Harnessing Moral Psychology to Reduce Meat Consumption

ABSTRACT: *How can we make moral progress on factory farming? Part of the answer lies in human moral psychology. Meat consumption remains high, despite increased awareness of its negative impact on animal welfare. Weakness of will is part of the explanation: acceptance of the ethical arguments does not always motivate changes in dietary habits. However, we draw on scientific evidence to argue that many consumers are not fully convinced that they morally ought to reduce their meat consumption. We then identify two key psychological mechanisms—motivated reasoning and social proof—that lead people to resist the ethical reasons. Finally, we show how to harness these psychological mechanisms to encourage reductions in meat consumption. A central lesson for moral progress generally is that durable social change requires socially embedded reasoning.*

Introduction

Most ethicists and ethical theories agree that the present treatment of nonhuman animals on factory farms is immoral (Schwitzgebel and Rust 2014; DeGrazia 2009). Even if they are allowed a relatively painless death, poultry and livestock are routinely subject to abuse, mutilation, intense confinement, stress, and untreated ailments—conditions that would normally be considered animal cruelty were they to be inflicted on animals outside farms. Reduced meat consumption would not only mitigate such animal suffering but also limit emission of the greenhouse gases that contribute to the devastating effects of climate change on humans and other animals (Eshel et al. 2019). Even though the precise moral status of animals is contended, it seems that erring on the side of moral caution requires most consumers to be, at the least, reducetarians and decrease their consumption of factory-farmed animals (Matheson 2016).

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Consumers are increasingly aware that eating less meat is morally and prudentially desirable. In a recent survey of Americans, for example, most respondents (about 60–70 percent) reported 'some discomfort with the way animals are used in the food industry' and believe that 'factory farming of animals is one of the most important social issues in the world today' (Anthis 2017). Yet consumption of meat from factory farms remains high throughout the world, and vegetarianism in the vast majority of countries remains quite low—for example, just 5 percent of Americans identify as vegetarian (McCarthy and DeKoster 2020). Psychologists have come to call this conflict between attitudes and behavior the 'meat paradox' (Loughnan, Haslam, and Bastian 2010: 156).

The persistence of excessive meat consumption is often construed as a matter of being weak-willed: even with the right attitudes, one cannot muster the strength to change dietary habits (Bratanova, Loughnan, and Bastian 2011; Jaquet 2019). Even among professional ethicists, while most regard vegetarianism as morally superior to an omnivorous diet, few regularly follow the dictates of this moral conviction (Schwitzgebel and Rust 2014: 97; Bourget and Chalmers 2021: 8). In general, it seems, acceptance of ethical arguments is insufficient to motivate corresponding behavior (Rust and Schwitzgebel 2014).

Weakness of will surely explains the behavior of some consumers, but that is only one part of the story. As we discuss below, many consumers do not believe that they are obligated to reduce their meat consumption. Toward the end of his life, the great moral philosopher James Rachels published his 'basic argument' in favor of vegetarianism. He then wondered, if the argument is 'so simple and obvious, why doesn't everyone accept it?' (Rachels 2004: 74). Part of the explanation, he briefly speculated, is that 'it is natural for people to resist arguments that require them to do things they don't want to do' (2004: 74). He also suspected that 'people generally do not respond to ethical appeals unless they see others around them also responding' (74). In what follows, we draw on scientific evidence to argue that Rachels was right. Two psychological mechanisms—motivated reasoning and social proof—are important parts of the explanation for present levels of excessive meat consumption, at least in many parts of the world. However, in an effort to engage in applied moral psychology, we also argue that these mechanisms are integral to moral progress on this issue. Each mechanism can thus be thought of as dual-use moral technologies that can operate in either pernicious or productive ways. A central lesson for moral progress generally is that durable social change requires socially embedded reasoning.

1. The Basic Moral Argument

Consumers in countries such as America and Brazil are increasingly trying to reduce their consumption of meat, though not in droves and largely for health reasons (McCarthy and DeKoster 2020; Londoño 2021). Most experimental interventions to reduce meat consumption have accordingly focused on communicating health benefits (Harguess, Crespo, and Hong 2020). Prudential gains are certainly important to highlight, but surveys suggest that vegetarians and vegans are more likely to lapse if their only motivation was improved health (Faunalytics 2014;

Radnitz, Beezhold, and DiMatteo 2015), which makes sense. Health science and guidelines change drastically, in part because new evidence comes in, but also because human bodies vary so widely that it is difficult to provide universal recommendations with much certainty, making scientific guidelines malleable. Thus, messaging and policies that appeal only to health will not necessarily lead to durable change in patterns of meat consumption.

Moral values, in contrast, can serve as more stable long-term motivations. Strongly held moral beliefs can even rise to the level of convictions that evoke strong emotions and persist in the face of various challenges to them (Skitka et al. 2021). Opposition to meat consumption on moral grounds can easily become a conviction, given that the torturous conditions of factory farming amount to a serious moral wrong—'more like child abuse than like lying', as Cheryl Abbate aptly puts it (Abbate 2021: 2). Some evidence suggests that vegetarians subsequently become more disgusted by meat if their primary motivation is moral rather than prudential (Rozin, Markwith, and Stoess 1997; Fessler et al. 2003). More durable reductions in meat consumption might thus require ethical arguments, grounded in appeals to animal welfare (in addition to human welfare and environmental protection). So, although emphasizing health benefits is an important tool in the short-term, our focus will be on the ethical arguments and specifically ones centered on the primary subjects of moral concern: farmed animals.

The basic moral argument against the consumption of meat—at least meat from factory farms—focuses on animal welfare (Rachels 2004; DeGrazia 2009; Abbate 2021):

1. Causing *severe* and *unnecessary* harm to animals is wrong. [moral premise]
2. Eating meat typically causes *severe* and *unnecessary* harm to factory-farmed animals. [empirical premise]

   Therefore:
3. Eating meat from factory farms is typically wrong.

The first premise is a very plausible moral principle. The second premise is an empirical claim about the harm on factory farms and its connection to meat consumption. We believe the second premise is as plausible as the first, but some philosophers regard it as controversial. On the one hand, there appears to be ample evidence, easily available on the internet, indicating that factory-farmed animals suffer severe and unnecessary harm. On the other hand, it is contested whether one's choice to eat meat genuinely causes this harm, at least if causation is linked to counterfactual dependence. In general, farms respond to demand from consumers, but it is not clear that a single individual can create a noticeable demand signal, such that refusing to eat meat would have any effect on farming practices (Chignell 2016). As we argue below, dietary choices are socially mediated, which suggests that one's choice to eat meat causes harm on factory farms because it influences the behavior of others. Together, this collective behavior creates a demand signal that increases the number of animals on factory farms who experience severe and unnecessary harm.

That being said, there are variations on the basic moral argument that can sidestep this controversy. As laid out above, the argument has a consequentialist flavor. It suggests that eating meat is wrong because it *causes* harm. However, there are nonconsequentialist versions of the argument, too, which replace causation with complicity:

1. * Supporting a practice that inflicts *severe* and *unnecessary* harm to animals is typically wrong. [moral premise]
2. * Eating meat supports a practice that inflicts *severe* and *unnecessary* harm to factory-farmed animals. [empirical premise]

   Therefore:
3. * Eating meat from factory farms is typically wrong.

Here the argument is that eating meat is wrong because one's purchases support a harmful practice. One is complicit, even if not causally responsible (Driver 2016). Consider Abbate's analogy between factory farming and child abuse. It seems as though one would be acting wrongly by participating in a system that abused children, even if the system was not counterfactually dependent on one's behavior. Supporting such a system is at least typically, even if not invariably, wrong. In what follows, we rely on our original formulation of the basic moral argument, but nothing turns on accepting the nonconsequentialist version instead.

The immediate conclusion of the basic moral argument is that eating meat from factory farms is typically wrong. How one's dietary habits should change, if at all, varies depending on one's circumstances. Some people may have an obligation to adopt a vegetarian or vegan diet. Others might simply have an obligation to reduce their consumption of factory-farmed meat incrementally, either by replacing it with meat from humane farms or perhaps aiming long-term to achieve a vegan diet. Reduction of meat consumption is certainly more psychologically realistic. A wholesale change in diet is difficult, especially given prevailing cultural traditions and the inaccessibility of healthy or affordable alternatives. Some people in disadvantaged socioeconomic conditions live in so-called food deserts, where purchasing cheap meat is arguably necessary. Incremental reduction of meat consumption may nevertheless be possible.

There are, of course, other moral arguments against meat consumption. Factory farms contribute not just to severe and unnecessary animal suffering, but also to water and air pollution; anthropogenic climate change; physical and mental illness of farm workers and people living close to farms; antibiotic-resistant bacteria through overmedication; the threat of global pandemics as viruses pass from intensely confined farm animals to humans; and opportunity costs as federal budgets are inflated by massive government subsidies (Gruen 2011). In sum, there are many plausible moral reasons against eating meat from factory farms. Nonetheless, our focus here is on only the moral argument that relates to animal welfare on factory farms. Our aim is to use psychological research to understand how to instigate and accelerate moral progress on this issue.

2. We Remain Unconvinced (by the Moral Arguments)

Are consumers who become aware of the sorts of reasons articulated in the basic moral argument convinced but simply unable to muster the motivation to change? Not necessarily. Anecdotal reports among moral philosophers suggest that both lay people and fellow academics remain unmotivated by the arguments because they are unconvinced, not necessarily weak-willed (Rachels 2004: 74). (We discuss empirical studies that support this idea below.)

Present levels of meat consumption, then, are explained only in part by weakness of will, whether we conceive of this as a failure to act according to one's all-things-considered judgments or intentions (May and Holton 2012). As we show below, a key problem is that most consumers remain unconvinced by the ethical arguments. Even if initially compelling, doubts and rationalizations later creep in to weaken credence in the premises. Which psychological mechanisms might explain this? Research in moral psychology can help provide an answer.

Over the past two decades, many philosophers and psychologists have argued that changes in moral beliefs and behavior are best brought about through powerful emotions, such as empathy or disgust (among these are Haidt 2001; Nichols 2004; Prinz 2007). In one series of experiments, researchers found that participants reported being less willing to consume pork or lamb when images of these animals' heads were paired with the corresponding food item (Kunst and Hohle 2016), and these effects were mediated by increased empathy, disgust, and associating the picture with a living being. Indeed, the researchers further found that the euphemisms we use for food—such as *beef* and *pork* instead of *cow* and *pig*—curb our empathy toward farmed animals and disgust toward the food products created from them.

Emotions certainly play an important role in reducing meat consumption (and we return to this issue in below). However, moral emotions by themselves are unlikely to generate stable, long-term changes in belief and behavior. First consider empathy. Although empathy is known to motivate altruistic behavior (Batson 2011), a wide range of evidence also suggests that empathy is biased (Prinz 2011; Bloom 2016). People are likely to experience empathy in response to vividly depicted victims. When these suffering individuals recede from consciousness, empathy wanes. In addition, empathy tends to be more strongly evoked when animals are cute. Animals who are sentient but ugly are therefore likely to evoke less empathy. For these reasons, empathy (by itself) is not a reliable moral guide.

As mentioned, disgust toward meat and animal cruelty might also seem to be a prime mechanism of change in dietary practices (Rozin, Markwith, and Stoess 1997; Rottman, Kelemen, and Young 2015; Kunst and Hohle 2016; Tybur et al. 2016). However, to be effective in the moral domain, repugnance must be *integrated* with processing of the relevant reasons (Kumar 2017). Otherwise, incidental feelings of disgust are unlikely to change moral attitudes, rather than merely entrench existing ones (May 2018a). Appeals to raw disgust are particularly prone to backfire, given that this emotion's functional profile is to distance oneself from its target, and the target of the emotion is pliable. Imagine, for example, that one tries to make consumers revolted by raw meat in a way that

does not make salient relevant moral reasons to be disgusted by the harrowing conditions of factory farms. Such a campaign risks backfiring if consumers become repulsed, even offended, by the messenger instead of the message.

Fortunately, we now have extensive empirical evidence that a wide range of moral attitudes and behaviors are shaped by reasoning, although often such reasoning is relatively automatic and unconscious (Campbell and Kumar 2012; Sauer 2017; May 2018b). A recent meta-analysis suggests that attitudes toward meat consumption across many cultures are accordingly responsive to ethical appeals to animal welfare (Mathur et al. 2021). Most of the studies demonstrate only shifts in self-reported attitudes or intentions to reduce meat consumption, at least in the short term, but moral reasoning can affect real behavior.

One recent study conducted at the University of California at Riverside examined the effect of ethical arguments on meatless meal purchases (Schwitzgebel, Cokelet, and Singer 2020). The researchers randomly assigned more than 1,300 students in introductory philosophy classes to study either an argument in favor of vegetarianism or, as a control, an argument in favor of charitable giving. Students who studied the argument in favor of vegetarianism purchased slightly fewer meat products in the dining hall in the ensuing weeks. Although the effects were small (about a 7 percent reduction that persisted for several weeks), it is remarkable that a reduction in meat consumption was found at all, given how entrenched carnivorism is and given that the intervention focused on studying a philosophical argument. Also notable is that the argument for vegetarianism that students studied in this experiment was none other than Rachels's 2004 basic argument. As presented above, the argument forces readers to confront the misery on factory farms and reconcile it with the general moral principle that it is wrong to cause a creature severe and unnecessary pain.

So, we should not overlook the power of moral reasoning to change attitudes and behavior. In what follows, we describe two reasoning mechanisms—motivated reasoning and social proof—that influence moral attitudes about meat consumption. We do not mean to suggest that no other psychological mechanisms are at play. Nonetheless, we argue that motivated reasoning and social proof are particularly important. In each case, we first describe the general mechanism and then discuss its application to meat consumption and meat reduction, then we sketch some recommendations for harnessing these socially embedded reasoning mechanisms to reduce meat consumption.

3. Mechanism 1: Motivated Reasoning

Human reasoning, whether conscious deliberation or unconscious inference, is often *motivated*—influenced by one's goals or desires. These motivations can lead people to ask some questions while ignoring others, selectively attend to evidence, and even rationalize personally desirable conclusions (Kunda 1990; Ditto, Pizarro, and Tannebaum 2009). In some cases of confirmation bias, for instance, one seeks out evidence that supports a belief that one prefers to be true and ignores or discounts disconfirming evidence. People want badly for the election results to turn out in their favor, say, or for the latest quick-fix diet pill to be free of health hazards, and

so they adopt the preferred belief and consume news media that supports it. In this way, wishful thinking or willful ignorance can instill a desirable belief and then confirmation bias keeps it safe from challenge, whether in the context of ordinary life or scientific investigation (May 2021).

3.1 Motivated Moral Reasoning

We of course see motivated reasoning throughout ethics as well. For example, in order to walk away with more money, participants in one experiment were inclined to cheat a little—but not a lot—in experimental games because they can rationalize bending but not breaking the rules (Mazar, Amir, and Ariely 2008). We are also inclined to engage in motivated forgetting, by selectively misremembering facts that reveal our past actions to be morally blameworthy, while memories of praiseworthy actions are less spotty (Stanley and De Brigard 2019). You remember with clarity volunteering at your child's school last year, but you cannot seem to recall whether you were fully truthful on your tax returns. Even when considering life-and-death moral dilemmas, people's responses can depend in part on whether the principle justifies a resolution that best fits their prior political commitments (Ditto, Pizarro, and Tannenbaum 2009). Finally, we can rationalize immoral behavior to ourselves by recalling other virtuous deeds (Blanken, van de Ven, and Zeelenberg 2015). For example, although concerned about your carbon footprint, you reason that driving an electric vehicle morally licenses you to take as many transatlantic flights as you please. These are just some examples of motivated moral reasoning, but the phenomenon is ubiquitous. And notice it is not always *post hoc* rationalization, but sometimes *ante hoc* in that the reasoning comes before the decision is made in order to justify making it (May 2018b: 156).

The term *motivated reasoning* is often used in a pejorative sense, calling to mind only apparently pernicious forms, such as wishful thinking. However, motivated reasoning is not always pernicious, for it can lead to self-knowledge and even scientific knowledge, especially in social contexts where different motives cause competing ideas and arguments to be brought into dialogue (Summers 2017; Mercier and Sperber 2017; Cushman 2020; May 2021).

Indeed, certain motivations can produce better reasoning than others. Consider, for example, the different motives that influence deliberations about a murder trial. Jury members are supposed to be disinterested, but in reality many want badly for the trial to end swiftly so that they can return to their normal lives. Contrast such self-interested motives, which can lead to lazy reasoning about the case, with the desire of the defendant's mother to exonerate her son. Although she is biased in one sense, her compassion might motivate her to take a more careful look at the evidence, to follow all leads and leave no assumption unquestioned. Another example can be found in the productive forms of scientific reasoning highlighted by feminist epistemologists. Desires to combat sexism can lead researchers to identify biases in knowledge-production, often by drawing attention to evidence that is ignored by scientists operating under sexist biases (Anderson 2004). For example, medical research has often excluded women as research participants and

systematically ignored conditions that afflict women (Campbell 1998), such as endometriosis.

Thus, the psychological mechanism of motivated reasoning is not inherently pernicious. It can be productive when non-epistemic motives lead people to ask new questions and attend to overlooked sources of evidence. These can be particularly useful strategies for moving beyond the status quo toward moral progress.

3.2 Motivated Meat Consumption

Unsurprisingly, we find some of these mechanisms of motivated moral reasoning in the case of meat consumption. Consumers are highly motivated to continue eating meat for various self-interested reasons, particularly because they enjoy the taste and convenience but also because they do not want to stand out from the crowd or abandon their cultural identities (Faunalytics 2014; Feinberg et al. 2019). But belief in the premises of the basic moral argument (or something like it) is inconsistent with rejection of its conclusion. To avoid cognitive dissonance, consumers would have to discount evidence in favor of the premises or selectively attend to reasons to doubt them (McPherson 2014). They can either doubt that animals on factory farms substantially suffer (rejecting the empirical premise) or doubt that such serious suffering is morally problematic (rejecting the moral premise). As we detail below, a growing body of research suggests that this is exactly what many consumers do.

Consider first various ways of resisting the empirical premise. Although the evidence of suffering on factory farms is plentiful and readily available, it conflicts with desires to continue consuming meat, which gives rise to wishful thinking, willful ignorance, confirmation bias, and other forms of motivated reasoning. Consumers think, for example, that the relevant suffering is *not severe* because animals do not feel pain quite like humans do. When confronted with moral qualms about meat consumption, study participants across multiple countries and cultures ascribe diminished mental capacities to animals, apparently in an effort to reduce cognitive dissonance and thereby rationalize meat consumption (Bastian et al. 2012; Piazza et al. 2015; Ruby and Heine 2012).

The suffering that consumers do acknowledge can be further rationalized as rare and ultimately necessary. Many consumers believe that the suffering on factory farms is not severe because it is *not systematic*. Even though the vast majority of meat comes from factory farms, over half of Americans believe that 'most farmed animals are treated well' and three quarters say that they typically buy products using animals that are 'treated humanely' (Anthis 2017). Reports of animal abuse on factory farms do make the news, but many consumers seem to remain skeptical of the authenticity of undercover exposés or regard the abuse as carried out by a few bad apples in an otherwise good barrel (Abbate 2021). Studies further suggest that consumers tend to think that suffering caused by factory farms is a side effect of an industrial food system that is *natural* or *necessary* for the growing population of humans. Dubious claims of this sort were the most common justification for eating meat among a sample of American university

students (Piazza et al. 2015) and functioned as rationalizations of the status quo (Feinberg et al. 2019). Ultimately, the desire to continue eating meat seems to fuel either willful ignorance of the empirical facts or wishful thinking when confronted with them.

Motivated reasoning likewise lurks in doubts about the moral premise. Peter Singer (1974) famously proposed that meat consumption is underwritten by *speciesism*—a belief that humans, simply by virtue of their biological category, have a higher moral status than other species. Of course, humans have interests that other animals lack, such as a desire to learn a second language. But, importantly, speciesism is the idea that human interests matter more even when they are shared by other animals (such as desires not to be confined or mutilated). Recent empirical evidence suggests that speciesism is a stable belief among many people that explains dietary practices and correlates with other prejudiced attitudes, such as sexism and homophobia (Caviola, Everett, and Faber 2019). A line of experimental research further suggests that consumers adopt speciesist attitudes in order to rationalize their consumption of animal products, thereby justifying their behavior and reducing cognitive dissonance (Bratanova, Loughnan, and Bastian 2011; Piazza et al. 2015; Graça, Calheiros, and Oliveira 2016). For example, participants in one study reported stronger speciesist beliefs when confronted with ethical, compared to health, reasons for vegetarianism (Jaquet 2019). Even just eating beef jerky, compared to eating cashews, made university students in one study judge that cows deserve slightly less moral consideration (Loughnan, Haslam, and Bastian 2010).

The emerging psychological picture is that when confronted with moral arguments people rationalize their consumption of products from factory farms. They dementalize the relevant animals and favor speciesist attitudes, for example, in order to justify supporting poor treatment, thereby reducing inconsistency and the cognitive dissonance it produces. As a result, many meat eaters are able to reject premises of the basic argument by believing that either (a) animal welfare matters less than human interests; or (b) eating meat does not cause severe harm to farmed animals.

Of course, many other rationalizations are also plausibly operative, from the rationale that one is not personally responsible for the suffering on factory farms, as discussed above, to the thought that one does enough moral good elsewhere (moral licensing). Whatever form the motivated reasoning takes, consumers remain unconvinced that they are morally obligated to reduce their meat consumption significantly. Even if one is at times convinced, the belief might not be strong enough to resist later rationalizations. Belief in the premises of the basic moral argument is thus unstable and lacking confidence, which could help explain why most vegetarians/vegans abandon their diet (Faunalytics 2014).

3.3 Motivated Meat Reduction

When moral reasoning about the welfare of other creatures is substantially influenced by self-interested motives, the resulting moral beliefs that sustain meat consumption might seem debunked (Jaquet 2019; Kumar and May 2019). Recall,

however, that motivated reasoning is not always pernicious. Non-epistemic motives can lead people to raise apt questions and consider relevant evidence. Although many people tend to be strongly motivated to consume meat, some are also motivated to maintain relationships with animals, primarily the cats and dogs that live in their homes. Psychological research on the contact hypothesis suggests that relationships with victims of harm and injustice can foster empathy and other humane attitudes. One way that such contact can engender progressive attitude change is by motivating moral consistency reasoning (Campbell and Kumar 2012).

To see this, consider another case of moral progress: the large and rapid decline in anti-gay attitudes in the U.S. and other countries over the past few decades. One way that anti-gay attitudes have declined is through motivated moral consistency (Kumar, Kodipady, and Young 2020; Kumar and Campbell 2022). Unlike race and ethnicity, sexual orientation is a hidden trait that is evenly distributed across the population. Consequently, many people—no matter their race, religion, or political orientation—have discovered that a beloved family member or friend is gay. Empathy for the individual in their lives has put people in a better position to understand the ways in which they are harmed and their freedom is curtailed. This local change in attitude has then spurred more general attitude change. People have reasoned that if their family member or friend does not deserve stigma and discrimination, then the many gay people who are strangers do not either. Empathy serves as a spark that leads consistency reasoning in the right direction.

Similarly, personal connections with animals can give people motives to attend to evidence in support of the basic argument against eating meat. It is plausible to many pet owners that it would be wrong to kill and torture a cat or dog. Thus, many people strongly oppose the practice of dog fighting, in which pairs of dogs are starved and viciously fight one another, often resulting in the death of one or both animals. Empathy for dogs can motivate one to think carefully about questions of this sort: if it is wrong to inflict severe and unnecessary harm on dogs then is it not wrong to inflict similar harms on cows, pigs, and chickens? Sincere reflection can then lead people to accept that farm animals suffer (the empirical premise) or that it is wrong to contribute to their suffering (the moral premise).

The mere salience of inconsistency is not enough to reduce meat consumption. Even if one recognizes an apparent inconsistency among a pair of beliefs, resolution can come from dropping either one of them. Thus, people can live with factory-farmed meat by accepting that other similar practices (like dog fighting) are also acceptable. A recent set of studies confirms that attitudes toward meat consumption budge little when such inconsistencies are merely made salient (Horne, Rottman, and Lawrence 2021). However, certain emotional responses can combine with consistency reasoning and lead one in the right direction. Empathy toward farm animals and disgust toward their plight can lead one to resolve the inconsistency in favor of animal interests rather than one's own interests.

A series of fascinating longitudinal studies suggests that both moral emotions and moral principles can help to resist the rationalization of gustatory pleasure (Feinberg et al. 2019). Each study had participants learn about the suffering farmed animals endure to end up on our plates. In one of the studies, meat eaters viewed a series of videos over the course of a month and periodically reported various emotions

and attitudes toward eating meat. The main dependent measure was change in *moralization* of meat consumption: how much one treats it as a moral issue. For many people, the lessons had no impact, while for others they backfired, making the participants view meat consumption as *less* of a moral issue. However, in all three studies, the lessons did increase moralization among some participants via two familiar psychological pathways. First, moralizers reported feeling more negative moral emotions (such as guilt, disgust, anger, or sadness) when they thought about eating meat. Second, moralizers were more inclined to say the lessons led them to think more about their 'morality and values' (Feinberg et al. 2019). Although the researchers did not explicitly measure rationalization or dissonance reduction, it is plausible that the lessons prompted emotional responses that motivated some participants to resolve inconsistencies in their moral values in favor of animal interests over self-interest.

In sum, both reductions in meat consumption and maintenance of the status quo are responsive to motivated reasoning. Self-interested motives (such as taste preferences, the desire to fit in) are liable to rationalize omnivorism, while more other-regarding motives (such as concern for the well-being of farmed animals) can rationalize meat reduction. The motivated reasoning that results can take many forms, from moral licensing and willful ignorance to more charitable interpretations of the mental capacities of farmed animals and more critical distance from one's speciesist attitudes.

4. Mechanism 2: Social Proof

It is not just willful ignorance and rationalization that fuel tolerance of factory farms. The fact that excessive meat consumption is commonplace does not just encourage apathy: it serves as positive social proof that it is acceptable, that nothing is morally amiss. Indeed, our social context leads many of us to conclude that it is morally obligatory to eat meat, because it is an essential component of Grandma's casserole, Mexican cuisine, or a masculine diet. Below we address this more social form of reasoning that also influences moral attitudes toward meat consumption, particularly once social change is already under way.

4.1 Evidence from Others

The other important psychological mechanism is a social form of reasoning. As eusocial creatures, we are heavily influenced by our particular in-group, especially those we trust and who are marked with status and prestige (Henrich 2015). One possible reason is that humans were designed by gene-culture co-evolution to learn socially from others. For hundreds of thousands of years, our ancestors have lived in worlds rich with adaptive culture. In this context, it was better to sample the wisdom accumulated over generations instead of attempting to figure things out on one's own.

An important example of social learning is what psychologist Robert Cialdini has called 'social proof'. The principle of social proof, as he puts it, is, 'one means we use to determine what is correct is to find out what other people think is correct' (Cialdini

2009: 88). We are all familiar with the experience of being motivated to dine at a busy restaurant and being turned off by an empty one. Are you just mindlessly following the crowd, or simply acting on a desire to fit in? Not at all. If a restaurant is busy, you take that as *evidence* that other people like it, which is evidence that you will like it too. Of course, this will not happen if you despise the customers at this restaurant, if say you are driving through a wealthy neighborhood and do not identify whatsoever with such posh patrons. But then we need only turn to who you take to be your in-group. If you are a hipster, then you will find yourself believing that you must dine at the new restaurant in your neighborhood that has so many fixed-gear bicycles parked out front.

A wide range of evidence suggests that people are more likely to follow social norms if they believe others do as well. One field experiment examined which versions of an environmental conservation message would lead hotel patrons to reuse their towels instead of having them laundered daily. It turned out that the most effective message was one that added to the environmental reasons a simple claim about the behavior of fellow hotel patrons: that the majority of guests reuse their towels (Goldstein, Cialdini, and Griskevicius 2008). Similar studies have examined the use of latrines to replace open defecation in developing communities. Although community members can be convinced that it is better for public health to use latrines, usage substantially increases only when everyone also expects that others will follow suit, particularly those in one's in-group or 'reference network' (Bicchieri 2017: 14). Equivalent results can be found when people play economic games in a laboratory setting. Participants in one study were slightly more likely to split a pot of money fairly between themselves and another player when they were led to believe that this is what most people from a previous version of the study did (Bicchieri and Xiao 2009). In general, social change ultimately requires the social evidence that others in one's group have not only adopted the right norms but with enough conviction to adhere to them in practice (Cialdini and Goldstein 2004; Bicchieri 2017; Tankard and Paluck 2016). Such social proof is particularly necessary when normative beliefs are weak, novel, uncertain, or unstable—all of which apply in contexts of moral progress against the status quo.

Like motivated reasoning, social proof is not an inherently progressive force. People are also more likely to flout norms if they believe most others do. Think of how cutting in line, jaywalking, and speeding can quickly spread as individuals in a community witness an epidemic of rule violators. Such widespread breaking of rules serves as proof that the rules are not important to follow, either because the rule is unnecessary or because punishment is unlikely.

One fascinating field experiment demonstrates this by measuring theft of petrified wood among more than two thousand visitors of Arizona's Petrified Forest National Park. The researchers found that when visitors saw a sign warning 'Many past visitors have removed the petrified wood from the park, changing the state of the Petrified Forest', theft was eight times higher than when visitors saw a sign pleading 'Please don't remove the petrified wood from the park' (Cialdini et al. 2006: 8). When people already violate a rule, it is better to focus attention on the need to comply rather than the fact that others frequently violate it.

The behavior and opinions of the majority are not the only source of social proof. People are shrewd enough to pay close attention to a subset of community members who are particularly successful, prestigious, trustworthy, or knowledgeable in the relevant domain (Henrich 2015; Bicchieri 2017). Moral exemplars who buck the trend can effect social change, and emulation is more likely if the exemplars are members of one's group that one can relate to personally. For example, students find heroic stories of historical figures like Rosa Parks less inspirational than stories of fellow students who make an impact in their community (Han et al. 2022).

4.2 Social Meat Consumption

Unsurprisingly, meat consumption is also influenced by social proof. First consider how it serves as a way to maintain the status quo, as consumers perceive a lack of social evidence in favor of diets low in meat. As noted above, vegetarians remain a small fraction of the population, which consumers recognize. As Abbate puts it, consumers might think: "if one's parents, friends, doctors, teachers, and religious leaders all eat meat and say that it's okay to eat animals, surely there is *something* wrong with [the arguments against it]" (2021: 5). And, as we have shown, motivated reasoning can help consumers poke holes in the moral arguments.

Some empirical evidence points to the role of social evidence in meat consumption. In a study of American college students, one of the four most common justifications for their carnivorism was that it's *normal*—such as, 'A lot of other people eat meat' and 'Meat is culturally accepted' (Piazza et al. 2015: 116). A survey of current and former vegetarians/vegans indicates that the greatest difficulties they face are social: their unusual diet makes them 'stick out from the crowd' (Faunalytics 2014). As Melanie Joy (2010) puts it, based partly on interviews with thousands of her university students, meat eating is ultimately considered 'a given' (69) or 'just the way things are' (65) for members of one's culture or reference group. Men in particular tend to view meat consumption as integral to their masculine identity (Ruby and Heine 2011). Although the desire to fit in or to avoid shame can trigger motivated reasoning too, the point here is that the attitudes and behavior of group members also serve as social proof.

Many people also receive social evidence *against* a vegetarian lifestyle. The vast majority of vegetarians/vegans (around 84 percent) eventually return to an omnivorous diet (Faunalytics 2014), which serves as powerful social proof that eating animals is natural and necessary for one's well-being. If the vast majority of people in one's community are either meat-eaters or *former* vegetarians or vegans, then one has powerful social proof that drastically reducing one's meat consumption is not the thing to do. Advocates of the meat industry are already capitalizing on this problem. In 2016 BuzzFeed ran an article, 'We Asked Former Vegetarians What Made Them Switch Back to Eating Meat'. But it was actually a paid post created by Meat & Livestock Australia (2019), which describes itself as the 'marketing, research and development service company for Australia's cattle and sheep producers'.

4.3 Social Meat Reduction

Social proof can produce the opposite effect, provided one perceives the corresponding change in social norms. Consider a set of randomized field studies conducted at three separate conferences in Denmark (Hansen, Schilling, and Malthesen 2021). During the registration process, the researchers randomly presented conference goers with a default lunch option that was either vegetarian or non-vegetarian, though in either case participants could actively select the other option. Remarkably, although under 10 percent of attendees registered for a vegetarian lunch when meat was the default option, nearly 90 percent opted for the vegetarian lunch when it was the default. Similar results have been found in a study of university students in campus dining halls (Campbell-Arvai, Arvai, and Kalof 2014). Participants were nearly twice as likely to select from a meat-free menu when it was the default.

The exact mechanism behind such opt-out effects is not entirely clear. It could be mere laziness: perhaps conference goers overwhelmingly chose the default lunch option because opting out required an active decision. However, in the conference study, opting out required little effort—essentially just checking a box. Given what we know about social change in other contexts, the authors of that study plausibly conclude that the default option sends a 'normative signal' to conference participants, which is a form of social proof that changes one's beliefs about what others in one's peer group will eat (Hansen, Schilling, and Malthesen 2021: 2). Moreover, this normative signal arises from the conference organizers, which are members of the conference goers' in-group with status. This interpretation is bolstered by a study of food choices from hypothetical restaurant menus in the Netherlands (de Vaan, van Steen, and Müller 2019). When the menu presented vegetarian dishes as the default (meat could be optionally added to any dish), participants reported this as indicating stronger social norms to eat vegetarian at that restaurant. In general, it may be that default 'nudges' influence behavior because they are mediated by an inference about social norms, in which case setting a default is exploiting rational learning mechanisms (Kumar 2016).

Meat consumption can even be reduced by the perception that social norms are trending in the direction of change. One study tracked the lunch purchases of more than three hundred faculty, staff, and students at an on-campus cafe at Stanford University (Sparkman and Walton 2017). While waiting in line, patrons who agreed to participate in a survey read that 30 percent of Americans make an effort to reduce their meat consumption. Some participants were randomly assigned to read this 'static' version of the norm, in which the proportion of reducers might seem to be a fixed minority. But participants in the 'dynamic norm' condition read that this change is a *recent* phenomenon, suggesting that an increasing number of Americans are *starting* to reduce their meat consumption. Strikingly, meatless lunch orders were twice as high when patrons perceived a trend (34 percent versus 17 percent), and such effects appear to be mediated by the anticipation that meat consumption will decline more in the future and because it matters to other people (Sparkman and Walton 2017). A similar effect

of norm perception was found on Canadians' intentions to reduce consumption of red meat for environmental reasons (Stea and Pickering 2019).

Finally, social proof can help sustain meat reduction if linked to one's in-group. Vegetarians in India, for example, tend to tie this dietary practice to their group identity, particularly their religion (Ruby et al. 2013). In another cross-cultural study, social influence was associated with meat consumption across individuals residing in America, Canada, Hong Kong, and India. Across all four groups, willingness to eat meat was associated with the frequency of consumption among their friends and family (Ruby and Heine 2012; see also Masson, Jugert, and Fritsche 2016).

5. Applications to Policy and Messaging

We have shown that motivated reasoning and social proof can be used more productively to reduce meat consumption for moral reasons. Below we sketch some brief recommendations for policies and messaging efforts that can harness these psychological mechanisms to encourage durable, long-term changes in dietary practices. The recommendations also illustrate how socially embedded reasoning can facilitate moral progress.

5.1 Applications from Motivated Reasoning

The consumption of animals, and particularly their appalling conditions on factory farms, presents many of us with a tension in our beliefs: we would never treat some animals (such as our pets) this way, but is there a morally relevant difference? When combined with empathy for farmed animals, disgust toward their conditions, and recognition of their mental capacities, one can be led to resolve this inconsistency in favor of animal welfare.

Activists already work to increase awareness about the mental capacities of farmed animals, their conditions on factory farms, and the moral arguments that increase cognitive dissonance. And some evidence does suggest that people who are more knowledgeable about the use of animals as food are less likely to consume animal products (Feltz and Feltz 2019; Harguess, Crespo, and Hong 2020). However, mere exposure to such facts is often insufficient to motivate significant, durable changes in dietary practices. Of course, videos exposing the conditions on factory farms remain powerful, though not merely because they evoke empathy and disgust, but also because such emotional responses to morally relevant reasons help one resolve inconsistencies in favor of animal welfare. Activists would be likely to inspire more durable change by not just evoking short-lived emotions but motivating people to reason about the similarities between the animals they care about and those who suffer needlessly on factory farms.

What is less emphasized are positive emotions that could lead one's reasoning on a less self-interested path. Empathy can be aroused, for example, if the images and language on menus make salient that the meat came from a once living being. However, empathy is more likely to arise in consumers if they develop

relationships with farmed animals. One way is for schools to organize field trips for students to visit humane farms. Or farm animals like pigs can be brought to campus for university students, much in the same way that dogs are brought to campus during exam periods. Although cultural and gustatory motives are powerful, our model suggests that fostering relationships in ways such as these is likely to spur productive motivated reasoning that reduces meat consumption.

5.2 Applications from Social Proof

The behavior of those in one's culture and other in-groups provide powerful social evidence of what is acceptable or required. Few will reduce their meat consumption if their friends, family, and idols maintain the status quo. Even when confronted with a simple and compelling moral argument, one quite reasonably suspects there must be a fatal flaw. But how can social influence get a hold when the vast majority of people in one's community consume meat from factory farms?

Fortunately, as we have shown, social proof can gain a foothold on social change by starting small. Prestigious or popular figures, for instance, can serve as initial influencers by outing themselves as meat reducers and promoting the lifestyle. An important feature of social proof is that it, like democracy, dies in darkness. Meat reducers must engage in conspicuous consumption if they are to influence others—although, importantly, parading moral attitudes can backfire if perceived as virtue signaling, moral grandstanding, or otherwise off-putting (Minson and Monin 2012; Tosi and Warmke 2020). Yet calls to reduce meat consumption in the name of animal welfare more commonly succeed rather than backfire, at least in experimental studies that primarily measure self-reported attitudes (Mathur et al. 2021).

Moreover, even if a minority of people in one's community are conspicuous meat reducers, others will be more inclined to follow the trend if they perceive it as a dynamic norm that is increasingly trending in a progressive direction. Institutions can also help to normalize meat reduction and signal changes in consumer norms by, for example, developing meatless Mondays at schools, subsidizing meat alternatives, and making vegetarian options the default at meetings. Finally, since most citizens in one's country will not be meat reducers, it will be beneficial to highlight those smaller in-groups in which a larger proportion are reducers, such as one's alumni network, church group, chess club, or professional organization. The influence that children have on parents might be another promising avenue. Because younger people's dietary choices are more plastic, ethical arguments might change their attitudes and behavior before being filtered into those of their parents.

These recommendations provide only a sketch of some possibilities. Since the consumption of meat, particularly from factory farms, is a profoundly important ethical issue, it is important to attend to the moral psychology of consumers, who are faced daily with the choice of what to put on their plates. Of course, messaging should ultimately appeal not only to the moral reasons in favor of meat reduction but also to benefits for personal health and the environment.

6. Conclusion

Significant reductions in meat consumption are widely taken to conflict with gustatory pleasure, cultural traditions, and other values, which together create a recipe for rationalizing maintenance of the status quo. We have identified two key psychological mechanisms—motivated reasoning and social proof—that sustain consumption of factory farmed meat by justifying rejection of, or doubt in, the moral reasons against factory farming. Motivated reasoning allows one to rationalize that animals suffer little or that their suffering matters less, while social proof takes the dietary practices of others in one's community as evidence that meat consumption is normal, natural, and necessary. Each psychological mechanism serves to justify unrestricted carnivorism.

These two mechanisms help to explain both wishful thinking and willful ignorance about the ethics of meat consumption. When consumers do become aware of (or later reconsider) the plight of animals on factory farms, both motivated reasoning and social proof can lead them to rationalize their present dietary practices. After all, the treatment of farmed animals is not a secret, yet everyone else in the community remains unfazed. Other consumers, of course, are not aware of the conditions on factory farms or their ubiquity. However, motivated reasoning and social proof can lead such consumers to think that further inquiry into the issue is unnecessary. After all, hardly anyone in their community is talking about it, so why bother? Thus, although it is true that some people just do not think much about the ethics of meat consumption, our two psychological mechanisms help elucidate this commonsense observation.

It might seem unsurprising that tolerance and implicit support of factory farming is influenced by one's peers and wishful thinking or willful ignorance. These are familiar friends of moral regress and stagnation. What is less obvious is that these are not arational or simplistic mechanisms divorced from reasoning. Indeed, these mechanisms link up with arguments, ideas, evidence, and the reasons they articulate. As a result, social change on this issue, among many others, will require attention to relevant moral reasons and socially embedded reasoning about them.

JOSHUA MAY [iD]
UNIVERSITY OF ALABAMA AT BIRMINGHAM
joshmay@uab.edu

VICTOR KUMAR
BOSTON UNIVERSITY
vckumar@bu.edu

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