FAIR CT98-3678, Centre for Food Economics Research, The University of Reading*.

Herzog, H. (2010). *Some we love, some we hate, some we eat: why it's so hard to think straight about animals*. New York, NY: HarperCollins.

Hestermann, N., Le Yaouanq, Y., and Treich, N. (2018). An economic model of the meat paradox. Working Paper.

Hoffarth, M. R., Azevedo, F., & Jost, J. T. (in press). Political Conservatism and the Exploitation of Non-Human Animals: An Application of System Justification Theory. *Group Processes and Intergroup Relations.*

Hoogland, C. T., de Boer, J., & Boersema, J. J. (2005). Transparency of the meat chain in the light of food culture and history. *Appetite*, *45*, 15-23.

Hoshino-Browne, E., Zanna, A. S., Spencer, S. J., Zanna, M. P., Kitayama, S., & Lackenbauer, S. (2005). On the cultural guises of cognitive dissonance: The case of Easterners and Westerners. *Journal of personality and social psychology*, *89*, 294-310.

Iacobbo, K., & Iacobbo, M. (2006). *Vegetarians and vegans in America today*. Westport, CT: Greenwood Publishing Group.Isaacs, S. (1930). *Intellectual growth in young children*. London: Routledge.

Jabs, J., Sobal, J., & Devine, C. M. (2000). Managing vegetarianism: Identities, norms and interactions. *Ecology of food and nutrition*, *39*(5), 375-394.

Joy, M. (2011). *Why we love dogs, eat pigs, and wear cows: an introduction to carnism*. San Francisco, CA: Conari Press.

Kalof, L., Dietz, T., Stern, P. C., & Guagnano, G. A. (1999). Social psychological and structural influences on vegetarian beliefs. *Rural Sociology*, *64*, 500-511.

Kellert, S. R., & Berry, J. K. (1987). Attitudes, knowledge, and behaviors toward wildlife as affected by gender. *Wildlife Society Bulletin*, *15*, 363-371.

Kenyon, P.M., & Barker, M.E. (1998). Attitudes towards meat-eating in vegetarian and non-vegetarian teenage girls in England – an ethnographic approach. *Appetite, 30,* 185-198.

Kitayama, S., Snibbe, A. C., Markus, H. R., & Suzuki, T. (2004). Is there any "free" choice? Self and dissonance in two cultures. *Psychological Science*, *15*, 527-533.

Knight, S., & Barnett, L. (2008). Justifying attitudes toward animal use: A qualitative study of people's views and beliefs. *Anthrozoös*, *21*, 31-42.

Knight, S., Nunkoosing, K., Vrij, A., & Cherryman, J. (2003). Using grounded theory to examine people's attitudes toward how animals are used. *Society & Animals*, *11*, 307-327.

Knight, S., Vrij, A., Cherryman, J., & Nunkoosing, K. (2004). Attitudes towards animal use and belief in animal mind. *Anthrozoös*, *17*, 43-62.

Kriflik, L. S., & Yeatman, H. (2005). Food scares and sustainability: a consumer perspective. *Health, Risk & Society*, *7*, 11-24.

Kubberod, E., Ueland, O., Tronstad, A., & Risvik, E. (2002a). Attitudes toward meat and meat-eating among adolescents in Norway: A qualitative study. *Appetite, 38,* 53-62.

Kubberod, E. et al. (2002b). Gender specific preferences and attitudes towards meat. *Food Quality Preference, 13,* 285-294.

Kunda, Z. (1990). The case for motivated reasoning. *Psychological Bulletin, 108,* 480-498.

Kunst, J. R., & Hohle, S. M. (2016). Meat eaters by dissociation: How we present, prepare and talk about meat increases willingness to eat meat by reducing empathy and disgust. *Appetite*, *105*, 758-774.

Kunst, J. R., & Haugestad, C. A. P. (2018). The effects of dissociation on willingness to eat meat are moderated by exposure to unprocessed meat: A cross-cultural demonstration. *Appetite*, *120*, 356-366.

Lea, E., & Worsley, A. (2001). Influences on meat consumption in Australia. *Appetite*, *36*, 127-136.

Linder, D. E., Cooper, J., & Jones, E. E. (1967). Decision freedom as a determinant of the role of incentive magnitude in attitude change. *Journal of Personality and Social Psychology*, *6*, 245-254.

Loughnan S., & Davies, T. (in press). The meat paradox. In K. Dhont & G. Hodson (Eds.). Why people love and exploit animals: Bridging insights from academia and advocacy. Oxford: Routledge (Taylor & Francis Group Ltd).

Loughnan, S., Bastian, B., & Haslam, N. (2014). The psychology of eating animals. *Current Directions in Psychological Science*, *23*, 104-108.

Loughnan, S., Haslam, N., & Bastian, B. (2010). The role of meat consumption in the denial of moral status and mind to meat animals. *Appetite, 55,* 156-159.

MacInnis, C. C., & Hodson, G. (2017). It ain't easy eating greens: Evidence of bias toward vegetarians and vegans from both source and target. *Group Processes & Intergroup Relations*, *20*(6), 721-744.

Maurer, D. (2010). *Vegetarianism: Movement Or Moment: Promoting A Lifestyle For Cult Change*. Temple University Press.

Mayfield, L. E., Bennett, R. M., Tranter, R. B., & Wooldridge, M. J. (2007). Consumption of welfare-friendly food products in Great Britain, Italy and Sweden, and how it may be influenced by consumer attitudes to, and behaviour towards, animal welfare attributes. *International Journal of Sociology of Food and Agriculture*, *15*, 59-73.

McKimmie, B. M., Terry, D. J., Hogg, M. A., Manstead, A. S., Spears, R., & Doosje, B. (2003). I'm a hypocrite, but so is everyone else: Group support and the reduction of cognitive dissonance. *Group Dynamics: Theory, research, and practice*, *7*, 214-224.

McWilliams, J. (2017). *The modern savage: Our unthinking decision to eat animals*. New York: St. Martin's Press.

Miele, M. (2010). Report concerning consumer perceptions and attitudes towards farm animal welfare. *European Animal Welfare Platform: Brussels, Belgium*, 1-16.

Minson, J. A., & Monin, B. (2012). Do-gooder derogation: Disparaging morally motivated minorities to defuse anticipated reproach. *Social Psychological and Personality Science*, *3*(2), 200-207.

Monin, B., Sawyer, P. J., & Marquez, M. J. (2008). The rejection of moral rebels: resenting those who do the right thing. *Journal of personality and social psychology*, *95*, 76-93.

Monteiro, C. A., Pfeiler, T. M., Patterson, M. D., & Milburn, M. A. (2017). The Carnism Inventory: Measuring the ideology of eating animals. *Appetite*, *113*, 51-62.

Neff, R. A., Edwards, D., Palmer, A., Ramsing, R., Righter, A., & Wolfson, J. (2018). Reducing meat consumption in the USA: a nationally representative survey of attitudes and behaviours. *Public health nutrition*, *21*, 1835-1844.

Norwood, F. B. (2011). The private provision of animal-friendly eggs and pork. *American Journal of Agricultural Economics*, *94*(2), 509-514.

Norwood, F. B., & Lusk, J. L. (2011). *Compassion, by the pound: the economics of farm animal welfare*. Oxford University Press.

O'Connor, K., & Monin, B. (2016). When principled deviance becomes moral threat: Testing alternative mechanisms for the rejection of moral rebels. *Group Processes & Intergroup Relations*, *19*(5), 676-693.

OECD. (2014). OECD/Food and Agriculture Organization of the United Nations (2014), *OECD-FAO Agricultural Outlook 2014*, OECD Publishing. Retrieved from http://dx.doi.org/10.1787/agr_outlook-2014-en Accessed August 2018.

Onwezen, M. C., & van der Weele, C. N. (2016). When indifference is ambivalence: Strategic ignorance about meat consumption. *Food Quality and Preference*, *52*, 96-105.

Paul, E. S. (1996). The representation of animals on children's television. *Anthrozoös*, *9*, 169-181.

Peden, R., Camerlink, I., Boyle, L., Loughnan, S., Akaichi, F., & Turner, S. (in press). Belief in pigs' capacity to suffer: An assessment of pig farmers, veterinarians, students, and citizens. *Anthrozoos.*

Piazza, J. (in press). Why people love animals yet continue to eat them In K. Dhont & G. Hodson (Eds.). *Why people love and exploit animals: Bridging insights from academia and advocacy*. Oxford: Routledge (Taylor & Francis Group Ltd).

Piazza, J., Ruby, M. B., Loughnan, S., Luong, M., Kulik, J., Watkins, H. M., & Seigerman, M. (2015). Rationalizing meat consumption. The 4Ns. *Appetite*, *91*, 114-128.

Plous, S. (1993). Psychological mechanisms in the human use of animals. *Journal of Social Issues*, *49*, 11-52.

Pohjolainen, P., Vinnari, M., & Jokinen, P. (2015). Consumers' perceived barriers to following a plant-based diet. *British Food Journal*, *117*, 1150-1167.

Pollan, M. (2002). An animal's place. The New York Times. November 10, 2002.

Prättälä, R., Paalanen, L., Grinberga, D., Helasoja, V., Kasmel, A., & Petkeviciene, J. (2006). Gender differences in the consumption of meat, fruit and vegetables are similar in Finland and the Baltic countries. *European Journal of Public Health*, *17*, 520-525.

Proulx, T., Inzlicht, M., & Harmon-Jones, E. (2012). Understanding all inconsistency compensation as a palliative response to violated expectations. *Trends in cognitive sciences*, *16*, 285-291.

Rabin, M. (1994). Cognitive dissonance and social change. *Journal of Economic Behavior & Organization*, *23*(2), 177-194.

Roex, J., & Miele, M. (2005). Farm Animal Welfare Concerns. Consumers, Retailers and Producers. Cardiff: School of City and Regional Planning, Cardiff University. Welfare Quality Reports no. 1.

Rosenfeld, D. (2018). The psychology of vegetarianism: Recent advances and future directions. *Appetite*, *131,* 125-138.

Rosenfeld, D., Rothgerber, H., & Tomiyama, A.J. (2019). From mostly vegetarian to fully vegetarian: Meat avoidance and the expression of social identity. *Unpublished manuscript*.

Rothgerber, H. (2013). Real men don't eat (vegetable) quiche: Masculinity and the justification of meat consumption. *The Psychology of Men and Masculinity, 14,* 363-375.

Rothgerber, H. (2014a). Efforts to overcome vegetarian-induced dissonance among meat eaters. *Appetite*, *79*, 32-41.

Rothgerber, H. (2014b). A comparison of attitudes toward meat and animals among strict and semi-vegetarians. *Appetite*, *72*, 98-105.

Rothgerber, H. (2015a). Can you have your meat and eat it too? Conscientious omnivores, vegetarians, and adherence to diet. *Appetite*, *84*, 196-203.

Rothgerber, H. (2015b). Underlying differences between conscientious omnivores and vegetarians in the evaluation of meat and animals. *Appetite*, *87*, 251-258.

Rothgerber, H. (2019). "But I don't eat that much meat:" Situational underreporting of meat consumption by women. *Society and Animals, 27,* 150-173.

Rothgerber, H. (in press). How we love and hurt animals: Considering cognitive dissonance in young meat eaters. In G Hodson & K Dhont (eds.) *Why People Love and Exploit Animals: Bridging Insights from Academia and Advocacy.* Routledge, Taylor & Francis Group.

Rothschild, Z. K., & Keefer, L. A. (2017). A cleansing fire: Moral outrage alleviates guilt and buffers threats to one's moral identity. *Motivation and Emotion*, *41*(2), 209-229.

Rothschild, Z. K., Landau, M. J., Sullivan, D., & Keefer, L. A. (2012). A dual-motive model of scapegoating: Displacing blame to reduce guilt or increase control. *Journal of Personality and Social Psychology*, *102*(6), 1148-1163.

Rozin, P. (2007). Food and eating. In S. Kitayama & D. Cohen (Eds.), The handbook of cultural psychology (pp. 391–416). New York, NY: The Guilford Press.

Rozin, P., Markwith, M., & Stoess, C. (1997). Moralization and becoming a vegetarian: The transformation of preferences into values and the recruitment of disgust. *Psychological Science*, *8*(2), 67-73.

Rozin, P., Hormes, J. M., Faith, M. S., & Wansink, B. (2012). Is meat male? A quantitative multimethod framework to establish metaphoric relationships. *Journal of Consumer Research*, *39*(3), 629-643.

Ruby, M. B., & Heine, S. J. (2012). Too close to home. Factors predicting meat avoidance. *Appetite*, *59*, 47-52.

Santos, M., & Booth, D. (1996). Influences on meat avoidance among British students. *Appetite, 27,* 197-205.

Schröder, M. J., & McEachern, M. G. (2004). Consumer value conflicts surrounding ethical food purchase decisions: a focus on animal welfare. *International Journal of Consumer Studies*, *28*, 168-177.

Šedová, I., Slovák, Ľ., & Ježková, I. (2016). Coping with unpleasant knowledge: Meat eating among students of environmental studies. *Appetite*, *107*, 415-424.

The Sentience Institute (2017, November, 20). New poll shows majority uncomfortable with animal farming despite eating turkeys for Thanksgiving. Retrieved from: https://www.sentienceinstitute.org/press/animal-farming-attitudes-survey-2017

Serpell, J. (1986). *In the company of animals: A study of human-animal relationships.* Cambridge University Press.

Shalvi, S., Gino, F., Barkan, R., & Ayal, S. (2015). Self-serving justifications: Doing wrong and feeling moral. *Current Directions in Psychological Science*, *24*(2), 125-130.

Signicom (1997). *Dierenwelzijn in de bio-industrie.* Amsterdam: Signicom.

Singer, P. (2002). *Animal Liberation.* New York, NY: Harper Collins.

Smith, T. W., Marsden, P., Hou, M., & Kim, J. (2017). General Social Surveys, 1972– 2016 [machine-readable data file]. Sponsored by National Science Foundation. –NORC Ed.–

Chicago, IL: National OpinionResearch Center [producer]; Storrs, CT: The Roper Center for

PublicOpinion Research, University of Connecticut [distributor]. Retrieved from

http://www3.norc.org/GSS_Website/Download/SPSS_Format/

Statista (2016). Meat consumption and vegetarianism in Europe – Statistics and facts.

Retrieved from https://www.statista.com/topics/3345/meat-consumption-and-vegetarianism-in-

europe/

Steele, C. M. (1988). The psychology of self-affirmation: Sustaining the integrity of the

self. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol 21, pp. 261-302).

San Diego, CA: Academic Press.

Stewart, K., & Cole, M. (2009). The conceptual separation of food and animals in

childhood. *Food, Culture & Society*, *12*, 457-476.

Stone, J., & Cooper, J. (2001). A self-standards model of cognitive dissonance. *Journal

of Experimental Social Psychology*, *37*, 228-243.

Stroebe, W., & Diehl, M. (1981). Conformity and counterattitudinal behavior: The effect

of social support on attitude change. *Personality and Social Psychology Bulletin, 14*, 136–144.

Sykes, G. M., & Matza, D. (1957). Techniques of neutralization: A theory of

delinquency. *American sociological review*, *22*, 664-670.

Sunstein, C. (2004). Introduction: What are animal rights? In C.R.Sunstein and M.C.

Nussbaum (eds.), Animal rights: Current debates and new directions. Oxford University Press.

Szmigin, I., Carrigan, M., & McEachern, M. G. (2009). The conscious consumer: taking

a flexible approach to ethical behaviour. *International Journal of Consumer Studies*, *33*, 224-

231.

Te Velde, H., Aarts, N., & Van Woerkum, C. (2002). Dealing with ambivalence: farmers' and consumers' perceptions of animal welfare in livestock breeding. *Journal of agricultural and environmental ethics*, *15*(2), 203-219.

Tian, Q., Hilton, D., & Becker, M. (2016). Confronting the meat paradox in different cultural contexts: Reactions among Chinese and French participants. *Appetite*, *96*, 187-194.

Time/CNN/Harris Interactive Poll (2002). Do you consider yourself a vegetarian? Available at: http://i.timeinc.net/time/covers/1101020715/poll/images/poll_body.gif

Turner, J. C., Hogg, M. A., Oakes, P. J., Reicher, S. D., & Wetherell, M. S. (1987). *Rediscovering the social group: A self-categorization theory*. Oxford, UK: Blackwell.

Vaidis, D. C., & Bran, A. (2018). Some prior considerations about dissonance to understand its reduction: Comment on McGrath (2017). *Social and Personality Psychology Compass*, *12*(9), e12411.

Vanhonacker, F., Verbeke, W., Van Poucke, E., & Tuyttens, F. (2007). Segmentation based on consumers' perceived importance and attitude toward farm animal welfare. *International Journal of Sociology of Agriculture and Food*, *15*, 91-107.

Verbeke, W., Pérez-Cueto, F. J., de Barcellos, M. D., Krystallis, A., & Grunert, K. G. (2010). European citizen and consumer attitudes and preferences regarding beef and pork. *Meat science*, *84*, 284-292.

Vollum, S., Buffington-Vollum, J., & Longmire, D. R. (2004). Moral disengagement and attitudes about violence toward animals. *Society and animals*, *12*, 209-235.

Wang, F., & Basso, F. (2019). "Animals are friends, not food": Anthropomorphism leads to less favorable attitudes toward meat consumption by inducing feelings of anticipatory guilt. *Appetite,* 153-173.

Worsley, A., Wang, W., & Ridley, S. (2015). Australian adults' knowledge of Australian agriculture. *British Food Journal*, *117*(1), 400-411.

Zane, D. M., Irwin, J. R., & Reczek, R. W. (2016). Do less ethical consumers denigrate more ethical consumers? The effect of willful ignorance on judgments of others. *Journal of Consumer Psychology*, *26*, 337-349.

Figure Captions

Figure 1. The MRCD Framework.

Aspect producing MRCD
Animal welfare
Environment
Personal Health

Motivation created by MRCD
Inconsistency
Responsibility
Self-integrity

Individual differences
Gender
Values
Affinity toward animals/meat
Exposure to animals

Culture

Triggers for MRCD

Information exposure
Reminders that meat is from an animal
Admission that one eats meat
Admission that one eats harmed animal
Presence of vegetarians

Triggers for MRCD blocked?

Avoidance
Willful ignorance
Dissociation
Perceived behavioral change
Do-gooder derogation

No → MRCD experienced → Dissonance reducing mechanisms

Perceptual Strategies
Denying animal mind
Dichotomization

Meat as natural
Meat as normal
Meat as nice

Meat as necessary
Third party blame
Moral outrage

Maintenance or strengthening of meat consumption

Increased justification

Remain vigilant about MRCD

Yes → MRCD prevented; injury hidden/perceived responsibility of self for injury mitigated

- Maintenance of behavior
- No further psychological justifications needed

Behavioral Change

Reduced meat consumption