

## ABSTRACT

HITE, ADELE H. A Material-Discursive Exploration of “Healthy Food” and the *Dietary Guidelines for Americans*. (Under the direction of Carolyn R. Miller and Stephen B. Crofts Wiley).

Americans seem caught in a paradox involving nutrition guidance, nutrition science, and health: Scientists and public health experts continue to produce information and advice about the connections between diet, obesity, and chronic disease, and many Americans have apparently taken up dietary regimes with this information in mind. At the same time, over the past few decades, the health of Americans appears to have worsened. In this study, I examine this paradox, as well as other contradictory elements of dietary health discourses in America, from the perspective that nutrition science and dietary guidance are shaped by historical and cultural contexts, as well as the values and social norms of the professionals engaged in nutrition knowledge production. My specific focus is the shift from defining a “healthy diet” as one that prevents diseases of deficiencies to one that prevents chronic disease. This shift was a reflection of and reinforced by corresponding shifts in nutrition science, public health, health policy, and economics that emphasized individual responsibility for health outcomes and marketplace solutions for social problems. My investigation challenges familiar narratives about dietary health by examining the socio-cultural, economic, political, and historical factors in 20<sup>th</sup> century America that have shaped beliefs about relationships between diet and chronic disease and how, in turn, these beliefs have shaped thinking about bodies, agency, and moral imperatives related to health behaviors.

I begin with a critical examination of how, in mid-20<sup>th</sup> century America, concerns about avoiding specific food components in order to prevent chronic disease became part of popular, scientific, and public health discourses. Using Foucauldian concepts of “history of the present,” the *dispositif*, biopower, and governmentality and perspectives from science studies and rhetorics of science, I examine historical and scientific sources to investigate the establishment of dietary guidance for the prevention of chronic disease and the development of power-knowledge relations around this guidance. Next, I investigate how and why U.S.

federal nutrition guidance shifted from a focus on adequate nutrition to a focus on chronic disease prevention. My study uses methods from rhetorical analysis and genre studies to explore the controversy that took place in 1980, when two conflicting sets of dietary guidelines positioned themselves as authoritative government advice on how to eat a “healthy diet.” I use these texts—*Nutrition and Your Health: Dietary Guidelines for Americans*, produced by an *ad hoc* committee of officials from the U.S. Departments of Agriculture and Health and Human Services, and *Toward Healthful Diets*, written by the Food and Nutrition Board of the National Research Council of the National Academy of Sciences—along with government hearings and media accounts contemporaneous to the debate, to examine why views presented in the *Dietary Guidelines* persisted over those in *Toward Healthful Diets*, an outcome that was neither self-evident at the time, nor inevitable. My investigation continues with an exploration of how the assumptions that undergird the concept of diet as a means of controlling chronic disease are represented in the material features of diet-related fitness apps. I use theoretical frameworks from feminist new materialism to examine how “healthy diet” discourses are manifested differently within different apps and how the constraints and affordances of a given app makes “the body” visible to its community of users in the digital space during the work of disciplining their bodies with regard to weight and health.

This investigation may help shed light on the 21<sup>st</sup> century American paradox of “more information and less health.” Furthermore, by positioning “healthy diet” discourses within a situated, contingent historical context, I hope to engage scholars across the academy in problematizing current notions of what it means to “eat right.”

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A Material-Discursive Exploration of “Healthy Food” and  
the *Dietary Guidelines for Americans*

by  
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**DEDICATION**

To my father, Bohdan Huryh, and to my husband, Greg Bower—for your unflagging support

## BIOGRAPHY

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Her work encompasses rhetorical and cultural studies of food politics, nutrition science, and public health; critical health studies; science-based policy controversies; science and technology studies; and the science-policy-publics interface—among other things. She lives in Durham, North Carolina, with her husband and lots of books.

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I think most, if not every, dissertation is a team effort, and mine is no exception. However, the number of years of graduate training that it has taken me to get to this point may be somewhat exceptional. As a result, the list of those whose have played a significant role in this effort is extensive, and yet I feel that there are many others, unnamed, who have contributed. I hope they know who they are and accept my thanks for their support and assistance.

I owe a significant debt of gratitude to my co-chairs and to my committee, for their guidance, inspiration, and patience:

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## CHAPTER 1: INTRODUCTION

### 1.0 - Not so simple

The rhetoric surrounding “healthy diet” in 21<sup>st</sup> century America suggests that managing the relationship between food and chronic disease is simple: either a “simple” matter of controlling the types of food eaten or a “simple” matter of restricting the amounts of food eaten, or both. This seems to be a fairly commonsensical notion—you can’t just eat whatever you want as much as you want without suffering the consequences of obesity and chronic disease.<sup>1</sup> However, as I argue here, although this notion has roots in the history of moral valuation of bodies and eating practices, it has only recently been given the imprimatur of nutrition science and public health nutrition policy. In the era before “healthy diet” became defined as a diet that prevents chronic disease and before prevention of chronic disease became intimately tied to issues of body size, a “healthy diet” meant eating foods that would adequately meet essential nutrition needs. However, during the 1960s and 1970s, a fundamental reorientation in dietary guidance took place: the focus on acquiring the “good” things in food to meet the needs for nourishment began to be overshadowed by concerns about excluding “bad” foods and food components that might cause chronic disease. This shift, deemed “negative nutrition” by Warren Belasco (1989/2007), contradicted earlier thinking that, once essential nutrition needs were met, deliberately restricting amount or type of food was unnecessary for most people. This is not to suggest that prior eras were free of judgmental attitudes toward amounts and types of food chosen or to concerns about body size

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<sup>1</sup> In the context of present discourses of blame and alarm associated with “the obesity epidemic,” language related to body size is rhetorically fraught. In this dissertation, I will use the term “obesity” to highlight the medicalized aspects of these discourses and “fat” or “fatness” to emphasize its morally laden aspects. “Body size” is a phrase I use to suggest that there are (potentially) more neutral ways of describing differences in physiques. In no regard am I making a case for larger body size as a “cause” of chronic disease.

in other regards, but to point out that the current understandings of how to enact a “healthy diet,” which always seem to imply some type of restraint, have not always been “common sense.” With the spread of theories that diet and chronic disease are related, guidance that calls for restraint has taken a variety of forms: restraint in both choice and amount of food, restrained choices only, and restrained amounts only. For each type of guidance, there exists a body of scientific claims to support it. Although it might be assumed that these conflicting approaches appear in a chronological series, with more restrictions placed on eating as more about links between diet and chronic disease are known, these differing approaches to dietary restrictions in the name of health have existed, and continue to exist, simultaneously and in competition.

The concept of restraint is closely linked to the concept of choice. The implication is that these two aspects of restraint—amount of food and type of food—are independent of each other and any biopsychosocial imperative. In other words, it is understood in the context of these practices that dietary health is a problem of mind over matter, and an individual may simply choose to “eat right” and thus choose to have a healthy body (2006). The idea that an individual can, and should, choose not to eat when or what he or she might otherwise eat, places the notion of dietary guidance strictly within the realm of modernist thought. At its center is a rational human who is expected to make appropriate food choices according to principles of science and expert judgment. Extenuating environmental, psychosocial, or genetic circumstances might make this task more difficult, but it is presumed that for any individual body, consuming a “healthy diet” by enacting limits on types and/or amounts of food will predictably result in slenderness and good health.

But my clinical experience says it’s not so simple.

My experience working as registered dietitian with patients whose diet and exercise efforts often failed to prevent the development of a chronic disease or a body size deemed unacceptable taught me that, frequently, bodies don’t respond predictably. But within the biomedical and public health framework in which I worked, there could be no explanation

for discrepancies between reported diet and activity and expected outcomes other than what nutrition scientists and public health experts euphemistically call “underreporting.” This can be illustrated by a passage from a 2007 article, “Unhappy Meals,” by *New York Times* writer, Michael Pollan. In an essay that has become a touchstone for food advocates, dietitians, and public health nutrition leaders, Pollan describes what he sees as the flaws in nutrition studies:<sup>2</sup>

But perhaps the biggest flaw in this study, and other studies like it, is that we have no idea what these women were really eating because, like most people when asked about their diet, they lied about it. How do we know this? Deduction. Consider: When the study began, the average participant weighed in at 170 pounds and claimed to be eating 1,800 calories a day. It would take an unusual metabolism to maintain that weight on so little food. And it would take an even freakier metabolism to drop only one or two pounds after getting down to a diet of 1,400 to 1,500 calories a day—as the women on the “low-fat” regimen claimed to have done. Sorry, ladies, but I just don’t buy it.

As Pollan indicates, his “deduction” that the women in the study are lying is based on the assumption that any given individual body should behave according to a general theory about bodies. An “average participant” weighing 170 pounds and eating 1,800 calories a day should lose weight on “so little food,” and should lose more than a couple of pounds once

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<sup>2</sup> The study that Pollan refers to, The Women’s Health Initiative (WHI), stands as the exception to the general rule that most studies investigating diet and chronic disease are epidemiology studies. The WHI was an eight-year long clinical trial involving nearly 49,000 women that sought to determine, among other things, if using a low-fat dietary intervention would result in weight loss and reduce the risks of heart disease or cancer; the findings did not indicate this was the case (Beresford et al., 2006; Howard, Horn, et al., 2006; Howard, Manson, et al., 2006). Pollan’s dismay with the study and its participants seems to be directly related to its failure to confirm the expected outcomes.

calories are reduced further, to 1,400 or 1,500 a day. Why? Because current theories regarding food and health predict this outcome. As far as Pollan and many nutrition experts are concerned, the only possible explanation for the women in the study not losing weight is that they were lying about how much they truly ate. In contrast, my clinical experience taught me that, in many cases, patients whom I had otherwise no reason to doubt would report following standard nutrition recommendations for a reduced fat, plant-based, calorie-limited diet, yet would still struggle with weight gain and chronic illnesses this dietary pattern was supposed to prevent. In this regard, the experiences of these individuals were a microcosm of a larger public health nutrition paradox.

### **1.1 - The paradox**

Since the mid-1990s, Americans seem caught in a contradictory situation involving nutrition guidance, nutrition science, and health: As scientists and public health experts have continued to produce information about the connections between diet, obesity, and chronic disease—and as many Americans have reportedly taken up dietary and exercise regimes with this information in mind—the prognosis for the health of Americans has become more dire. Nutrition scientists, public health experts, health care practitioners, and the media have designated obesity not only as a sign of increased chance that someone will develop chronic disease or die prematurely, but as a disease in its own right; public health experts point to rapidly increasing rates of obesity to argue that good health, at least as represented by a “healthy weight,” is elusive for many Americans.<sup>3</sup> At the same time, there are numerous

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<sup>3</sup> Critical perspectives on “the obesity epidemic” and the “dangers of fatness” suggest that the relationship between obesity and health is far less clear than current public health discourses suggest (Gard, Wright, & Campos, 2005; Oliver, 2006). Other critics point to the politicization of body size, the failure of weight loss efforts to improve health, and discrimination against people with large bodies as reasons to interrogate questions of how health and body size are related (LeBesco, 2011;

indications that Americans are more health-conscious than ever, with low-fat foods, fitness centers, and athletic wear popular enough to become multibillion-dollar industries. The “weight loss and diet control market” was valued at \$66 billion in 2017 (Business Wire, 2018).

Adding to the paradox, most experts pinpoint the apparent rise in obesity as beginning around 1980, the same year the first edition of the *Dietary Guidelines for Americans* (DGA) was issued and a few years following a 1977 Senate report, *Dietary Goals for Americans* (Wang & Beydoun, 2007). Both government publications shifted the focus of federal nutrition guidance from what to eat in order to acquire adequate essential nutrition to what not to eat in order to prevent chronic disease. The advice these reports contained was meant to forestall, not herald, a rise in obesity.

Whether it is characterized as a diet that limits calories or one that limits sugars and starches, one that eliminates wheat or one that eliminates meat, one that calls for dramatically reducing fat intake or dramatically increasing it—all of these diets have in common the assumption that we know which dietary practices will cause or prevent, or at least greatly increase or reduce the risk of, chronic disease.<sup>4</sup> Here is yet another aspect of the paradox: Common sense dictates that everyone should be following a “healthy diet” in order to prevent obesity and chronic disease, but there seems to be considerable disagreement about what a “healthy diet” is. There is even disagreement about this disagreement; some nutrition

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Medvedyuk, Ali, & Raphael, 2017). Additional concerns have been raised, however, about treating obesity as simply a discursive phenomenon that has no material causes or effects (Warin, 2015).

<sup>4</sup> Population-level associations between diet and chronic disease are typically reported in terms of “risk factors” when presented in biomedical journal articles. However, in messages to individuals to change diet or other behaviors, discussions of risk frequently become assertions of causality (Hite, 2017). I will use the terms “prevent” and “cause” when discussing relationships between diet and chronic disease to reflect the nature of these messages.

experts assert that we “know” what a “healthy diet” is and have known for some time. Marion Nestle (1994), who is considered an expert in nutrition policy, asserts that the question of what a “healthy diet” is has been settled:

[E]ndlessly debated research has led to an international consensus on dietary recommendations. ... evidence for the health benefits of diets that contain a large proportion of calories from fruits, vegetables, and grains, and a much smaller proportion from meat, dairy, processed foods, and alcohol, is not in question and never has been” (p. 16)

Researchers at Harvard more recently express the concern that other researchers are “reigniting controversy over formerly settled debates,” such as whether Americans should be eating butter (Satiya, Yu, Willett, & Hu, 2015, p. 5). The answer according the Harvard team is “no” and to cast doubt on that conclusion is, according to them, not only confusing, but dangerous, leading to “the consequent adoption of unhealthy practices by the public at large” (Satiya et al., 2015, p. 5). Of course, the point of the controversy and debate is that the “unhealthiness” of butter is, at least for some, still an open question, and certainly if nutrition research has been “endlessly debated,” as Nestle suggests it has, then evidence for the health benefits of the diet she outlines had indeed been in question at some point and may very well still be.

The field of nutrition science dealing with the prevention of chronic disease and the guidance based on that science are contentious (Ioannidis & Trepanowski, 2017). But as the discourses of “healthy diet” as a means of preventing chronic disease have permeated 21<sup>st</sup> century American culture and debates about which diet is the “healthiest” rage on, a more basic question has been obscured, namely whether it is possible to establish public health nutrition guidance for the general population as a way of preventing chronic disease. This question raises corresponding questions of evidentiary standards and ethics. In a national health emergency (outbreak of a contagious disease or contamination of the water supply), the urgency of the situation allows for standards of evidence for providing an intervention to

be based on the idea of “preponderance of available evidence.” The same standard of evidence is applied to an encounter between a patient and a healthcare professional, where the encounter was initiated by the patient and opportunities for discussing, modifying, or rejecting the proposed intervention are available (Malm, 2002). But a public health nutrition intervention, provided in a non-emergency context, is different. According to bioethicist Heidi Malm (2002), conditions under which it is ethical to provide preventive public health recommendations are when standards of evidence “beyond a reasonable doubt” demonstrate unmistakably that recommendations will provide an expected benefit to the individual, with minimal risk of harm (p. 5). This is necessary because individuals who do not initiate the encounter and may not benefit from it will nevertheless be exposed to its effects. In the case of public health nutrition interventions this standard may be even more pertinent because of potential effects on the food supply and federal nutrition programs. Can a standard of “beyond a reasonable doubt” be met for population-wide dietary guidance?

A foundational objection to population-wide dietary guidance is that there is unlikely to be one dietary pattern that protects all individuals equally from all chronic diseases. Currently, the links between diet and chronic disease can only be established by either nutritional epidemiology of chronic disease (NECD) observational studies or randomized, controlled trials (RCTs), but it unclear whether either of these kinds of studies are suitable for addressing the how a diet may affect different individuals differently. Both types of studies would have to include appropriately large numbers of individuals who represent the diversity of socioeconomic, racial, and ethnic groups that make up the population of the U.S. so that variations in outcomes across subpopulations could be detected; this in itself points to the radical infeasibility of trying to establish one diet as a way to prevent all chronic diseases in all individuals. In order to avoid the *a priori* assumption that a pre-selected diet is most beneficial, RCTs would have to test multiple diets against each other, not just the currently recommended DGA diet against a “standard American diet.” NECD studies would have to capture in their observations the diversity of ways that people eat in the U.S.—from vegan to

carnivore—with sufficient numbers of participants in each dietary subtype to make appropriately powered comparisons. Both types of studies would have to take place over a number of years, or even decades, in order to record the development of chronic diseases with extended natural histories. Furthermore, both types of studies would have to address what has been called “the most serious limitation to research in nutritional epidemiology” (Willett, 1998, p. 5), although it applies to long-term, large RCTs as well: how to collect accurate information about what participating individuals are eating.

Currently, NECD studies and most large RCTs rely on collecting dietary information through self-report. Because these self-reports involve asking participants to retrieve from memory the details of what they have eaten in the past, sometimes for a period as long as a year, their use has raised questions about what exactly is being recorded and treated as diet history (Archer, Lavie, & Hill, 2018). Some researchers have found these methods of collecting dietary data to be wildly inaccurate (Archer, Pavea, & Lavie, 2015). Self-reports may not be based on what was actually eaten, but on current food and health beliefs, a desire to provide socially acceptable answers, and a sort of “wishful thinking” about usual intake (Kristal, Peters, & Potter, 2005). There is no way for researchers to know which aspects, if any, are accurately reported. As Pollan’s statement quoted above demonstrates, any findings that don’t concur with *a priori* assumptions about the outcomes are likely to be attributed to dietary “misreporting,” while findings that do match the study hypothesis may be accepted at face value. This is because researchers, as well as research participants, are influenced by current food and health beliefs built into the social context in which they live. Normative recall on the part of participants may be guided by research questions that assume certain notions of healthfulness related to foods or food components have already been established. For example, when the food questionnaire given to participants in one large NECD study asked about what types of yogurt were consumed, the questions focused on level of fat, but did not ask about sugar, food coloring, or other ingredients: “What type of yogurt do you usually eat? None, regular, low fat, or nonfat” (Harvard University, 2007). Thus, both

participants and researchers may have preconceived ideas about what defines a “healthy diet” that influence what information about diet is collected.

In addition to the difficulties associated with determining what any individual’s true dietary intake is, it is impossible to determine the actual nutrient content of any given food an individual reports eating. It is also impossible to separate nutrients in food from each other; different factors in a food may operate together or against each other to cause or prevent disease. Similarly, the effects of foods commonly eaten together in dietary patterns cannot be distinguished from each other. For example, if researchers find that hamburgers are associated with a chronic disease, is it the meat patty or the bun, or both, that causes problems?

Large, long-term, multi-pronged RCTs are likely to be prohibitively expensive and also to involve a non-representative segment of the population since a person who would volunteer for such a study may differ from the rest of the population in significant ways. This may also be true of NECD observational studies; however these studies are relatively less expensive and easier to administer. At the same time, unlike RCTs, NECD studies can only show associations, not cause-effect relationships. Confounding factors that can affect the kinds of associations seen—such as income, education, and other health-related behaviors—can be “adjusted” for in a dataset, but cannot be entirely accounted for or “stripped of their metabolic consequences by sophisticated statistical methods” (Willett, 1998, p. 15). Furthermore, researchers can only attempt to adjust for confounding factors that they are aware of or wish to acknowledge. The lack of a guiding theoretical framework in the field of epidemiological studies of lifestyle factors means that what variables are included or excluded from a model may be treated by the researchers as “self-evident, requiring no analysis, or else simply a matter of idiosyncratic inspiration (or ideological proclivities)” (Krieger, 2011, p. 273). If researchers are operating from the assumption that chronic disease outcomes are linked to factors under an individual’s control, such as diet, the contribution of social inequalities and structural discrimination to differential health outcomes within a

population may not be accounted for (Krieger, 2011). In any case, NECD studies do not permit researchers to distinguish between causal and coincidental associations. Furthermore, weak associations could be causal; strong associations could be coincidental. Only the very strongest of associations, similar to those found between smoking and lung cancer, would meet ethical standards of showing a cause-effect relationship “beyond the shadow of a doubt,” and these associations have not been found in NECD studies. However, there is a great deal of methodological and interpretive malleability that comes with weak associations, the inability to differentiate between causal and coincidental associations, and the lack of a guiding theoretical framework. This malleability can accommodate researchers’ own biases and inclinations, which then allows for diametrically opposed conclusions to be drawn about the same food or diet and its impact on chronic disease.

Beyond these methodological problems are larger, theoretical ones that RCTs and NECD studies may not be able to address. Food does not just act as fuel and structural materials for the body. It is a way of conveying information about the “outside world,” fine-tuning our ability to adapt to the environment. Information from food changes metabolism and behavior in ways that are likely to be beyond conscious awareness. In addition, the same food may deliver very different “messages” to different individuals as the signals interact with a body’s previous idiosyncratic history. This may result in very similar diets producing different health outcomes for different individuals. This complexity is heightened when we acknowledge that we are not just human bodies; we are teeming colonies of microscopic organisms whom we feed every time we feed ourselves. These microorganisms have evolved along with us. Our biological processes and theirs are inter-related in ways that we are just beginning to understand; their health is our health. This speaks to a complexity that precludes simple links between diet and disease. Finally, the field of epigenetics implies yet another layer of complexity, one that occurs not just within our own bodies, but in relation to other bodies over time. Chronic disease may not be a result of our food choices at all, or even other ways our body might be exposed to environmental impacts. Rather, chronic disease may be a

response to environmental exposures that happened to remote ancestors. These exposures do not have to cause a genetic mutation to modify the way that genes are expressed. That these modifications are heritable over numerous generations suggests a complex archeology of interactions of current and past exposures that undermines the notion that we can control our health through controlling our own lives.

However, even if strong consistent links were found between a nutrient, a food, or a dietary pattern and a specific chronic disease—and these links were tested across diverse populations and found to be equally significant for all subgroups—there is still the problem of policy. A diet which is effective at preventing chronic disease outcomes when adhered to under controlled conditions or by highly motivated individuals may have different effects when given as set of recommendations to the general public that the general public then decides how to implement (Dallal, 2012). The central issue here is the potential for harm. Because the very nature of preventive public health measures mean that many individuals will be exposed to the intervention, but only a few will benefit, individuals should also be exposed to little, if any, harm (Malm, 2002). However, the potential for harm from advising individuals to change their diets is not insignificant. Links between a dietary pattern and one disease may not apply to other diseases; decreasing risk of one health concern with a dietary change may increase risk of another. Public health nutrition recommendations may cause changes in the food supply that create new health risks, as happened when saturated fats were replaced with *trans* fats (Schleifer, 2012). These recommendations may also result in the demonization of traditionally healthy foods that are important to those from diverse ethnic and cultural backgrounds, if those foods don't fit the definition of "healthy" provided by public health messages (Hite, 2017). We may not be able to measure the resulting damage in biomarkers, however, this does not mitigate or erase it. Moreover, if minority groups were underrepresented in the research being used to make policy, as is often the case, differential outcomes for these populations may be undetectable (Kaput, 2008). The policy created may be ineffective or even specifically harmful to them. Prevention through a population-level

intervention is, as public health epidemiologist Paul Marantz (2010) has pointed out, a double-edged sword. Small benefits may be magnified when applied to a population, but so may small harms, and unintended or unforeseen negative effects are always possible. Ultimately, the studies needed to create the level of evidence to appropriate for developing public health nutrition guidance for the prevention of chronic disease for an entire population may not be possible to execute, and policy developed from such studies may not, in the end, be an effective use of taxpayer money.

It was these kinds of theoretical and practical difficulties that nutrition scientists and public health experts raised in the late 1970s when debating the value of establishing public health nutrition guidance for the general population as a way of preventing chronic disease. Despite these concerns, the 1977 *Dietary Goals* and 1980 DGA provided a set of guidelines to the public for how to eat in order to help prevent chronic disease. The creation of these documents effectively ended the debate, although dissent about the value of this guidance continues to this day. In 1980, however, the question was no longer whether recommendations should be given to the public about how to make the right dietary choices to prevent chronic disease, but what those recommendations should be. Within the context of discourse surrounding these two documents, the phrase “healthy diet” shifted from referring to a diet that would provide adequate nutrition to one that would prevent obesity, diabetes, heart disease, and stroke. Since then, the hallmarks of “healthy diet” discourses—specifically the calls for restraint in either amount or type of food or both in the service of preventing chronic disease—have become embedded throughout American culture, from healthcare practices to food production and promotion to online communities professing allegiance to one dietary practice or another. Central to the discourses of “healthy diet” is the rhetoric of choice. Because it is assumed that links between diet and chronic disease are clearly understood and widely known, and because the products necessary to a “healthy diet” and lifestyle are commonly available, individuals may simply “choose” to be slender and healthy. Yet the rhetorics of choice present another paradox: Those who create public health nutrition

messages are absolved of any responsibility for negative health outcomes related to *following* the guidance given; after all, an individual may choose not to do so. At the same time, the individual is also made responsible for any negative health outcomes related to *not following* the guidance given; after all, if the individual had chosen a “healthy diet” as advised, chronic disease would have been prevented.

In the following chapters, I examine these paradoxes and controversies from the perspective that the acceptance of the idea of “healthy diet” as means of preventing chronic disease has helped to firmly establish a “mind over matter” approach to dietary health. This shift was reflected in and reinforced by corresponding shifts in discourses of nutrition science, public health, and health policy that emphasized individual responsibility for health outcomes. Although my project can be seen as another attempt to resolve the contradictory situation of increased knowledge about and attention to dietary health existing in tandem with increased obesity and chronic disease, I am less interested in providing a solution to the apparent paradoxes surrounding nutrition and health in America and more interested in examining how they came to be and how this history manifests itself in everyday life. To paraphrase Ian Hacking (1991), I am less concerned with “therapy,” and more concerned with using a critical approach to the history of “healthy diet” in America as a way of understanding some of the incoherence and contradictions in the present situation. This understanding may illuminate how the incoherence and contradictions of “healthy diet” concepts and practices exist alongside their acceptance as a common sense part of our lives and how we navigate their inherently paradoxical nature. And, as is often the case with shedding light on a particular problem, this may lead to ways to think differently about food, bodies, and health in America.

## **1.2 - Theoretical background**

In many ways this endeavor is a long and complicated answer to those individuals I met in clinic who asked me, “Why is nutrition this way?” They were confused and frustrated that following the “healthy diet” rules didn’t result in the outcomes that seemed to be

promised them. When I tried to find the answers in graduate work in nutritional epidemiology, I felt a similar confusion and frustration, but for me it stemmed from the promises, not just of nutrition guidance, but of the science that ostensibly legitimized it. “Why is nutrition this way?” became my question too, only directed at the knowledge production practices in nutrition science and the production of dietary guidance that relies on those practices. Without an understanding of critical cultural theory; of rhetoric of science, health, and medicine; of science studies; and of the history of dietary guidance in America, I was mystified by the workings of an ostensibly scientific process that I had been taught would operate in a detached, objective manner to provide detached, objective answers to questions about what we should eat to be healthy. At that point, it had not even occurred to me that there might be different ways of understanding what it meant to be “healthy.”

When I shifted my scholarly orientation from dietetics, medical nutritional therapy, and nutritional epidemiology to communication, rhetoric, and digital media, I developed an awareness for the ways that our interactions with the world are shaped by discourses, institutions, cultural orientations, media technologies, and language. What I thought I knew about food, bodies, and health was no exception. But certainly, food, bodies, and their interactions are not just discursive phenomena; my clinical experience watching individuals respond to dietary changes indicates otherwise, if nothing else. At the same time, it seems clear to me that there is more to those complicated relations between food and body than we can know or name. With this in mind, I have sought to understand how it is that mind and body became such decisively separate entities in discourses of nutrition science and guidance, and I have pursued theoretical frameworks that provide me with a way to treat the discursive and material matters of food and health as inextricably intertwined. Thus, my overarching approach is to treat “healthy diet” as a complex, material-discursive phenomenon that, to paraphrase Karen Barad (2007), takes account of the material dimensions of discourse and power as well as those of bodies (human, non-human, and within human) as they interact:

Materiality is discursive ... just as discursive practices are always already material ... The relationship between the material and discursive is one of mutual entailment. Neither discursive practices nor material phenomena are ontologically or epistemologically prior. Neither can be explained in terms of the other. Neither is reducible to the other. Neither has privileged status in determining the other. Neither is articulated or articulable in the absence of the other; matter and meaning are mutually articulated. (pp 150-152)<sup>5</sup>

This is a perspective that allows me to address what we evoke as the “biology” of nutrition, typically thought of as universal and generalizable to all bodies, and what we think of as “cultural” understandings of food and bodies—idiosyncratic, historically situated, discursive—as inseparable and mutually constituted.

### **1.3 - Modernism, post-modernism, and the two-world problem**

The first step in thinking about “food” and “health” as material-discursive phenomena is to highlight the fact that what I am really talking about is “eating,” a phenomenon whose biopsychosocial nature is difficult to deny. Although dietary guidance typically consists of recommendations regarding “healthy food,” including food components, types of food, specific foods, or broad dietary patterns, what is implicit in this guidance is that what is to be controlled is not food per se, but eating. What is at issue here are not discrete objects or groups of objects (if what is designated by “healthy food” can even be accurately construed as such); rather, what is at issue is eating—a process, a practice, a behavior, a phenomenon. With that clarification, most dietary guidance asserts that (1) there are particular eating behaviors directly related to general chronic disease outcomes, (2) these eating behaviors and their relationships to health outcomes can be, and are, known, and (3) since the eating behaviors and their health outcomes are defined and known, all individuals should, to the

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<sup>5</sup> Barad’s (2007) term is “intra-act” to emphasize an inseparability that is always already in the process of unfolding.

best of their ability, ensure that their eating behaviors generally conform to this knowledge. These assumptions, which are embedded in the phrase “healthy diet,” exemplify what Richard Bernstein (1983) calls “Cartesian mind-body dualism” and Scott Graham (2015) refers to as “the two-world problem.”

Graham (2015) identifies the two-world problem as “the central failing in Western intellectual history,” namely “the series of bifurcations that includes the subject/object, culture/nature, and mind/body dichotomies” (p. 17). Graham, of course, has not been the first to call attention to the problematic nature of these dichotomies; at the same time, it is the nature of these dichotomies, particularly the separation of subject from object, that legitimizes knowledge production practices in science and elsewhere. In modernist thinking, scientific claims represent a reality that exists apart from a subject that perceives that reality. In his critique of Cartesian dualism, Bernstein (1983) notes that our cultural understanding of what science is and what it does relies on an acceptance of this perspective; what is frequently characterized as the “remarkable ‘success’ of the scientific enterprise” has made the subjective-objective distinction fundamental to modern thought, such that “knowledge must be objective—or else it is only pseudo-knowledge” (p. 46). Within the framework of the two-world problem, the perspective that Pollan articulates, noted at the beginning of this chapter, is a modern one, one that asserts that the true reality about human bodies can be known “objectively” through science and that bodies can be expected to conform to this knowledge because science provides a picture of the “really real.” My experience with patients who report that their embodied experiences do not conform to outcomes predicted by science illustrates the dilemma that arises from this epistemic fallacy, where “what is” and “what is known” are conflated: Do I believe the predictions or do I believe the patient? As Graham (2015) notes, one of the problems related to the epistemic fallacy is that “subjective” reports by individuals in clinical encounters and nutrition study situations are often rejected as unreliable. This is particularly the case when those subjective reports don’t conform to standard thinking or predicted outcomes, a view clearly articulated in Pollan’s comments

above. Scholars in the rhetoric of science and science studies have also identified the other half of that dilemma as the “problem of expertise,” which refers to the public’s growing lack of trust in scientific and biomedical assessments to provide an accurate picture of reality (Beck, 1992). However, despite concerns about trust and credibility in science, many people, scientist and non-scientist alike, still “see the main work of science as passively observing naturally occurring facts” (Myers, 1990, p. 141). Poststructural and social constructivist approaches—often characterized in combination as the “discursive turn,” which highlights the emphasis that these approaches place on language—challenge this unproblematic view of science, but also, in many cases, raise different concerns.

Since the 1960s, the institution of science has been the object of considerable criticism, much of it aimed at highlighting the “ineluctably social and contingent nature of scientific activity and scientific results” (Pestre, 2004, p. 352). In some cases this was taken to mean that there is no “truth” that corresponds to nature or reality; all is constructed. But this view, too, is unsatisfactory. In a 1988 essay, Donna Haraway describes the difficulties involved in challenging the idea of scientific “objectivity” without getting mired in a sea of social constructivism, a struggle she likens to trying to climb a greased pole starting at both ends. On the one hand, she argues, if all scientific knowledge is simply “constructed,” there is little need to learn about it or use it. On the other hand, to propose a “real” reality as identified by science is to risk subtracting the “remainder” that cannot be seen or understood from the perspective of the one doing the proposing. Haraway (1988) also emphasizes that the bifurcation of the world into subject and object fails to account for the role that the object being studied plays in its own “being known”: “the world encountered in knowledge projects is an active entity” (Haraway, 1988, p. 593). The two-world problem thus leads to difficulties in both directions. Asserting that “what is known” is what is “really real” leads to problems of whose knowledge counts as knowledge, and thus as reality. On the other hand, asserting that reality is simply a “construct,” where one constructivist explanation can supplant a previous one completely, leads to an understanding of the material world as something with

no persistence, force, or capacity to act. The proliferation of paradoxes and contradictions that has accompanied discourses that position conscious control of dietary practices as central to the prevention of chronic disease suggests an expression of the two-world problem. An approach that allows for the perspective that bodies (human and non-human), biology, and history are inextricably folded into each other offers opportunities to move beyond and rethink these two-world dilemmas.

#### **1.4 - Beyond the two-world problem: a new materialist, posthuman perspective**

Concepts from critical cultural studies, media studies, feminist new materialism, and rhetoric, including rhetorics of science, health and medicine, provide the analytical space for theorizing the material and discursive together and emphasizing human bodies as sites of interplay among discourse, power-knowledge, and biological forces. This view has, predictably, been called a turn to new materialism (Graham, 2015) and is often closely associated with the notion of “posthumanism” (Coole & Frost, 2010). Posthumanism encompasses a rejection of dialectics, such as those posed by Graham (2015) above, and argues for a decentering of humans, placing them as “inextricably entangled with the nonhuman, no longer at the center of the action calling the shots” (Pickering, 1995, p. 26); in fact, the distinction of human/nonhuman is one that becomes blurry and destabilized in a posthuman perspective.

There are a number of interrelated themes that new materialism and posthumanism share which I use to frame my analysis. The first is, rather obviously, the focus on materialism; however, to be clear, this term refers “both to the matter of physical reality and the conditions of economic production and social stratification” (Graham, 2015, p. 13). An important aspect of the material-discursive approach to nutrition is the part that materialities play in knowledge production processes. As Karen Barad (2007) argues, “practices of knowing are specific material engagements that participate in (re)configuring the world” (p. 91). As Barad explains, this is not to suggest that the world is simply “made up” out of nothing through the production of knowledge, culture, or discourse, but to emphasize the

need to take epistemic responsibility for assertions that might otherwise seem “natural,” such as classifications of differences and similarities that come with scientific concepts.

A second, closely related theme is the emphasis on the material world having agency. Here agency doesn't necessarily imply control and intention (although these are not excluded), but rather the ability to act or to produce an effect. Unlike earlier views of the material world, including the human body, as being something for “man” to control or to construct, the material world is seen as having a life of its own. The view of human beings as either rational, with a body that is governed by cognitive control, or socially constructed, with a body that is a product of language and culture, is replaced by a posthuman subject who is, at least in part, “the effect of irrepressible flows of encounters, interactions, affectivity and desire, which one is not in charge of” (Braidotti, 2013, p. 100). This is not to say that humans have no ability to act upon their bodies, but that a body has a materiality that interacts with things outside of cognitive awareness or control; notably, some of these things are discursive or cultural. This highlights another aspect of attributing agency to the material world, which is that action is always relational; action, as Annemarie Mol (2013) puts it, is always interaction. An emphasis on interaction is also an emphasis on dynamic processes that are always ongoing and not clearly demarcated with boundaries or beginnings. This complicates discourses of cause and effect, and again stresses the need to take responsibility for what is included and what is obscured in models, whether social or biological, that claim to illustrate causality.

Finally, there is the notion of embodiment, a concept that perhaps needs a bit more explication than the others. The concept of embodiment is used differently in different spaces and, in the past, has been problematic for feminist theory. The aspect of embodiment that I wish to highlight here is the idea of “the specificity of one's embodiment” (Gatens, 1996, p. 26), something emphasized in posthuman theory as well. Rosi Braidotti (2013) describes the posthuman subject as “embodied and embedded, firmly located somewhere” (p. 51). This specificity of experience and location is central to feminist ethics and is a view that reflects

and reinforces theories of feminist new materialisms that have been influenced by the work of Gilles Deleuze and his reading of Spinoza. Deleuze's (1988) interpretation of Spinoza reiterates new materialist ideas of complexities of interaction in suggesting that in most cases, our ability to understand causes is inadequate. In his own writings, Spinoza (1887) specifically asserts that we do not fully understand what a body can do:

[N]o one has hitherto laid down the limits to the powers of the body, that is, no one has as yet been taught by experience what the body can accomplish solely by the laws of nature, in so far as she is regarded as extension. No one hitherto has gained such an accurate knowledge of the bodily mechanism, that he can explain all its functions.

Ethics 3, Proposition 2, Note

Deleuze goes on to use these limitations on our understandings of relationships between causes and effect to argue, via Spinoza, for an ethics that does not work from a set of *a priori* values, but one that is immanent to an unfolding situation and articulation of bodies (human and otherwise) with each other. The combination or decomposition Deleuze describes does not have a moral value of "right" or "wrong" assigned to it, because such a stance would indicate a universal "truth" about the world, a position that Deleuze, Spinoza, and many feminist theorists reject (Smith, 2007; Gilson, 2011). Instead, these theorists argue for an embodied ethics based not on a transcendent idea of what is "right" or "wrong," but on specific, contextualized, affective relations. The specificity of embodiment is not only the basis for an ethics, but the basis for understanding the ways in which materiality and discourse are articulated to and enfolded with each other. One way that this has been explored and discussed is through theories of affect.

Affect theory has its own history of thought and has been assigned its own "turn" in cultural theory. Spinoza provides precise definitions of "affect" (in Latin, the language in which Spinoza wrote, *affectus*) and related terms in his philosophical arguments. We can, less precisely, understand "affect" as a continuous variation of sensations or intensities (Deleuze, 1978). Importantly, affect is not under conscious, rational control. Affect is

embodied sensation that is independent of and prior to cognition (Grusin, 2015; Massumi, 2015). Although some critics have suggested that the focus on the “automatic” aspects of affect obscure social contexts and power relations (Hemmings, 2005), other theorists suggest that it is just those aspects of affect that indicate the ways in which power is embodied. Along these lines, Spinoza’s theory of affect, according to Deleuze, emphasizes the role that affect plays in the workings of power: “this is a profound point of connection between the despot and the priest—they both need the sadness of their subjects ... sadness is the affect [that] involves the diminution of my power of acting” (Deleuze, 1978). In other words, appropriating the energy, labor, or desire of their subjects—which is a diminution of the subjects’ power—is necessary for the exercise of the relations of domination. This notion is compatible with Michel Foucault’s (1978/1990) concept of power as inherent and relational; the power evoked here is not “power over” but rather an affective engagement that is a diminution of ability to act for “the subject.” Brian Massumi (2015) picks up on this line of thinking to argue that affect is foundations to the workings of politics. According to Massumi, power structures are secondary effects of affective encounters, and ideology—or a system of beliefs and values—is a secondary effect of power structures (p. 93). Again this evokes a notion of power (and power structures and ideology) that is relational and processual, but also, in the first instance, embodied. For Massumi, affect is linked to ideology as a way of transmitting ideology in a hidden, distorted manner: “ideology works best when its structure of ideas is lived—*acted out* in the everyday, without being thought out” (p. 85), an idea that resonates with discussions of ideology and genre theory that I consider below. The idea of affect, then, highlights the continuities between the material and the discursive, the biological and the social.

In sum, a new materialist, posthuman approach emphasizes human bodies as sites of interplay among discursive and biological forces. It also suggests a complexity of relationships across time and space that precludes the production of neat models of cause and effect and assertion of universally applicable moral principles. Through the recognition of

affect, this approach allows for the body to articulate its existence in ways that work both with and beyond human cognition and control, offering the opportunity to consider relations of power as biological and political at the same time. Approaching the interactions of human bodies and political bodies as a material-discursive phenomenon creates an opportunity for the interactions of history, power relations, epistemological formations, discourses, and bodies to be brought into the same analytical space.

#### ***1.4.1 - Foucauldian theory***

The “discursive turn” in social theory is frequently evoked by pointing to Foucault and his focus on broad issues of culture and power, concerns that often seem to be read as “disembodied”: language, knowledge production, texts, and institutions. However, as Jane Bennett (2010) points out, Foucault’s concern with bodies and pleasure in fact evokes a material, embodied world (p. xvi). At the end of *The History of Sexuality, Volume I* (1978/1990), Foucault suggests “deployments of power are directly connected to the body” and calls for “an analysis in which the biological and historical are not consecutive to one another ... but are bound together in an increasingly complex fashion in accordance with the development of the modern technologies of power that take life as their objective” (pp. 151-152). The “technologies of power that take life as their objective” to which Foucault refers, and which he sees as binding together the biological and historical, are referred to in his work as “biopower.” Foucault (1978/1990) points to the origins of biopower in the 18<sup>th</sup> century as occurring at a time when “a relative control over life averted some of the imminent risks of death,” creating a measure of relief from the pressures of survival (p. 142). Foucault suggests that the economic, agricultural, scientific, and medical developments of the 18<sup>th</sup> century produced a respite from the ravages of starvation and plagues. In the organization of the space that was created by this relief, “methods of power and knowledge assumed responsibility for the life processes and undertook to control and modify them” (p. 142). To the extent that improvements in health and lifespan are an opportunity for expansion of control over the “excess” life that becomes available, the vanquishing of most communicable

diseases and diseases of deficiencies during the first half of the 20<sup>th</sup> century may be seen as creating the space for discourses of dietary guidance for the prevention of chronic disease as an extension of technologies of power into the aging process. The shift in defining a “healthy diet” from one that would prevent diseases of deficiency to one that would reduce risk of chronic diseases, previously understood to be associated with aging, occurred along with a corresponding shift in health discourses, particularly in public health policy, from an emphasis on treatment of disease and institutional responsibility for health outcomes to prevention and personal accountability.

Robert Crawford (1980) describes the discourses surrounding the pursuit of health through individual behavior change and market place solutions as “healthism,” a term that is conceptually linked to Foucault’s idea of “government rationality” or “governmentality.” Although the idea of making individuals responsible for their health outcomes would seem contradictory to notions of government involvement in health, the idea of governmentality—and its related concept of biopower—includes both. Governmentality has been the focus of much theoretical work, as Foucault’s usage shifts and develops over time, but for my purposes, I will use Foucault’s definition of governmentality as the “encounter between technologies of domination of others and those of the self” (Foucault, 1988, p. 19). This definition highlights two aspects state’s involvement with its citizens: governing at the population level, particularly with regard to economic and security concerns (which Foucault calls “biopolitics”), and governing the individual level (which Foucault calls “the anatomo-politics of the body”) (Foucault, 1978/1990, p. 139). Thus governmentality can be understood as a way to align the interests of individual with the interests of the government so that individuals “self-govern” in a way that serves the needs of the state. As Foucault’s thinking on this evolved, he began to focus on the ways in which states govern through statistics, norms, and data, a line of thinking picked up by Deleuze. Deleuze (1992) goes on to describe “societies of control” with individuals (or “dividuals,” as he calls them) becoming a segment of data in a market that arranges itself around the individual’s “freedom” to

choose. This freedom to choose, however, involves expanded opportunities to capture the individual as a market segment or data point—which also operate as opportunities for surveillance—in an increasingly networked society.

The needs of the state may be both in tension with and in concordance with logics of capitalism, although under the logics of neoliberalism, they are typically understood as being in agreement. My use of “neoliberalism” here draws on David Harvey’s (2007) definition of neoliberalism as a theory of political economic practices that proposes that human well-being is best served by institutional frameworks that support free markets, free trade, and individual choice. Neoliberalism, like governmentality, evokes a modern subject who makes rational choices based on information; Foucault and others frequently joined these terms, “neoliberal governmentality,” as a way of describing the logics and practices of an information-based free market. As Crawford (2006) indicates in his work on “healthism,” the shift to individual responsibility for health outcomes—of which “healthy diet” discourse is a central part—was one facet of the rise of neoliberalism, and the rhetorics of making “healthy” choices based on authoritative information was central to both.

However, with regard to the U.S. food system, “information-based free market” is a problematic concept. State-based funding streams, regulatory practices, labeling laws, and public education campaigns shape the production and marketing of foods, as well as consumer knowledge. Subsidies and tariffs support the manufacturing and sale of some types of food over others. Some foods are allowed into the marketplace; others, such as unpasteurized milk, are not. Labeling regulations, federal nutrition programs, and public health nutrition guidance encourage the purchase and consumption of foods determined, primarily through government-funded science, to be “healthy,” yet at the same time, foods thought to be “unhealthy” have proliferated as well. Because nutrition science doesn’t provide strong evidence for distinguishing one kind of food from the other, consumers with the economic and social resources to focus on the pursuit of dietary health do so within the context of a vast marketplace of nutrition information as well as products; consumers without

those resources, though, are still held responsible for appropriate acquisition of both. Although legitimate concerns have frequently been raised about how food producers and manufacturers fund scientific studies and lobby for regulatory practices favorable to their products (see for example, Nestle, 2007), far less attention has been paid to the state's interest in how its citizens eat, and how market concerns and public health issues may be aligned or in conflict with that interest. Although an in-depth treatment of the relationship between public health nutrition information and the marketplace is beyond the scope of this present work, that relationship is an excellent example of the entanglements of discourse and materiality.

#### ***1.4.2 - Rhetorical theory***

Although rhetorical studies would seem like an unlikely candidate to contribute to a theoretical focus on materialism, rhetoric in general and rhetorics of science and rhetorical genre studies specifically are implicitly, if not explicitly, concerned with material-discursive phenomena. If, from Foucault, we take the notion that knowledge and power are inextricably related, it follows that the “encounter” between government of others and government of self is largely an encounter of expert information that supposedly directs a modern, rational subject regarding the “right” way to evaluate and control her own activities. Central to the alignment of the interests of the individual with the interests of government is the implication that technologies of self-government are directed toward the pursuit of specific, normative ends through the rational application of authoritative knowledge to individual lifestyle and behavior choices (Dean, 2010). Appropriately enough, in discussing governmentality, Mitchell Dean (2010) uses dieting as an example of “government of self”:

Think of the way in which many people problematize their eating habits and bodily shapes in practices of self-government called dieting. This is ethical in as much as such practices imply that it is good to be slim and virile, to have control over one's body, to regulate the intake of fatty foods, to reduce the risk of certain diseases, to be healthy and to increase the probability of longevity. (p. 20)

However, a “healthy diet” is not just about an individual making the choice to discipline his body. As Dean notes, these “practices of self-government” are informed by “certain forms of knowledge and expertise provided by dietitians, health professionals, [or] the purveyors of the latest health fad” (p. 26). Within the space of food and health, even information that is, on the whole, contradictory (for example, directives to either increase or restrict dietary carbohydrate) are nevertheless offered as a way of informing consumer on how to make “healthy” choices in the name of preventing chronic disease.

Theoretical approaches from the rhetorics of science, health, and medicine and from rhetorical genre studies offer a way to approach diet as a means of preventing chronic disease as a complex material-discursive phenomenon by providing ways to examine how authoritative forms of knowledge are legitimized and argued into place, a process that cannot be disentangled from the materialities of such debates, as suggested by Jenny Edbauer’s (2005) concept of a rhetorical ecology. Understanding rhetorical “situation” more expansively as an “ecology” also highlights the ways in which rhetoric is produced and circulated as material-discursive phenomena. Edbauer emphasizes rhetoric as something that has shape, force, and intensity, as something that “matters” in terms of meanings that are inextricably linked to material effects and processes. Her concept of rhetorical ecology, then, resonates with ideas about dynamic interactions and specificities of context, ideas that have to do with the materiality of information, that are also raised in media studies and feminist new materialism.

Since scholars began examining science as a rhetorical enterprise, they have problematized the separation between the material and discursive, challenging science’s claim, relative to public discourse, of “the closer connection that seems to exist between scientific texts and material reality” (Ceccarelli, 2001, p. 316). Rhetorical analyses of scientific texts illustrate how, in many—if not most—ways, science is no different from any other area that has been the focus of rhetorical analysis:

After all, scientists engage in controversy, they produce arguments in all modalities

(oral, written, visual), they group themselves into specialized audiences with constitutive standards of judgment, they respond to influence by altering their beliefs and practices over time, they acknowledge the authority of individuals and texts, and they invest their practices and disagreements with considerable affective energy. (Fahnestock, 2009, p. 175).

Rhetoricians have emphasized that metaphor and analogy are “constituent elements of scientific theory (Stepan, 1986, p. 262), and this is no less true in the fields of health and medicine. That one of the early versions of diets meant to prevent heart disease was known as “the prudent diet” suggests the rhetorical work that such phrases may accomplish (Christakis et al., 1966). Rhetorical approaches to science-policy debates, in particular, are sensitive to the ways in which language is used to create and maintain boundaries between what knowledge is certified as legitimate and what knowledge is understood as pseudoscience, conjecture, or subjective accounts of reality. But you can’t just make anything into a fact (Daston, 2009); scientific practices and knowledge are both real and socially constructed through rhetoric, as are the effects of these rhetorical constructions. To the extent that rhetoric is a way of “calling forth” a world that, for its own part, “pushes back,” a rhetorical approach to science-based policy can highlight these material-discursive interactions.

Rhetorical genre studies also contribute insights into how authorized knowledge is established under the circumstances of uncertain science and a public debate over policy. Genre theory provides a way to link rhetoric to Foucauldian notions of governmentality:

Genre theory ... offers the possibility of understanding “genre” as one of the discourse mechanisms through which government, institutions, and subjects intersect and operate. Genres can be understood as sites of inscription and also as processes for inscribing subjects in such a way that their goals are aligned with institutional goals and programmes of governing. (Solomon, 2008, p. 180)

The appearance in 1980 of competing texts in the form of dietary guidelines for the public

signaled a time of heterogeneity with regard to public health discourses related to “healthy diet,” when institutional goals were unclear and a matter of considerable debate. How these debates were eventually settled has implications for the complex and interrelated ways in which definitions of “healthy diet” became embedded in discourses and instantiated in materialities. Perspectives that focus on the interrelationships between discourses and materialities have been taken up, albeit with some hesitation, in feminist theory as feminist new materialism.

### ***1.4.3 - Feminist theory***

For many feminist theorists, concerns about biological essentialism have meant a reluctance to move past viewing claims from science as anything more than social constructions. At first, rejection of biology was a way of rejecting structural notions of gender roles related to biological sex. Stacy Alaimo (2008) identifies this rejection as “the predominant trend in the last few decades of feminist theory ... to diminish the significance of materiality” which has served to bracket the biological body from “its evolutionary, historical, and ongoing interconnections with the material world” (pp. 237-238). For feminist theory, this rejection—the stripping away of agency of the body and biological forces—was necessary to undercut and disprove gender role stereotypes that seemed to indicate that women’s bodies, with their fluids and changes and mysterious workings, suggested an alignment with “nature” that precluded entry into the logical rational world of Man. Distancing feminism from biology had the effect, as Elizabeth Wilson (2015) argues, of making feminism “smart,” and contributed to the formation of feminist theory and politics. However, the focus on discourse and rejection of biology presented a central problem for feminist theory. If discourse is immaterial and discourse socially constructs reality, “any attempt to think ‘the real’ ... is itself, inevitably, a historically specific discursive construction with no privileged claim to scientific truth” (Packer & Wiley, 2012, p. 110). For feminists, this poses a political bind: If sex and gender are “only” discursive constructions, what is the basis for arguing for equality for what amounts to an ontologically void category

of being? As feminist theory has outgrown this approach, many feminist theorists, from Haraway (1988) to Barad (2015), have indicated the importance of recuperating materialist approaches to bodies and biology in their investigations.

In taking up this challenge, one of the primary concerns for feminist new materialists is that the return to embodiment and material forces does not reinstate ideas of a “neutral” human at the center of existence or bodies and gender (or race, sexual orientation, or ethnicity) as essentialized features of “nature” (Grosz, 1994). But this concern may be to a large extent unfounded. As N. Katherine Hayles (1993) asserts, a focus on embodiment as something contextual, enmeshed with specifics of place, time, physiology, technologies, and culture, undercuts, rather than reinforces, essentialism. Elizabeth Grosz makes a similar argument this way: “Indeed there is no body as such; there are only bodies—male or female, black, brown, white, large or small—and the gradations in between” (Grosz 1994, p. 196). Furthermore, just as there is no “body,” only specific bodies, there are similarly no essentialized interactions between discourses and materialities when it comes to embodiment. The interplay between embodied experiences and discursive formations will be related to specific circumstances in ways that undermine any notions of determinism. A recuperation of the biological is not a renunciation of “insights into the ways in which power infuses bodies and matter to make them into socially and politically intelligible subjects and objects” (Frost, 2011, p. 70). Rather it is an opportunity to “leaven our analysis of the discursive constitution of embodiment and material objects with an acknowledgement of the forces, processes, capacities, and resiliencies with which bodies, organisms, and material objects act both independently of and in response to discursive provocations and constraints” (Frost, 2011, p. 70). Notably, it is not just in cultural studies, rhetoric, and feminist theory—or even just in the social sciences and humanities—that the boundaries between materiality and discourse are becoming blurred. The application of a material-discursive framework to nutrition science and dietary guidance seems particularly appropriate in light of recent observations from the physical and biological sciences.

## 1.5 - Food and health as material-discursive phenomena

Challenges to the distinctions between material and discursive, subject and object, observer and observed are underway in many places in the physical and biological sciences. Evelyn Fox Keller (1985) describes what are called “transitional phenomena” in physics—“phenomena, that is, about which it cannot be determined whether they belong to the observer or the observed” (p. 85)—as examples of how an observation arising from science forces a rethinking of dichotomies once thought to be absolutely distinct. Londa Schiebinger (1999) contends that these uncertainties challenge the very notion of “objectivity,” in that these concepts are not based in attributions of particular characteristics to objects, the traditional role of physics, but rather “characterize our interaction with the world” (p. 163). In addition to the field of pain medicine that Graham (2015) explores, biological sciences such as epigenetics, epigenomics, systems biology, and microbiome studies—all part of what Hannah Landecker (2011) calls “relational biology”—are grappling with ways to describe complex and highly situated interactions that blur the lines between nature and culture, mind and body, human and nonhuman (p. 168). These interactions, such as the heritable changes in the expression of certain genes that can be influenced by mother-child interactions known as epigenetics (Sullivan, 2015), cannot be fully characterized by an either/or approach to body and mind or nature and culture. When the interactions of food and bodies are understood as an example of these complex biopsychosocial phenomena, the implications for the concept of a “healthy diet” are significant.

Human biology and human culture interact in complex ways, informing what is considered “edible,” when meals typically occur, how food is digested and absorbed, and many other food- and health-related phenomena. Sights and smells of foods that trigger a gag reflex for an individual, for reasons having to do with personally experienced or culturally based response of disgust, may induce mouth-watering anticipation in another individual (Kelly, 2013). Bodies immersed in cultures where mealtimes are held at routine times every day may prepare for this regularized intake of food by increasing insulin production in

anticipation of it, a response that affects hunger signals and blood sugar levels (Pinel, 2007). Enzymes that digest milk sugars are upregulated or downregulated according to exposure to milk consumption after childhood, an exposure that depends on culture, geography, and social class. This exposure may accumulate over generations to produce not only varying levels of lactose intolerance in adults, but variations in the timing of the appearance of lactose intolerance during the aging process for individuals far removed from the cultures and geographies in which the exposure occurred (Labrie et al., 2016). Humans also appear to absorb nutrients better from culturally familiar foods than from unfamiliar ones (Hallberg, Björn-Rasmussen, Rossander, & Suwanik, 1977). Thus, if even the relatively simple issues of what foods trigger a gag reflex and which ones provide adequate iron are relational and situated phenomena, how much more so then would be the notion that food can increase or decrease the occurrence of chronic disease? Feminist new materialist perspectives—along with insights from science and technology studies and the rhetoric of science—offer ways to recuperate materiality as part of rhetorical and cultural studies, not as a shift away from examining the discursive nature of something like a “healthy diet,” but a way of acknowledging the complex ways in which discourse and materiality are interfolded with each other.

This type of acknowledgment is crucial to a full understanding of how bodies are a part of the concept of “healthy diet.” Human bodies, among other things, are sources of nutrition knowledge; human bodies are targets of that knowledge via dietary guidance, food system changes, advertising, and social norms. Human bodies are also complex systems that operate to a large extent beyond the realm of conscious choice; they are responsive to their environment, which includes what foods are available and eaten, as well as discourse about that food.

My effort here is to try to weave back together the threads of discourse and materialism that have been tugged apart by perspectives that one or the other must provide a “final” orientation to food and health. In terms of research questions then, I see my project as

shifting from the specific practices and bodies upon which scientific information about dietary health is built, to how this scientific information moves across the science-policy divide, back to how the discourse (and discord) that surrounds food and health is understood and embodied for individuals. With regard to this return to individual bodies, I am particularly interested in exploring what takes place for an individual when that individual's body is expected to, but does not, conform to outcomes predicted by abstract information about food and health.

## **1.6 - Research questions**

### ***1.6.1 - Chapter 2: Discourses of diet as a means to prevent chronic disease: a "history of the present"***

Chapter 2 takes the analytical approach of a "history of the present," with my object of study being the concept of "healthy diet" as it circulates in 21st-century American discourse and practices. A statement such as "Saturated fat from red meat, eggs, and dairy products clogs arteries and causes heart disease" has for so long been considered a cornerstone of dietary wisdom that it is now the subject of considerable "de-bunking." As suggested earlier, however, the focus of my investigation is less about whether this statement should be considered true, and more about the history of its emergence and its underlying message: that we can use our food choices to prevent chronic disease. I am interested in how the discursive links between diet, chronic disease, and individual responsibility were established and what the establishment of these links does as a material-discursive phenomenon, focusing on the following questions:

- What were the conditions under which it became possible for diet to be understood as a primary means of prevention of chronic disease in 20<sup>th</sup> century America?
- More specifically, beginning with the advent of nutrition science in America, what rhetorical, sociocultural, historical, and technological factors might have influenced the development behind current practices in the U.S.—medical, public health, and individual—that treat diet, particularly dietary restrictions, as a fundamental aspect of

chronic disease prevention?

The primary difference between my project and other histories of nutrition in America is that I don't assume that current dietary health practices indicate a progress towards positivist ideas about reality that are necessarily "more right" than earlier ones. Although a few scholars treat the assumption of a connection between diet and chronic disease with some circumspection (Biltekoff, 2013; Guthman, 2011; Hayes-Conroy & Hayes-Conroy, 2013), more frequently scholars make the argument that evidence linking diet to chronic disease—or evidence establishing a particular diet as preventing chronic disease—may have been motivated by moralistic, social, or political concerns in the past, but is now supported by science (Belasco, 1986/2007; Bentley, 1998; Stearns, 2002; Viet, 2013). Other scholars question the ways in which the relationships between diet and chronic disease have been established, through quantification of food components (Mudry, 2009) or by focusing on nutrients rather than levels of processing (Scrinis, 2013), but leave the underlying concept of using diet to prevent chronic disease unquestioned. John Coveney (2006), who uses a broadly applied Foucauldian lens to look at the history of discourses of morality surrounding nutrition guidance, nevertheless treats the conclusions of nutrition science linking diet to chronic disease unproblematically. Coveney maintains that "good nutrition" can take some credit for the fall in heart disease-related morbidity and mortality because people were eating less fat (p. 143), an assertion that could only be made from the perspective that dietary fat has been proven to cause heart disease.

In contrast, I treat the emergence of current discourses surrounding "healthy diet" as contingent upon specific material practices and historical contexts, taking a closer look at the ways in which nutrition science's "presumably neutral quantitative strategies are themselves political and ideological" (Biltekoff, 2012, p. 180). This is an approach meant to explore "hidden conflicts and contexts as a means of re-valuing the value of contemporary phenomena," in this case, the concept of a "healthy diet" (Garland, 2014). Foucauldian notions of genealogy, the *dispositif*, biopower, and governmentality provide a theoretical

framework for examining the development of current power/knowledge relations in the area of nutrition and how these relations might articulate with an individual's sense of identity and practices related to food. In addition, theoretical orientations from science studies turn attention to the ways in which the processes of knowledge production in science are human endeavors. That science is subject to the same influences of personalities, personal biases, paradigmatic thinking, and social contexts as other lines of work begins to account for why some scientific claims persist while others fade into the background (Sismondo, 2010, p. 54). A focus on the historical contexts of the development of concepts in nutrition science and the dietary guidance based on those concepts provides an opportunity to reconsider current discourses positions the idea that dietary choices can prevent chronic disease is a matter of "common sense."

Foucault's intent to use history as a way of disturbing our ideas of the present is demonstrated in both his archeological and genealogical approaches. A Foucauldian archeology focuses on a generalized "episteme," or way of thinking, that span disciplines during a particular era, a concept not dissimilar to the Thomas Kuhn's (1962/2012) idea of a paradigm. A Foucauldian genealogy may cover some of this same conceptual territory, but is more attuned to the contingencies of historical processes and events and their continued impact on the present (Garland, 2014). Broadly sketched, a Foucauldian genealogy or "history of the present" as applied to my project involves the identification of a present issue that can be understood through an analysis of the past. The aim is to trace how something that we take for granted currently came to emerge from historically distinct and contingent circumstances.

The focus of my "history of the present" is on the concept that individuals can and should rationally exercise choice regarding diet because nutrition science has demonstrated that these choices are directly related to the development of chronic disease. I outline for this problematic the elements of the *dispositif* of diet as a means of preventing chronic disease, its "heterogeneous elements," its "strategic logics," and the historical events that came together

to form the “urgent need” to which it was a response (Foucault, 1980; Foucault & Senellart, 2010). Although the nature of the *dispositif* is such that its elements are a dynamic tangle of relationships, for the purposes of analysis, I focus the first part of my examination on the heterogeneous elements that create a broad historical backdrop for the development of the concept that diet can be used to prevent chronic disease. The next part of my examination focuses on the logics that serve to hold the disparate parts of the *dispositif* together. The final part of my investigation focuses on the historical events that created an “urgent need” that allowed for the mobilization of the *dispositif* of diet as a means of preventing chronic disease. Throughout, I emphasize how class differences and structural inequalities operate within the *dispositif*, including how they feature in the generation of dietary guidance and the scientific knowledge upon which it is based. In my investigation, I use primary texts from historical and current works in nutrition science, dietary guidance, and popular media, along with a broad reading of additional historical accounts and analyses. Although the discourses under investigation here circulated throughout Anglo-centric cultures during the history discussed, my exploration focuses on events and individuals from American history, beginning with Wilber O. Atwater, whose work is widely considered to be the beginning of nutrition science in America (Biltekoff, 2013).

### ***1.6.2 - Chapter 3: Meta-genre and the shifting definition of “healthy diet”***

Chapter 2 takes a broad look at the discourses and practices surrounding “healthy diet” as a means of preventing chronic disease. In Chapter 3, I focus specifically on the time period from around 1975 to 1985. This decade appears to be a defining period in the development of these discourses, particularly as they take up concerns about obesity. Prior to this, although other non-governmental entities had provided information about links between diet and chronic disease to the public, dietary guidance issued by the federal government was limited to recommendations regarding what food should be eaten in order to acquire adequate essential nutrition. During this era, however, discourses began to shift toward discussions of how the federal government should be involved in advising the public regarding what foods

and specific food components should be avoided or restricted in order to prevent chronic disease. However, as some scientists and policymakers debated what dietary patterns would prevent chronic disease, others wondered whether such a policy was appropriate at all. In the middle of this time period, two authoritative texts were issued, each taking up one side of the debate. The first edition of the DGA, issued in 1980 by an *ad hoc* committee of members of the U.S. Department of Agriculture (USDA) and U.S. Department of Health and Human Services (HHS, then the Department of Health, Education, and Welfare, or HEW), offers guidance based on dietary changes meant to help prevent the development of chronic disease. In contrast, *Toward Healthful Diets*, issued that same year by the Food and Nutrition Board of the National Research Council at the National Academy of Sciences, offers dietary guidance focused on ensuring that nutritional requirements were met, not on prevention of chronic disease. Importantly, *Toward Healthful Diets* took the position that dietary recommendations to prevent chronic disease lacked a sound scientific foundation and could not be applied to the public in general, a position that few health authorities would now endorse.

Although the use of dietary recommendations given to the general public as a means of preventing chronic disease were highly controversial at the time, the original question regarding whether such guidance is appropriate at all has since been obscured by debates over what this guidance should be. Thus, in Chapter 3, I am interested in the following questions:

- Broadly speaking, how did the assumption that dietary practices could act as a means of preventing chronic disease in the general population become so pervasive and widespread in discourses around food and health in the U.S.?
- Specifically, why was the science-policy debate about diet and chronic disease settled in favor of the thinking presented in the DGA rather than that in *Toward Healthful Diets*?

Graham (2015) has argued that Federal Drug Administration approval of a drug for the

treatment of Fibromyalgia Syndrome (FMS), which had previously not been considered a “real” disease, “functioned not only as a policy statement but as an ontological pronouncement—that is, it codified the reality of FMS” (p. 146). I argue in Chapter 3 that the 1980 DGA and its predecessor the 1977 *Dietary Goals for Americans*, served this same purpose for the links between diet and chronic disease; the settling of the science-based policy debate in favor of guidelines that sought to prevent chronic disease through dietary changes “codified the reality” that links between diet and chronic disease could be, and were, known. At the same time, the presence of *Toward Healthful Diets* suggests that this codification was neither obvious nor certain; on the contrary, the controversy surrounding the release of these competing guidelines suggests that the scientific rationale for any population-wide dietary guidance was unclear. The ultimate dominance of the thinking in one of these sets of guidelines indicates not only a decisive shift toward accepting the idea of guidance centered around diet as a means of preventing chronic disease, but of accepting the USDA and HHS as the authorities for providing such guidance.

Continuing my intent to see “healthy diet” as a complex material-discursive phenomenon, I focus in this chapter on a more granular view of the rhetorical ecology of the era during which the DGA and *Toward Healthful Diets* emerged as competing views of reality. Janet Giltrow’s (2002) concept of meta-genre offers an explanatory framework for understanding how an idea established in decades-old federal dietary guidance, which was not even supported by a congressional mandate or other legal imperative at the time, has influenced “healthy diet” discourse and practices across a variety of professional and lay publics. I argue that the DGA acts as a meta-genre in that they give direction and authority to the production of texts both within and outside of institutional and professional contexts, legitimizing discourses of diet as a means to prevent chronic disease.

When Giltrow introduced the concept of meta-genre in 2002, she defined it as “situated language about situated language” and suggested, “the most conspicuous candidates for meta-genre are guidelines.” The Merriam-Webster dictionary defines “guideline” as “an

indication or outline of policy or conduct,” a definition that points to both institutional and individual behavior. The argument that either the 1980 DGA or *Toward Healthful Diets* could have acted as a meta-genre for discursive acts, such as the creation of food labels or public health nutrition messages, is self-evident. However, I argue in Chapter 3 that a meta-genre can do more than organize the production of discourse within a specific professional community or institutional setting. By viewing a meta-genre as a set of relations and processes that authorize certain worldviews and thus certain discursive orientations, I offer a way to explain how federal dietary guidance has influenced how a “healthy diet” is defined in discourses and practices across a variety of professional and lay publics, including those whose specific recommendations for a “healthy diet” are in conflict with those offered by the DGA. Although the DGA currently supply “the scientific and policy basis for all Federal nutrition programs, including research, education, nutrition assistance, labeling, and nutrition promotion” (USDA Center for Nutrition Policy and Promotion, 2011, p. 2), the legal mandate for this authority was not established until after three editions of the DGA had been created. Nevertheless, earlier editions of the DGA operated to a large extent as if this mandate already existed. The concept of meta-genre may help to explain how the DGA influenced the production of federal messages and practices related to dietary health prior to any mandate establishing this authority.

Furthermore, as Giltrow (2002) argues, a meta-genre may signal existing or potential negotiation, struggle, and disturbance in a discourse community. This indicates an additional aspect of meta-genre that may be useful in examining the 1980 DGA and *Toward Healthful Diets*. The concept of meta-genre may provide a productive way to think about how rhetorical “order” is created from ambiguous situations. Carolyn Miller (1984) sees situations as “social constructs that are the result, not of ‘perception,’ but of ‘definition,’” highlighting the notion that “Before we can act, we must interpret the indeterminate material environment” (p. 156). I argue that the rhetorical ecology surrounding the 1980 DGA and *Toward Healthful Diets* can be seen as a struggle to create an authoritative interpretation of

material circumstances, one that would resolve the ambiguity of an “indeterminate material environment,” namely whether Americans in 1980 were truly headed toward an “epidemic” of chronic disease that could only be prevented by a change in eating behaviors.

Finally, I argue here that the creation of two sets of “guidelines,” with contradictory messages but with the same intention of steering discourses of diet and health in a particular direction, suggests a liminal moment in discourses of diet and chronic disease when matters of rhetorical purposing around dietary guidance for the public were undetermined. In 1980, both the strength of scientific evidence available regarding the relationships between diet and chronic disease and the necessity of shaping existing evidence into dietary guidelines for the population were open to interpretation, and the 1980 DGA and *Toward Healthful Diets* interpreted these conditions differently. The need to make such determinations about a situation seems to indicate the type of liminal space in which, according to Giltrow (2002), meta-genres are likely to be found. Giltrow’s observations about meta-genres identify the existence of not only organizing principles that are outcomes of complex material-discursive situations, but ones that become vested with the authority to direct further material and discourse outcomes. I argue that the simultaneous presence of a competing set of texts, the 1980 DGA and *Toward Healthful Diets*, and the ultimate emergence of one of them as a defining meta-genre for the production of “healthy diet” discourses provide a glimpse into the co-productive development of audience, authority, and situation within a rhetorical ecology, where each element is immanent to the others, but each shifts and changes in a dynamic fashion (Edbauer 2005; Jensen, 2015).

In examining the rhetorical ecology from which the authority of the 1980 DGA emerged, I will use that text, its predecessor, the 1977 *Dietary Goals, Toward Healthful Diets*, and two Congressional hearings debating the merits of the recommendations contained in each of these as my primary texts, along with contemporaneous media, scientific, and government reports present in the rhetorical ecology of the time. Through this “concatenation of texts” (Michael Warner, quoted in Edbauer, 2005), I demonstrate the relations and

processes that eventually allow the perspectives embedded in the 1980 DGA to prevail in their aim to authorize certain discourses of diet and chronic disease over others, including how results and methods of nutritional epidemiology of chronic disease will be viewed, how individual responsibility factors into the prevention of chronic disease, and how matters of uncertainty in science may be addressed in providing dietary guidance.

In my analysis, a meta-genre such as set of federal dietary guidelines can be seen as an instantiation of governmentality that directs the practices of “self-government” toward some ends rather than others. Successful meta-genres—and I argue that the DGA qualifies as a success as a meta-genre, if not a public health intervention—“disappear” from view to become “status quo thinking and ‘common sense’” (Starke-Meyerring, Paré, Sun, & El-Bezre, 2014), reproduced through discourses and activities of institutions, markets, and individuals.

### ***1.6.3 - Chapter 4: “Healthy diet” technology and body as object***

If, in Chapters 2 and 3, I have highlighted the political and conditional nature of our current understandings and practices related to “healthy diet,” this is not to deny any possible connection between diet and health that goes beyond adequate essential nutrition. I am simply restating Spinoza: “We do not know what the body can do” (as quoted in Deleuze, 1988, p. 17).<sup>6</sup> As Deleuze argued via Spinoza, we can only perceive effects, which often results in an inadequate understanding of causes. I make the argument throughout my dissertation that diet as a central aspect of chronic disease prevention has been produced by and in turn produces a modernist conception of the body that separates it from and subordinates it to the mind. In Chapters 2 and 3, I investigate how the assumptions that are embedded in the concept of using diet as a way to prevent chronic disease came to be understood and accepted in discourses of food and health, assumptions that were later

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<sup>6</sup> Here I refer specifically to a human body, although Spinoza’s account and Deleuze’s reading of Spinoza include a more general concept of bodies (Deleuze, 1988).

institutionalized as national nutrition policy. In Chapter 4, I seek to understand how those assumptions are represented and reinforced in the material features of diet-related fitness apps (DRFAs) and how this interacts with the materiality of the bodies of the users who employ these apps to help discipline their bodies with regard to weight and health.

In Chapter 4, I use DRFAs as a way of locating within the materiality and affordances of the app itself how the assumptions behind our current notions of “healthy diet” explored in Chapters 2 and 3 are manifested. At the same time, because the existence and use of these apps does not occur in a discursive vacuum, I include a view of how these DRFAs are part of the social context of a community of users in the digital space. I explore how DRFAs are material-discursive environments that encourage some ways of seeing and knowing and inhibit others, perspectives shaped by the app as both media technology and social network. If, as I argue, the constraints and affordances of a given DRFA makes “the body” visible to a community of users, I am interested in *what* body is made visible. I am particularly interested in potential discontinuities and tensions between the embodied experiences of users, as discussed and reported in forums, and the assumptions about bodies in general through which the app functions. Thus my research questions are as follows:

- What are the constraints and affordances of DRFA technology?
  - What information are users putting into a DRFA? What reports or data are given as output?
  - What networking, interactive, informative, or consumer contribution capabilities are present?
- How are knowledge, expertise, and authority represented in a DRFA?
  - What, if any, discord is expressed within a DRFA communities with regard to expectations about what “the body” can do?
- How do the material-discursive environments of a DRFA contextualize perceptions of causes and effects with regard to “the body”?
  - In other words, how are contradictions between “information” and “embodied

experience” identified, presented, and managed?

I have been making the argument that a “healthy diet” is a complex material-discursive phenomenon, with ideas about “health” and “diet” encompassing discourses, practices, and experiences that are not easily separated into physical versus cultural compartments. At the same time, our experiences with “healthy diet” are mediated by tools that allow us to measure and interpret both food and health. These can be as simple as a scale or a tape measure or, like the DRFAs under consideration here, complex expressions of networked digital technology. I explore how mediating technologies are central to the cultural context that that allows us to conceptualize our bodies as bodies. As Hayles notes, this cultural context is in play with our embodied experiences. We don’t just “interpret” our bodies according to information we’ve acquired about our bodies; our embodied selves, the material makings of our bodies, are entangled in subtle and complex ways with our discursive selves. As Stacy Alaimo (2008) suggests, “one’s own putatively ‘individual’ experience and understanding of one’s body is mediated by science, medicine, epidemiology” (p. 262), and as I argue here, technology. These mediations may allow for multiple, even contradictory, understandings of embodied experience to exist for any given individual. By studying DRFAs, I look at how this technology mediates an individual’s experience of her body by providing a way to produce and consume data about it and by creating a community of users in the digital space who share the experiences of this mediation.

I use frameworks of analysis from feminist new materialism, informed by theoretical work on media studies and discourse and power, to explore how it might be that the concept of a “healthy diet” presented in a DRFA interacts with experiences of embodiment and indeed shapes that embodiment in various ways. To do this, I begin with identifying the constraints and affordances of four popular, free DRFAs to explore two specific aspects of these apps: (1) how information is gathered from users and reported back to them as output or data, and (2) how consumers may interact with information, data, or with each other in

networked configurations. In investigating the configuration of the apps themselves, I look at commonalities and difference among them regarding what data are supplied by the consumer and/or what questions are asked by the app and what information is given as an output. This information helps identify what assumptions about nutrition and expectations regarding the body are built into the app. DRFAs also have a number of different networking, consumer contribution, and information-sharing (blogs, news updates, etc.) capabilities. I ascertain which of these are available for each app and use this information to identify what constraints and affordances are presented by the app in terms of creation of community and what assumptions and values these capabilities reflect.

In light of the similarities and difference in the configuration of the apps, I examine how contradictions or discontinuities present themselves in terms of user experiences with the information or features of the app and the communities that form around them in the digital space. I am interested in how users negotiate contradictions between their embodied experiences—what Kittler (1999) calls “the physiological accidents and stochastic disorder of the body” (p. 16)—and the assumptions about the body that are embedded in the apps and reinforced by the social interactions that take place in the DRFAs digital spaces. In places where consumers participate in discussions or add feedback to content presented as information, such as forums, blog responses, and other outlets for discussion, I seek instances of disagreement, discordance, or contradiction among participants and other aspects of the app (its data collection or reporting capabilities, for example) and collect these questions and comments, as well as the context in which they appear. I am interested in finding how users reveal and interpret their embodied experiences within these digital discourse communities and how they may resist or renegotiate assumptions or expectations about bodies that are built into the app. I use this information to compare these exchanges across apps to explore how different digital configurations may be related to how a community of users in a digital space may interpret their embodied experiences in relation to the normative information offered by the app.

This exploration is not a matter of assessing an ontological reality to assign to user experiences nor re-interpreting the experiences of the users of these apps. Rather, my purpose is to understand how configurations of various DRFA shape what kind of “bodies” are assumed, described, and produced in the material-discursive entanglements of weight loss work. For example, if a particular app presents the “calories in, calories out” model as the final word in how an individual body should be losing weight, but an individual reports that this expectation does not conform to his embodied experience, how do the individual and the community express and manage this disconnect? To paraphrase Rebekah Sheldon (2015), how does “a body” function as an internal critique of culturally constructed notions of “the body”?

With these chapters, I trace a broad arc from the history behind discourses of diet as a means of preventing chronic disease to the rhetoric surrounding a pivotal point in that history to, finally, how those discourses have become part of digital technologies that help individuals monitor their diet and, ostensibly, control their health outcomes. In the final chapter, I explore the implications of this shift in how “healthy food” and “healthy diet” are defined. I highlight how the field of NECD has interacted with policy and how rhetorics of choice built into public health nutrition policy have led to rhetorics of failure and blame for those whose bodies do not conform to social norms around body size and health. I close by proposing a dietary health imaginary, a theoretical concept that helps to illuminate the contradictions and paradoxes found in current discourses around food and health in the U.S.

## **CHAPTER 2: DISCOURSES OF DIET AS A MEANS TO PREVENT CHRONIC DISEASE: A “HISTORY OF THE PRESENT”**

### **2.0 - Introduction**

Although concerns related to food choices and body size are not unique to 21st century America, the past half century has been a time of dramatic increases in attention to diet as a way to manage health and body size. Starting in the middle of the 20<sup>th</sup> century, nutrition messages began to focus less on the value of eating food that was “good” for you in terms of providing essential nutrition and more on the importance of avoiding foods that contained components thought to be “bad” for you because they were linked to chronic disease. This focus on avoiding foods in order to prevent chronic disease was the outcome of the work of scientists in the relatively young field of nutritional epidemiology of chronic disease (NECD). Their efforts to link diet to chronic disease were part of a general shift in public health during the 1970s, from an emphasis on treatment of disease to personal accountability for prevention of disease and promotion of good health through individual “lifestyle” choices. This trend was in turn closely related to a rise in healthism among middle-class professionals (Crawford, 2006). As Crawford (2006) describes, however, taking charge of long term health outcomes by making the right choices at the grocery store tapped into a “deep well of cultural practices” with which middle-class professionals identified, including principles about prudence and restraint in eating that have existed for centuries (Biltekoff 2013; Coveney, 2006). When Charlotte Biltekoff notes that during the 1970s, “eating habits moved to the center of health discourse at the very moment that health itself became a social and cultural obsession associated with intense moral relevance” (Kimura, Biltekoff, Mudry, & Hayes-Conroy, 2014, p. 36), what she is pointing to is the moment when diet became understood as a way to prevent chronic disease and control long-term health outcomes.

Since then, discourses of “healthy diet” as a means of preventing chronic disease have helped to establish as “common sense” the notion that individuals can and should rationally

exercise choice regarding diet because these choices are directly related to health outcomes, as indicated by scientific knowledge. This “common sense” notion has become deeply embedded in Anglo-centric culture, despite obvious contradictions, reversals, and controversies in both modern dietary guidance and the nutrition science upon which it is based. The variety of dietary patterns thought to prevent chronic disease has resulted in a proliferation of “dietary ideologies,” such as vegan, low-fat, low-carb, “paleo,” and keto diets.<sup>1</sup> That each one is backed by evidence from nutrition science and qualified experts in health care or nutrition creates an enormous amount of heated debate over which one is the “right” diet. However, these debates obscure a more basic question, namely, “How did we come to believe diet and chronic disease are linked in the first place?”

This chapter investigates this question by asking the following: What were the conditions under which it became possible for diet to be understood as a primary means of prevention of chronic disease in 20<sup>th</sup> century America? More specifically, beginning with the advent of nutrition science in America, what rhetorical, sociocultural, historical, and technological factors may have influenced the development behind current practices in the U.S.—medical, public health, and individual—that treat diet, particularly dietary restrictions, as a fundamental aspect of chronic disease prevention? To examine these questions is to explore how, as Biltekoff claims, “nutrition is not only an empirical set of rules, but also a system of moral measures” (Biltekoff, 2013, p. 180). Although historians of food and food studies scholars have frequently examined the ways in which past claims regarding dietary guidance and nutrition science were shaped by social concerns, current assumptions that the right dietary choices can prevent chronic disease are often accepted at face value, even though these claims also have a history shaped by their social context. This chapter uses a “history of the present” to critically explore the ways in which the recruitment of food as

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<sup>1</sup> I use the term “dietary ideology” here to refer to a collection of normative beliefs and values that center around dietary health, specifically as it relates to preventing chronic disease.

means to prevent chronic disease is yet another instance where dietary science has grafted itself onto existing moral discourses about food and health. NECD, the primary source for the claims that policymakers leverage to create dietary guidance regarding the relationships between diet and chronic disease, presents those moral discourses and the practices accompanying them as an empirical set of rules, which in turn legitimizes and reinforces moral obligations to “choose health” through food.

This chapter focuses specifically on circumstances related to nutrition science and dietary guidance in the U.S. for a number of reasons. Nutrition science generally and dietary guidance for the prevention of chronic disease more specifically can be placed geographically as primarily American endeavors. As Julie Guthman (2014) explains, “many of the central figures of modern nutrition were or are American, such as Wilbur Atwater, whose late nineteenth-century studies of metabolism greatly contributed to the use of the calorie as the standard metric of diet, and Elmer McCollum, whose work in the first half of the twentieth century with lab animals led to the isolation of several vitamins” (p. 3). The U.S. can also be considered to be the birthplace of NECD, the knowledge production enterprise central to the development of guidance for dietary approaches to the prevention of chronic disease. The Framingham Heart Study in Massachusetts, launched in 1948, was the first long-term observational study to follow a selected population while collecting information on diet and the development of heart disease (Mahmood, Levy, Vasan, & Wang, 2014).<sup>2</sup> With the creation of the 1977 *Dietary Goals for Americans*, the U.S. was also central to the movement that began in the 1970s of translating “nutritionally reductive scientific

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<sup>2</sup> The original Framingham study failed to find any positive associations between diet and serum cholesterol levels, which was the putative mechanism by which diet would cause heart disease (Kannel & Gordon, 1970, pp. 24–29). It was followed closely by similarly designed studies in Minnesota and Los Angeles, but these studies did not collect dietary information (Chapman, Goerke, Dixon, Loveland, & Phillips, 1957; Keys, 1988).

knowledge into nutricentric dietary guidelines for the lay public” (Scrinis, 2013, p. 7). The 1977 *Dietary Goals* emphasized that Americans should reduce their intake of fat, saturated fat, cholesterol, salt, and sugar in order to prevent an array of chronic diseases—heart disease, cancer, stroke, and diabetes—plus obesity. This guidance indicated a rhetorical break from past guidance, which had focused on the acquisition of essential nutrition in order to prevent diseases of nutritional deficiencies, and began the institutionalization of discourses centered on defining “healthy diet” as a means of preventing chronic disease.

My strategy here is to apply a Foucauldian lens of genealogical analysis to the origins of these discourses as a way of understanding how the contingencies of their beginnings continue to shape the way we think about relationships between diet and chronic disease. Foucault (1977) uses the term “discourse” to refer to not just a body of statements about a concept, but the networks of social practices and ways of knowing related to that concept. Foucault’s (1977) concept of discourse is closely related to his understanding of power and knowledge: “Knowledge linked to power, not only assumes the authority of ‘the truth’ but has the power to make itself true” (p.27). Foucault’s concern is not Truth with a capital T, absolute “Truth,” but rather with the “regimes of truth” that are created by links between language, practices, knowledge, and power. Within a society, a “regime of truth” indicates:

the types of discourse which it accepts and makes function as true; the mechanisms and instances which enable one to distinguish true and false statements, the means by which each is sanctioned; the techniques and procedures accorded value in the acquisition of truth; the status of those who are charged with saying what counts as true. (Foucault, 1984, p. 73)

My intention here is not to dispute the scientific validity of specific studies linking diet to chronic disease or of specific recommendations for avoiding chronic disease through dietary choices.<sup>3</sup> Rather my intention is to use historical materials to understand how the concept of

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<sup>3</sup> See the following for a sampling of the history of the debate regarding the validity of NECD

using a “healthy diet” as a means of preventing chronic disease came to be legible and legitimate as “truth.” Additionally, because issues of the relationships between food and health circulate in very different professional and public arenas depending on media infrastructure, I use the term “discourses” to acknowledge the differences in their situated nature, as well as to indicate fundamental similarities.

Current dietary health discourses are marked by certain features, most notably the reductive approach that Gyorgy Scrinis (2013) has characterized in detail as “nutritionism.” As Jessica Hayes-Conroy and Allison Hayes-Conroy (2013) indicate, this discourse is not just reductive in terms of understanding food as a collection of quantifiable nutrients. It also standardizes approaches to dietary health by applying generalized knowledge claims to individual bodies; privileges expertise over lay knowledge by focusing on aspects of food and health available only through expert intervention; and removes claims regarding dietary health knowledge from their context through an assertion of objectivity that transcends any specific material reality. Their characterization of current nutrition discourses focuses on these features, which they refer to as “hegemonic nutrition.” Although features of nutritionism and hegemonic nutrition are aspects of current dietary health discourses, my concerns are less with the characteristics of the claims being made in these discourses and more about the assumptions that “function as true” that undergird them. Current nutrition discourses assume that:

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studies and the dietary guidance based on them: Yerushalmy & Hilleboe (1957); Eisenberg (1977); Select Committee on Nutrition and Human Needs, Supplemental Views (1977); Ahrens (1979); Le Fanu (1987); Taubes (2007); Young & Karr (2011); Ioannidis (2013); Maziak (2015); Ramsden & Domenichiello (2017). I would suggest that the most telling evidence that the matter of relationships between diet and chronic disease is not settled may be found in the number of nutrition experts that over the years have continued to assert that it is. See for example: NIH Consensus Development Conference (1985); Nestle (1994); Satija et al, (2015).

- 1) The links between diet and chronic disease can be known through the knowledge-production enterprise of nutrition science.
- 2) These links are such that individuals can control long-term health and disease outcomes by managing dietary choices based on information from nutrition science.
- 3) Because individuals have both the knowledge and the capability to control long-term health and disease outcomes, they have a moral obligation to make the “right” dietary choices.

Although I refer to these claims as “assumptions,” within current discourses of dietary health, the first two operate as claims of truth, the last as a sort of moral imperative.

My investigation takes up a critical analysis of historical documents, media reports, nutrition science studies, and historical accounts to examine the historical contingencies that set the stage for the acceptance of the idea that a “healthy diet” was one that prevents chronic disease. I focus specifically on how this occurred in the United States, although the ideas chronicled here circulated throughout Anglo-centric nutrition discourses during the history discussed. First, I describe what is meant by a “history of the present,” and how it relates to Foucauldian notions of biopower, problematization, and the *dispositif*. Next, I use the three elements of the *dispositif* to frame a discussion of the broad historical backdrop upon which the concept of diet as a means to prevent chronic disease emerged, the logics from earlier eras of nutrition science that would be repurposed to support this concept, and particular events that would act as historical exigencies for claims to be made regarding the existence of relationships between diet and chronic disease.

Nutrition scientists began work on establishing links between diet and disease in the 1950s, but findings remained weak and contradictory, and an answer to the question of whether dietary changes could prevent chronic disease remained elusive (Jacobson, 1974). In the 1970s, discourses of diet as a means to prevent chronic disease began to take on increased visibility and legitimacy in media reports, government proceedings, public health policy, and dietary guidance from healthcare professionals. I argue that this visibility and legitimacy

came from a resonance among technological changes, historical events, political expediencies, and social and cultural shifts, not from conclusive and consistent links between diet and chronic disease developed through a mature scientific paradigm and definitive, reproducible studies. This analysis provides an opportunity to rethink the implications of recruiting diet to do the work of chronic disease prevention and what that entails in terms of understanding eating habits as measurable and bodies as controllable.

## **2.1 - History of the present**

Historians have emphasized the ways in which dietary advice has long been built on a framework of moral principles reflecting middle-class values, even as it references the seemingly neutral language of nutrition science for its authority (Biltekoff 2013; Coveney, 2006). For example, Helen Viet (2013) points to dietary guidance from the early decades of the 20<sup>th</sup> century, when fears related to incoming waves of immigrants were transferred to fears regarding the dangers of their highly spiced meals with multiple ingredients. When nutrition scientists went looking for evidence that these kinds of meals were harmful to your health, as Viet notes, “they found it, or at least they thought they did” (p. 130). That scientists and the work they do are no more free from the vagaries of cultural biases and social influences than any other areas of human enterprise has been the argument of science studies for the past half-century. At the same time, it may be difficult to step away from the present in a way that allows us to interrogate received knowledge and see those social influences and contingencies. A “history of the present” is meant to help accomplish this task. Foucault (1971) describes his historical work as an attempt to “grasp the implicit systems which determine our most familiar behavior without our knowing it” (p. 201). A “history of the present” works to expose “the system of limits and exclusion which we practice without knowing it” (Foucault, 1971, p. 198). It is an analysis of “descent” and “emergence” that is “situated within the articulation of the body and history” (Foucault, 1977). It is therefore an analytic approach for understanding the material-discursive implications of ideas and practices that are taken for granted as “true,” but whose contingent nature continues to shape

the present in problematic ways. Foucault (1994) described his approach as he applied it in *The Birth of the Clinic: An Archeology of Medical Perception* as “a project that is deliberately both historical and critical, in that it is concerned—outside of all prescriptive intent—with determining the conditions of possibility of medical experience in modern times” (p. xix). In my case, the project involves exploring the conditions of possibility for the conception of diet as a means of preventing chronic disease.

Foucault’s intent to use history as a way of disturbing our ideas of the present is demonstrated in both his archeological and genealogical approaches. A Foucauldian archeology focuses on generalized “epistemes,” or ways of thinking, that span disciplines during a particular era, a concept not dissimilar to Thomas Kuhn’s (1962/2012) paradigm. Both stress discontinuities in how knowledge is produced and certified (Garland, 2014). Kuhn’s (1962/2012) focus is specifically on what takes place within a scientific community that creates both the discontinuities and an eventual “paradigm shift” that moves the community to a different way of thinking about and working on a particular scientific concept. A Foucauldian genealogy may cover some of this same conceptual territory, but is more attuned to the contingencies of historical processes and events and their continued impact on the present (Garland, 2014). Although the process of knowledge production in science is central to Foucault’s arguments, his focus is on the historically specific understandings of the world that are in circulation in society as a whole and which “function as the unthought conditions of possibility of specific ways of thinking and generating statements” (Garland 2014, p. 371). In dietary health discourses, NECD has been “accorded value in the acquisition of truth” with regard to asserting claims about links between diet and chronic disease. Findings from NECD provide the rationale for the related assumption that individuals can control their health outcomes by making the right food choices, an assumption which underlies rhetorics of choice in public health messaging (“Make the healthy choice the easy choice”) and is the basis for marketing “healthy food” to consumers. This assumption, in turn, justifies the moral imperative to make the “right” choices and

animates the rhetorics of failure and blame surrounding increasing rates of obesity, particularly those that suggest body fatness is an indication of a failure to act as a responsible citizen. Yet, it is important to understand that, when dietary guidance to prevent chronic disease that would apply to all healthy adults was first proposed, it met with considerable resistance, and much of that resistance was related to *whether* nutrition science could establish links between diet and chronic disease with enough certainty to make such guidance appropriate at all. In the present, this is no longer treated as a question, and it is understood that nutrition science *can* establish such links. But what were the historically specific, “unthought conditions of possibility” that worked to resolve this question and allow the assumptions listed above to operate as “true”? Because these assumptions are the basis for discourses in current circulation, I use a “history of the present” as a way to explore how discourses of “healthy diet” as means to prevent chronic disease came to be.

### ***2.1.1 - Biopower and the problematization of nutrition***

Foucault (1984) explains his genealogical approach as looking at “a problem expressed in the terms current today” (p. 262), one that, as sociologist David Garland (2014) further explains, is “both taken for granted and yet, ... problematic” (p. 373). As Foucault (1988b) describes it,

Problematization doesn’t mean the representation of a preexisting object, nor the creation through discourse of an object that doesn’t exist. It is the set of discursive and non-discursive practices that makes something enter into the play of the true and the false and constitutes it an object for thought (whether under the form of moral reflection, scientific knowledge, political analysis, etc.). (p. 257)

For my purposes, then, the concept that is both taken for granted and problematic—the “object for thought” that came into “the play of the true and the false”—is that of the existence of relationships between diet and chronic disease.

In nutrition textbooks and most scientific literature from the first half of the 20<sup>th</sup> century, assertions of this relationship do not exist. The focus of nutritional science was to

determine what components of food were necessary for life and to use this knowledge to address diseases of deficiency, such as rickets, pellagra, and goiter. During the second half of the 20<sup>th</sup> century, as biomedical science began to successfully prevent and cure these diseases, along with many contagious ones, lifespans lengthened for most Americans. The overall improved health of Americans contrasted with narratives that emerged in the 1950s that chronic diseases were occurring in epidemic proportions due to overindulgent ways of living. The National Center for Health Statistics (1964) reported that overall life expectancy in the U.S. had undergone a “spectacular improvement” since the turn of the century, although minorities still lagged behind whites (U.S. National Center for Health Statistics, 1964, p. 5). By the end of the 1970s, deaths from heart disease had been declining for nearly two decades (Gillum, Folsom, & Blackburn, 1984). Dietary surveys from the 1970s indicated that Americans were consuming fewer calories, compared to 1965 intakes (Popkin, Siega-Riz, Haines, & Jahns, 2001). Yet from the 1950s onward, experts began asserting that the U.S. was “one of the unhealthiest nations” in the world and warned of an oncoming epidemic of heart disease and obesity (“U.S. Termed One of Unhealthiest Nations,” 1956).

Biopower, a concept developed by Foucault, describes the ways in which, beginning in the 18th century, fundamental biological aspects of human life—birth, death, illness, and health—became the focus of complex relations of knowledge and control (Foucault, Ewald, Fontana, & Davidson, 2009). Populations rather than individuals became “the object of knowledge,” and knowledge production in the “so-called human sciences” was emphasized as a means of efficient governing of populations (Foucault et al., 2009, p. 79). In Foucauldian terms, improvements in health and lifespan that occurred in the U.S. in the second half of the 20<sup>th</sup> century became an opportunity for expansion of control over the “excess” life that became available, creating the space for “lifestyle” approaches to the prevention of chronic disease to be instituted as an extension of biopower into the aging process. The discourses of “epidemics of chronic disease” also became aligned with shifts in government, medicine, and public health that would make health an individual, rather than collective, responsibility.

Central to this shift was an individual's control over dietary choices. As I indicated in Chapter 1, however, the idea of government inserting itself in the lives of individuals is not incompatible with effort to make individuals responsible for their own health outcomes. I will elaborate in the next section on the how Foucauldian notions of governmentality, operating within the context of neoliberal politics, work to align the interests of the individual with the interests of government so that individuals "self-govern," through informed choices. Importantly, it is frequently the government's role to supply consumers with the information needed to make such choices.

If knowledge and claims about the existence of relationships between diet and chronic disease were such that presenting the public with information about these relationships had the effect of preventing or ameliorating these concerns, I would have difficulty arguing that these relationships became "problematized" in the second half of the 20<sup>th</sup> century or that they are currently problematic. But this does not seem to be the case. Although there are a host of contradictions and inconsistencies populating current discourses of dietary health, the overarching issue seems to be the one I described in the introduction: the apparent paradox of the increased availability of "more sound, scientific advice regarding health and nutrition along with the simultaneous increases in diet-related diseases" (Mudry, 2009, p. 3). The assertions that we currently have "more sound, scientific advice regarding health and nutrition" and that chronic disease is synonymous with "diet-related disease" are expressions of the assumptions embedded in current dietary health discourse that I noted above; that the advice has not translated into decreases in such diseases is an indication of the problematic nature of these assumptions.

### ***2.1.2 - Foucault's dispositif***

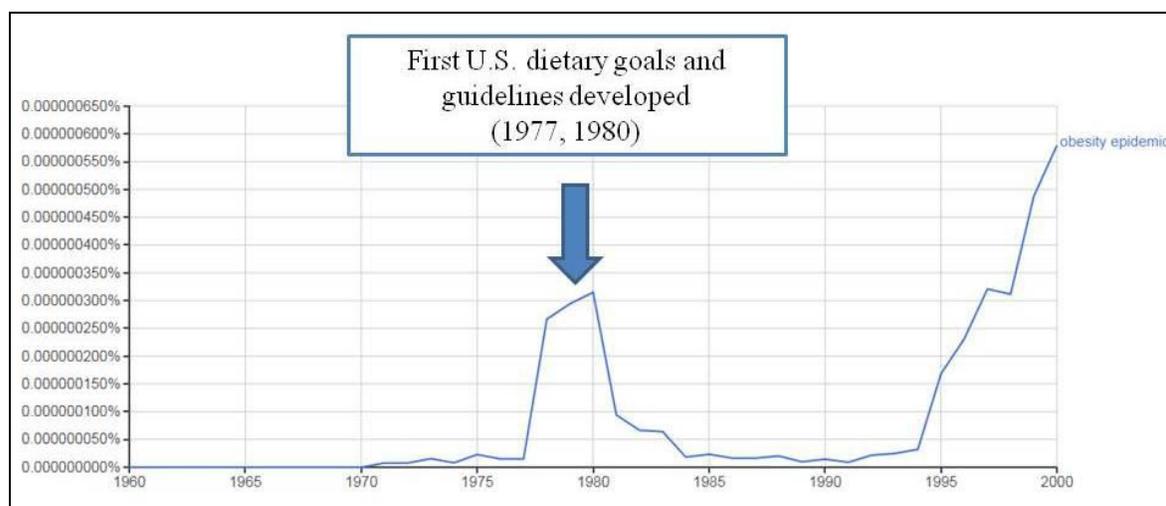
As a more specific and concrete instance of this paradox, obesity rates in the U.S. began rising rapidly soon after the creation of national dietary guidelines meant to prevent such an increase. This particular paradox is an example of how "the set of discursive and non-discursive practices that makes something enter into the play" might operate. Although

the rapid rise in obesity rates was only noted in the 1990s, concerns with preventing an “obesity epidemic” had been the focus of policymakers, media stories, and public health and nutrition science experts several decades earlier. One of the most intriguing aspects of “obesity epidemic” discourse is the appearance of the phrase from around the mid-1970s to the mid-1980s as a sort of “bubble” before virtually disappearing again until almost a decade later (see **Figure 1** below). It was during this period, from about 1975 to 1985, that various stakeholders raised the issue of what guidance, if any, could be given to the public in order to shift eating habits so that “epidemics” of obesity and chronic disease might be prevented.

The virtual disappearance of “obesity epidemic” discourse between the mid-1980s and the mid-1990s may be related to the creation, during this “bubble,” of what appeared to be a solution to the impending epidemic, namely, advice to all Americans to modify diet and activity in a way that would help prevent chronic diseases and obesity, presented in the form of national dietary guidelines.<sup>4</sup> Whether or not the public implemented this guidance is a matter of ongoing debate. What is less debatable is that creation of national dietary guidelines was both a response to and the rationale for changes in what foods were available in the marketplace, scientific agendas, public health promotional messages, and the lifestyle habits and practices of many Americans, among other things. Even before national dietary guidelines were created, media reports from throughout the 1970s indicate that many Americans had taken up what were thought to be “healthy” eating and exercise habits, which would have entailed changes in many other aspects of American life, from available foods to social norms, that would support this pursuit of health (Brody, 1973; Zwerdling, 1974). National dietary guidelines, as both the outcome of and the rationale for such changes, serve as a convenient signpost for an era when relationships between diet and chronic disease became constituted as an “object of thought.”

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<sup>4</sup> Notably, obesity rates appear to have begun rising during the 1980s, but this trend was not identified by public health researchers until 1994 (Kuczmarski et al., 1994).



**Figure 1: Google Ngram of “obesity epidemic” (April 7, 2017).**

Google Ngram searches Google’s collection of English-language books for the designated phrase. For this graph, the search was limited to the appearance of “obesity epidemic” between 1965 and 2000 from the corpus of English books, with smoothing of 1. According to the Google Ngram for English-language books, the phrase “obesity epidemic” does not appear before 1970; after 2000, the steep increase in use of the term “obesity epidemic” dwarfs the appearance of its use between 1975 and 1985.<sup>5</sup>

With national dietary goals and guidelines as a way of orienting my analysis, I use Foucault’s (1980) analytical concept of the *dispositif* to explore the conditions of possibility that constitute a “history of the present” of current discourses regarding relationships between diet and chronic disease. “*Dispositif*” has been translated many different ways, often as “apparatus” or “social apparatus,” and the concept encompasses the major themes in

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<sup>5</sup> As noted by researchers Pechenick, Danforth, and Dodds (2015), there are significant limits to Google Ngram as a proxy for “discourse.” One of the drawbacks that they note is the increased use of scientific texts in the corpus represented, as terms used in scientific articles may not be in general circulation, although it should be noted that the term “obesity epidemic” does not appear in PubMed (a database for biomedical literature with citations dating back to the 1950s and 1960s) until 1996. Ultimately, however, like science itself, the corpus of material found in Google Ngram reflects the inclinations of those involved in its creation.

Foucault's work. Gilles Deleuze (1988) describes the elements of the *dispositif* as including, "curves of visibility and enunciation," "lines of force," and "lines of subjectification" (p. 160-161). These can be understood as Foucault's familiar triptych of knowledge, power, and subjectivity. Deleuze emphasizes the relational and processual nature of the *dispositif*, and its messiness as an analytical approach; the *dispositif* is a "tangle" of interrelationships, not a schematic. Although Foucault (1980) explains the *dispositif* as having three key features, it should be understood that these features are not distinct from each other. First, according to Foucault (1980), the *dispositif* is a "thoroughly heterogeneous ensemble consisting of discourses, institutions, architectural forms, regulatory decisions, laws, administrative measures, scientific statements, philosophical, moral, and philanthropic propositions—in short, the said as much as the unsaid" (p. 194). The second key feature is "the nature of the connection that can exist between these heterogeneous elements," which Foucault notes constitutes not a static relationship, but "an interplay of shifts of position and modifications of function which can also vary widely" (p. 194-5). These connections are ways of thinking or reasoning that hold the elements of the *dispositif* together. Finally, the *dispositif* is a formation that "has as its major function at a given historical moment that of responding to an urgent need. The apparatus then has a dominant strategic function" (Foucault, 1980, p. 195). Bioethicist Christopher Mayes (2015) uses the phrase "enabling network" as a translation for the *dispositif*, a choice that I will follow here. Mayes (2015) argues that this term avoids the emphasis on knowledge that is implied by "grid of intelligibility," the translation of *dispositif* provided by Dreyfus and Rabinow (1983) and "captures the conceptual emphasis on practices and the reactivity of biopolitics" (p. 19). Although the term "network" may seem to connote a closed structure, it is used in this context to highlight the extensive, adaptive, and entangled nature of the elements of the *dispositif*, which can be understood as an open and dynamic system.<sup>6</sup> The term "enabling" emphasizes the idea that

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<sup>6</sup> I think Galloway and Thacker's (2007) characterization of a network as a flexible

the elements of the *dispositif* facilitate certain ways of thinking, being, and governing, including holding together contradictory or, as Mayes refers to them, “agonistic” logics.

## 2.2 - Heterogeneous ensemble

In terms of the discursive and non-discursive elements of the “heterogeneous ensemble” of an enabling network, Deleuze’s (1988) description of “curves of visibility and enunciation” characterizes these as facilitating what is visible and legible within a society (p. 160). With regard to dietary health, an exploration of these elements helps to explain how a statement such as “Saturated fat will clog your arteries” came to be an understandable part of public discourse. Specifically with regard to nutrition, these would include both discursive and non-discursive elements, such as the technologies that mediate the development of knowledge—respiration chambers, surveys, microscopes, filter paper—as well as the individuals, institutions, and paradigmatic thinking that participate in and organize knowledge production process. However, beyond shifts in the discursive and non-discursive aspects of nutrition science, I take an examination of “heterogeneous ensembles” to include broad, slow-moving changes in social and cultural orientations to food and health that I see as ultimately facilitating an acceptance of the idea that diet and chronic disease are related in knowable and controllable ways. Any discussion of such is not likely to be comprehensive, and other scholars might choose other phenomena to include, but the ones that I have selected to discuss below—the work done by Ancel Keys in the field of NECD, the rise of healthism among middle-class professionals, and changes in the food technology and agribusiness sector—provide a historical backdrop for the development of an enabling network that would allow claims about links between diet and chronic disease to become seeable and sayable aspects of discourse.

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multiplicity of heterogeneous, and at times antagonistic, elements capable of growing and reconfiguring at all scales bears shares enough qualities with Foucault’s *dispositif* to justify the use of “network” as part of its translation.

### ***2.2.1 - Nutritional epidemiology of chronic disease (NECD)***

From the time of the ancient Greeks and earlier, humans have worked to understand the relationships between food and health, and even then, these relationships were characterized by the interplay of materiality, human knowledge, and social norms (Zwart, 2000). With the rise of the application of the scientific method to nutrition knowledge, perceptions of relationships between diet and disease became based on scientific practices of observation, experimentation, and calculation. As Coveney (2006) and Biltekoff (2013) argue, however, underlying concerns with moral practices never disappeared from the discourses of food and health that have become the scientific study of nutrition. The recruitment of diet as means to prevent chronic disease is another instance of how existing moral discourses about food and health shape and infiltrate nutrition science. This reflects a foundational claim of science studies, namely that scientific activity and scientific results are inescapably social and contingent (Daston, 2009). However, as Rebekah Sheldon (2015) notes, “matter function[s] as an internal critique of cultural construction” (p. 204). This may account for what is considered to be the “self-correcting” nature of science, which allows socially contingent scientific claims to be modified in response to inescapable materialities. However, when it comes to how science characterizes the relationship between dietary practices and chronic disease—both already fraught with social, cultural, and moral implications—this may be more difficult than expected.

The relationship of diet to disease was problematic enough in the first half of the 20<sup>th</sup> century, when the scientific methods used in nutrition were focused on diseases of deficiency, and connections hypothesized from observational studies of populations could be tested in clinical experiments. For example, pellagra was observed to be associated with poverty-stricken populations. It was thus presumed to be caused by a microbial agent that thrived in what public health officials believed to be the unsanitary living conditions of the poor, a belief—strengthened by middle-class notions of cleanliness—that persisted for many years despite evidence to the contrary. In spite of the inclination to blame pellagra on the

poor hygiene of the lower classes, eventually the failure of experimental trials attempting to demonstrate its infectious nature and the success of other trials demonstrating that pellagra could be induced and reversed through diet convinced public health authorities that pellagra was a disease of deficiency, not one of infection caused by poor sanitation (Bollet, 1992).

However, when similar connections between lifestyle factors and chronic diseases are hypothesized from observations of populations, these associations cannot easily be tested in clinical trials; such trials would necessarily have to provide experimental conditions for thousands of participants over many years, if not decades. The difficulty of establishing causality experimentally means that NECD must rely on hypothesizing the existence of exposures or qualities—also known as risk factors—that could be related to the cause of a disease, but might simply predict which populations are more likely to acquire a disease (Stampfer, Ridker, & Dzau, 2004). It is not always easy to tell which is which, even in diseases of deficiency. With regard to pellagra, experiments were able to establish that an inadequate diet turned out to be a causal factor, while poor sanitation and poverty were only predictive ones, meaning that they could be used to predict who might get pellagra within a population, but were not actual causes of the disease. Treating poverty as a causal factor might have reduced the number of cases of pellagra if such interventions included improved diet, but treating poor hygiene alone would have had none (Leslie, 2002).

As the puzzles of diseases of deficiency and communicable diseases began to be resolved amid the post-war plenty that many Americans were enjoying, the methods of epidemiology that applied to those diseases were transferred to chronic diseases. Although methods and theoretical models in early epidemiology often assumed a single direct relationship between a cause and a disease outcome, these models also frequently included both biomedical causes (microbe, nutrient) and social causes (poverty, education) as explanatory variables in the development of disease; in fact, much debate centered around what *types* of causal factors could and should be invoked to explain disease patterns in populations (Krieger, 1994). For example, the researchers who pioneered the biomedical

understanding of pellagra as a disease of niacin deficiency also demonstrated how cases of pellagra rose when the economy in the Southern U.S. fell (Krieger, 1994). However, as earlier single-cause models were deemed inappropriate for investigating “multiple environmental agents of unknown character or of obscure operation,” so were discussions of social class and social inequality considered dangerous territory during the Cold War and McCarthy era (Krieger, 1994; Susser, 1985, p. 150). In epidemiological studies of chronic disease, consideration of the social determinants of health was sidelined by a focus on “biomedical and individually-oriented theories of disease causation, in which population risk was thought to reflect the sum of individuals’ risks, as mediated by their ‘lifestyles’ and genetic predisposition to disease.” (Krieger, 1994, p. 890). Within this context, “web of causation” and “causal pie” models were introduced (MacMahon, Pugh, Ibsen, 1960; Rothman, 1976). These conceptual models elide any sense of historical or social context, discouraging epidemiologists from looking beyond the factors closest to, and ostensibly in control of, the individual. Thus, as Krieger famously put it, the “web of causation” invoked by epidemiologists is one that exists without a “spider”; the “causal pie” has no “baker” (Krieger, 1994). In NECD, the focus on biomedical individualism manifested itself as a concern with biomarkers such as serum cholesterol, blood pressure, and weight thought to be directly related to both health outcomes and dietary choices; at the same time, the assumption that causes of chronic disease were multifactorial and developed over an extended period of time meant that testing these relationships in clinical trials would be difficult. Thus, from the beginning, NECD lacked both the theoretical underpinnings that would provide social context to its findings and the backstop of clinical studies that would allow materialities of biology or physiology to manifest themselves as part of the ostensibly self-correcting processes of science.<sup>7</sup>

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<sup>7</sup> See Krieger (2011) and Rothstein (2008) for discussions of theoretical underpinnings (or lack thereof) in epidemiology and the use of risk factors in public health, respectively.

Rhetorically speaking, hypotheses derived from NECD studies would act as results, and these results would exclude any explanations outside of an individual's control, a situation that may have facilitated the persistence of cultural inflections, particularly those implying a moral valence, in descriptions of relationships between diet and chronic disease. The moralizing aspects of these discourses were apparent from the outset, with chronic diseases referred to as "diseases of civilization" and characterized as stemming from lifestyle choices that reflected the wealth, luxury, leisure, and plenty of post-war America. New concerns about food as a factor in the development of chronic disease mapped onto earlier ones involving calories, micronutrients, and moral duties related to eating practices, which I discuss further below. This set the stage for nutrition scientists to investigate links between development of chronic disease and "immoderate" dietary behaviors and to advise the public to prevent chronic disease with a "prudent diet."

The first of these links to be developed in NECD was between heart disease and dietary fats, particularly saturated fat from animal products. Because they seemed to be experiencing heart attacks at a rate that many found alarming and because they also might be lucrative donors, middle-aged business men, the "engines" of America's thriving post-war economy, were the target of a public health and fundraising campaign led by the American Heart Association (AHA) that introduced to the American public the idea of a low-fat diet as a way to prevent heart disease (Levenstein, 2013). The work that led to this campaign was done by Ancel Keys, a central figure in the development of the use of NECD as a scientific approach for linking diet to chronic disease. Keys, a physiologist who had studied responses to starvation in conscientious objectors during World War II and created K-rations for the military, was intrigued by food supply and mortality data collected in Europe during the war that showed a drop in death from heart disease when food supplies were restricted (Andrade, Mohamed, Frohlich & Ignaszewski, 2009). With starvation no longer an issue in post-war America, he pursued the relationship between food restriction and decreased heart disease mortality by measuring dietary data, lifestyle habits, and physiological markers, including

serum cholesterol, in Minneapolis businessmen (Levenstein, 2013). Keys had found that serum cholesterol samples could be “preserved for at least several months at temperatures of 25-30° merely by air drying on filter paper” (Anderson & Keys, 1956, p. 154). The convenience of this allowed him to collect cholesterol samples from across the globe, but particularly from the sunny Mediterranean countries that he and his wife loved and where temperatures were conducive to preservation of samples (Levenstein, 2013). Information collected on diet on these trips was informal, varied, and often done during periods of religious fasting, but it allowed Keys to propose an association between saturated fat in the diet and death from heart disease, known since then as “the diet-heart hypothesis” (Hatzis, Sifaki-Pistolla, & Kafatos, 2015; Levenstein, 2013).

Keys was by all accounts a forceful personality whose vocal commitment to his hypothesis included posing the “problem” to be solved, identifying its cause, proposing its solution, and delivering scathing dismissals of any work that contradicted his own (Blackburn, 2012; Taubes, 2007). Keys positioned his research into the cause and prevention of heart disease as the most effective use of public health research dollars for two reasons: because large numbers of people suffered from disability and death due to this disease “against which private medical practice is making little headway” and because there was “reason to hope” that the disease might be prevented by “measures applicable to the general population, even if these measures are not yet known” (Keys, 1953, p. 119). Keys’s assertion that it was “abundantly clear that degenerative heart disease is not an inevitable consequence of aging” was based primarily on comparisons of death rates in the U.S. to those from other countries, and his explanation for these differences—heart disease was caused by elevated serum cholesterol levels caused by saturated fat consumption—was established much the same way. Keys’s assertions that heart disease could be prevented by dietary changes that limited the consumption of animal fats were widely disseminated in popular magazines, such as *Newsweek* and *Time* and through a series of cookbooks Keys co-authored with his wife (Garrety, 2006).

Nevertheless, some found Keys's associations to be "greatly exaggerated," an assessment based on his reliance on indirect, population-level methods that identified associations between an exposure—in this case, diet—and health outcomes (Yerushalmy & Hilleboe, 1957, p. 2346). These methods were widely accepted in epidemiology of infectious diseases and diseases of deficiency, but in those cases, they were accompanied by the understanding that associations generated from these sorts of indirect observations would be tested by more direct methods. One of Keys's early public statements on the link between dietary fat and heart disease, at a World Health Organization meeting of experts on atherosclerosis in 1955, prompted a detailed critique from fellow scientists, Jacob Yerushalmy and Herman Hilleboe (1957). Their objections to Keys's findings outline some of the persistent concerns raised about NECD studies in general: associations found may be due to "non-pertinent extrinsic factors"; the data the researcher chooses to include in the model affect the association seen; reliability of measurements of exposures (i.e. diet) and outcomes (i.e. morbidity or mortality) is limited; and a positive association between a dietary factor and one disease outcome may be reversed for a different disease outcome.

Support for issuing dietary recommendations to the public based on such indirect observational methods was minimal; even guidance from the AHA, with which Keys was affiliated, was full of qualifiers and included the caveat that "a wide variety of other factors ... both dietary and non-dietary, may be important" in the development of heart disease (Kritchevsky, 1998). Although middle-class consumers might have been willing to buy the claims that vegetable oils, "heart-healthy" margarines, and meat substitutes could reduce risk of heart disease because they were low in saturated fat and cholesterol, the U.S. government remained skeptical. The Federal Trade Commission repeatedly warned manufacturers to refrain from making false and misleading claims linking food products to the prevention of heart disease (Levenstein, 2013), even as product labels helped to educate the public that such links were possible. That the public was receptive to such products is indicative of another broad social shift that helped to create the conditions that made claims of links

between diet and chronic disease an accepted aspect of discourse about dietary health, even for the federal government: the rise of healthism

### ***2.2.2 - The rise of healthism***

Crawford's concept of healthism was first developed concurrently with the phenomenon he was describing; his seminal paper on healthism was written in 1980, the same year the U.S. Department of Agriculture (USDA) and the U.S. Department of Health and Human Services (HHS) released the first edition of the *Dietary Guidelines for Americans* (DGA), a set of recommendations meant to help Americans avoid heart disease, other chronic diseases, and obesity. The time frame from the mid-1970s to the mid-1980s that signaled an increase in concern about a looming "obesity epidemic" coincides with a period Crawford (1980) has identified as a "crucial turning point" for the prioritization of the pursuit of health through lifestyle changes by middle-class professionals (p. 409). This period also coincides with the development of the first federal dietary guidance to prevent chronic disease, as well as the "bump" in Google's Ngram of "obesity epidemic," discussed earlier. Although Crawford (1980) does not specifically link healthism to the debates and media coverage surrounding the creation of this guidance, which had been taking place for a number of years, he does argue that it was during this time period that eating and exercising to manage body size took on an added political significance due to changing economic conditions that led to shifts in attitudes towards health policy. However, it was not obvious or inevitable that diet and body size would become primary candidates for management in the service of chronic disease prevention. Crawford's concept of healthism identifies two important and overlapping developments that play a central role in how concerns about diet became related to prevention of chronic disease: holistic health and self-care.

According to Crawford (1980), one of the social factors contributing to healthism in America was the increasing popularity of holistic health therapies not typically included in or rationalized by Western biomedicine, therapies that are now often called "complementary and alternative medicine," or CAM. As Crawford cataloged in 1980, CAM included practices

such as meditation and biofeedback, rolfing, massage, polarity therapy, iridology imagery, and notably, nutritional therapies (p. 366). Even now, nutritional interventions are often harbored under this title in health systems, medical schools, and research programs in schools of public health.<sup>8</sup> Although influenced by 1960s counterculture interest in Eastern lifestyle and religion, the increasing popularity of CAM during the 1960s and 1970s was taken seriously by institutional figures that shaped health policy in the U.S. At a 1975 *Conference on Future Directions in Health Care*, academics, insurance providers, and physicians debated the role of alternative therapies in disease prevention as part of what was by then a larger and well-chronicled discussion of the inability of Western biomedicine to cure most common chronic diseases (Le Fanu, 2012; Starr, 1982). Expanding the definition of what therapies could be included in “caring for health” and “preventive care” was one side of this discussion. The other focused on the idea that disease prevention would need to become primarily the responsibility of the individual.

Closely related to the idea of holistic health, “self-care” was central to the concept of healthism as described by Crawford in 1980, and the idea that individuals should be in charge of their own health was raised in a number of diverse contexts throughout the 1960s and 1970s. In his influential 1976 book, *Medical Nemesis: The Expropriation of Health*, Jesuit priest and social critic Ivan Illich argued that individuals should take charge of their own health concerns because the medical system was an overwhelmingly iatrogenic system, meaning the medical system was itself a cause of illness. Rather than healing individuals and assisting them in living their lives—and dying—with freedom and dignity, Illich argued that the medical system produced patients, sponsored sickness, and diminished society’s ability to make sense of suffering and death. Illich’s concerns coincided with the rise of the “patient

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<sup>8</sup> For example, at the Miller School of Medicine at the University of Miami, the therapies offered at the Center for Complementary and Integrative Medicine include acupuncture, massage, guided imagery, and nutrition counseling and education.

rights” movement, which embraced the notion of patients as consumers in what was seen as “a liberating alternative to a traditional doctor-patient relationship” (Tomes, 2006, p. 84). The linguistic shift from “patient” to “consumer” was in many ways counterproductive with regard to the agenda of “patient rights” activists, but it fit a more general “consumer rights” movement exemplified by activists like Ralph Nader (Tomes, 2006). The idea of patients as consumers suggested that, armed with objective scientific information, individuals could make wise choices about their own health needs and the products and practices needed to be healthy, including those related to care that was not considered part of mainstream Western medicine, such as diet.

The mobilizing of “informed consumers” of nutrition looking to prevent chronic disease made explicit the need for authoritative guidance about dietary health as a preventive health practice. Consumer rights groups—such as Consumers Union, which publishes *Consumer Reports*—could test many other products, but could not test scientific theories about what foods or dietary patterns could cause or prevent chronic disease. As food marketing became increasingly oriented towards health-conscious consumers as a way of distinguishing otherwise generic products—cereal, bread, vegetable oil—from each other, the marketplace filled with claims about “healthy” products. As Crawford (2006) notes, the idea of personal responsibility for health outcomes resonated with and supported political shifts that signaled the rise of “privatized, market solutions to public problems” (discussed further below) and provided a straightforward way to navigate the consumer landscape (p. 409). Discoveries in food science and changes in the agricultural sector served to support both dietary recommendations that stemmed from findings in NECD and consumers’ desires to purchase products that met these recommendations.

### ***2.2.3 - New food technologies and the growth of agribusiness***

In post-war America, global and national politics, fluctuations in the U.S. economy, and financial and agricultural policies served to first bolster growth in the agricultural sector, then allow its collapse. Both the growth and the contractions that took place in American

agriculture in the second half of the 20<sup>th</sup> century contributed to a farm economy that supported the production of foods that could be manipulated to create products with nutritional profiles that fit low-fat guidance given out by the AHA and would appeal to health-conscious consumers.

Although Earl Butz, who was Secretary of the USDA during most of the 1970s, gets much of the blame for expansionist agricultural policies that created giant monoculture holdings of corn, wheat, and soy, this trend had been in place long before his tenure. However, in the 1970s, he did oversee production and price increases that, along with tax incentives, stimulated investment in agricultural assets and led to a boom in the farm economy (Barnett, 2000). These increases in production were, at least at first, soaked up by trade with countries, like the Soviet Union, that had been having shortfalls due to drought. Many farmers took advantage of these events to follow Butz's admonition, which was simply an echo of similar calls from previous Secretaries of Agriculture, to "get big or get out" (Rosenberg & Stucki, 2017). For farmers who expanded holdings and production, the bubble didn't last long. In 1980, President Jimmy Carter called a halt to grain shipments to the Soviet Union in response to their invasion of Afghanistan, just as the Federal Reserve put an end to inflation, drove up interest rates, and threw the country into recession (Dyer 1998; Paarlberg 1982). Many farmers who had bought up land to "get big" were now deep in debt. Foreclosed farms were sold off, and larger agricultural enterprises snapped them up. These expansive holdings were most often planted with crops that were subsidized through price support programs: corn, wheat, and soy.

During this same era, the imperative of growth fundamental to capitalism had already butted up against the reality of the "fixed stomach," the idea that consumers can only eat so much food, no matter how cheap it gets (Pollan, 2006, p. 94). That Americans were already eating less, a phenomenon attributed to concerns about obesity and a more sedentary lifestyle, was a significant source of anxiety for food producers and manufacturers even before dietary guidance was created that told consumers to reduce their consumption of

anything (Mayer, 1972). In 1977, administrators at the USDA were already wondering, “what will we do with the corn we produce for the cows that no one eats?” (M.J. Pallansch, assistant administrator, USDA Agricultural Research Service, quoted in Hadwiger, 1982). But food scientists had been working on the answer to that question for some time. Developing novel uses for commodity crops was an effort to find cost-effective ways to utilize the excesses of increasingly efficient agricultural methods. As discourses in nutrition began to suggest that reducing fat and protein from animals was beneficial to health, food scientists looked for novel ways to make food “healthier.” Sweeteners and oils from America’s vast corn crop could replace fats from animals in foods and in cooking processes, as recommended by the AHA. Soy, another subsidized crop produced in massive quantities, could act as a “filler” and even a substitute for meat products (Chou & Harmon, 1979). Soybean oil was another substitute for animal fats, and the mash left over from the oil refining process could be fed to the chickens that Americans were supposed to be eating instead of cows and to pigs that were now being bred for leanness. Surpluses of grain, no longer needed to feed a starving world, could be combined with high-protein soy, fat-free corn syrup, and cholesterol-free vegetable oils to make foods that met the requirements for a low-fat, “heart-healthy” diet.

When the 1977 *Dietary Goals* were created, an event I will describe below, experts were aware that the changes would also give certain sectors of the food industry an advantage over other sectors. Agricultural economists recognized at the time that many processed food manufacturers could “reformulate existing products to remove their allegedly deleterious nutritional effects,” something that would be very difficult for farmers who produced eggs and meat (Austin & Quelch, 1979, p. 127). To compound the advantage, for “food producers and processors whose product categories are favored by the goals, greater promotional emphasis on the nutrition value of these products may be expected. In effect, products can be promoted using the national dietary Goals as a ‘stamp of approval’ to gain greater acceptance in an increasingly nutrition-conscious marketplace” (Austin & Quelch,

1979, p. 127). Foods that had been filling the marketplace for a number of years—cereals, margarines, and vegetable oils—could now be marketed with “heart healthy” labels, and foods that had been in the niche market of “health foods”—like granola bars and tofu-based products—could find a place in neighborhood grocery stores, also marketed with “fat-free” and “cholesterol-free” label claims. The availability and marketing of these products helped to perpetuate a shift away from consumption of eggs, meat, and animal fats that had begun with concerns generated by the diet-heart hypothesis. In general, this meant a shift from less- to more-processed foods, because animal products generally undergo less processing compared to corn, wheat, and soy products. Food products created from corn, wheat, and soy also require more packaging, marketing, and advertising in order to be rendered edible, legible, and appealing to consumers (Pyle, 2005). Creating convenient, packaged food products that could be labeled as “healthy” would add value to the agricultural economy without increasing production and, at least theoretically, consumption (Pyle, 2005; Mayer 1972).

In my analysis, the politics and economics of the rise of neoliberalism, of which the rise in healthism was a part, fit in with Foucault’s ideas of governmentality as operational features in the enabling network of diet as a means to prevent chronic disease. The rise in healthism that entails personal responsibility for health outcomes included dietary measures as a way to manage health and emphasized “informed consumerism” as an approach to self-care. In the context of neoliberalism, the marketplace, with its proliferation of food products that could be labeled as “healthy,” provided a necessary service to support the pursuit of personal health by middle-class professionals. Although the links between Foucault’s concept of the *dispositif* and his work on governmentality are never explicitly drawn, the same features of knowledge, power, and subjectivity operate in each, and the idea of “neoliberal governmentality” deserves a brief mention here.

#### **2.2.4 - Neoliberal governmentality**

“Governmentality” is a contested term, it seems, because Foucault’s usage shifted over time. Foucault (1988) acknowledges that he had at one time “insisted too much on the

technology of domination and power,” but that his interests had shifted to “the interaction between oneself and others and [to] the technologies of individual domination, the history of how an individual acts upon, in the technology of self” (p. 19). Foucault calls this “contact between technologies of domination of others and those of the self,” governmentality (p. 19). Within the context of political economic practices known as “neoliberalism” that propose that human well-being is best served by institutional frameworks that support free markets, free trade, and individual choice (Harvey, 2007), “neoliberal governmentality” is a logic of governance that aligns the interests of the individual with the interests of government so that individuals “self-govern,” through informed choices in the marketplace, in a way that serves the needs of the state as a political and economic entity. This is not “government” in the sense of a bureaucracy that makes and enforces laws, but in the broader sense of logics that regulate life and produce order in a population. It is a logic of governance that “seeks to bring all human action into the domain of the marketplace” (Harvey, 2007, p. 3).

With regard to dietary health, neoliberal governmentality is also a logic of governance that expresses social norms linking health, morality, knowledge, and civic responsibility. Dietary guidance for the prevention of chronic disease and the nutrition science upon which it is based indicate that individuals can “choose” health through lifestyle options provided in the marketplace. Individuals can then be held responsible for their health outcomes; institutional responsibilities to improve economic, environmental, and social conditions related to health are thereby of secondary importance. Because the manifestations of the relations of power within an enabling network are, as Foucault (1978/1990) says, “local and unstable” (p. 93), there is not the implication that an individual’s performance of consuming a “healthy diet” involves following federal dietary guidance (or even feeling that she should). Rather, as Deleuze (1988) notes, the “line of subjectification is a process” (p. 161) whereby an individual might create herself, in this case, through her “healthy diet” choices: “paleo,” vegan, gluten-free, local, or an number of other “healthy diet” orientations that allow for the expression of identity within the terms of the enabling network of

prevention of chronic disease through diet. However, scientific statements and dietary advice that support those orientations and the availability of food products designed to satisfy the requirements of those orientations are features of all of these dietary orientations. The agonistic logics of nutrition science that are central to current discourses of diet and chronic disease link the pursuit of health and solutions of the marketplace as part of the enabling network.

### **2.3 - Agonistic logics**

The second key feature in the *dispositif* or enabling network is “the nature of the connection that can exist between these heterogeneous elements.” In *The Birth of Biopolitics: Lectures at the Collège de France 1978-1979*, Foucault describes a “strategic logic” that does not promise to resolve contradictions between disparate terms, but rather to establish connections between them (Foucault & Senellart, 2010). In the current problematic of “healthy food,” we have a plethora of such contradictory logics, from products that appear in the marketplace—“calorie free food” (Mudry, 2009, p. 170)—to nutrition policy that cites the untrustworthiness of dietary self-reports while using them as a basis for dietary guidance (Archer et al., 2015). To use Mayes’s (2015) term, “agonistic logics” describe logics of “both/and” that contain, but do not resolve, competing rationales and practices that are a part of the formation of a subject position (p. 85). Within the enabling network of diet as a means of preventing chronic disease, such agonistic logics are not only obvious features of discourses and practices, but function as fundamental principles of nutrition science and dietary guidance, which see the body as operating according to a set of “natural laws” and yet under the governance of conscious control. On the one hand, the “natural laws” of physiology and biochemistry discovered by nutrition science are tentative and refutable, as are all scientific findings, and can only describe the complex workings of the human body and its interactions with the environment in incomplete terms. At the same time, dietary guidance built on findings from nutrition science asserts the workings of the body can be controlled. Although this sense of control may be warranted in limited circumstances—a

human body deprived of vitamin C will almost always develop symptoms of scurvy—these competing rationales were extended to discourses centered on relationships between diet and chronic diseases of complex and unknown etiologies. As the knowledge of the development of chronic diseases increased, it revealed a complexity of interactions between a body and its environment. It would be reasonable, then, to assume dietary guidance to prevent chronic disease would reflect increased uncertainty, but that has not been the case; in fact, the opposite seems to be true (Marantz, Bird, & Alderman, 2008).

These agonistic logics can be traced to developments from the early days of nutrition science. W.O. Atwater's work on calories and the work of other nutrition scientists on essential vitamins and minerals suggested that interactions between food and bodies were measurable and controllable, thinking that was eventually extended to relationships between diet and chronic disease. The moral aspects of dietary practices were linked to this presumption of individual control over disease outcomes; when nutrition scientists transferred ways of thinking related to diseases of deficiencies to chronic diseases, the moral duty to "eat right" was transferred as well.

The history of nutrition science includes many strands, with women's expertise from the domestic practices of cooking and care-taking contributing in ways that are often overlooked. With its focus on national nutrition policy, this account addresses in particular the institutionalized enterprises of nutrition science, because these were ways of producing knowledge that served to certify dietary guidelines and that, in turn, dietary guidelines reinforced and replicated. These endeavors were largely led by men and located in universities and laboratories rather than in homes and kitchens, an aspect of nutrition knowledge production that helped to transfer authority about food away from domestic sites and provided a legitimizing rationale to social and cultural forces that would influence how individuals would govern their own eating practices. With the caveat that nutrition science is central to, but not solely responsible for, the certification of dietary health claims as true, I focus my analysis of agonistic logics with two forms of nutritionism—"quantifying

nutritionism” and “good/bad nutritionism” (Scrinis, 2013)—that act as central tenets of dietary guidance for the prevention of chronic disease and rest on a single injunction: avoidance.<sup>9</sup> Both lines of thinking focus on quantifiable components of food (calories, grams of saturated fat) and how these components affect biomarkers (weight, serum cholesterol) ostensibly linked to chronic disease. In the context of the prevention of chronic disease, quantifying nutritionism takes the form of injunctions to monitor “calories in, calories out.” This suggests that the quality of food eaten is of secondary importance—“a calorie is a calorie”—and the primary concern is food *quantity*: individuals should avoid overconsumption of calories as the best way to avoid obesity, considered to be a cause of chronic disease (Nesheim & Nestle, 2012).

The other form of nutritionism is “good/bad nutritionism” which indicates, in contrast to earlier guidance and in tension with the premise of “calories in, calories out,” that some foods are “bad for you” (apart from their caloric content) and should be avoided. With “good/bad nutritionism,” the primary concern is food *quality*: individuals should avoid foods containing certain components, such as saturated fat or carbohydrate, thought to be linked to adverse effects on biomarkers, such as cholesterol or triglyceride levels, that are in turn hypothesized to predict risk of chronic disease (Keys, 1975; Taubes, 2007). These contradictory-yet-compatible forms of nutritionism offer a way for an individual to be culpable for poor health outcomes under virtually all circumstances, because both principles are in operation simultaneously within the discourses of “healthy diet.” An individual who fails to produce a healthy, slender body may have chosen the “right kinds” foods, but they must have been the “wrong amounts” or the “right amount” of foods, but the “wrong kinds.”

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<sup>9</sup> Scrinis (2013) identifies three types of nutritionism: quantifying, good-and-bad, and functional. Functional nutritionism, which Scrinis considers to be the most recent form of nutritionism and primarily driven by marketing tactics of food corporations, focuses on “optimizing health,” rather than the public health concerns of disease prevention that are central to my discussion.

An individual who asserts that she gained weight (or failed to lose weight) or ended up with a diet-related disease eating the “right kind” of food in the “right amounts” is assumed, as Pollan indicated above, to be an unreliable narrator of her own eating behavior. These views have permeated discourses of nutrition in ways that have obscured their contradictory features, but have retained the power to direct responsibility for health outcomes to an individual’s dietary choices.

### ***2.3.1 - Bodies as machines: “Calories in, calories out”***

An idea central to discourses of diet and chronic disease prevention is the “energy balance” principle which holds that maintaining or achieving a “healthy” weight—and thus preventing most chronic diseases—rests in successfully balancing the energy value of food (“calories in”) with the energy expended in daily activity and exercise (“calories out”). Developed from the “science of work” done in late 19<sup>th</sup> and early 20<sup>th</sup> centuries, the idea of bodies as “machines” was central to efforts to optimize the work of the labor force in the service of the growth of national wealth (Rabinbach, 1992). Although images and metaphors of the body as a “machine” or “engine” have been used since the Middle Ages (Glebkina, 2013), as America became increasingly industrialized throughout the 1800s, these symbols, and their corollary of “efficient work,” permeated theoretical conceptualizations in fields from psychology to economics to biology (Myers, 2014; Aspromourgos, 2012). In the second half of the 19<sup>th</sup> century, this way of conceptualizing the human body was central to addressing wage issues and labor unrest, not an aspect of disease prevention. Towards the end of the 19<sup>th</sup> century, a convergence in thinking applicable to both labor and nutrition appeared, based on the idea of “energy in/work out.” Quantifying isolated components of food was done in support of the notion that laborers, like the machines which they operated, could be reduced to a calculus of “energy in/work out.” Although later replaced with more complex models of human activity, the enduring metaphor of “man as machine” persists explicitly in the energy balance principle of prevention of chronic disease. This way of seeing food and bodies puts in play some features of the enabling network that would later be

repurposed for the prevention of chronic disease through diet, with moral underpinnings that were nominally different, but centered on similar notions of control and restriction.

In the U.S., riots and strikes at the end of the 19<sup>th</sup> century led management to respond with efforts to control and regulate workers through scientific methods of efficiency (Aronson, 1982). The cost of labor and materials (“energy in”) in relation to production (“work out”) was an equation central to the capitalist project. Bureaus of labor statistics sought to establish a scientific method for determining a “standard of living” that would include food, clothing, and other necessities under the rationale that laborers paid enough to achieve this “standard of living” would be unlikely to go on strike. W.O. Atwater, who is considered by many to be the “father of nutrition in America” led the first dietary surveys in America, conducted under the sponsorship of the Massachusetts Bureau of Labor Statistics (Aronson, 1982; Biltekoff, 2013). The surveys, along with Atwater’s and Edward Rosa’s respiration-calorimeter studies, were an effort to improve the accuracy of this calculus, “by determining human nutritional requirements as exactly as possible” (Aronson, 1982, p. 478). By isolating an individual—usually a young male, as these were the subjects typically available on university campuses where this work was done—in a chamber and determining the calories in the food given to the individual relative to the calories given off as heat during work (and taking into consideration calories lost through feces and urine as measured by a bomb calorimeter, the device also used to measure the caloric content of food), the “efficiency of the man as a machine” could be determined (Atwater & Rosa, 1899, p. 76).

The organizing principle for both factories and the bodies within them was that of the “most energy for work at the least cost” (Biltekoff, 2013, p. 17). In the logic of “energy in/work out,” food was fuel and building materials for the human as engine: “In a sense the body is a machine. Like other machines it requires material to build up its several parts, to repair them as they are worn out, and to serve as fuel” (Atwater, 1894, p. 7). The calorie was a way to render food and bodies as quantifiable and standardized; a calorie in any food was the same as a calorie expended by any body. At the same time, the focus on finding out

which foods were “both the most healthful and the cheapest” (Atwater, 1894, p. 10) was seen as a way to improve the intellect and moral condition of the poor: “to improve mind and heart we must look out for the body also; ... wastefulness is the cause of poverty and economy the way to comfort” (Atwater, 1888, p. 444). To make simple, thrifty choices about food demonstrated moral integrity, as well as self-discipline. Atwater speaks disparagingly of a coal laborer who “boasted” that he gave his family the best quality foods, while they lived in “a close tenement house, where they slept in rooms without windows or closets ... when much less expensive food ... would have been just as nutritious” (Atwater, 1894, p. 21). Constructing poverty as a social problem that may be understood and solved as a problem of nutrition meant food choices that failed to align with the rational conclusions of science carried the weight of moral transgressions.

The mobilization of the calorie as a way to evaluate food, bodies, and appropriate behavior with regard to both illustrates persistent features of the enabling network surrounding the use of diet as a means of preventing chronic disease. As Nick Cullather (2007) notes, the calorie rendered as politically legible the food and the eating habits of populations. The focus on calories, fat, protein, and carbohydrate provides standards by which food—and by extension, bodies—could be evaluated outside of any other context, but in ways accessible only to experts. The respiration-calorimeter isolated eating practices, a most social human activity, within, quite literally, a closed system. However, even though the caloric and macronutrient content of food could only be determined by those operating within the privileged realms of science, Atwater’s work suggests that for those affected by poverty, these factors must take precedent over social, religious, or gustatory aspects of eating. For Atwater, the ability to make the “right” choices based on calories identified behavior that was prudent with regard to finances; however, similar logic would be transferred to later discourses, but with the “right” choices about calories applied to prudent behavior regarding long-term health outcomes. Here are the traces of the “agonistic logic” that have resurfaced in current discourses to suggest that those affected by obesity should eat

and move in accordance with the energy balance principle, rather than for other reasons, while at the same time relying on nutrition labels and exercise charts, guides generated by experts and external to their own experience, to assess their adherence. This logic, as extended into policy directed at low-income and minority populations, continues to suggest, as Atwater's recommendations did, that these groups should engage with food in a manner determined by, and different from, the dominant culture.

### ***2.3.2 - Controlling the unknowable: Hidden agents of disease***

The second concept central to discourses of diet and chronic disease prevention is that of “good/bad” food or food components. When “healthy diet” meant one that would prevent diseases of deficiencies, these “good” components included vitamin, minerals, protein, and calories, in other words things all foods contain to a greater or lesser extent; no food could be singled out as “bad” for everyone. However, the logics that would allow some foods and food components to later be understood as “bad” can be identified in the discourses and practices around “good” food components. Food components identified as “good” provided a way of seeing food and bodies as tractable and mysterious at the same time.

At the beginning of the 20<sup>th</sup> century, as nutrition scientists began to confidently determine links between micronutrients and certain diseases of deficiency and even manufacture some of those micronutrients in labs, the details around vitamins and minerals—who needed how much of which ones from what foods—remained elusive, and the possibility that other diseases could be related to yet-unidentified nutrients lurked in the background.<sup>10</sup> The distance between the efforts to characterize these mechanisms and the

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<sup>10</sup> This remains the case. Nutrients considered to be “conditionally essential,” particularly during period of rapid growth such as neonatal development, are still being identified, and an increasing awareness of biochemical individuality suggests that the appropriate intake of any nutrient may vary considerably between individuals (Williams, 1998, Mischley, 2014).

complexity of the human body itself was telescoped in perspective as nutrition scientists at the time drew parallels between human work environments and the internal milieu, seeing “the life of the body [as] the sum of the activity of all the thousands of minute workshops of which it was composed” (Nichols & Reeds, 1991). The use of laboratory animals, whose diets could be isolated and manipulated in ways that would be unethical in humans and who, unlike humans, could be sacrificed at the end of an experiment, lent a further sense of control over complexity to the endeavor. On the one hand, the discovery of essential vitamins fueled a sense of promise, as scientists projected onto victories in curing a number of human diseases of deficiency the potential for vitamins—and nutrition more generally—to improve health, longevity, and overall mental and spiritual well-being; on the other hand, these discoveries raised concerns nutrition experts did not yet know how to address (Biltekoff, 2013). Physicians warned about “hidden hunger,” advising the public that “between perfect health and these well-recognized deficiency diseases there is a wide range where flourish obscure alterations in nutrition and ‘ill-defined functional disabilities’” (Hess, 1921). This tension between the known and unknown fostered considerable anxiety among experts and the public, helping to prime a consuming public to take an active part in using food to prevent disease and improve health, even when many of the scientific claims circulating in these discourses were primarily speculative and the benefit for any given individual was very much uncertain. Tying these concerns to the war efforts during these decades heightened the moral responsibility to become not only a good consumer of food, but a good consumer of food information (Bentley, 1998; Viet, 2013).

The tension between the known and unknown with regard to micronutrients also played out in the fortification and enrichment of food products. Common diseases of deficiency, such as pellagra and rickets, were most likely to be found in low-income or minority populations, while advertisements for vitamin-fortified products targeted middle-class consumers anxious about potential deficiencies and interested in “optimizing” health (Chacko, 2005; Hess, 1921). The demand for iodized salt and vitamin D-enriched milk was

driven largely by health-conscious mothers and medical professionals who were themselves influenced by messages from the food industry (Bishai & Nalubola, 2002). Health professionals supported the idea of fortification and enrichment of bread and flour products that were dietary staples in low-income populations, as a form of “insurance” against nutritional deficiencies; however, without regulations to enforce adding vitamins to these products, the poor, who were most at risk for deficiencies, would also be more likely to purchase the cheaper, unfortified brands. (Bishai & Nalubola, 2002). When the first Recommended Dietary Allowances (RDAs) for vitamins and minerals were created in 1941, they provided not only a basis for planning diets, but also a benchmark for fortification and enrichment and a framework for thinking about the responsibility of government in terms of feeding its poorest citizens (Backstrand, 2002). Notably, the solution to poorly fed populations was to provide legislation to enrich and fortify nutrient-poor foods, a fix that would benefit food manufacturers and help prevent diseases of deficiency in low-income populations, but would not address underlying causes of poverty. Rather, it would provide the conditions to “make the healthy choice the easy choice” for the poor who were otherwise seen as being unable to help themselves.

As Mudry (2009) suggests, the RDAs, along with related dietary guidance to get essential nutrition from the “Basic 7 Food Groups,” had the effect of homogenizing and categorizing the individual eater and further delegitimizing taste and other considerations as a way of understanding food. (p. 63). The focus on quantified aspects of food and bodies helped to strengthen the “relationships between the selection of quality food and the makeup of a healthy or quality individual” (Mudry, 2009, p. 64), but beyond that, it supported a more general notion, already implicit in the idea of “calories in, calories out,” that bodies and health outcomes could be controlled by the “right” dietary choices. The conflation of avoiding diseases of deficiency with the production of a “strong and healthy” body as part of the war effort made knowing about and practicing “good nutrition a part of “good citizenship” more generally. The emergence of vitamins and minerals as central to dietary

health discourses helped to establish links between laboratories and consumers, scientists and packaged food, and scientific knowledge production and regulatory practices that would be mobilized as part of the enabling network of using diet as a means of preventing chronic disease. The focus on vitamins, minerals, and the hidden nature of nutrient deficiencies reinforced reductive thinking about food as a collection of disparate components, strengthened the sense of objectivity of nutritional endeavors through the development of standardized intakes of vitamins and minerals, and enhanced the expert status of nutritionists who had access to information about food and bodies unavailable to consumers.

In addition, in what is now a familiar phenomenon, food labels touting the health benefits of vitamins and minerals familiarized middle-class consumers with particular nutrients and how they might impact health, even as lower-income consumers remained most likely to suffer from the health concerns raised by label claims. The marketing and regulation of fortified products highlights the ways in which systemic inequalities are addressed through marketplace solutions, with middle-class shoppers seen as having the agency and inclination to make informed food purchases, while low-income shoppers are constructed as needing government intervention to make the “right” food choices. The importance of nutrition knowledge as a central to the performance of middle-class citizenship that developed during the wartime years obscured distinctions between the realities and the possibilities linked to this knowledge. As diseases of deficiencies disappeared (or failed to materialize), the promise of nutrition science seemed endless:

Researches have been undertaken which extend into the fields of hormones, enzymes, vitamins, rare minerals, and the complicated biochemical phenomena in the human being. Though much remains to be understood in this complicated field, *there is reason to believe that nutrition has a great deal to do with the phenomena of life, longevity, and the general physical, mental, and spiritual well-being of human beings.* (Wilson, 1942, p. 190; emphasis in original)

Whether or not there was “reason to believe” in such claims for the potential of nutrition, the

agonistic logics of control and complexity, as well as those of scientific proof and hopeful conjecture, present in such discourses offered ways of thinking that could be reconfigured around a different problem set, that of chronic disease.

#### **2.4 - Response to an “urgent need”**

The third feature of an enabling network is that it is a response to an “urgent need.” This “urgent need” can be seen as expression of biopower, which Foucault (1978/1990) defines as “methods of power and knowledge [that assume] responsibility for the life processes and under[take] to control and modify them” (p. 142). The “urgent need” is historically situated; the kinds of events that create an “urgent need” in one time or place may not in another. Within a given historical context, however, the “urgent need” leverages the agonistic logics available and activates the enabling network of power, knowledge, and subjectivity (Mayes, 2015, p. 18). When, as Mayes (2015) explains, “the excess or erring of life actively provokes biopower to create strategies to attempt to capture and standardize life,” an “urgent need” becomes manifest (p. 20). The lengthening lifespan of Americans in the second half of the 20<sup>th</sup> century would certainly serve as a provocation of biopower to “capture and standardize” that “excess” life, but how that would manifest itself is specific to its particular historical context. This “excess” emerged, ironically, against a backdrop of alarm about “epidemics” of chronic disease that animated the work of Ancel Keys and NECD, the uptake by middle-class professionals of the pursuit of health as a way of warding off these “epidemics,” and the proliferation in the marketplace of food products that would serve these concerns. Against this backdrop, the “urgent need” that sets the enabling network of diet for the prevention of chronic disease in motion is precipitated by a set of specific historical events that called upon existing scientific and moral discourses about food and health, repurposing them for the emerging situation.

##### ***2.4.1 - A world food crisis looms***

The 1970s brought into popular discourse not only personal concerns about dietary health, but also political concerns over a world food crisis. Toward the end of 1960s, there

was considerable speculation that the world would soon run out of food. William and Paul Paddock (1967), in their book *Famine 1975!*, predicted that by 1974 India would not be able to feed its growing population, and that “famines are inevitable” (p. 9). A year later, Paul Ehrlich’s (1968/1997) best-selling book, *The Population Bomb*, caught the attention of the public as it raised the alarm about the dangers of unchecked population growth and the inevitability of food shortages (Lam, 2011). A reiteration of population concerns raised by Thomas Malthus at the beginning of the 19<sup>th</sup> century, Ehrlich’s book claims population growth would outpace agricultural production, with disastrous results: “The battle to feed all of humanity is over. In the 1970s and 1980s hundreds of millions of people will starve to death in spite of any crash programs embarked upon now” (Ehrlich, 1968/1997, p. xi). In the 1970s, rising prices for energy, labor, and transportation, coupled with regional droughts across the world that produced grain shortages, pushed up the price of food. High food prices, along with concerns raised in the media and in Washington about possible food shortages in America and across the globe, seemed to herald the beginning of the widespread starvation that had been predicted.

Higher food prices, especially for meat, could not fail to catch the attention of a middle class already struggling to make ends meet in the middle of a recession; in 1973, housewives threatened to boycott meat in order to force producers to lower their prices. Potential relief came in the form of Francis Moore Lappé’s (1971) *Diet for a Small Planet*, a popular vegetarian cookbook publicized to women as a way to maintain a slender figure while saving on the family food budget (Pines, 1974). These purposes were outside of Lappé’s own rationales for “going vegetarian,” which included supplying a growing world population with food in a time of drought and famine; preventing obesity and heart disease through dietary changes to reduce consumption of dietary factors the AHA implicated in heart disease; and reducing environmental impacts of agriculture (Lappé, 1971). However, her cookbook—intentionally or not—did serve to merge concerns about health, body size, social standing, and political purpose. The distinction between dietary choices in the name of

politics and fashion and in the name of health became obscured. Avoiding meat consumption aligned not only with avoiding chronic disease, but with counterculture values related to championing environmentalism, ending global poverty, and looking youthfully slender (Garrety, 2006; Pines, 1974). Against this particular cultural backdrop, food choices that aligned with recommendations in Lappé's book indicated not only engagement with progressive social issues, but secure membership in a middle class that had the leisure, wealth, and cultural capital to direct their resources to these concerns.

America's ability to feed other nations had myriad political and economic implications as well as humanitarian ones. Food aid would align the U.S. with nations that had strategic resources and military sites; an idea in circulation at the time was that famine-struck countries would "go Communist" without food aid (Paddock & Paddock, 1975). Many years of production controls on corn ended at the beginning of the 1960s, and by the 1970s, monoculture farming was the dominant approach to farming in the Midwest (Rosenberg & Stucki, 2017). This approach to agricultural production was rationalized by concerns about food shortages. Earl Butz (1976), who was Agriculture Secretary at the time, favored policies that would continue to drive high production, "to assure that 213 million Americans are well fed at reasonable price ... [and] to provide food to assist in feeding literally hundreds of millions of people around the world—both cash customers and the needy" (Butz, 1976, p. 142). However, no widespread famines came to pass; in 1975, even India was self-sufficient in feeding its growing population (Lam, 2011; McMahon, 2014).<sup>11</sup> The push to "feed the

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<sup>11</sup> That the predicted famines failed to materialize was due largely to what is called the "Green Revolution," a combination of policy initiatives, financial supports, and scientific advances that allowed developing nations to significantly improved their production of staple crops (Pingali, 2012). Although there is much to criticize about the long term outcomes of the Green Revolution (Pimentel, 1996), it did increase yield and reduce food prices in countries where famines had been predicted (Pingali, 2012).

world” would have long-lasting repercussions (McMahon, 2014), but in the 1970s, the tensions between high production rates on American farms, predicted food shortfalls in other parts of the world, and growing concerns over “overnutrition” and obesity with regard to American bodies pushed nutrition and dietary health to center stage in U.S. political discourses.

#### ***2.4.2 - Correlation and causation : The 1964 Surgeon General’s Report on Smoking***

Interventions that would prevent chronic diseases, rather than just treat them, became a more urgent political concern after efforts to create a national health insurance program, which had been taking shape throughout the 1970s, fell through. In 1974, there was broad bipartisan support for a national health insurance program, and politicians felt that to stymie this momentum would be politically damaging (Hoffman, 2009). However, when inflation and unemployment continued to rise through the 1970s, the conversation in Washington, D.C., turned to reducing medical costs rather than expanding coverage to everyone. Medicare and Medicaid, implemented in 1965, had already more than doubled the amount of the federal budget spent on health care, and there was little support for increasing that spending (Hoffman, 2009). As discourses around health care turned to cost-containment, rhetoric regarding the obligation to take personal responsibility for health outcomes became more forceful. Stephen Kunitz (2007) points out the “unmistakable theme of moral denunciation appropriate to the importance attributed to voluntary behavior in many of these statements” (p. 24). In 1975, epidemiologist Ernst Wynder asserts that “The public must realize that the persons who are responsibly protecting their health are actually paying for the health care of those who behave irresponsibly” (quoted in Kunitz, 2007, p. 24). This view rests on the notion that “health problems ... are behavioral [and] solutions are seen to lie within the realm of individual choice,” making “preventing illness” a pervasive standard by which behaviors and bodies could be judged as virtuous or morally bereft (Crawford, 1980, p. 368). Within the context of neoliberal governmentality, authorized expert knowledge was central to providing the public with information to make choices that would “prevent illness.” Two

authoritative reports that appeared in the 1960s and 1970s would offer important rationales for shifting the burden of responsibility for preventing chronic disease to individuals: the 1964 Surgeon General's report on smoking, *Smoking and Health: Report of the Advisory Committee of the Surgeon General of the Public Health Service* and the 1974 report, *A New Perspective on the Health of Canadians*, led by Marc Lalonde, the Canadian Minister of National Health and Welfare.

Although Keys had helped to bring findings from NECD to the public's attention through his work with the AHA, the acknowledged complexity of humans, food, and chronic disease as subjects of study meant that, in the 1960s and 1970s, nutritional epidemiologists were typically tentative in describing links between diet and chronic disease and were unlikely to make strong claims for cause-effect relationships. The 1964 Surgeon General's report on smoking was a key turning point when associations from epidemiological observations began to be accepted as demonstrating cause-effect relationships in public health, scientific, and medical circles. A year after that report was published, Sir Austin Bradford Hill (1965), who along with Richard Doll had conducted the earliest studies of the associations between smoking and lung cancer, would set forth a list of criteria still in use today that addresses issues of asserting cause-effect relationships from observed associations in populations. Both *Smoking and Health* and Hill's list of criteria stress the role of "judgment," rather than "proof," in drawing cause-effect conclusions from associations, and both highlight strength and consistency of associations, among other factors, in assigning a causal relationship to an observed association.<sup>12</sup> *Smoking and Health* contains extensive discussions for how these rationales are applied to the evidence related to smoking and

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<sup>12</sup> Hill, also noted that tests of significance (i.e. p-values) do not address question of cause and effect. It is worth noting that in the case of smoking and lung cancers, observed associations were so strong—of the 36 deaths from lung cancer in an observed cohort, all had occurred in smokers—complex statistical analyses were unnecessary; see Doll and Hill (1954).

disease. For example, the report notes that, compared to non-smokers, male smokers “have approximately a 9- to 10-fold risk of developing lung cancer and heavy smokers at least a 20-fold risk,” an association strong enough to be seen as establishing a causal relationship; in contrast, the association between smoking and emphysema is seen as too weak to establish causality (U.S. Department of Health, Education, and Welfare, Public Health Service, 1964, p. 31).

*Smoking and Health* had a dramatic impact on public attitudes toward smoking. Public health surveys indicate that in 1958, only 44 percent of Americans believed smoking caused cancer; a few years after the report was issued, that number jumped to 78 percent (U.S. National Library of Medicine, n.d.). *Smoking and Health* had a corresponding impact on rates of smoking. Not long after the report was released, rates of smoking in the U.S. began to drop (Garfinkel & Silverberg, 1991). Notably, the report also had an impact on discourses surrounding relationships between diet and chronic disease. The precedent set by smoking served to pre-empt the argument that “correlation is not causation” with regard to claims about relationships between diet and chronic disease, and the implications of causal relationships established the moral and civic obligation to take action. Government reports, congressional hearings, and newspaper and magazine articles frequently made the tacit comparison between smoking and dietary patterns, as part of the collective set of personal behaviors linked to chronic disease. The analogy to diet was eventually made explicit in the federal government’s first efforts at prescribing a dietary pattern for the prevention of chronic disease, with the authors hoping “this report will perform a function similar to that of the Surgeon General’s Report on Smoking” (Select Committee on Nutrition and Human Needs, 1977a, p. xiii). As *Smoking and Health* and its implications moved through public health discourses, women who smoked, particularly minority and low-income women who already experienced higher rates of stillbirth and infant mortality, became specific target of warnings relating smoking behavior to the health of unborn and newborn children (Schmeck, 1973). As

with earlier discourses on calories and micronutrients, a focus on “lifestyle factors” placed the responsibility on the consumer to address a social concern—poverty, diseases of deficiency, and now chronic disease—through prudent, informed choices. But, as with these earlier discourses, these social concerns were not distributed equally in the population, and different populations engaged with, or were targeted, by these discourses differently.

#### ***2.4.3 - Lifestyle as the key to prevention: The Lalonde Report***

In 1974, *A New Perspective on the Health of Canadians*, known now as the Lalonde report, signaled an important moment in creating an “urgent need” for ways to prevent chronic disease through lifestyle modification. Lalonde went beyond the Surgeon General’s report on smoking and conventional discourses surrounding the dangers of alcohol consumption, to include overweight and obesity, high-fat diets, lack of exercise, promiscuity, stress, and the use of “mood altering drugs”—among other things—as “self-imposed” risks to health (Lalonde, 1974, p. 32). Although the Lalonde report admitted that “The scientific proof underlying cause-and-effect relationships between, on the one hand, environment and lifestyle and, on the other, sickness and death, is fraught with disagreement,” it nevertheless argued that “many of Canada’s health problems are sufficiently pressing that action has to be taken on them even if all the scientific evidence is not in” (p. 57). In this regard, the report put forward a number of principles central to discourses surrounding relationships between diet and chronic disease: preventing chronic diseases of later life was the most urgent population-level health concern facing developed nations; individual behavior change should be the focus of preventive interventions; and, importantly, the urgency of the call for prevention overrode the need for definitive scientific evidence to support those interventions.

Although the Lalonde report had a limited impact in Canada in the 1970s, it was highly influential in the U.S. (MacDougall, 2007). The report was picked up in American public health circles and featured at the 1975 meeting sponsored by the Rockefeller Foundation and Blue Cross Association mentioned earlier, *Conference on Future Directions*

*in Health Care* (Blue Cross Association, Rockefeller Foundation & Health Policy Program, 1975). The conference report indicates that discussions were heavily influenced by the perspective presented in the Lalonde report. Academics, insurance providers, and physicians present at the conference discussed what they saw as the limits of medicine and the inability of the government and corporations to protect the public from harm, ideas featured prominently in the Lalonde report. With limited protection from medical technology and governmental and corporate involvement, the experts concluded that disease prevention would need to become primarily the responsibility of the consumer. Echoing the Lalonde report, this responsibility began to be characterized as a moral responsibility of good citizenship, as containing rising medical costs for the federal government became a national concern. Conflation of poor health with character flaws became a prominent feature of public health discourses for the prevention of chronic disease. John Knowles (1977), a physician, medical administrator, president of the Rockefeller Foundation and one of the leaders at the *Conference on Future Directions in Health Care*, put it this way:

The cost of sloth, gluttony, alcoholic intemperance, reckless driving, sexual frenzy, and smoking is now a national, and not an individual responsibility. This is justified as individual freedom—but one man’s freedom in health is another man’s shackle in taxes and insurance premiums. I believe the idea of a “right” to health should be replaced by the idea of an individual moral obligation to preserve one’s own health—a public duty if you will. (p. 59).

Because the effects of “sloth” and “gluttony” would be apparent as fatness, and fatness had become synonymous with “poor health,” fatness was a visible indicator of the willingness to overburden the healthcare system and make others responsible for one’s care (Crawford, 2006). As with pellagra, the inverse relationships often found in public health work between social class (usually measured by the imperfect markers income and/or education) and poor health became an inverse relationship between social class and “unhealthy behaviors” (Pampel, Krueger & Denney, 2010; Thirlaway & Upton, 2009).

Although government and non-governmental entities might not take responsibility for providing affordable health care, safe places to live and work, or a standard of living that would contribute to good health, in different ways, they would take up the task of providing the public with guidance so the consumer could assume the responsibility of making prudent choices that would ostensibly contribute to the prevention of chronic illness. Generally speaking, the evidence to support such guidance was lacking; as a later critic would put it, “Belief in lifestyle prevention policies was essentially a leap of faith” (Larsen, 2012, p. 228), and this was particularly true when it came to dietary health. As was the case early on with vitamins and minerals, expectations for definitive knowledge relating diet to prevention of chronic disease far outstripped evidence. But for many middle-class professionals who had already begun to change their diets and take up exercise programs, the consumption of health information went hand-in-hand with the consumption of health-related products. Between 1975 and 1985, even as the first federal nutrition guidance for the prevention of chronic disease was being developed, large numbers of middle-class Americans began to actively seek out health information and the media began extensively covering and offering advice about matters related to health (Crawford, 2006, p. 402). The condition of wanting information linking diet to chronic disease presumes there is information to be had, and although there was plenty of advice to choose from, most of it was limited, flawed, and contradictory.

#### ***2.4.4 - McGovern Committee and the 1977 Dietary Goals for Americans***

Like earlier concerns about vitamins and “hidden hunger,” a tension existed between what was seen as the public’s desire for guidance in making decisions about dietary health and the ability of authorities to provide this guidance. With the rise of healthism, the flood of claims relating diet to chronic disease, along with experts supporting or opposing them, seemed to become a tsunami, as suggested by the 1973 hearings before the Senate Select Committee on Nutrition and Human Needs led by Senator George McGovern. In his opening statement on the first of four hearings on “Nutrition and Diseases,” McGovern outlines what

he sees as the problem:

Currently available diet plans run the gamut of the human imagination and vocabulary. Plans for the purchase at bookstores, health food shops, and through mail order firms suggest: the water diet, the rice diet, the milk and bananas diet, the grapefruit diet, the drinking man's diet, the lopsided egg diet, the starvation diet, the crash diet, the loving care diet, the macrobiotic diet, the eat all you want diet, the raw food diet, the organic fruit diet, the baked potato and buttermilk diet, the bread, cheese and white diet, and so on. (Nutrition and Diseases—Part 1, 1973, p. 2)

This series of hearings was one of many held by McGovern's Select Committee that decade, and the hearings themselves indicate not only the lack of authoritative information about diet and health, but a lack of a sense of what such information ought to address. The hearings featured a proliferation of speakers acting as experts on various food issues, as well as a variety of food issues that seemed to require expert knowledge, including adequate essential nutrition for infants, advances in agriculture, nutrition programs for the elderly, food advertising, world famine, the role of food in preventing chronic disease, and the government's responsibilities in the field of nutrition. At a hearing addressing this last issue, McGovern described the difficulty of defining nutrition as a problem:

It is clear to me from the material that has been presented to date, that nutrition is a public problem of great scope and importance. It is a subject whose jurisdiction cuts right across a half-dozen different Federal agencies. I think that is part of the problem. Great progress has been made, but there is a desperate need for direction and coordination of these activities that cut across so many lines of Federal responsibility. (National Nutrition Policy Study—Part 7, 1974, p. 3200)

The series of hearings held by McGovern's Senate Select Committee both reflected and reproduced concerns that an authoritative source of guidance for dietary practices to prevent chronic disease—and to address other concerns—was lacking. That the Committee sought to position itself as that authoritative source was indicative of the political pressure it was under

to justify its existence.

Formed in 1968 to address issues of malnutrition, the Committee was staffed by young, progressively-minded activists who developed a number of pieces of federal legislation that led to the creation of ground-breaking and highly-praised hunger relief and food assistance programs. The work of the Committee had been so successful that it needed a new “problem” to solve to justify its biannual budget extensions, and the cacophony of advice surrounding dietary health provided one (Oppenheimer & Benrubi, 2013). The Committee turned its attention to “overnutrition” and its accompanying social ills, work which included holding a series of hearings in June of 1974 to address rising food costs and fears about food shortages. After three days of pointed comments on how meat consumption in America contributed to starvation elsewhere, Senator Ted Kennedy opened the final day of hearings with remarks connecting the dots between feeding hungry children, reducing disease in America, and the gluttonous lifestyles of Americans:

As a nation we are too fat. Obesity is America’s number one health defect.

While the children of West Africa melt away from starvation during the most devastating famine to strike that part of the world, America stands in ironic contrast as a land of the over-indulged and excessively fed. (National Nutrition Policy Study—Part 6, 1974, p. 2496)

Following Senator Kennedy, Dr. William Connor proposed to address heart disease, stroke, diabetes, obesity, dental caries, and liver disease through a diet that would strictly curtail calories, saturated fat, cholesterol, salt, and sugar and would specifically reduce the consumption of meat, butterfat, high fat dairy products, and egg yolks. The diet called for greatly reducing, but not eliminating, animal foods. Connor added that not only would this diet prevent disease, but it “would be less expensive to produce in terms of resources ... [and have] this additional feature of ecological soundness at a time of world food shortages” (National Nutrition Policy Study—Part 6, 1974, p. 2499). Although only the connections between sugar and dental caries and alcohol and liver disease were considered non-

controversial among nutrition scientists at the time (Ahrens, 1979), with his testimony, Connor expanded Ancel Keys's diet-heart disease hypothesis to cover all major chronic diseases, plus obesity, and pinpointed reducing dietary fat as a way to avoid both the excess calories that were presumed to cause obesity and the saturated fat and cholesterol that were presumed to cause heart disease. In this same hearing, "the poor" were identified as a particular population of concern, for being at high risk for obesity and "least able to defend themselves against the persistent and pervasive blandishments of the industries that would sell them things that either increase their intake of 'empty' calories or decrease their physical activity" (National Nutrition Policy Study—Part 6, 1974, p. 2610). This dietary approach, as well as the attitude towards low-income groups, would be re-emphasized in the final report on nutrition from McGovern's Committee.

In February 1977, McGovern's Committee issued a Senate Report, *Dietary Goals for Americans*, that for the first time indicates what foods Americans should avoid in order to prevent heart disease, cancer, diabetes, and obesity. The guidance is very similar to both Connor's earlier recommendations and ones published in 1976 by Worldwatch Institute (Eckholm & Record, 1976)—a non-profit dedicated to global concerns, particularly those of the environment—that were also meant to save the consumer money and help feed the global poor. The food components the Committee advised against—fat, saturated fat, cholesterol, "refined and processed" sugars, and salt—represented a pastiche of theories related in various ways to an array of disparate conditions with complex and poorly understood etiologies. Marshalling sufficient evidence to support the recommendations was not easy, and the Committee was told by one of its scientific advisors, Dr. Mark Hegsted, to rewrite the first draft because "it reads like some health food nut wrote it" (Austin & Hitt, 1979, p. 326). That the uncertainty of the science failed to justify the recommendations given in the report was acknowledged by McGovern himself: "we do not have absolute scientific proof that we are going to reduce the number of heart attacks or the number of people suffering from diabetes or strokes or

hypertension simply by changing their diet” (Leeper, 1978, p. 163). At the same time, McGovern’s committee felt that the *Dietary Goals* were an important political maneuver. As one of McGovern’s staff members said: “It was vitally important that the first *Dietary Goals* report be issued. Its release seemed all that more significant at the time because it appeared that the Select Committee would be voted out of existence ...” (Austin & Hitt, 1979, pp. 325-326). Despite the lack of evidence to support the recommendations, McGovern’s committee felt a sense of urgency in getting the *Dietary Goals* published, either as part of its legacy or as an argument that it should continue to be funded.

In contrast, historian Anna LaBerge (2008) notes, “there was no sense of national urgency concerning the relationship of dietary fat to heart disease until 1977,” the year the *Dietary Goals* report was released (p. 146). The controversy that met the report heightened public, commercial, and political interest in links between diet and chronic disease. The Senate report was widely disseminated, received expansive media coverage on television and in print, and was treated by the public as if it were an official government position (Austin & Hitt, 1979). At the same time, questions surrounding population-wide dietary guidance had by no means been settled, and objections from nutrition experts, public health professionals, and physicians were widespread. The report was “discounted at the time by many nutrition professionals,” with many of them arguing that the recommendations were scientifically unsound and potentially harmful (Nestle & Porter, 1990, p. 53). Scientists and physicians criticized the assumption that a single dietary prescription could be applied to all individuals in order to prevent a wide array of diseases that had not been established as nutritional in nature, asserting that nutrition science lacked the technology and methods to determine these links and that populations represented in studies used to support the recommendations in the *Dietary Goals* were not necessarily generalizable to populations to which this guidance would be applied (Eskridge, 1978; Harper, 1978; McNutt, 1980). Critics also pointed to rhetorical aspects of the report that echoed popular ideological concerns, arguing that the report's “new age, neo-naturalist” stance precluded a

comprehensive review of available science (Broad, 1979, p. 1060). Other critics indicated that the recommendations would require substantial shifts in American eating habits that had not been tested for safety or efficacy and would be the equivalent of conducting a population-wide dietary experiment with no control group (Lachance, 1981; Weil, 1979).

Despite the lack of evidence to support the recommendations, the public appeared to embrace the prospect of securing good health—as well as serving humanitarian and environmental ideals—through inexpensive food choices, as policymakers did the chance to circumvent rising healthcare costs and many food manufacturers the possibility of marketing reformulated products to health-conscious consumers. Nutrition scientists welcomed the “jump in funding” that McGovern’s *Dietary Goals* heralded (Broad, 1979, p. 1060). To the extent that the report was a product of secular trends (Woolf & Nestle, 2008), it was less an assessment of available scientific evidence and more an affirmation of what many middle-class Americans already believed about relationships between diet and chronic disease; *Diet for a Small Planet* was included as a reference. At this point, the medical literature and other media sources refer to a low-fat diet based on grains and cereals—the one recommended by McGovern’s Committee in *Dietary Goals*—as a “prudent diet,” and one thought to be consumed by Americans is referred to as the “affluent diet.” At the same time, with the U.S. in the middle of a recession, there were many Americans who would not qualify as “affluent.” Notably, these same Americans were very much a population of concern with regard to the *Dietary Goals*. In echoes of W.O. Atwater’s advice and the concerns surrounding the RDAs noted above, the report identifies low-income populations as particularly susceptible to both obesity and the pressures of food marketing and in need of increased surveillance regarding measures of dietary health (Select Committee on Nutrition and Human Needs, 1977a, pp. 7, 63, 78).

## **2.5 - Conclusion**

The creation of the *Dietary Goals* signaled a turning point in the kind of dietary guidance that the U.S. federal government would endorse and promote. The shift from advice

to acquire adequate essential nutrition to advice that was meant to prevent chronic disease emerged from a backdrop of sweeping historical changes, including the growth of NECD, the expansion of commodity crop-based agribusiness, and the rise of healthism and the related politics of neoliberalism. The shift incorporated strategic logics descended from earlier patterns of thinking in nutrition science that characterized the human body as a machine and suggested that undetectable factors in food (or the lack thereof) could lead to vaguely defined illness. Both patterns of thinking reflected ideas about the body as knowable and controllable and about nutrition as a strategy for solving social problems. The kind of dietary advice that was presented in the *Dietary Goals* was also a response to a number of specific historical events, including the specter of potential world food shortages; the discovery of links between smoking and lung cancer; the public health focus on prevention through alterations in lifestyle, and the need for McGovern's committee to justify its existence. Against the backdrop of other broad historical changes and the logics inherited from earlier nutrition science, these events served as more proximal exigencies for the development of dietary guidance for prevention of chronic disease.

Despite the controversy that surrounded the science and the politics of the *Dietary Goals*, in 1980 their basic recommendations, restated with more equivocal language as "guidelines" rather than "goals," became the first DGA. Like the *Dietary Goals*, these recommendations were "fraught with controversy," but were also "widely publicized and distributed and ... have become familiar to substantial numbers of people" (Miller & Stephenson, 1985, pp. 739, 743). Indicative of the controversy is the report, *Toward Healthful Diets*, mentioned in the introduction, which was released that same year by the Food and Nutrition Board of the National Research Council and which contradicted much of the guidance in the DGA. An analysis of these two competing texts is the subject of the next chapter, but their publication is evidence of the continuing debate about whether nutrition science could provide evidence of a sufficient quality and quantity to warrant public health nutrition guidance that went beyond information about acquiring adequate essential nutrition

to advising the public about links between diet and chronic disease.

The answer, at the time, was that nutrition science could not provide such levels of evidence, but that advice about links between diet and chronic disease should be issued anyway. Political scientist Lars Larsen (2012) argues that belief in lifestyle modification as a way of preventing chronic disease was not built on a solid scientific foundation: “Evidence linking lifestyle to health may be broad and well-founded today, but it was much more limited and of a general nature back in the 1970s when policy makers tried to use this knowledge as the basis for a new direction in health policy” (p. 228). Yet Larsen doesn’t explain how evidence shifted from being “limited and of a general nature” to being “broad and well-founded” in the course of forty years. There have been no “definitive” studies on lifestyle, no breakthrough methodologies that link ways of living to ways of being sick. How then has our uncertainty disappeared, and what allows statements that certain lifestyle and dietary patterns will prevent chronic disease to be accepted?

One of the factors that has contributed to this acceptance is the creation of national nutrition policy in 1980 in the form of the DGA. But, as the next chapter will describe, it was far from certain in 1980 that the DGA would be accepted as the authoritative source of information about diet and chronic disease relationships, and controversy over the nature and quality of the evidence needed to support population-wide dietary guidance continues to this day. By 1980, however, a potential framework for public health nutrition policy in the U.S. had been laid. A powerful network of discursive and non-discursive phenomena had been set in motion that enabled relationships between diet and chronic disease to become constituted as an “object of thought.” Following Foucault, Stuart Hall (1997) explains how relationships between power and knowledge can work to “create” a reality: “Knowledge linked to power, not only assumes the authority of ‘the truth,’ but has the power to make itself true ... applied in the real world, [it] has real effects, and in that sense at least, ‘becomes true’” This is one of the functions of biopower: “it produces reality; it produces domains of objects and rituals of truth” (Foucault, 1995, p. 194). Foucault’s (1990) notion of biopower presents two ways in

which power works through the body: at the individual level (the anatomo-politics of the body) and at the population level (biopolitics). Foucault considers these two forms of biopower as “two poles of development linked together by a whole intermediary cluster of relations” (p. 139). Foucault uses these links to argue for a view of the body as not “natural or neutral but as reproduced in specific sets of practices and discourses” (Bunton, Nettleton, & Burrows, 1995, p. 5). Critics, on the other hand, have countered that specific, individual bodies are not just “constructed”: “Bodies may be surrounded by and perceived through discourse, but they are irreducible to discourse” (Shilling, 2003, p. 72). In other words, the intersection of food and bodies is not only an important site of power relations, it is also a locus whereby the materiality of this intersection is asserted.

Foucault’s (1978/1990) argument in *The History of Sexuality*, that power does not prohibit or repress desire but causes it to emerge, could, as applied to food and eating, offer some insight into why proscriptions about food may make some of us obsess about food (Guthman & DuPuis, 2006), but the discursive angle—particularly with regard to food and bodies—is not quite enough. The logics of biopolitics support an epistemology which asserts that information produced through a process of adjustment, aggregation, and averaging of data from populations can be mapped back on individuals. This particular *episteme* is foundational to epidemiology in general, but in NECD the translation of findings from individual to population back to individual has never been clear-cut. Similarly, the agonistic logics of the enabling network of diet as a means of preventing chronic disease fail to account for the material-discursive interaction of food and bodies that place some effects of these interactions beyond straightforward applications of “choice” and fail to recognize the ways in which population averages do not map back onto individual embodied experiences.

As Keys found in his studies of starvation, bodies have “minds of their own.” The young men that Keys “starved” (on 1800 calories a day) became lethargic, depressed, withdrawn, and obsessed with food and eating; feelings of apathy and irritability persisted even after the men were allowed to eat normally (Keys, Brožek, Henschel, Mickelsen, &

Taylor, 1950, pp. 906, 918). For many of the men in Keys's study, weight regain at the end of the starvation phase of the experiment went beyond their baseline weight, and much of the weight regained was in the form of body fat, rather than muscle (Keys et al., 1950). These effects could hardly be considered a "choice" made by those participants. In a similar way, it is possible that the enabling network surrounding the concept of relationships between diet and chronic disease changed how Americans managed their relationships to food in ways that may have had unexpected material effects on bodies and health. Cycles of dieting and exercising in an effort to decrease "calories in" and increase "calories out" may have had unintended effects on metabolism, hunger signaling, fat storage mechanism, and other processes not yet understood. Efforts to "avoid" foods thought to be "bad" may have had similarly unintended consequences. Some researchers have found in experimental trials with humans that reducing intakes of protein, an important source of essential amino acids, can unconsciously increase calorie intake as an individual's body seeks out more protein to fulfill essential needs (Simpson, Batley, & Raubenheimer, 2003). If so, then advice that results in an effort to reduce dietary fat may inadvertently lead to a reduction in protein intake as protein and fat are found together in many foods, such as whole milk and cheese, causing some individuals to unwittingly increase their calorie intake. In other words, the effects of "healthy diet" advice meant to prevent obesity and chronic disease in some cases may be beyond an individual's awareness or conscious control. This would undermine the notion that a person can "choose" good health by making the "right" dietary choices.

When the objects of investigations are other human beings, the process of observing and collecting data cannot be socially neutral (Feenberg, 2002). As Andrew Feenberg (2002) has asserted, following Foucault, "new forms of knowledge and new forms of social control are connected at the origin" (p. 68). As a result, NECD, as a new form of knowledge, may have acted to maintain order among the population by shifting responsibility for health outcomes to individuals and by creating opportunities for middle-class professionals to signal their class status through food choices and the presentation of a slender body. In creating the

first national nutrition policy for the prevention of chronic disease, expectations from policymakers and some sectors of the public far outstripped the strength of available evidence linking diet to chronic disease. The inconclusiveness of the science meant that nutrition policy could be shaped to fit the political needs of its authors and the ideological concerns of the era.

When “healthy diet” became defined as one that prevents chronic disease, rather than one that provides essential nutrition, this marked significant changes in public health nutrition guidance, the epistemological framework of nutrition science, and the sociocultural place of food in the lives of many Americans. Embedded in these changes was an emphasis on personal responsibility as a means to prevent obesity and chronic disease, a reflection of the rise of healthism as part of an expansion of neoliberal approaches to politics and economics. The lengthening lifespan of Americans in the second half of the 20<sup>th</sup> century created the opportunity, within that historical context, to convert that “excess” life into patterns and practices of consumption that supported neoliberalism. These patterns and practices of consumption also reflected and reinforced the pursuit of health as a central value in the lives of middle-class professionals. Dietary guidance for the prevention of chronic disease was an avenue through which these values could be institutionalized, with scientific evidence as justification, a phenomena familiar to food historians and food studies scholars (Biltekoff 2013; Coveney 2006; Viet 2013). However, the emphasis on personal responsibility as a means to prevent obesity and chronic disease may make some individuals, whose health outcomes and body size might be beyond their deliberate control, the targets of rhetorics of failure and blame (Mayes & Thompson, 2014). Understanding that current definitions of a “healthy diet” are historically situated and not inevitable allows an interrogation of assumptions behind dietary health discourses and brings attention to the dominant values at work in the formulation of dietary health problems and the development of solutions.

## CHAPTER 3: META-GENRE AND THE SHIFTING DEFINITION OF “HEALTHY DIET”

### 3.0 - Introduction

One of the challenging aspects of exploring the rhetorical features of concepts such as “healthy diet,” “healthy eating,” and “healthy foods” is their pervasive use (in Anglo-centric cultures) to refer to a diet that helps prevent chronic disease. However, as I have noted, this is a relatively recent development. In the first half of the twentieth century, a “healthy diet” referred to one that would provide adequate essential nutrition (and would thus prevent diseases of nutrient deficiency). By the end of that century, the meaning of “healthy diet” had shifted to refer to a diet that helps prevent the chronic diseases typically associated with aging: heart disease, diabetes, cancer, stroke, and—although it has only recently been considered a disease in and of itself—obesity. This transition has been so complete that it frequently seems that dietary considerations have no other purpose. Whether it is a plant-only vegan diet, a meat-based “paleo” one, or the mainstream *Dietary Guidelines for Americans* (DGA) version, a “healthy diet” of any type seems to be one that is meant to prevent chronic disease.

In the previous chapter, I demonstrated the descent and emergence of discourses around diet as a means of preventing chronic disease during the last half of the 20<sup>th</sup> century. However, the controversy that met the 1977 *Dietary Goals for Americans* suggested that widespread acceptance of the idea that diet could prevent chronic disease was still uncertain. Now, however, this idea is not only accepted in nutrition discourse, it has become virtually invisible as an aspect of “common sense” about dietary health. Even though the majority of Americans are unfamiliar with the specific recommendations of the DGA (Rowe, 2014), for many choosing “healthy food,” preparing a “healthy meal,” and consuming a “healthy diet” in order to prevent chronic disease are important practices of middle class life (Crawford, 2006). This chapter examines how the assumption that dietary choice could act as a means of preventing chronic disease has become so pervasive and widespread in discourses around

food and health in the U.S. More specifically, it investigates why the science-policy debate about diet and chronic disease was settled in favor of the thinking presented in the DGA. Rhetorical genre theory and particularly Janet Giltrow's (2002) theory of "meta-genre" offer an explanatory framework for understanding how federal dietary guidance—which few people know about, much less have read and made a conscious decision to follow—has nevertheless managed to influence "healthy diet" discourse and practices across a variety of professional and lay publics. In this chapter, I will use the concept of meta-genre to explore the processes and relations that led to the DGA becoming authoritative guidance on dietary health for Americans. As a meta-genre, the DGA acts as a gives direction and authority to the production of texts both within and outside of institutional and professional contexts, from food labels to clinical guidelines to fitness blogs to everyday conversations, that would instruct individuals on how to "choose" a healthy diet.

Although Carol Berkenkotter (2001) used the term earlier to refer to the *Diagnostic and Statistical Manual of Mental Disorders*, Giltrow (2002) was the first to theorize the concept of meta-genre in a comprehensive fashion.<sup>13</sup> In addition to its application to the *Diagnostic and Statistical Manual of Mental Disorders* (Berkenkotter, 2001), the term has seen uptake primarily in discussions of midwifery policy documents (Schryer & Spoel, 2005) and genre innovations on the internet (McNeill, 2009; Maurer, 2009), although more recently it has been used to discuss thesis writing (Starke-Meyerring, Paré, Sun, & El-Bezre, 2014). These applications suggest a broad range of explanatory power, but the term has otherwise

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<sup>13</sup> Michael Carter uses term *metagenres*, without the hyphen, "to indicate groups of individual genres related to each other as similar kinds of responses to similar social situations" (see Carter, 2007). Although conceptually related to Giltrow's usage, it is not identical to it. Giltrow's usage of meta-genre indicates an hierarchical relationship; a meta-genre in this case suggests a template or guide that works to direct or produce other genres. In contrast, Carter's usage signals a relatively equal standing among the members of a metagenre.

not been widely employed in rhetorical analysis. At the same time, our worlds seem to be full of texts that could be characterized as meta-genres: written “policies, directives, memos, procedures, manuals, tip-sheets, guidelines” and other documents (Starke-Meyerring et al. 2014, A-16), as well as unwritten guidance—“silences, gestures, collocates, complaints, habituated up-takes, warning, homilies” (Giltrow, 2002, p. 202). The distinctive feature of a meta-genre has to do with the ways in which it works to control discourse production. As do genres in general, meta-genres explicitly encourage some discursive actions and discourage others, implying a way of seeing the world that gives form and shape to situations and who we might be in our potential responses to them. In this regard, both meta-genres and genres “naturalize” ideology and relationships of power (Paré, 2002). The key difference is that the forms of discourse that function as meta-genres are an expression of the control of that power, and an examination of meta-genres directs attention to how that control arises and is made manifest in the production and, importantly, the absence of related discourse. Thus, meta-genre, as a term of analysis, gives insight into the development and operations of power and authority in the production of texts and how these are, in turn, linked to ideology and identity.

Rhetorical genre theory holds that the concept of “genre” is not limited to ways of creating categories or classifications, but is a form of social action (Miller, 1984). Carolyn Miller’s theory of genre as social action builds on earlier conceptions of genre as creating expectations of style, argument, worldview, and standard assumptions (Jamieson, 1973, p. 166); even early iterations of genre studies note how a genre replicates an ideology, along with more typical rhetorical features of “style” and “argument.” To make use of or perform a genre is, at least temporarily and partially, to not only inhabit its worldview and to accept its assumptions, but to perpetuate and reinforce them. Furthermore, the very nature of a genre often places its worldview and assumptions beyond interrogation, or even awareness. Anthony Paré (2002) has suggested that, over time, certain features of a genre come to be accepted as common sense: “The routines of genre—their regularity, their durability, their

status as historical practice—are collective and conservative forces operating to make sense ‘common’ and to locate individuals in identities and relationships that maintain ideologies and allow them to pass as sense” (p. 68). These two central features of genre—how it both puts into action and obscures ideologies—offer a way to ask some fundamental questions about how practices and belief systems that are taken for granted come to be the way they are.

However, although rhetorical genre theory is clearly interested in the material production of genre-based texts in everyday life as an instantiation of genre as social action, it has been criticized for its tendency to overlook or minimize the political implications of genres and thus material concerns and social activity more generally. Systems of belief and ideologies are interrogated, but they may be treated as if they are relatively self-contained, with connections to the material realities of larger economic and political formations frequently overlooked (Freedman & Medway, 1994, p. 10). In addition, while rhetorical genre theory typically emphasizes the normative aspects of genre—the creation of standards, customs, and communities—it has less often focused on the tensions that these stabilizing forces produce. For every norm, there is something or someone that may be judged as “abnormal;” every community of “insiders” implies “outsiders.” Because a text that can potentially act as a meta-genre is a rhetorical effort to determine what these normative aspects of genre are, to “set the stage” for them as it were, these kinds of texts present an opportunity to look more closely at whose interests and values would be represented in the standards, customs, and communities created. Examining how a text becomes a meta-genre may help to explicate how relationships of power are expressed in the ideological links, especially those normalized as “common sense,” between specific texts and larger contexts of social, cultural, and historical situations.

In this chapter, I begin with a brief definition of text, genre, and meta-genre. Next, I describe the two primary ways that meta-genres are characterized in the current literature, as regulating or regularizing, and argue for a third way of understanding meta-genre, as an

expression of processes and relationships of authorization. Then I discuss two “special cases” involving meta-genres that help to outline the relationship between meta-genres and their contexts: (1) the emergence of a meta-genre where there was none before, and (2) the “competition” between two texts as they vie for control of a particular area of discourse production. Using two texts created in 1980 that present divergent views of what a “healthy diet” is, I demonstrate how the emergence and competition of these two texts signal a liminal moment in “healthy diet” discourse, when an indeterminateness and heterogeneity of purpose, of audience, of recognized authority shifts into rhetorical coherence. In this case study, the shift from defining a “healthy diet” as one that provides adequate essential nutrition to one that prevents chronic disease was both an outcome and a reinforcement of social changes underway during the 1970s. Examining the point at which this shift was institutionalized as federal nutrition policy highlights the forces that coalesced around this moment and made diet as a way of preventing chronic disease the prevailing perspective on links between food and health.

### **3.1 - Text, genre, meta-genre**

The term “meta-genre” covers a wide variety of discursive strategies. Giltrow’s (2002) introduction to her seminal work on meta-genre, which appears in a collection of essays entitled *Rhetoric and the Ideology of Genre*, indicates generally how she understands meta-genre: as “talk about genre” (p. 187). She goes on to describe meta-genres variously as “situated language about situated language,” indicating a direct relationship between meta-genre and genre, and more ambiguously as “atmospheres of wordings and activities, demonstrated precedents or sequestered expectations—atmospheres surrounding genres” (p. 195). Giltrow herself wondered whether the instances of meta-genre she put forward really represented a distinct category of discourse. Using the example of “the genre of the Internal Revenue Manual,” she noted that not only was it the subject of meta-generic talk, but also acted as a meta-genre that directed genres used by tax examiners. With this overlap of concepts, it may be helpful to clarify how texts, genres, and meta-genres are related.

What constitutes a rhetorical text is itself a contested notion. The text has been understood simply as a “persuasive message,” more dynamically as a “field of action,” and expansively as a “bricolage of arguments, images, and narratives” (Jasinski, 2001, p. 574). Not to oversimplify or disregard the history of the discussions surrounding the nature of a text, for my purposes—and to differentiate between a text, genre, and meta-genre—I understand a text as a specific instance of written, spoken, or visual discourse, although it may be, as noted above, that a text expresses the patterns of thought allowable during a particular era as much as the views of an individual (Foucault, 1977). In both the everyday sense of the word and the Foucauldian sense, the DGA is a text. Currently, a new edition of the DGA is produced every five years through the work of the U.S. Departments of Agriculture and Health and Human Services. Anyone interested can look up the DGA on the internet, download a copy in pdf form, or order a printed copy through the mail. As a text, the DGA could be subjected to a “close reading” of its linguistic and formal features.

However, the DGA, like the Internal Revenue Manual, also participates in a genre. Genre can indicate a way of grouping texts around similar features, but more expansively, can indicate and be a response to the expectations of a community of users. The DGA can be understood as genre in the former sense in that there exists a small collection of documents, currently eight editions altogether, that have been created to act as “dietary guidelines for Americans” and that follow a set of conventions of form, substance, purpose, and development unique to these eight texts. At the same time, the DGA are part of a larger genre in the latter sense as a form of “dietary guidance” that includes recommendations for ways of eating produced by a variety of individuals, organizations, and institutions, but that share common traits that direct individuals to choose and avoid certain types of food in order to prevent chronic disease. In this way, they illustrate “genre as social action” (Miller, 1984), in that these collective guidelines provide a way to respond to the recurring situation of organizing discourse about food and health. In this regard, a genre can be seen as enacted, with those who use a text playing a role in what is recognized as a genre. In a similar fashion,

a genre's features should also be seen as "stable for now," shifting as practices and processes change over time (Schryer, 1993). This can be seen in the gradual expansion of the DGA and similar forms of dietary guidance to include other behaviors, such as sleep and exercise, and other outcomes, such as preventing climate change, without losing the primary feature of a focus on diet and the prevention of chronic disease.

But the DGA acts as more than just a set of recommendations and does more than simply reflect collective expectations about how food may be related to health; the DGA helped to create those expectations. It is this additional capacity that I see as indicative of a meta-genre. The existence of the DGA—a set of recommendations about how to eat in order to prevent chronic disease—assumes a causal relationship between diet, certain biomarkers like cholesterol levels and body weight, and the risk of chronic disease. When the DGA were first created, this assumption provided a way to conceptualize the relationship between food and health that steered discourse in the English language about nutrition in the direction of investigating, observing, and managing these relationships. In this way, dietary guidelines created by various rhetors reproduce the definition found in the DGA of "healthy diet" as one that prevents chronic disease, even if the specific recommendations differ markedly. If "the routines of genre ... maintain ideologies and allow them to pass as sense" (Paré, 2002, p. 68), *which* tacit ideologies are passed along by genre activity is central to, but perhaps not exclusive to, the work of a meta-genre. Because ideology is implicit in social action, meta-genre guidance works to supply the particular worldview and the assumptions that are perpetuated and reinforced through genre. Genre activity may provide a way to act meaningfully within a recognizably recurring social context, but a meta-genre would supply the lens through which a social context is recognized and actions are deemed appropriate. As I will explain further, meta-genres provide a rationale for carrying out genre activity in a particular way, even though this rationale may be unstated or unclear. The provision of a particular set of assumptions about the world justifies the management of genre activity that meta-genres attempt to undertake.

### 3.2 - Regulating and regularizing meta-genre

In the work of Giltrow and others, the term “meta-genre” seems to have two overlapping, but distinct usages, one that indicates what Giltrow (2002) has called “formalized” meta-genre and one that indicates a more informal type of “talk about genre.” These usages roughly coincide with how Schryer, Lingard and Spafford (2007) have characterized how genres may function to either “regulate” or “regularize” ways of learning to act discursively within defined situations. In their terms, genres are “constellations of regulated and regularized improvisational strategies,” with “regulated” strategies characterized as more fixed and proceeding from an external authority and “regularized” strategies seen as more flexible and diverse, often emerging from the discourse community itself (Schryer et al., 2007, p. 31). Both terms refer to the ways that discourse about genre, i.e. meta-genre, directs the formation of a genre, but these functions may not be entirely distinct from each other. A meta-genre may either “regularize” or “regulate,” or in some cases, perform both functions. That some meta-genres may operate in both capacities suggests additional ways of understanding how control and direction exerted by meta-genres works.

To use Schryer, et al.’s (2007) term, some aspects of genre production are “regulated”—or, to use Giltrow’s (2002) term, “formalized”(p. 189)—meaning they are directed by an external, usually written, authority. In this sense, “meta-genre” will typically refer to a specific text and implies a prescriptive, relatively inflexible approach to genre activity. Giltrow suggests that the “most conspicuous candidates for meta-genre are guidelines,” which she defines as “written regulations for the production of a genre, ruling out some kinds of expression, endorsing others” (p. 190). “Regulating” meta-genres provide specific rules that can be pointed to or consulted when a related genre is being produced, although these rules may not be interpreted uniformly. Examples of meta-genres that provide this kind of overt guidance would be *Robert’s Rules of Order*, the *Diagnostic and Statistical Manual of Mental Disorders*, the rules for case studies that medical students carry in their

pockets, and the tax code (Berkenkotter, 2001; Giltrow, 2002; Schryer, et al., 2007; Starke-Meyerring et al., 2014). Likewise, the DGA is a “regulating” resource for producing discourse in that all nutrition information and guidance from any federal agency must conform by law to DGA recommendations. For example, the booklets and vouchers that indicate what foods are available to low-income families through the Women, Infants, and Children (WIC) program and the regulations that govern the nutrition content of the meals served by the National School Lunch Program (NSLP) are determined by the recommendations found in the DGA. When, in turn, state agencies create their own informational brochures and educational materials related to WIC or NSLP, these also conform to the guidance provided by the DGA. The design of food labels on packaged food and the information contained in food guides (such as the Food Pyramid or MyPlate) do as well. In other words, the production of nutrition-related discourse by any federal government agency—or state programs supported by the federal government—is not just expected, but required, to correspond with the concept of “healthy diet” found in the DGA. To the extent that it is guidance for producing texts, meta-genres that “regulate” discourse indicate conformity, control, and an explicitly “right” and “wrong” way of doing things. However, it is important to note that information given out by federal nutrition programs began to reflect the guidance of the 1980 DGA even before the DGA were officially released and over a decade before this would become a legal requirement. This suggests some other mechanism of control at work.

In contrast to “regulating” meta-genres, “regularizing” meta-genres indicate a much less prescriptive and less authoritative approach to genre activity. Similar to “regulating” meta-genres, “regularizing” meta-genres are typically seen as occurring within a particular discourse community, such as a professional, institutional, or social group. However, “regularizing” meta-genres may describe, analyze, challenge, or interpret aspects of related genre activity, rather than specifically stipulate how genre activity must be carried out. These kinds of meta-genres are frequently understood as tacit, unwritten guidance, as suggested by

Giltrow's (2002) "silences, gestures, collocates, complaints, habituated up-takes, warning, homilies" (p. 202), but might occur as informally written texts. . These meta-genres might more accurately be called meta-generic discourse, and in some cases, meta-generic discourse may indicate a community's attempts to understand how texts important to that community can be characterized (Maurer, 2009; McNeill, 2009). In other cases, meta-generic discourse may be an expression of how a community relates to genres it uses or to a specific textual instance of genre (see for example, the discussion of how tax examiners use the *Internal Revenue Manual*, in Giltrow, 2002). "Regularizing" forms of meta-genre may also arise in situations where there would be some question within a community as to how to apply to emerging and divergent situations the rules for genre indicated elsewhere in "regulating" meta-genre. In the "regularizing" sense, meta-generic discourse attempts to shape genre activity, but not dictate it. The discourse may be located within an institutional space, but is not necessarily meant to represent an institutional or organizational authority; instead it may indicate a social or professional convention or hierarchy. With regard to the DGA, for example, when grants are written seeking support for federally funded nutrition science and the resulting research articles are written up, the terminology used that relates to a "healthy diet" typically aligns with the DGA, although the DGA itself may never be mentioned. There is no regulation that indicates that grants or research articles may not be written otherwise, and there is no law that says researchers who use different definitions of "healthy diet" may not receive government funds. However, because one of the stated purposes of the DGA is to "establish the scientific and policy basis" for government-funded nutrition research (USDA Center for Nutrition Policy and Promotion, 2010, p. 2), there is an awareness within the nutrition research community that texts related to such funding mechanisms should conform to the definition of a "healthy diet" found in the DGA (Taubes, 2009). Grant review scores and feedback regarding funding opportunities act as a "regularizing" force for "healthy diet" discourse in this context; grants that do not use the DGA definition of "healthy diet" are unlikely to be funded. To the extent that it is guidance for producing texts, "regularizing"

meta-generic discourse may reflect a more flexible and diverse approach to genre; the feedback, correction, and modeling of “regularizing” meta-genres suggest, but do not insist upon, a “right” and a “wrong” way of doing things.

However, the DGA seems to act as a meta-genre in ways that aren’t neatly described by either “regulating” or “regularizing” functions. In some aspects, the DGA seems to operate in both capacities, and in other regards, it seems to operate in ways not clearly explained by either. For the first three editions of the DGA, there was no specific mandate that other government agencies conform to the DGA definition of “healthy diet”; however, many federal and state government agencies did just that. Even now, the DGA’s role as the foundation of federal nutrition policy and programming does not directly control the production of texts related to “healthy diet” discourse in the private sector. Yet the DGA has created a framework for nutrition beliefs and practices that directs discourses across a variety of professional and non-professional communities: healthcare professionals, academics, scientists, public health advocates, food manufacturers, food reform activists, journalists, and bloggers. Texts such as meal plans generated by dietitians in private practice, lists of foods that are “good” and “bad” for you found on a variety of health-related blog sites, and descriptions of a “healthy diet” found in textbooks, manuals, and other health-related educational materials not only feature similar content, language use, and stylistic features, they also implicitly indicate a way of understanding how food and health are related, namely that food choices are a means of preventing chronic disease. Across these communities, there are no specific feedback mechanisms for indicating the “right” or “wrong” way to talk about a “healthy diet.” This may seem to be a type of regularizing meta-genre activity at work, but how related genre activity might be challenged or interpreted is unclear. There seems to be fundamental agreement on the notion that dietary practices should be used to prevent chronic disease, even from proponents of dietary patterns that differ radically from DGA guidance. How did proponents of divergent views on dietary health come to the unified view that food choices are a primary means of preventing chronic disease? Or more generally speaking,

outside of a specific discourse community, how are discursive norms around genre activity, the ideologies that inform what Charles Bazerman (2002) calls an orientation towards a communicative social space, produced? In this case, how did “healthy diet” talk come to mean “eat this, not that, in order to prevent chronic disease”?

### **3.3 - Meta-genres as processes and relations of authorization**

It is clear that even in extra-institutional contexts, the activity of the DGA could be described using the same verbs used to describe the actions of both regulating and regularizing meta-genre: “organize,” “standardize,” and “stabilize” (Berkenkotter, 2001); “police” (Giltrow, 2002); “orchestrate,” “regulate” and “control” (Schryer & Spoel, 2005); “legitimize,” “explain,” “impose,” and “inform” (McNeill, 2009). What is notable in all of these verbs is the sense of authority they invoke: somehow, a meta-genre is “authorized” to “police,” “control,” and “legitimize” discourse. Sometimes that authority is under negotiation, as with the case of creating a “working consensus” about what constitutes a “homeless blog” and what features are acceptable within that genre activity (Maurer, 2009). Other times, that authority is clearly established, although not beyond interrogation, as in the institutional discourses around thesis-writing (Starke-Meyerring et al., 2014). However, the very acts of negotiation and interrogation suggest an existing, or potential, hegemony regarding the discursive activity under discussion.

In conceptualizations of meta-genres as either regulating or regularizing, the focus is on the degree to which efforts to direct related genre activity are implicit or explicit, flexible or standardized, located informally within a discursive community or found in a specific text to which a community refers for guidance. There seems to be a loose relationship between degree of explicitness, inflexibility in standards, and a meta-genre that exists as a specific text (rather than as informal discourse), but as Giltrow (2002) suggests, this is not consistent across discursive communities. However, both regulating and regularizing meta-genres imply a relationship between unequals; meta-genres and meta-generic discourses are an attempt to control or direct related genre activity. Importantly, this effort at control is just that, an effort;

the presence of a text that could function as a meta-genre is by no means assured of success. This indicates that a meta-genre may be usefully understood as both a set of relations between texts and a set of processes that aim to authorize certain discursive moves or genre activities and to discourage others. Whether a specific “formalized” text—a guideline—or a more open-ended, informal, and tacit negotiation that takes place around genre activity, how a text might succeed as a meta-genre may be examined through this network of relations and social processes.

Central to these relationships and processes is the circulation of set of beliefs about the world that is implicit in actions undertaken within a social context. Although meta-genres may operate as either “regularizing” and “regulating” resources—or both—the processes and relationships of meta-genres work to authorize a particular discursive orientation. Charles Bazerman (2002) compares the orientation towards a communicative social space that a genre provides to “going to a dining room, or a dance hall, or a seminar, or a church. You know what you are getting yourself into and what range of relations and objects will likely be realized there” (p. 13). To extend his metaphor, a meta-genre is the force that “builds” the dining room or dance hall in a way that provide these spaces with the features that will allow us to recognize a dining room, as opposed to a dance hall, and acts to organize the expectations that we have of these spaces. As I will argue, and as I believe the DGA demonstrates, the processes and relationships of a meta-genre not only indicate “what” should be done—“do this, this way”—but supply the “why” for certain discursive acts to be undertaken in a certain way—“for this reason.” Although this might be stated explicitly, often the rationale is built tacitly into the way that a meta-genre defines the context in which it is situated. The provision of a particular definition of context and the uptake of that definition by an audience are foundational to the ability of a text to function as a meta-genre. When a text that could act as a meta-genre is created, there is no guarantee that the definition of reality it provides will be accepted, either wholly or in part; however, any text comes to be understood in such a capacity must define the context in which it operates in such a way that

it provides a rationale for its own efforts at steering genre activity in a particular direction.

Miller (1984) explains that, “If genre represents action, it must involve situation and motive, because human action, whether symbolic or otherwise, is interpretable only against a context of situation and through the attributing of motives” (p. 152). However, as she goes on to argue, what constitutes a situation is a matter, “not of ‘perception,’ but of ‘definition,’” highlighting the notion that “Before we can act, we must interpret the indeterminate material environment” (p. 156). A text that functions as a meta-genre “authorizes” certain types of genre activity by providing a context that shapes how we “interpret the indeterminate material environment,” directing our attention towards some interpretations and away from others. Significantly, the context provided also serves to justify the regulating or regularizing activity that a text seeks to undertake as a meta-genre. In his seminal work on the rhetoric of science, Laurence Prelli (1989) explored the issue of creating rhetorical order from situations that are disordered. Prelli argues that “Under conditions of heterogeneity, normative standards have to be created rhetorically before other rhetorical purposing can be undertaken ... Without recognition of shared problems, heterogeneous parties will not likely forge and submit to mutually constraining normative principles for situationally appropriate discursive purposing” (p. 39). This passage suggests that there is a *kairotic* moment when indeterminateness and heterogeneity of purpose, of audience, and of recognized authority shift into coherence. Although I am not arguing that a meta-genre is *necessary* to create this coherence, I am suggesting that a meta-genre is a set of relationships and processes that help to establish this coherence, which is why, as Giltrow (2002) suggested and as I discuss further, meta-genres flourish in liminal rhetorical spaces. Examining the work of meta-genres—and how meta-genres work—may help to answer some lingering questions about this shift into coherence: When situations are highly indeterminate, *how* do certain texts come to define a situation so that action may proceed? How are “heterogeneous parties” constituted into a (comparatively) homogenous audience receptive to rhetorical purposing? What rhetors are granted the authority to interpret the context for this nascent audience? In

essence, how does a text become a meta-genre granted the authority to shape related genre activity? By seeking to understand how some texts become established as meta-genres, we can also begin to ask questions about the power relations involved: Whose interests are served by defining a situation a certain way? Who is included and who is excluded from the audience that is constituted in relation to a text? How are unequal social relations justified and reinforced by genres, and how is this facilitated by a governing meta-genre?

Finding some theoretical foothold for addressing these kinds of questions was part of Giltrow's argument in explicating what a meta-genre is and what it does, an enterprise that I hope to extend here. However, one challenging aspect of this endeavor is how to "take apart" a situation that has not yet been well-defined for "rhetorical purposing." Debates about "rhetorical situation" that took place a generation ago remain relevant today, in that isolating any mechanism within a larger system is itself a rhetorical enterprise. As critics have noted, the "snapshot" of a rhetorical situation as Bitzer (1968) describes it fails to do justice to the unstable and constructed relationships of context, audience, speaker, and message as they occur in practice. More recently, Edbauer (2005) offered the term "rhetorical ecology" to augment "rhetorical situation" as a way of highlighting the multidimensional and dynamic nature of the object of study. Using terms like "flux," "flow," "fluid," and "circulation," Edbauer theorizes rhetorical events in a way that "reads rhetoric both as a process of distributed emergence and as an ongoing circulation process" (p. 13). In other words, what might be studied as a rhetorical ecology is ongoing, difficult to demarcate in terms of origins and boundaries, and constantly changing in response to its environment. Edbauer (2005) stresses that a rhetorical ecology may not be limited to discrete elements such as audience, rhetor, exigence, constraints, and text (p. 7); at the same time, it isn't clear exactly how to get a handle on something dynamic and indeterminate in order to get a better look at it.

A similar challenge faces any natural scientist when trying to elucidate an underlying pathway in a living organism or natural system. It is no coincidence that Edbauer's (2005) depiction of rhetorical ecologies leans heavily on metaphors from nature, like weather

systems and viruses. In reference to the setting in which it exists and operates, isolating any natural mechanism is also a rhetorical enterprise, whether done in a textbook, computer model, or a petri dish. Selecting part of a larger reality to emphasize draws attention to some features, as if they are more important or have some foundational primacy; other features fade into the background as if they are of lesser consequence or developmental afterthoughts. At the same time, the system only works as a whole, with inputs and outputs, feedback loops, checks and balances, as well as antagonistic pathways, “futile cycles,” and random glitches.

It should also be understood that a rhetorical ecology, like a biological mechanism, is at once a material and discursive phenomenon. After the postmodern “turn” highlighted the constructed and situated nature of things that once seemed objectively objectified—illnesses, historical events, scientific facts—many scholars, including a number who have studied both the physical and symbolic aspects of the world, have argued for a “turn” back to materiality. This is not to dismiss the discursive in favor of the material, but to emphasize the continuity between them. Feminist theorist and theoretical physicist Karen Barad (2007) has argued that discourse and materiality are conceptually entangled; the “cuts” made between them are not pre-figured, but contingent upon the observer. Challenging the dichotomies set up by Cartesian approaches to mind and body—nature/culture; biology/technology; things/ideas—philosopher and cultural theorist Rosi Braidotti (2013) argues that these separations are better characterized as continua. For that matter, even Miller’s (1984) seminal argument that we can understand genre as (social) action blurs the lines between what is discursive and what is material. N. Katherine Hayles (2008), who switched from chemistry to literary studies, makes the argument that, despite our tendency to treat information otherwise, it cannot be separated from its material embodiments. In many instances within a rhetorical ecology, the material embodiments of information are, but are not limited to, human beings, speakers and audiences, who “translate” rhetoric to action and vice versa. Humans undertake this work of translation by, among other things, defining contexts, producing rhetoric, engaging in uptake—or in other words acting and reacting—all as part of a continuum of

material-discursive forces and phenomena. Finally, how these forces, influences, and actions engage with each other is complex, unpredictable, and dynamic. Concepts from science again help to analogize this perspective. Translations and interactions among the elements of a rhetorical ecology result in various transformations, like the diffractions and refractions of a wave when it encounters an obstacle or moves from one medium to another (Barad, 2007). These transformations might be in the form of reinforcement, interference, cancellation, or reversal, and these alterations may be barely detectable or seismic. At any point that we pick up the thread of a mechanism or relationship within a rhetorical ecology, we must recognize the *in medias res* nature of the analysis, that it is just a snapshot of a dynamic system, and that the delineations made for the purpose of analysis are made from a particular perspective.

For the purposes of my analysis, I will be working from an expanded view of “rhetorical situation,” but a circumscribed view of “rhetorical ecology,” one that focuses more on relationships and processes of interactions than on the nature of each specific element itself. Some familiar elements of the traditional rhetorical situation model are included: rhetor, audience, exigence, and situation. Other elements—values, uptake, authority—are understood within the context of the mechanisms of meta-genres in which I am interested. To be clear, just as no biology student should assume that the citric acid cycle is static simply because it is presented as a schematic, nor that it portrays the full picture of cellular respiration, nor that it poses chicken/egg questions about which came first, malate or citrate, so should no student of rhetoric assume that my portrayal of the mechanics of a meta-genre indicates stability within a rhetorical ecology, a comprehensive picture of its “workings,” or a “starting point.” It is understood that this simplified pathway operates in a living network of rhetorical forces of infinite complexity. However, since a meta-genre is itself a way to examine genre systems and in some ways outlines an already simplified picture of a complex system of regularized actions and the understood beliefs that accompany them, I propose that a tracing of the processes and relations of a text as it operates to (re)produce those actions and beliefs as a meta-genre can help bring into focus

some of the eddies, flows, and feedback loops at work.

### **3.4 - Emergence and competition in the establishment of a meta-genre**

One of Giltrow's (2002) specific hopes for the concept of "meta-genre" was that it would be a theoretical framework that would help better integrate the study of genres with the study of the contexts in which they appear:

Genre theory insists that we understand regularities of form as motivated by regularities of situation—and this has resulted in many advances we now take for granted. But at the same time inadequacies in our sense of situation or context have inspired, if not a full crisis of confidence in genre theory, at least the observation that, despite its insistence on situation, genre theory tends to focus on text and neglect surroundings or underestimate their extent. (p. 202)

Although she acknowledged that the concept of meta-genre could not solve all of genre studies' issues related to the reading of context, two overlapping "special cases" related to meta-genres seem to offer particular insights on the problem: the emergence of a meta-genre and texts competing within the same rhetorical space to function as meta-genre.

A meta-genre, according to Giltrow (2002), often emerges in a contested space, indicating a rhetorical situation that is either not defined or that has been challenged. She argues that the history of a meta-genre can indicate changes in a rhetorical situation that the meta-genre seeks to direct and points to the liminal spaces in which meta-genres often arise as places for analysis:

[M]eta-genres flourish at those boundaries, at the thresholds of communities of discourse, patrolling or controlling individuals' participation in the collective, foreseeing or suspecting their involvements elsewhere, differentiating, initiating, restricting, inducing forms of activity, rationalizing and representing the relations of the genre to the community that uses it. (p. 203)

This suggests that an examination of the emergence of a meta-genre, itself a liminal moment, can help illuminate the moments when rhetorical boundaries become solidified and

membership in discursive communities becomes circumscribed, a moment which likewise presents an opportunity to see how these shifts are materialized as value-laden and exclusionary moves.

Another special case, the presence of more than one text competing to function as a meta-genre within the same rhetorical space, makes the contested nature of defining the nature of a rhetorical space overt. Meta-genres work not just as statements of “what to do” but of “what is.” As a result, meta-genres do not just designate how to produce or perform related genres, but indicate implicitly or explicitly the rationale or motive for the rhetorical actions at hand; what concepts, symbols, and terms might be used within that rhetorical context; and who is “in the know” regarding expertise, authority, and uptake of the ideologies embedded in that meta-genre. Disparities in texts that seek to provide order to the same genre system can reveal some of the sociopolitics of the context at hand (Giltrow, 2002, p. 199).

I argue here that when two texts compete to be able to function as a meta-genre in a rhetorical space, the one that prevails will be the one that can provide a coherent worldview that organizes the conduct and sense of identity of those who are included (or include themselves) as members of a discursive community. A text that is accepted as a meta-genre is one that will anticipate or reflect their behaviors, expectations, and values. An analysis of the emergence of a meta-genre, particularly in a situation where texts that express substantially different worldviews are in competition for that role, can help pinpoint the moment when, out of a noisy and unformed context, a rhetorical situation shifts into coherence, with a defined purpose and audience, as well as a recognized authority in the form of a text that directs and constrains future discourse. Trying to pull apart these kinds of moments, when rhetorical “order” is created from an ambiguous situation, and attempting to understand how they work is a way to understand more generally the co-production of rhetorical discourse, practices, bodies, and lives.

Just such a moment took place in the U.S. in 1980, when two different authoritative groups representing or advising the federal government each developed texts that explicitly

sought to tell Americans how to eat a “healthy diet” and implicitly served to define what a “healthy diet” is. Using as theoretical guideposts the competition of these two texts for the role of meta-genre—and the ultimate emergence of one of them as a meta-genre that would shape institutional genres and public discourse about “healthy diet” from that point forward—I examine these two texts, along with contemporaneous media and government reports and hearings responding to these guidelines, to try to elucidate how “rhetorical order” emerges from times of transition, uncertainty, or upheaval. Furthermore, an understanding of how one text, rather than another, came to define the discourse around “healthy diet” may provide an opportunity to analyze the political and ethical implications of the development of this dominant discourse and the subjects constituted therein.

### ***3.5 - Dietary Guidelines and Toward Healthful Diets***

#### ***3.5.1 - Exigence and “social need”***

Although it may be the case that, as Bitzer (1968) argued, exigence can be characterized as “imperfection[s] marked by urgency ... a thing that is other than it should be” (p. 6), the imperfections and the expectation for change lie not with an objective reality, but are constructed from the rhetor’s worldview and motives and the material realities offered up by the situation at hand, which includes historical events and potential audiences. Rhetorically constructing a current or future reality as in need of modification implies that the material situation is modifiable and the audience has the agency to make these changes. As Miller (1984) suggests, exigence is not the explanation for why a particular thing is done, but serves as the basis for “doing anything at all” (p. 158). In the case of meta-genres, what is being done is, in the end, the act of controlling the discursive activities of others. Exigence, with regard to meta-genres, is about both what motivates the rhetor to provide prescriptive guidance and what will provide the “social motive” for the audience to participate in the prescribed manner. A text’s efforts to position itself as a meta-genre and direct the discursive activities of others will be successful to the extent that these exigencies are knit together with phenomena from a particular rhetorical ecology in a way that successfully presents the meta-

genre itself as an “objectified social need” (Miller 1984, p. 157). In 1980, two competing texts sought to provide guidance for how to instruct Americans on eating a “healthy diet,” but only one, the 1980 DGA, succeeded in presenting itself as the guidance that was needed. (See **Appendix** for the timeline related to the development of national dietary guidance for the prevention of chronic disease).

In February 1977, when McGovern’s Senate Select Committee on Nutrition and Human Needs released a report called *Dietary Goals for Americans* summarizing its conclusion that dietary fat, especially fat from animal products, had led to the “epidemic” of chronic disease the U.S. was experiencing (Select Committee on Nutrition and Human Needs, 1977a), the heated debate that followed highlighted the contradictory views held by scientists and health advocacy organizations. A newspaper article on the report captures the tension between the demand for answers to a problem and the uncertainty surrounding whether answers, or even a problem, truly existed. The reporter refers to “the question of relationships between the consumption of high levels of animal fats and sugar and such ‘killer diseases’ as heart disease, cancer, obesity, and stroke,” noting that the public wanted answers that some scientists felt were not required for the situation and not established in any case: “One nutritionist warned that if scientists did not answer the public’s questions of diet and health, Government regulators and legislators would do it for them. But others in the health field questioned whether changes in the American diet were called for at all, adding the now familiar scientific charge that “there is not enough evidence” to advise the nation on matters of health and diet” (Wells, 1978). Although “Government regulators and legislators” may not have been equipped to “answer the public’s questions of diet and health,” particularly under circumstances of inadequate evidence, conditions were such that some answer would need to be forthcoming. This “answer” would be in a position to act as a meta-genre, directing related genre activity of government agencies, as well as establishing a worldview and a set of assumptions about relationships between diet and chronic disease. Of course, the uptake of any proposed answer is not assured. As Anne Freadman argues, uptake

by an audience is also a matter of selection: “Uptake is first the taking of an object; it is not the causation of a response by an intention” (Freadman, 2002, p. 48). For texts aspiring to meta-genre status, the process of uptake may be complicated by potentially regulating and regularizing contexts, hierarchy and authority within those contexts, and the values and concerns of the (nascent) audience.

In the wake of the first edition of the 1977 *Dietary Goals for Americans*, numerous texts addressed the controversy: A modified second edition of the *Dietary Goals* included a dissenting opinion from Senate sponsors of the original report noting the disagreements and uncertainties surrounding the information it contained (Select Committee on Nutrition and Human Needs, 1977b). An accompanying Senate report of *Supplemental Views* was published, cataloging both assenting and dissenting opinions of scientists in response to the first edition of the *Dietary Goals* (Select Committee on Nutrition and Human Needs, 1977c). The Surgeon General asked the American Society of Clinical Nutrition to produce a systematic review of current nutrition literature, which was published in 1979 and which noted strong consensus only on the relationships of sugar to dental caries (cavities) and alcohol to liver disease (Ahrens, 1979). Finally, the Surgeon General’s 1979 *Healthy People* report made general suggestions regarding reducing calories, fat, salt, and sugar to prevent disease, although these were not the focus of the report, which otherwise indicated that the U.S. population had never been healthier (Public Health Service, 1979). Out of this rhetorical ecology emerged two competing documents, both released in 1980 within months of each other, that proposed to settle the controversy with an authoritative declaration regarding the relationships between diet and chronic disease. *Nutrition and Your Health: Dietary Guidelines for Americans* (DGA) was produced by an *ad hoc* committee of government officials from the U.S. Departments of Agriculture (USDA) and Health and Human Services (HHS). Its recommendations suggested that scientific evidence had established a way to address the epidemic of chronic disease through dietary means. *Toward Healthful Diets* (THD) was written by the Food and Nutrition Board of the National Research Council of the

National Academy of Sciences (FNB-NRC). It argued that there was neither an epidemic of chronic disease nor clear links between prevention of chronic diseases and diet. Both documents were responses to the debate that had become part of public discourse through the creation of the 1977 *Dietary Goals*, which was widely read and reported on in the media (Austin & Hitt, 1979). Both documents characterized a “healthy diet” in ways that were aligned with how each described the situation. But because “situations are social constructs that are the result not of ‘perception,’ but of ‘definition,’” (Miller, 1984, p. 156), the “healthy diet” recommendations offered by each document reflect both agreement and divergence with regard to how the situation was interpreted. And both documents aspired to be the “answer” to “the public’s questions of diet and health.”

A cursory inspection would suggest that these documents were more alike than different. Both documents acknowledge that nutrition advice that had been offered to the public by various groups was confusing and often contradictory and that, despite numerous research programs undertaken to address questions of relationships between diet and chronic disease, nutrition science did not offer clear answers regarding how dietary factors are related to chronic disease. Both indicate that the purpose of the guidance is to help Americans eat a “healthy diet” by cutting through the confusion and providing specific recommendations for how to do this. Both sets of recommendations include advice to eat a variety of food and to maintain a healthy weight. However, it is how these documents differed, and more importantly, why they differed, that reveals divergent interpretations of context and exigencies that produce what are, in the end, distinctly different recommendations.

Of the DGA’s list of seven recommendations, three indicate food components that Americans should avoid: “Avoid too much fat, saturated fat, and cholesterol;” “Avoid too much sugar;” and “Avoid too much sodium.” As these recommendations are based on hypothesized associations between these food components and chronic disease, the rationale for defining a “healthy diet” in terms of avoiding food components (not addressed in the document itself, but revealed at subsequent hearings regarding these two documents) reflects

a belief on the part of the authors that links between these food components and chronic disease were sufficiently established by “scientific consensus”—and that rates of chronic disease were of sufficient concern—that it was necessary to tell Americans to change their diets and that such changes presented no harm to the public.

In contrast, THD does not tell Americans to “avoid” anything, and its one recommendation to “reduce” certain types of food components is conditional: “If the requirement for energy is low (e.g., reducing diet), reduce consumption of foods such as alcohol, sugars, fats, and oils, which provide calories but few other essential nutrients” (p. 20). For their recommendations, the authors of THD define a “healthy diet” as one that provides adequate essential nutrition. Their rationale for defining a “healthy diet” in this manner is clearly indicated in the document itself; the authors do not believe that the scientific evidence linking diet to chronic disease, primarily observational studies from nutritional epidemiology, is sufficiently strong enough to tell Americans to change their diets by avoiding some foods in favor of others. In addition, the authors believe that the creators of the DGA had not demonstrated that the DGA’s recommendations were without risk:

Although the Board considers it appropriate to set dietary guidelines beyond those implicit in the RDA, in the hope of correcting metabolic patterns in susceptible individuals in such a way as to prevent or delay the onset of chronic degenerative diseases, it is concerned about the adequacy of the scientific undergirding on which these recommendations are based. The Board recognizes that epidemiology establishes coincidence, but not cause and effect. ... The Board believes that advice should be given to the public when the strength, extent, consistency, coherence, and plausibility of the evidence from lines of investigation ranging from epidemiology to molecular biology converge to indicate that certain dietary practices or other aspects of lifestyle promote health benefits without incurring undue risks. (THD, 1980, p. 5)

Furthermore, the authors argue that there is no urgent need for intervening in the dietary habits of Americans:

The recent Surgeon General's report on healthy people (DHEW, 1979) has stated that the population of the United States has never been healthier. It reported that age-corrected mortality rates have been falling throughout this century, that life expectancy at birth is continuing to rise, and that the mortality rate for coronary heart disease has declined 20 percent during the last 20 years and is currently falling at a rate of 2 percent per year. Likewise, death rates from cancers not associated with excessive cigarette smoking have not been rising, and some have been falling. (THD, 1980, 4-5)

In marked contrast to the DGA, THD makes the case that there is neither the need nor the evidence to advise Americans to change their diets in any significant way, presenting a problematic view of exigence with regard to their rhetorical force. If Americans really didn't need to change their diets, why have THD tell Americans how to eat at all?

In the case of the DGA and THD, exigence applies to what might be seen as overlapping circles of social motives that include both the concerns of the authors to provide a response to other texts and the shaping of that response through a given interpretation or definition of the context that provides an exigence to the audience to act. For the creators of the DGA, the 1977 *Dietary Goals* and the texts that followed "laid down the gauntlet," creating within the institutions of the USDA and HHS a sense of obligation, as one of the authors would later explain:

With the fact that there had then been issued within a relatively short period of time a statement of Congress, a summary by the scientific community as represented by one scientific organization, and a general statement of one departmental agency, the Department of Health, Education and Welfare at that time, then arose naturally the question, "What about an administration-wide policy?" ... [I]sn't there an obligation, again, to provide a contribution that speaks as one voice. (Dietary Guidelines Advisory Committee, 1998).

For the creators of THD, the 1980 DGA were that gauntlet. As THD and the hearings that

followed the release of the 1980 DGA and THD indicate, the FNB-NRC felt the release of the DGA was unscientific and possibly harmful:

Those experts who advocate a more aggressive approach and seek to change the national diet in the hope of preventing these degenerative diseases assume that the risk of change is minimal and rely heavily on epidemiologic evidence for support of their belief in the probability of benefit. Neither the degree of risk nor the extent of benefit can be assumed in the absence of suitable evidence. (THD, 1980, p. 17-18)

The authors of both documents cite the need to protect the health of Americans, and both documents envision a reality in need of modification, a danger that needed to be averted. For the authors of the DGA, that danger is the diet of Americans; for the authors of THD, that danger is the DGA.

In addition, the above passages indicate how the exigence provided by the body of scientific evidence available is also a matter of interpretation. For the authors of the DGA, the need to provide an “administration-wide policy” on nutrition and chronic disease was embedded in the need to protect the health of the public, which was in turn, informed by their interpretation of the evidence, which suggested that such a policy would in fact be protective and was without risk. For the authors of THD, the need to undercut the guidance in the DGA was also part of a sense of obligation to protect the health of the public, informed by their interpretation of the evidence, which suggested that DGA guidance was premature and potentially dangerous because it would fuel “excessive hopes and fears in many current attitudes toward nutrition” (THD, 1980, p. 19). However, in the case of texts vying for the position of meta-genre, the existence of a potential audience for whom others would act as expert guides in directing discourse operates as an exigence as well, one for which the authors of THD did not account. What the authors of the DGA seemed to recognize, which the authors of THD apparently did not, is the presence of a nascent public audience prepared to receive and carry out dietary guidance that would ostensibly prevent chronic diseases and obesity, no matter what the level of certainty provided by science regarding benefits or risks.

Not only is the threat of developing chronic disease presented by the DGA a more compelling danger than the more esoteric threat of becoming one of the “worried well” presented by THD, these two texts were created at a time when newspapers and magazines carried frequent articles on how many Americans had already made—or were considering making—dietary changes meant to prevent chronic disease. The authors of THD, in their advice, failed to offer a compelling justification for *not* consuming a diet that, according to media reports, many Americans had taken up despite a lack of certainty regarding its benefits, as I will discuss next. By emphasizing the potential dangers to the health of Americans from fat, cholesterol, sodium, and sugar, the authors of the DGA could position themselves to assume an authoritative role in providing guidance to solve the very problem they had evoked as a salient element of the situation.

### **3.5.2 - Audience and values**

In any rhetorical ecology, the audience is one element that shapes what message might be delivered. Whether an audience is receptive to a message about what should be done in a situation is linked to its acceptance of the definition of the situation provided by the rhetor. Just because an audience accepts how a rhetor defines a situation does not necessarily mean that the audience will accept what the rhetor suggests should be done regarding that situation. At the same time, whether an audience accepts how a rhetor defines a situation in the first place may be related to how receptive an audience is to the actions a rhetor suggests should be undertaken in relation to that definition. As Walsh (2013) argues, matters settled at lower levels of stases (what “is”) may point towards how matters at higher levels of stases should be resolved (what “ought” to happen), but there is a logical gap between the “is” of science and “ought” of action. Walsh goes on to note that this gap, first described by David Hume, is spanned by the application of *a priori* values. Claims of fact do not by themselves indicate what, if any, actions should be taken in regard to them. Even given the same facts, the value systems that frame different sociocultural or historical contexts may indicate different ways to respond. When texts present different versions of reality, the audience’s

response to those texts will be based at least in part on how the values that support arguments for what should be done resonate with that audience. In the case of a text positioning itself as a potential meta-genre within a discourse community, both the definition of reality offered by the text and the course of action that can be supported in relation to this definition may be factors in whether an audience accepts that text as an authoritative guide for further discursive action. When texts are competing for the role of meta-genre within a discourse community, the text that succeeds is likely to be one that implies a course of action that reflects the value system of the audience in a position to authorize that text as a meta-genre.

Two congressional hearings, one in June and one in July of 1980, attempted to resolve the issue of whose guidance would be considered authoritative. In these hearings, where the authors of the DGA and THD are called upon to defend their recommendations, both sides use evidence from science to position themselves as guardians of the public's health, but the USDA and HHS further argue that, irrespective of concerns about the strength of the evidence, dietary guidance for the prevention of chronic disease should be provided to the public because the public is interested in such recommendations (*Dietary Guidelines for Americans: Hearings before the Committee on Appropriations*, 1980, p. 209). The arguments used by the authors of THD also emphasize protecting the health of the public, but in contrast to the authors of the DGA, they argue that they are providing guidance that would protect the public from the dangers of information that is unnecessary, unsupported, and potentially dangerous, even if the public seems to want such information. However, how an audience responds to a text that may eventually come to act as a meta-genre is crucial to that text's success in taking on that rhetorical position. The authors of THD seemed to be oblivious to the power of an audience to reject the guidance of those who would otherwise qualify as experts.

A consumer liaison panel that had worked with the FNB-NRC for several years on other projects severed ties with the board for reasons, according to the panel's chairman, that had to do with the FNB-NRC ignoring the panel's input and concerns in the creation of THD.

The historical details are murky, but for some reason a report on dietary guidance that the USDA was trying to contract the FNB-NRC to write was withdrawn. Testimony in a Senate hearing from the chairman of the consumer liaison panel indicates that the panel had contacted the USDA over concerns that members of the FNB-NRC “had repeatedly expressed hostility toward the [earlier 1977 Dietary] Goals” (*Dietary Guidelines for Americans: Hearings before the Committee on Appropriations*, 1980, p. 111). According to testimony from its chairman, the consumer liaison panel felt that whatever report the USDA contracted the FNB-NRC to write would contradict, rather than reinforce, the advice drawn up by McGovern’s committee and offered a list of criteria to ensure the FNB-NRC acted “objectively,” including having experts from the field of nutritional epidemiology represented on the FNB-NRC. The chairman of the panel further testified that the consumer liaison panel urged the USDA to withdraw its contract if these criteria were not met. The FNB-NRC went ahead and issued THD without the financial support of the USDA and, according to the panel’s chairman, without addressing the concerns of the consumer liaison panel or responding to its input. The guidance given in THD, according to the panel’s chairman, was “a tremendous disservice to Americans” that would “jeopardiz[e] efforts to curb the incidence of the nation’s leading cause of death” (*Dietary Guidelines for Americans: Hearings before the Committee on Appropriations*, 1980, p. 111). This statement indicates an acceptance of claims of a relationship between diet and chronic disease, claims that are asserted in the DGA and rejected in THD.

Circulating already in discourses surrounding the emergence of the DGA and THD was a notion that individuals could, in fact, take charge of their long term health outcomes by behaving in a certain way and making the “right” lifestyle choices. Although there are many possible origins for this concept, one that figured prominently in the American public health landscape in the decades before the DGA were created was the 1964 publication of *Smoking and Health: Report of the Advisory Committee to the Surgeon General of the United States*. As discussed in the previous chapter, the Surgeon General’s Advisory Committee on

Smoking and Health cited a number of epidemiological studies that linked smoking to increased risk of lung cancer, chronic bronchitis, emphysema, and heart disease. The authors of the report felt that some of these links were strong enough, such as the relationship between smoking and lung cancer, that a cause–effect relationship could be established.

There were a number of aspects of the discussion regarding the findings linking cigarettes to chronic diseases as presented by public health officials that would be recognizable as analogous to claims made about links between diet and chronic diseases, even if these two concerns were not otherwise closely comparable. First of all, the issue had been controversial, with scientific and public support for the dangers of cigarettes, as well as their safety. Involvement from tobacco companies, who paid for both research into the health effects of smoking and advertising campaigns in the American Medical Association’s journal, muddied the waters, but also helped to set up a “Big Business” vs. “Public Health” dialectic that would be raised again with regard to relationships between diet and chronic disease. Furthermore, as noted in the previous chapter, the Report’s science-policy-media-publics interface served as a moment in which associations from epidemiological observations were translated into cause–effect relationships. The report contained a sizeable section on how the rationale for this was applied to the evidence related to smoking and disease, arguments that were designed to refute assertions from tobacco companies that “correlation is not causation.” Similar discussions of establishing causality from epidemiological findings would arise regarding links between diet and chronic disease, but they would rely heavily on the example of smoking, rather than making an independent case. For example, in the first edition of the 1977 *Dietary Goals*, Senator McGovern asserts: “The simple fact is that our diets have changed radically within the last 50 years, with great and often very harmful effects on our health. These dietary changes represent as great a threat to public health as smoking” (Select Senate Committee, 1977a, p. 1). Finally, as an instantiation of the is/ought imperative—if smoking is causally related to lung cancer, then there ought to be policies to address this health threat—the Surgeon General’s report set up a moral and

civic obligation to enact its findings. Policymakers and editorials called for actions that would protect the public from the dangers of smoking. Even though the differences between eating and smoking cigarettes are considerable, similar calls with regard to dietary dangers did not seem unreasonable in comparison.

The 1964 Surgeon General's report on smoking and its resonance throughout medical, public health, and lay public spaces set up a logical case for quitting smoking that would be recognizable to many segments of the population as readily analogous to the case for avoiding dietary fat, saturated fat, cholesterol, sodium, and sugar. The Surgeon General's report on smoking presented a problem to be prevented or resolved and a way for an audience to act in order to do that: You could take control of your health and prevent a number of chronic diseases by quitting smoking. Notably, although few demographic characteristics besides gender were significantly associated with being a smoker—men were more likely to smoke than women—the report on smoking noted, and media outlets repeated, that “class status” (independent of income, education, and race) was related to smoking patterns, “in that lower or working classes contain both more smokers and earlier starters” and “white-collar, professional managerial and technical occupations contain fewer smokers than craftsmen, sales persons, and laborers” (Donovan, 1964). By relating class status to behaviors that were seen as negligent and irresponsible, the report on smoking also provided middle class professionals with a normative, moral position for undertaking lifestyle changes to prevent chronic disease.

According to media accounts, many members of the middle and upper classes had already begun changing their diets, and many more were thinking they should, even before 1980. Barbara Ehrenreich (1989) sees the uptake by middle-class professionals of dietary changes and exercise regimes as a way of reasserting a social position that seemed threatened by the flattening of income growth in the mid-1970s. Recapturing a sense of “work-ethic” through diet and exercise offered a feeling of control over the one thing that, at least in theory, an individual could control during this period of social and economic upheaval. What

Ehrenreich describes as a kind of “internal environmentalism” rests on the notion that “within the scope of the body ... Inner standards can be met, high goals achieved, all within this one small realm where discipline and purity still have their clear rewards” (p. 233). This relates directly to the mind-over-matter principle upon which the DGA rests, but Ehrenreich sees a further link to the food recommendations themselves:

In many ways, both medical and cultural, “high fiber” became the designated antagonist of saturated fat: Fat was greasy and supine; fiber dry and stiff. It could be counted on to scrub the body’s interior clean of lipogenous and toxic residues from the outer world. If you could not defend yourself against addictive consumerism or wanton industrialism, you could at least keep your body slim, detached, and clean. (p. 233-234).

The focus on individual responsibility for health through lifestyle choices resonated with Reagan’s neoliberal themes of “privatized, market solutions to public problems” and the “take charge” attitude of the “rapidly professionalizing middle class” that had developed during the early 20<sup>th</sup> century (Crawford, 2006). Indeed, Ehrenreich (1989) notes that middle class professionals’ pursuit of health through diet and exercise was accompanied by a move to the right in terms of their politics. This helps to explain why, during an era when the country as a whole had taken a decisive political shift towards favoring less government intervention—Reagan would be elected president by the end of the year—efforts by the government to tell Americans how to eat would come to be supported by policymakers and in media reports.

The guidance given in the DGA might have been premature, scientifically unsound, or even potentially dangerous, but it both called forth and was a response to an audience who could act upon this kind of information and, in many cases, already had. By asserting something that THD refused to endorse, that chronic disease could be prevented by making the right food choices, the DGA spoke to a middle-class professional audience ready to listen. The DGA assumed a world where chronic disease could be prevented by making the

right dietary choices, invoking the moral obligation of policymakers to “protect the public” and of individuals to “eat right.” The DGA not only presented what these rules for “eating right” would be, but provided a rationale for advising the general population to follow them, in essence providing a reason to for policymakers—a group composed of middle-class professionals—to encourage everyone to take up dietary practices that aligned with their values. It may be, then, that alignment with the values of dominant groups increases the likelihood that a text will be accepted as sufficiently authoritative to function as a meta-genre. Furthermore, if members of those same groups are in a position to act upon the values, language, and ideologies promoted by a text seeking to act as a meta-genre, those actions may help establish the authority of that text.

### ***3.5.3 - Uptake and the ability to act***

Giltrow (2002) argues that meta-genres represent and simplify what she calls a “rhetorical threshold,” the boundaries of a discourse community that produce and maintain distinctions between “insiders” and “outsiders.” However, how this threshold operates appears to vary. This variation may depend on differences between regulating meta-genres (rules for creating texts usually embodied in a specific text directed at a specific professional community) and regularizing meta-generic discourse (more informal, often tacit or unwritten, guidance, also directed at a specific community, but one whose boundaries may be blurry), but may also vary according to differences in status and authority within a given discourse community. A guideline whose authority has already been established as a regulating meta-genre may have a more definite “rhetorical threshold,” providing a community with a relatively clear picture of whose production of related texts conforms appropriately to guidelines. In the less formal case of regularizing meta-generic discourse, it may not just be the quality of conformity to guidance that is under negotiation, but whether conformity is required at all. In this case, the difference between “insiders” and “outsiders” may be unclear.

However, how a “rhetorical threshold” might operate may also vary according to differences in position within a given audience or discourse community. In Giltrow’s

examples, tax accountants—a relatively homogenous group—seem to share a unified and uncomplicated view of the authority of Internal Revenue Service documents as guidelines (i.e. as meta-genres) to be employed in the preparation of taxes. In this case, they are all “insiders” relative to the “rhetorical threshold” provided by the guidelines. In contrast, the meta-generic discourse of the professional community of tax examiners, which Giltrow indicates is a “steeply hierarchical” one, is “full of contradictions” (p. 192). Importantly, those in dominant positions of power, the managers, acknowledge the complexity and difficulty of interpreting the Internal Revenue Manual, but nevertheless see the struggles of entry-level workers to adhere to the guidance provided by the manual (as a meta-genre) as a result of the workers’ lack of skills and knowledge. From their position, managers are afforded the opportunity to make lack of adherence to the admittedly confusing guidance of the manual into a moral failing on the part of the entry-level workers. This seems to suggest that a position of power that confers the ability to act on behalf of the guidance provided by a text may also be a factor in creating and maintaining the “rhetorical thresholds” that indicate the operation of a meta-genre, even when the guidance itself is unclear or contested. Thus the establishment of a moral hierarchy of “insiders” and “outsiders” in relation to a text that may come to act as a meta-genre may have less to do with the merits of the text’s ability to provide guidance and more to do with the social status of those who endorse the text’s position as a guide to defining a situation and producing related texts.

As noted, the guidance given in the DGA both called forth and was a response to an audience who could act upon this kind of information and, in many cases, already had. But the ability to act in an individual capacity is distinct from, although related to, the ways that a discourse community—particularly an institution or organization—might act in concert under the guidance of a meta-genre. Uptake may take place at an institutional level as a regulating meta-genre, at a more individual level as regularizing meta-generic discourse, or in ways that involve both. In all of these cases, uptake is not an end product of meta-genre guidance, but is part of the process of a text becoming a meta-genre.

As a policy to guide the federal government's production of texts related to nutrition and dietary guidance, either the DGA or THD could have acted as a regulating meta-genre. Within organizations, and particularly within government agencies, there is typically an administrative process (or in the case of a government agency, a legislative one) that designates what texts will act as guidelines that direct the production of related texts. But because there had previously been no national nutrition policy related to the prevention of chronic disease, no such administrative or legislative process existed. Furthermore, the unclear context surrounding who should be considered the "authority" in matters of nutrition and the ambiguity of the scientific evidence relating diet to chronic disease clouded the issue of what agency or group of individuals would be allowed to settle the controversy of which document should have regulatory power. The Department of Health, Education, and Welfare (which became the Department of Health and Human Services [HHS] in 1979, the designation I will use throughout) had traditionally been the federal agency in charge of nutrition research. However, due to what he saw as HHS's reluctance to pursue links between diet and chronic disease prevention, Senator George McGovern used the 1977 Farm Bill to designate the USDA as the "lead agency" in this area, an arrangement whose political implications were far from clear (Broad, 1979). Even with the designation of "lead agency" in nutrition, the USDA was still considered an agency that dealt primarily with agriculture, and the lack of expertise regarding matters of nutrition prompted agency leaders to look for outside assistance. In 1977, after the release of the McGovern Committee's *Dietary Goals*, the USDA used its newfound leadership position to seek a contract with the FNB-NRC:

to review the issues raised by the Dietary Goals and make recommendations to this Agency with regard to consumption (1) of protein (total and animal), fat, fatty acids, cholesterol, sugars, complex and total carbohydrates, dietary fiber, and sodium and (2) of processed foods of various degrees of refinement and fortification. (*National Academy of Sciences report on healthful diets: Hearings before the Subcommittee on Domestic Marketing, Consumer Relations, and Nutrition*, 1980, p. 260)

The request for a contract emphasizes that such a review is needed because the FNB-NRC is recognized “as the ultimate source of national nutrition guidelines, as it represents the one forum of scientific opinion in the area of nutrition which carries authority and credibility” (p. 262). Correspondence from the USDA in 1978 refers to the FNB-NRC as offering an “impartial, competent opinion” and “the only means for obtaining a disinterested and objective assessment,” going to on to add that “use of guidelines provided by a source other than FNB will lead to problems if FNB were to come out later with different guidelines” (p. 304-305). A few years later, when the USDA and HHS released their joint set of recommendations and FNB-NRC released its conflicting set, this is exactly the situation that unfolded.

In 1980, what agency or group of individuals should be given authority on matters of nutrition remained unclear, as illustrated by a report which had been under development at the same time as the DGA and released a few months after it, in April 1980, by the Government Accountability Office (GAO). Its title, “What Foods Should Americans Eat?” suggests that the release of the DGA did not definitely answer that question. Despite the publication of the DGA just months before, the GAO report states that the government needs to “provide authoritative guidance on safe of intake for controversial dietary substances that have been associated with certain diseases” (U. S. Government Accountability Office, 1980, p. i), implying that the DGA did not actually do so. In what would turn out to be an ironic statement, the GAO report suggests that the USDA and HHS “request that a group be established by an organization such as the Food and Nutrition Board, National Academy of Sciences to evaluate and recommend any necessary changes on the guidance the USDA/[HHS] interdepartmental *ad hoc* committee is developing on intake levels for controversial dietary substances, which are associated with public health concerns,” going on to suggest that such a review “would help the guidelines gain wide public acceptance” (U. S. Government Accountability Office, 1980, p. 20). In that report, HHS agreed that an outside review would be appropriate, especially when reviewing nutrition guidance “not based on

existing scientific consensus;” a few lines later, the USDA rejected the need for an outside review process since the *ad hoc* committee was “only summarizing scientific consensus” (U.S. Government Accountability Office, 1980, p. 21). This disconnect illustrates the lack of rhetorical coherence in interpreting the context in which such a review would take place.

To add to the confusion, following closely on the heels of the GAO report, in May 1980, the FNB-NRC released THD. The authors of THD voiced concerns about “the adequacy of the scientific undergirding” of recommendations put forth in the DGA and by other groups, indicating that such guidance would be appropriate only when “the strength, extent, consistency, coherence, and plausibility of the evidence from lines of investigation ranging from epidemiology to molecular biology converge to indicate that certain dietary practices or other aspects of lifestyle promote health benefits without incurring undue risks” (THD, 1980, p. 5). Even though the FNB-NRC was considered by nutrition experts to be a prestigious authority on matters of nutrition,<sup>14</sup> it had no direct ability to act as a government agency. It could produce reports that advise action, but could not itself create policies that would direct related genre activity. Furthermore, given the circumstances of what the authors of THD felt was insufficient and inconclusive science, it is unclear what sorts of policy actions they would recommend in any case.

In contrast, as government agencies, the USDA and HHS could act on behalf of the ideas in the DGA, producing texts that provided dietary guidance to the public under the authority of the federal government and otherwise endorsing the worldview presented in the DGA. Although there may have been no legislative mandate for the USDA and HHS to provide such guidance or endorsement, there was no other designated authority to stop them from doing so. That the USDA and HHS had the power to act was evident even *before* the

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<sup>14</sup> Mark Hegsted, who promoted both the 1977 *Dietary Goals* and the 1980 DGA, has asserted that, at the time, “The scientific community as far as nutrition as concerned was the Food and Nutrition Board” (Hegsted, n.d.)

DGA were created. For a number of years, the USDA and HHS had been developing documents that could be seen as related to both the “regulating” and “regularizing” roles that DGA recommendations would eventually play. The Food and Drug Administration (a division of HHS) began to relax prohibitions against label claims that certain foods would help lower cholesterol levels in 1973 (Levenstein, 2013). In 1979, the USDA began creating both regulatory rules and recommendations (which do not have the force of regulatory requirements) to modify federal nutrition programs to bring them in line with the 1977 Senate report, *Dietary Goals for Americans*. For example, before the DGA were released, the USDA had already created a pamphlet entitled, “Building a Better Diet,” and distributed it to State agencies that administer the food stamp program. The pamphlet declared, as a “fat fact,” that “People who eat a lot of animal fat may develop higher levels of a fat-like substance in the blood called cholesterol. ... Too much cholesterol in the blood can cause fat to build up and block the blood’s passage through the arteries” (U.S. Department of Agriculture, Food and Nutrition Service, 1979, p. 13). By the time hearings were held in the summer of 1980 to arbitrate the differences between the DGA and THD, the USDA had already sent a “menu planning guide” based on the 1980 DGA to schools participating in the National School Lunch Program to facilitate reducing the amounts of fat, sugar, and salt in school meals.

Prior actions by the USDA and HHS that align with the DGA’s assumptions and worldview—and the presence of the 1977 *Dietary Goals* as an antecedent text which also could be seen as being in a position to achieve meta-genre status—had begun to lay the groundwork for a “rhetorical threshold” a number of years before the DGA actually appeared. This threshold reflected and reinforced the values of the middle-class professionals in the media, in government, and on the consumer liaison panel that indicated that a worldview that accepted that chronic disease could be prevented through dietary choices was the “right” one. “Insiders” are those whose own values and beliefs align with those presented in the DGA. In contrast—and relative to the *a priori* acceptance of its worldview—those who

contradict the DGA may be seen as mistaken, ignorant, incapable, unwilling, or even unscrupulous. This is clear in the way that some authors of THD were characterized. To support his arguments in Senate hearings to disregard THD, the chairman of the consumer liaison panel cites concerns that THD ignores the conclusions of a number of other expert reports on links between diet and disease and that some of the FNB-NRC members have conflicts of interest regarding ties to the food industry. Although these arguments do not address the underlying concerns raised by THD regarding the weakness of evidence linking diet to chronic disease, similar objections are echoed in news articles surrounding the controversy, suggesting that the consumer liaison panel's opinion is shared by the class of professionals whose opinions and perspectives are reflected in those articles. Many news stories focused on connections between two members of the FNB-NRC and meat and egg producers whose business would be hurt by recommendations to limit fat and cholesterol, reducing the controversy to implications that the FNB-NRC had been "bought," despite the fact that the views presented in THD echoed the views of other experts and that the entire 15-member board had voted unanimously on the report ("A Confusing Diet of Fact," 1980; Brody, 1980). That some policymakers had thoroughly accepted the rhetorical threshold indicated by the DGA is also apparent. After the congressional hearings that took place in an effort to resolve contradictions between the 1980 DGA and THD, the member of Congress in charge of the first hearing thought that the primary offense of the FNB-NRC was their public contradiction of "existing public policy" (Richmond, 1980) despite the fact that no legislators had ever proposed or voted on this policy.

However, legislators did propose and vote on a mandate that indicates that the DGA was, in fact, still a contested document and not "existing public policy." Near the end of 1980, in response to the controversy provoked by the presence of two sets of advice to the American public about what to eat, a Senate appropriations committee mandated the formation of an expert committee to evaluate the science of the 1980 DGA. This mandate directed the USDA to work with HHS and FNB-NRC to establish an advisory committee to

review the DGA and make recommendations for changes. This prompted the release of a second edition of the DGA in 1985, which differed little from the first. By this time, it is clear that the form and content for addressing questions of dietary health in this context had been established. The scientific advisory panel that facilitated the development of the second edition of the DGA notes:

It is expected that the revised guidelines, like the 1980 edition ... will be used widely as the basis for dietary guidance for the general public. In the interest of consistency, the general format of the seven guidelines and the extent to which nutritional issues were covered in the 1980 edition were retained in the revision. (Dietary Guidelines Advisory Committee, 1985, p. v)

Also in 1985, in an example of meta-genre begetting meta-genre, the National Institutes of Health began sending every doctor in America a “Physicians Kit,” that included the directive to tell patients “to avoid saturated fat and replace butter with margarine” (Levenstein, 2013, p. 149). By the time the third edition of the DGA was released in 1990, the scientific advisory panel for this edition notes that, even without an official mandate, “the existing Dietary Guidelines are well established as Federal nutrition policy and serve as the central dietary guidance message for healthy Americans” (Dietary Guidelines Advisory Committee, 1990, p. 1). The widely recognized nutrition education graphic, The USDA Food Guide Pyramid, was based on the DGA and released in 1992; the first edition of the DGA that was authorized for creation by a legislative mandate was not released until 1995.

The worldview asserted in the DGA would become widespread through administrative channels long before the DGA became official nutrition policy. Ideas that would eventually be codified in the DGA were foreshadowed in related texts, as well as taken up in the production of additional texts. That the DGA would become a successful meta-genre in this discursive space seems to be related at least in part to the power of the agencies involved (USDA and HHS) to produce those texts even without definitive scientific evidence or a specific legislative mandate to do so. At the same time, the Senate hearings in

1980 and related media reports made it clear that the government, media, and some segments of the U.S. population had already accepted the definition of a “healthy diet” as one that prevents chronic disease.

#### ***3.5.4 - Audience, uptake, and authority***

Giltrow (2002) refers to meta-genres, and guidelines specifically, as a sort of “pre-emptive feedback ... ruling out some kinds of expression, endorsing others” (p. 190). Meta-genres anticipate behaviors and situations that can be prevented or produced by following the guidance a meta-genre provides. This guidance, in turn, helps to discursively construct and reinforce the worldview assumed by the meta-genre. In this regard, a meta-genre participates in creating and sustaining a particular “social imaginary,” a collectively imagined form of social life and social order (Taylor, 2002), a shared world of expectations, ideologies, and assumptions. In the process of potentially becoming a meta-genre, a text invokes a social imaginary that is itself in the process of becoming. The social imaginary that such a text calls forth is a discursive world that might or should exist, one that its audience has a hand in shaping. By evoking this discursive world and those who might inhabit it, the membership of the audience for whom this text might become an authoritative guide is also in the act of being created. Those who see themselves reflected in worldviews, assumptions, and values in a text may be inclined to act in concert with its directives. In this manner, members of an audience who themselves are in positions of authority or privilege—positions that facilitate their acting upon a text’s directives—may be able to confer authority upon a text through this uptake, either at an administrative or individual level, or both.

If successful as a meta-genre, both the DGA and THD would perform some of the same work in terms of a social imaginary; for example, both assume an audience concerned with dietary health. However, there are important differences between these two texts related to how each defines “healthy diet.” These differences highlight how an appeal to the values of a dominant social class—coupled with the privileges of position and authority inherent in this status that confer the ability to act upon those values—creates another feedback loop that

can amplify a particular worldview when such processes and relationships interact to elevate a text to meta-genre status.

THD emphasizes that a “healthy diet” is one that provides essential adequate nutrition; from this perspective, an individual would be eating “right” if she consumes a diet that prevents malnutrition and diseases of deficiencies. THD also asserts that, by this definition of “healthy diet,” most Americans were eating “right.” Furthermore, THD emphasizes that single, all-inclusive recommendations are inappropriate, because needs for energy and essential nutrients “vary with age, sex, physiological state, hereditary factors, physical activity, and state of health” (p. 4). THD goes on to suggest that therapy for individuals at high risk for metabolic disorders or heart disease should come from a physician, rather than general statements produced by remote institutions and organizations. An appreciation for individual differences of bodies and situations and the assertion that most Americans were already eating a “healthy diet” limits the normative tug of the guidance given by the authors of THD. If part of the appeal of eating “right” is, as Ehrenreich argues, the opportunity for middle-class professionals to separate themselves from the rest of the middle class, then middle-class professionals would likely find little use for the guidance given in THD. On the other hand, the DGA conferred upon dietary choices the power to prevent obesity and chronic disease, a status dietary choices had not had previously. Further, the recommendations provided by the DGA indicate which choices are the “right” ones. This is an ideological stance that would resonate with middle-class professionals who had already taken up health-conscious behaviors by making changes to their diets or who had the means and the inclination to do so. Acceptance of this ideology might be reflected in the uptake of the discursive aspects of the DGA’s guidance, performance of some or all of its recommendations, or organizational support of its assumptions and worldview.

Edwin Black (1970) makes the case that “in all rhetorical discourse, we can find an enticement not simply to believe something, but to be something” (p. 119). Black’s linking of rhetoric to ideology and identity argues that the ideological viewpoints present in a text not

only implies an “auditor” (a reader or listener) that shares this ideology, but influences the auditor through an “ideological pull” that offers her a way to structure her worldview and a corresponding identity to inhabit that goes “beyond the expressed concerns ... of the discourse” (Black, 1970, p. 113). Ideological viewpoints present in a text imply certain characteristics in the audience to whom the text is directed and may work, in fact, to construct those characteristics. Uptake can be a means by which an auditor inhabits a subject position offered by a text; at the same time, it is also a way of rhetorically constructing a speaker. In the 1970s, with “eating right” rapidly becoming central to the lives of middle class professionals, consumers of fat-free yogurt and cholesterol-free margarine were poised to become consumers of authoritative dietary information and guidance—if only someone would provide it. Dietary information and guidance that endorsed a view of the world where an individual could reduce her risk of chronic disease by choosing the “right” foods would be treated as worthwhile knowledge to be consumed by consumers in the know. As a result, only rhetors, whether institutional or individual, providing such information would be accorded a position of authority by their audience.

Giltrow (2002) argues that a meta-genre may signal existing or potential negotiation, struggle, and disturbance in a discourse community. Certainly, when two texts are in competition for the position of meta-genre in the same rhetorical space, issues of authority are at stake. In an unfolding rhetorical ecology, with different texts presenting conflicting narratives about reality, the text that prevails as a meta-genre does not do so simply because it provides a more trustworthy narrative or because its authors have more expertise, experience, or other qualifications meant to confer authority. In an important way, authority is established by the rhetorical success of the argument, as indicated by the ability of a text to steer discourse in a particular direction, i.e. act as a meta-genre. In other words, the transition of a text into a successful meta-genre is not just a response to *ethos*; it confers *ethos*. An acceptance of the ideologies, worldview, and assumptions embedded in those directives—indicated by institutional or individual uptake, or both—confers authority to that guidance.

THD did not suggest that dietary cholesterol or saturated fat in particular needed to be restricted. Instead, THD encouraged the public to get adequate essential nutrition from a variety of food sources and maintain a healthy weight. Most significantly, as explicitly noted by one of the report's authors during congressional hearings, the recommendations were not directed toward disease prevention: "We are not saying that if you follow these guidelines [in THD] there is the implication that you may reduce the incidence of chronic degenerative disease, which a number of other organizations are saying" (*National Academy of Sciences report on healthful diets: Hearings before the Subcommittee on Domestic Marketing, Consumer Relations, and Nutrition*, 1980, p. 116). This, apparently, was the problem. Rather than the FNB-NRC's authority being questioned because they were not following the available scientific evidence, it seems that their authority was diminished largely because they failed to tell Americans how to eat in order to prevent chronic disease, something they felt they could not and should not do because of lack of evidence. For a middle-class professional audience already prepared to modify their diets, if not already undertaking such modifications, this failure was an occasion to question, not the soundness of available evidence, but the *ethos* of the FNB-NRC. To come full circle, the failure of FNB-NRC to fully consider how this middle-class professional audience would react to the guidance it offered would come to undermine the ability of the FNB-NRC to act as an authoritative entity in offering dietary guidance to this audience.

To reverse Black's argument above, then, not only are certain characteristics of an auditor implied by a speaker, certain characteristics of a speaker are implied in the uptake of a text by an auditor. These characteristics might be understood as some variation on "trustworthiness" or "expertise," or broadly speaking, *ethos*. A text that could potentially function as a meta-genre cannot "cause something to happen" and an author cannot "alter reality" with discourse alone; uptake must occur, and uptake depends on many things, one of which, in the case of a text that might potentially become a meta-genre, is the perceived authority of a text to provide direction on how to act within a particular context. In turn, the

authority granted to the text is marked by the extent to which its worldview and assumptions, as well as its directives regarding the production of related texts, are taken up by an audience. Uptake, then, works to produce the authority of a text as a meta-genre, even as the ability of a text to exert its authority influences uptake.

Importantly, because a text that eventually becomes established as a meta-genre tends to serve the interests and reflect the values of those already in positions of privilege, it may be very likely to not serve—or even recognize—those who are not. Phillip Wander (1984) notes, “just as a discourse may be understood to affirm certain characteristics, it may also be understood to imply other characteristics, roles, actions, or ways of seeing things to be avoided. ... The potentiality of language to commend being carries with it the potential to spell out being unacceptable, undesirable, insignificant” (p. 209). Specifically, Wander points to “peoples categorized according to race, religion, age, gender, sexual preference, and nationality, and acted upon in ways consistent with their status as non-subjects” who are excluded through what is said or not said (p. 216). In this way, a social imaginary constructed by a meta-genre may offer ways to act that accommodate certain individuals, but disregard others, and this accommodation is differentially suited to those belonging to dominant subgroups within a population. This complicates the moral hierarchy that a meta-genre constructs. How much of a text’s worldview or directives are taken up by an individual may have less to do with the guidance provided and may have more to do with the material circumstances, worldviews, and identities an individual already inhabits. Although certainly there are other factors, things that might affect uptake could include whether the individual had the material and immaterial resources to enact the guidance given, including familiarity with the genres implicated; the ability, motivation, and opportunity to apply them; the importance to that individual of the risks of not applying them; *access* to discourses about health; attitudes toward science and scientific authority; and—more broadly—a disposition toward self-improvement, orientation toward the future, and a belief in “the system” and its rules that is characteristic of social classes and racial/gender groups who have experienced,

historically, the actual opportunities for “upward” mobility. Furthermore, although following the rules of a meta-genre (or any text) might be the “right” thing to do, according to the values of a community, and may be understood as such by an individual, the individual may resist, modify, or reinterpret those imperatives to fit her needs or desires. Or, to follow Wander’s argument, the imperatives of a text aspiring to meta-genre status may exclude participation by an individual from the outset. In the case of the DGA, the assumption that individuals can control their health outcomes through dietary choices already favors those with more economic and social control in general. The middle-class professionals who endorsed and institutionalized the DGA’s definition of “healthy diet” were more likely to have better health from the outset, better access to healthcare, and more resources to avoid all kinds of environmental exposures (apart from food) that can lead to poor health. The acceptance of the worldview that health outcomes were under the control of the individual put those who were already disadvantaged in terms of economic or social status at a further moral disadvantage because they could now be held accountable for their own poor health.

If the processes of uptake that authorize a text to act as a meta-genre tend to reinforce the values, worldview, and social standing of those already in positions of power, who ends up on the “wrong” side of the moral hierarchies that are eventually established by a meta-genre may, in many cases, be predetermined. At the same time, those on the “wrong” side of these hierarchies are least likely to be in a position to question the fairness or appropriateness of the application of the standards a meta-genre creates. As a text’s meta-genre standards, related genre production, and overall ideological stance become “common,” the moral hierarchy it puts into place becomes “common sense.” The unequal social relations that help to establish a text as a meta-genre are reinforced, their justification residing the authority of the meta-genre itself.

### **3.6 - Conclusion**

Early theories of communication focused on a rather straightforward relationship between speaker and audience. The speaker directed her message or text at the audience; the

audience received the message and was or was not persuaded to act by it. When Bitzer (1968) described this model, he characterized the rhetorical situation as the reason for the discourse, noting that we should not assume that “a rhetorical address gives existence to the situation; on the contrary, it is the situation which calls the discourse into existence” (p. 2). Here is a clear progression of chicken to egg: first the rhetorical situation; then the rhetoric. The situation is then acted upon by the rhetor via her audience, resulting in a new and different situation: “the rhetor alters reality by bringing into existence a discourse of such a character that the audience, in thought and action, is so engaged that it becomes mediator of change” (p. 4). The resulting pattern is a variation on the familiar, if outdated, transmission model of communication (Carey, 1992): The situation delivers the exigence to the speaker; the speaker supplies the persuasive rhetoric to the audience; the audience, if persuaded, directs action at the situation, creating change. This picture assumes an objective reality, one that is the same to all who encounter it. It also assumes a pre-existing audience, waiting to be persuaded, who acts as a more or less passive instrument of the rhetor’s desires. What is often unremarked upon is that it also assumes a stable rhetorical position for the speaker as one who marshals the tools of persuasion—*ethos*, *logos*, *pathos*—for the task at hand, but is otherwise isolated from the effects of her own rhetoric. The “old” situation, that “called” the discourse into existence, seems to exist apart from the “altered reality” that results.

Such a pattern suggests a unidirectional, and ultimately discontinuous, path of communication. Although Bitzer is clearly correct in stating that “rhetoric is a mode of altering reality,” the interactions among the elements of a rhetorical ecology that allow for such alterations are not unidirectional nor discontinuous, but arise as various elements are co-produced, immanent to the other elements, shifting and changing within “a circulating dynamic ecology of discursive and material processes, events, and enactments” of the time (Jensen, 2015, p. 331). The analysis of the DGA and THD shows how these elements loop back on each other, reinforcing some rhetorical effects and canceling others out. The processes and relations that establish a text as a meta-genre also help to create coherence of

purpose and audience and a sense of rhetorical order and clarity by providing a framework that defines a previously undefined situation. In this particular context, the processes and relations that established the DGA as a meta-genre also help to create coherence of purpose and audience by providing a framework that defined a previously undefined situation, one in which both the scientific evidence to indicate a course of action and administrative authority to enact it are highly uncertain. The processes and relations that established the DGA as a meta-genre defined the context as one in which there is both a need and sufficient scientific evidence to instruct the public in how dietary choices can help prevent chronic disease. The establishment of the DGA as a meta-genre in this situation is also a way of establishing an authoritative administrative entity who could draw such a conclusion, an authority that had previously been contested.

In this chapter, I sought to understand why the science-policy debate about diet and chronic disease was settled in favor the thinking presented in the DGA rather than that in THD. My answer revolves around the ways in which a text can come to act as a meta-genre. My analysis of the DGA and THD indicates that a text is likely to successfully position itself as a meta-genre to the extent that it anticipates a world in which its guidance is necessary and important, providing the rationale for its own existence, and to the extent that it appeals to the values and interests of those who are in a position to enact or enforce this guidance, providing avenues for uptake. As the authority of a text, its rhetorical thresholds, and the status of “insiders” and “outsiders” relative to its uptake become established, the hierarchies that accompany these transformations begin to crystallize, often with moral implications. This process is self-reinforcing: As those in positions of power or authority take up the directives of a text that could potentially function as a meta-genre, they are able to institutionalize those directives formally or informally. As the standards of a nascent meta-genre are taken up and put into practice by those in position of power, the text takes on a material and moral authority it had not had previously. This authority includes providing the lens or worldview through which an actionable social context is recognized and actions for

that context are deemed appropriate. A situation is defined, and a “right” way to do things in regard to that situation begins to be established. This also creates the opportunity to make judgments about the efforts and capabilities of those who fail to recognize the defined situation or who do things the “wrong” way in regard to it. The hierarchy that is produced exists solely in relation to the standards of a text that has been accepted (by those in positions of power or authority) as sufficiently authoritative to function as a meta-genre, a fact that over time may become, for the most part, invisible. What remains very apparent, however, is the rhetorical threshold itself.

In this manner, a text may be positioned as a “regulating” meta-genre that directs related genre production in a formalized manner within a discourse community through a specific set of guidelines, just as the DGA govern nutritional information provided by the federal government and its programs. The same text, though, may also become a “regularizing” meta-genre, with enough influence and reach to direct discourse outside of a specific community, through more informal mechanisms, just as the DGA guides statements about diet and chronic disease in textbooks and grant proposals. Beyond this, however, a text that successfully becomes established as a meta-genre also establishes that the worldview it assumes are an accepted way of interpreting situations and understanding the world. In this manner, the DGA authorizes a worldview that endorses the idea that an individual can prevent chronic disease through dietary choices. Currently, in the U.S., the use of the phrase “healthy diet” to indicate a diet that prevents chronic disease is so pervasive as to be largely beyond interrogation, despite ongoing controversy about what, if any, diet can actually accomplish this. The institutionalization of this perspective in the DGA has, I believe, been central to the widespread acceptance of this perspective as “common sense.” When those who promote very different dietary patterns nevertheless insist that their diet is the one that prevent chronic disease, to reach behind those debates and call into question their very premise is to also call into question a social imaginary that most of us inhabit without thinking. It is important to keep in mind, however, that the processes and relations that

authorize a meta-genre—whose worldview may then go on to become ubiquitous and beyond question—seem to reflect and reinforce the interests and values of those in positions of power and authority. For this reason alone, examining the origins of such meta-genres is important.

In terms of how this examination of the DGA as meta-genre relates to the previous chapter, I recognize the disadvantages of using multiple, overlapping—but not identical—theoretical terms. The problem is analogous to discussing a biological phenomenon at physiological and biochemical levels. Differences in terminology, emphasis, detail, and scope may make it difficult to recognize that the same process is being described. At the same time, examining the same phenomenon with different theoretical tools can provide insights that are unavailable otherwise. Like Foucault's idea of "episteme," meta-genres are conceptually linked to Kuhn's (1962/2012) vision of a scientific paradigms. As with these other organizing principles, meta-genres do the rhetorical work of creating normative standards and unifying worldviews that give coherence to ways of thinking, audiences, and their actions. All of these concepts also allow for what Kuhn popularized as "paradigm shifts," or times when new ways of understanding the world arise that are radically different from previous ones. In the case of the DGA, it is fair to say that the focus on using diet as a means to prevent chronic disease was a fundamental reorientation regarding how diet and health are related relative to the previous focus on diet and diseases of deficiency. In addition, just as an episteme circumscribes patterns of thought expressed in discourse and practices and a paradigm governs what questions and agendas are pursued within a particular scientific field, a meta-genre also directs discursive practices toward some ends rather than others. The concepts of episteme, paradigm, and meta-genre do differ in some ways, however. For example, Foucault's concept of episteme spans disciplines, while Kuhn's paradigm applies to ways that specific scientific fields or disciplines go about their work. Meta-genres, as I argue below, may do both, and this quality is likely to be related to the fact that meta-genres can often, although perhaps not always, be identified as a specific text.

In other words, a meta-genre may both express a worldview of an era and organize the production of texts within a specific field. Furthermore, although an era's episteme or a scientific discipline's operational paradigm are unlikely to be captured in a specific text, a text that operates as a meta-genre may act as both an expression of an episteme or paradigm and a way of institutionalizing or embodying it. In his essay, "What is an author?" Foucault (1977) argues that in some cases, authorship should be understood as distributed or unable to be attributed to a single person. In Foucault's view, a text may not simply express the views of the one person who writes it, but a collection or history of ideas, or in other words, an episteme. Similarly, a meta-genre may have an identifiable author, but frequently the "author" either is not identified or is identified as an institution or an organization. This illustrates the ways in which a meta-genre reflects and reproduces an episteme, but more specifically, how a meta-genre may serve as an expression of the values and concerns of those in a position of power to serve as institutional or organizational authors. This should not be misunderstood as a meta-genre creating or producing a particular worldview by virtue of its existence. Rather, a specific text that acts as a meta-genre is a tangible record of processes and relationships that take shape within a particular historical context to reproduce and reinforce a specific worldview. The processes and relationships that create the conditions for a particular episteme—or within a specific scientific discipline, a paradigm—to arise often take place without a specific text to capture the resulting worldview and to act as a means to reproduce it. If an episteme or paradigm acts a broad backdrop that circumscribes what is accepted as discourse in a particular era or field, the rhetorical ecology that surrounds a meta-genre and the text that acts as meta-genre are samples of the discourse that may be produced. Beyond that, however, a meta-genre can act to further shape and circumscribe the production of texts, reinforcing the conceptual boundaries of an episteme or paradigm.

Importantly, the *dispositif* described in Chapter 2 created conditions from which the DGA could arise; however, its existence—and subsequent positioning as a meta-genre—was not inevitable, as indicated by the production of THD and the presence of this text as a

potential alternative authoritative guide to relationships between diet and chronic disease. The worldview presented in THD characterizes individuals as capable of making wise choices about food and describes health differences are more a matter of structural inequalities than individual behaviors. This analysis is a reminder that in the establishment of the DGA as a meta-genre, the worldview present in THD was abandoned. In the next chapter, I examine some of the implications of the worldview that the DGA acts to reinforce, one where individuals are in need of expert and technological interventions in order to maintain dietary health and where health differences can be directly ascribed to participation in managing diet and activity choices in a way that maintains a slender body. As I discuss next, the popularity of diet-related fitness smartphone applications demonstrate both the pervasiveness and the power of these assumptions.

## CHAPTER 4: “HEALTHY DIET” TECHNOLOGY AND BODY AS OBJECT

### 4.0 - Introduction

As the previous chapter indicates, the creation and uptake of the 1980 *Dietary Guidelines for Americans* (DGA) authorized the idea that you could prevent, or at least reduce your risk of, any number of chronic diseases by choosing the “right” foods in the “right” amounts, making this concept central to discourses around “healthy food” and “healthy diet.” Within these discourses, and due at least in part to the guidance given in the DGA, body fat and dietary fat became rhetorically linked, both indicative of the “wrong” food choices. Proscriptions against dietary fat, particularly saturated fat found in animal products, were meant not only to reduce risk of heart disease and cancer, but to reduce obesity, which was thought to be an independent factor in the development of chronic disease (Wynder, 1975). As the 1980 DGA points out, fat has more than twice as many calories per gram as carbohydrate, which means that, according to the “calories in–calories out,” energy balance principle, fat isn’t just bad for your heart, it is bad for your waistline. The focus on fat in the 1980 DGA (and in subsequent editions) as both a source of excessive calories and as a food component to be avoided in order to prevent chronic disease through a separate mechanism (apart from obesity) served to fuse discourses around “quality” and “quantity” of food. The homophonous relationship between dietary lipids and adipose tissue, both popularly known as “fat,” further merged these concepts in everyday discourse: Eating fat, being fat, and being unhealthy all ended up sharing the same rhetorical space.

Although the focus of my work is not obesity per se, it is clear that if the DGA had the effect that they were intended to have on body size and health, current moral panics over the “obesity epidemic” or “obesity crisis” would be, at the least, very different, if not largely diminished, and a critical examination of nutrition discourses might seem superfluous. Furthermore, although the social disapprobation related to fatness is a relatively recent historical phenomenon, it has been present throughout much of the 20<sup>th</sup> century (Stearns, 2002). This makes it difficult to imagine a scenario where increases in chronic diseases

occurring without an increase in body size would have incited the same level of emotional engagement as concerns over the “obesity epidemic” the DGA were meant to prevent.<sup>1</sup> To reiterate, I am not making an argument for a causal relationship between specific recommendations in the 1980 DGA and the “obesity epidemic” that followed. Such a stance would obscure the original concern in circulation in the 1970s, which is whether general population-level dietary guidance of any sort would result in reduced rates of chronic disease. Rather, I am arguing from the evidence covered in the preceding chapters that the assertion of links between diet and chronic disease, made in federal public health guidance and elsewhere, changed the relationships between food, bodies, and health for most Americans. Discourses authorized by the perspectives in the DGA place the body firmly under control of cognition; according to these discourses, individuals armed with the appropriate nutrition knowledge can to a large extent choose to avoid chronic disease. These discourses endorse a view that health is mostly an issue of mind over matter, and the matter that one is supposed to mind is the body.

Throughout the 1980s and early 90s, public information about nutrition and health circulated largely through print and televised media. At the *New York Times*, health columnist Jane Brody and food columnist Marian Burros, whose topics overlapped in the area of nutrition, both made their careers informing the public about the do’s and don’ts of “healthy” low-fat, low-calorie foods and meals. Time magazine carried cover stories on “the fitness craze,” the dangers of dietary cholesterol, and “what works” to slim down. Actress Jane Fonda developed a series of workout videos, first released in 1982, which helped to popularize the pursuit of exercising for the sake of “burning” off calories to maintain a

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<sup>1</sup> There is always the possibility that an “obesity epidemic” could have been manifested out of the small, but steady trend toward increases in average body size that were already apparent in the 1960s and 1970s. But it is also unclear whether the rise in rates of obesity is a cause of or a symptom of increases in chronic diseases.

slender body. Energetic fitness guru Richard Simmons hosted a popular television show dedicated to educating the American public in “healthy” low-calorie eating, aerobic exercise, and weight loss. These writers and celebrities helped to popularize the definition of “healthy food” and “healthy diet” outlined in the DGA and particularly emphasized the role of balancing “calories in, calories out” in order to avoid fatness and thus chronic disease. By the second decade of the 21<sup>st</sup> century, discourses around diet, body size, and chronic disease that the DGA institutionalized had a new media platform: smartphone applications that allowed users to monitor a variety of ostensibly health-related factors, such as weight, waist size, and dietary fat; however, even in this new medium, diet-related fitness application (DRFAs) continue to focus on “calories in, calories out” as a way of managing body size and health.

In this chapter, I focus on the ways in which the history of discourses about the links between diet and chronic disease manifests itself in 21<sup>st</sup>-century America in the use of eating practices to discipline the body, particularly with regard to weight. Diet-related fitness apps (DRFAs) as information technologies not only provide a way to understand how individual bodies “behave;” they also provide an account of how they are expected to “behave” according to authoritative information about bodies in general, much of which derives from the discourses discussed previously. Mediating technologies—in this case DRFA, but also electrocardiograms, blood pressure cuffs, and the like—provide information that allows comparisons between what is supposed to be happening to our bodies according to a normative standard and what our bodies actually do. Pollan’s assertion, described in the introductory chapter, that the women in the study who failed to lose weight on a low-calorie diet are “lying,” is made possible by technologies, such as food frequency questionnaires, bathroom scales, and computers, that not only allow the “real” (the reported diet and weight loss of the women in the study) to be compared to the “ideal” (the expected weight loss given the reported diet), but are central to the creation of the “ideal,” within the knowledge production practices of science, in the first place. DRFAs provide a view into technology as an instantiation of the assumptions, discussed in Chapter 2, that undergird current nutrition

discourses. They also offer a space to investigate how matters regarding nutrition covered in previous chapters operate in the present.

If the essence of Pollan's complaint is that the bodies of the women in the study have failed to match the universal assumptions attached to "the body," then digital technology that can collect and provide detailed information about an individual body—with algorithms that can be "personalized" to that individual—seems to indicate a way out of this dilemma. But unlike Friedrich Kittler's (1999) depiction of the gramophone, which was able to capture sound before the "filtering and censoring effects of a consciousness" (p. 89), DRFAs do not directly "capture" the workings of a body. Rather, they are built upon layers of splices, edits, and erasures of materiality and embodiment, obscuring the historically specific contexts that are part of the knowledge production processes that have influenced understandings of the ways that food and bodies interact. These abstractions are the first part of what N. Katherine Hayles (2008) calls the "Platonic backhand," where simplified explanatory theories are extracted from "the world's noisy multiplicities" (p. 12). This is not a problem in and of itself. This also known as inductive thinking, and it is a cornerstone of science; theories are built from from observed patterns. However, as scholars of the rhetoric of science and science studies have shown us, the theories, practices, and material "multiplicities" from which scientific information is abstracted are contingent on larger historical contexts and materialities; *a priori* assumptions and objects of study in nutrition research are no exception. This becomes a problem when, as Hayles (2008) points out, "the move circles around to constitute the abstraction as the originary form from which the world's multiplicity derives. Then complexity appears as a 'fuzzing up' of an essential reality rather than a reflection of the world's holistic nature" (p. 12). This is the second part of "the Platonic backhand," and the movement from scientific information about nutrition (abstracted from specific instances) to nutrition guidance (where specific individual outcomes are expected to conform to an abstracted theory) is just such a circling around. As Hayles argues, this helps to set up a hierarchy where information is seen as distinct from and superior to materiality.

The promise of a DRFA is that it can use abstracted elements derived from nutrition science and policy to represent and, importantly, predict the user's reality. This illusion is enhanced by the user's ability to "individualize" the app with personal information and preferences, obscuring the assumptions by which the app operates that ostensibly apply to "the body" and therefore, all bodies. This is the second move in Hayles's Platonic backhand, where the abstract ideal of "the body" is meant to provide a template that the complexity of a given individual's embodied experience should match. With this move, "the body" is seen as having an ordered existence from which embodied experience should not deviate. But, of course, this is exactly what does happen. When discrepancies between predictions and outcome arise, individuals do not have the privilege of distance from the reporting subject needed to summarily reject their own experiences as without merit or meaning.

Considering that weight lost through calorie reduction is frequently regained in the long run (Anderson, Konz & Jenkins, 2000), I am particularly interested in investigating potential problematic aspects of the work of weight loss as it takes place in the space defined by a DRFA. I have made the argument throughout my dissertation that diet as a central aspect of chronic disease prevention has been produced by and in turn produces a modernist conception of the body that separates it from and subordinates it to the mind. In modernist thinking, the subject and object are usually considered to be distinct from each other; thus the subject may act upon the object in order to achieve a particular objective. However, in the case of weight loss, the object—that which is acted upon—is the body of the subject. Or more specifically and by definition, the subject acts to modify data that label and quantify the body of the subject, namely weight. In some cases, other data points may be named—calories, body mass index (BMI), or waist circumference—mediated by something other than or in addition to a scale. But no matter how the body is "read" through a medium that produces the body as data, as Hayles (2008) suggests, information becomes removed from its materiality, a move that allows a privileging of the abstract and rational over the real and embodied. This entails treating the object (the individual's body) as something that can be

“acted upon” by the subject (the individual) through cognitive control and focusing attention on data provided by a DRFA (or a scale or a tape measure), rather than on embodied experiences such as hunger or fatigue.

In previous chapters, I showed the broad historical context from which the concept that dietary choices could prevent chronic disease emerged. I then demonstrated how this perspective was promoted and reinforced by being institutionalized as national nutrition policy. In this chapter, I begin with a brief overview of accounts of calorie-counting and weight-loss efforts in the U.S. as they relate to the creation of the DGA in 1980 and current discourses regarding the “obesity epidemic.” I describe the tensions between obesity as a public health problem and obesity as a matter of individual responsibility and how these tensions relate to unanswered questions in nutrition science regarding the safety and effectiveness of weight-loss efforts. I also explain the place that DRFAs occupy in relation to the discourses of public health and personal responsibility, as tools that help individuals self-monitor diet and activity in order to maintain a “healthy weight” and avoid chronic disease. I present my research questions, methods, and findings, in which I identify the similarities and differences in the technological affordances of four popular DRFAs and in the interactions of the communities of users that are associated with each DRFA’s digital space. I then analyze and interpret my data in relation to theoretical frameworks that compare and contrast “the body” as an object and “embodiment” as a material-discursive phenomenon and that consider the relationship between “the body,” embodiment, inscription, and incorporation. I use the concept of “affect” as a link between the material and the discursive to explore what might be occurring when users of a DRFA explain “what happens” when they work at losing weight. Finally, I use these theoretical frameworks to suggest an interpretation of how the technological configurations within each DRFA have shaped how constructions of “the body” that are challenged by experiences of embodiment might be understood and made legible within its community of users. This chapter demonstrates the implications of the widespread acceptance of the assumptions that a “healthy diet” prevents chronic disease and

show how accepting these assumptions as common sense affects how individuals construct ideas about agency and responsibility over their own body size and health outcomes.

#### **4.1 - Getting fit and getting fat**

Calorie-counting as a part of avoiding fatness has been part of American white, middle-class culture, mainly among women, since the early twentieth century (LaBerge, 2008) and had been included in recommendations for the prevention of obesity and chronic disease issued by private organizations and by other countries during the 1960s (Keys, 1968; Page et al., 1961). In February of 1977, when McGovern's Senate Select Committee on Nutrition and Human Needs released the first edition of their report, *Dietary Goals for the United States*, weight control was not cited as specific goal; rather reductions in dietary fat, saturated fat, cholesterol, and sugar intake and increases in complex carbohydrate intake (starches) were meant to control weight indirectly (Select Committee on Nutrition and Human Needs, 1977a). In contrast, the second edition released later that year urges Americans to "consume only as much energy (calories) as is expended" (Select Committee on Nutrition and Human Needs, 1977b), a recommendation considered to be non-controversial and "perhaps the sole dietary goal of the Senate Select Committee to escape dispute" (Cunningham, 1980, p. 125). The 1980 DGA and *Toward Healthful Diets*, two documents that were otherwise fundamentally in conflict with each other, as I described in the previous chapter, had in common a recommendation to maintain an appropriate weight by balancing "calories in–calories out." Thus, although at the end of the 1970s there may not have been agreement about other roles that diet played in the development of chronic diseases, managing "calories in–calories out" in the service of preventing obesity, which would in turn prevent chronic disease, was a common part of public health discourses.

At the beginning of the 1980s, a number of factors seemed to be in place to contribute to and support Americans in changing their dietary habits in the direction of public health recommendations to reduce fat, calories, and body size. Along with the creation of national dietary guidelines to prevent obesity and chronic disease, food scientists had found ways to

replace sugar and fat in many food formulations, and many food manufacturers were turning these formulas into low-calorie versions of familiar desserts and treats (Gibbons, 1983). According to media reports, Americans were eating less meat and fewer eggs, changes that were assisted by the increased number of low-fat, low-calorie convenience foods found in supermarkets (Jenkins, 1984). Restaurants were changing their menus, chefs were changing their cooking methods, and Japanese and Thai restaurants, with low-fat menus of noodles, rice, and fish, were becoming increasingly popular (Burros, 1984; Hodgson, 1982). New “healthy” fast food restaurants were springing up, and even traditional fast food chains began offering low-fat fare and displaying nutrition and calorie information for their menu items (Mitchell, 1984). Newspapers and magazines featured articles on the “fitness craze,” chronicling what seemed to be the effort among many Americans to eat better and exercise more in an effort to stay slim and healthy. By 1981, this “craze” appeared to be a permanent fixture on the American cultural landscape: “The fitness boom has grown for a decade, and improving the body has become an enduring, and perhaps historically significant, national obsession” (Reed, 1981, p. 106). In the face of these changes, concerns about an impending “obesity epidemic” present at the end of the 1970s seemed to abate (see **Figure 1**, p. 57).

Yet in 1994, despite what appeared to be an increase in attention to diet and exercise during the previous decades, researchers at the Centers for Disease Control (CDC) noted that the weight of many Americans was going up, rather than down (Kuczmarski, Flegal, Campbell & Johnson, 1994). The CDC researchers characterized their findings as a “public health dilemma for which no efficacious, practical, and long-lasting preventive or therapeutic solution has yet been identified” (Kuczmarski et al., 1994, p. 211). Yet a *Time* magazine article published in response to the findings from the CDC asserted that the reason behind the weight gain was this: “[D]espite all the fuss about diet and fitness, Americans in the '80s ate too much and exercised too little” (Elmer-Dewitt, 1995, p. 61). These contrasting perspectives on the same phenomenon highlight two tensions: The first is an echo of elements of Foucault’s theory of biopower described in Chapter 2 (Foucault et al., 2009),

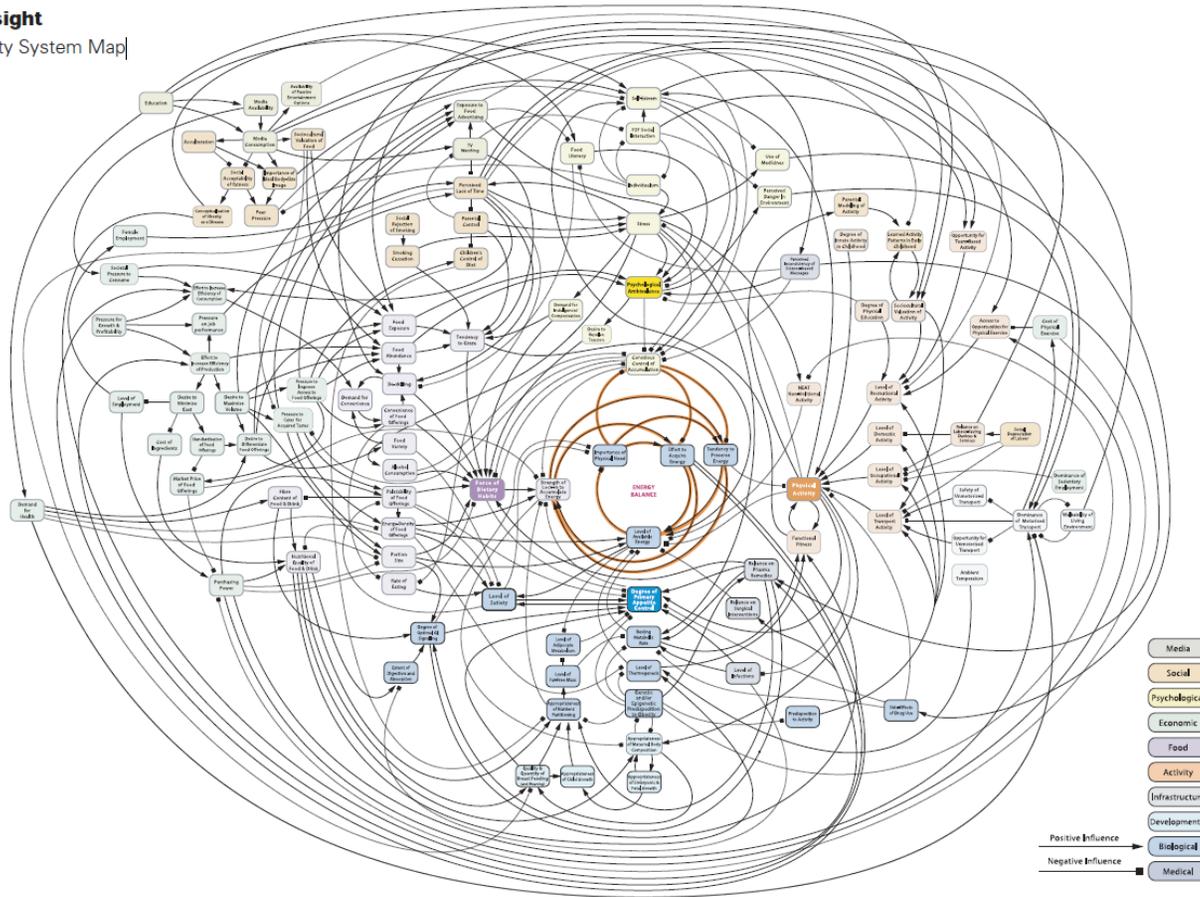
with obesity as a population-level, public health concern in tension with obesity as a matter of individual behavior. The second is yet another example of agonistic logics at work in the enabling network of diet as a means of preventing chronic disease (Foucault, 1980; Mayes, 2015): obesity is a “problem” with both an obvious and an elusive solution. I present these tensions as a way of contextualizing the use of DRFA for weight loss in terms of the desire to lose weight and the difficulty of accomplishing this goal.

#### **4.2 - Obesity as public/personal problem**

From a public health perspective, obesity is characterized as a disease of epidemic proportions that has swept the nation, endangering everything from America's children to national security. Like other diseases such as cholera or polio, which have been at the center of public health crises in the past, obesity is thought to be preventable; unlike those diseases, no successful public health program to prevent obesity exists. Rather, prevention is seen to lie in choices made by the individual, whose ability to maintain or achieve a healthy weight—and thus prevent the public health crisis of obesity—rests in successfully balancing “calories in–calories out.” Even the most complex of “obesogenic environment” maps has at its center the energy balance concept (see **Figure 2** below); although the role of individuals may be obscured by the use of the phrase “energy balance,” individuals nevertheless remain personally responsible for maintaining it.

With ultimate responsibility for obesity seen as residing with the individual and with the solution understood as a straightforward matter of eating less and moving more, having a fat body carries with it the connotation of moral weakness. Because fatness is visible, it serves as the outward sign of laziness, gluttony, or apathy, behaviors that effectively separate responsible citizens from those whose lack of restraint or responsibility causes others to “pay the price” for their moral failings through rising health care costs (Guthman, 2011). To what extent individuals without obesity unfairly bear the health care costs of those with obesity is not really the issue here; there are likely many instances, from flu shots to safe driving, where “preventive” measures were not taken that could have been and little is made of the “health

**Foresight**  
Obesity System Map



**Figure 2: Foresight Programme Obesity System Map.**

From “Reducing obesity: obesity system map,” by U.K. Government Office for Science, 2007. ([https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/296290/obesity-map-full-hires.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/296290/obesity-map-full-hires.pdf)). Image available under the Open Government Licence v3.0.

care burden” that those omissions place on others. Rather, it seems that with health treated as something central to modern identity, as Robert Crawford (1994) argues, the concept of the “healthy self” is maintained at least in part by “the creation of ‘unhealthy’ others, who are imagined as embodying all of the properties falling outside of this health-signified self” (p. 1348). The accepted narrative reads something like this: Because the responsible moral citizen disciplines herself by controlling her appetite, selecting foods carefully, and exercising whether she wants to or not, she is able to present a slender body to the world; in contrast, the fat body of the “unhealthy other” identifies someone as having indulged in giant sodas, fast food burgers, and Netflix binges, subsequently “burdening” society with her excess weight and related chronic disease. That these proscribed behaviors may be materially be similar to other, acceptable behaviors—in terms of calories, a “giant soda” is little different from dessert in an upscale restaurant—is also not the issue. Rather the issue seems to be that, according to the accepted narrative, obesity is largely a matter of choice.

But whether body size can, indeed, be managed through an application of willpower and resolve is a contested matter. There is considerable tension between the simplicity of public health messages to “eat less and move more” as a solution to obesity and the long-standing argument from medical and public health professionals that weight-loss efforts are neither effective nor benign (Kuczmarski et al., 1994; Stunkard & McLaren-Hume, 1959). According to the “calories in–calories out” principle, it seems simple enough: in order to lose weight, an individual should consume fewer calories than normal while becoming more physically active. Nutrition experts assert that this approach is infallible: “To lose weight, eat less; it works every time” (Nesheim & Nestle, 2012). Aside from the fact that such facile approaches fail to explain important details such as how much “less” must be eaten and for how long, there are two interconnected assumptions to this principle: that each side of the “calories in–calories out” equation operates independently of the other and that both “calories in” and “calories out” are under the control of the individual. For example, it is assumed that if “calories in” are reduced, this will have no effect on an individual's ability to increase or

maintain “calories out” through metabolism and/or activity. But nutrition researchers have long understood that the two sides of the energy balance equation are not independent. “Moving more” may make it difficult for an individual to eat less, something that we understand intuitively when we talk about “working up an appetite.” In nutrition epidemiology, caloric intake is commonly used as a rough estimate of a person’s activity levels: “The positive relationship between physical activity and energy intake has been appreciated for years” (Willett, 1998, p. 275). Conversely, as Ancel Keys learned in his “starvation” studies, if a person eats less, they are not inclined or even able to “move more” (Keys et al., 1950). In addition, many factors beyond the control of “calories in–calories out” are thought to affect physiological processes related to fat storage and release, including infections, epigenetic effects, sleep debt, endocrine disruptors, medications, genetic predisposition, the gut microbiome, economic disparity and insecurity, stress, and assorted environmental exposures (Cizza & Rother, 2012; Davis, Plaisance, & Allison, 2018; McAllister et al., 2009).<sup>1</sup> Finally, assumptions that individuals can control their own body

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<sup>1</sup> Other issues with the mechanistic approach of calories in–calories out include the possibility that some types of food, specifically sugars and starches, might be particularly obesogenic, a theory that has been in circulation since the mid-1800s, revived in the 1970s (Atkins, 1972; Yudkin, 1972), and in the 2000s (Taubes, 2007). Furthermore, associations between obesity and chronic disease are unclear. Some studies show little or no association between body size and disease or mortality (Flegal, Kit, Orpana & Graubard, 2013). Others suggest obesity is a symptom, rather than cause, of disease (Reaven, 2011). Still others suggest that body fat distribution rather than body fat itself is what is related to disease (Snijder et al., 2004). Associations between body size and disease or mortality that do exist may be predictive, but not causal. In other words, an individual may not be able to manage body size by “counting calories” and preventing obesity per se may have little to do with preventing chronic disease. These possibilities have had little effect on public health discourses about “fighting” obesity.

size, and therefore control their own health outcomes, through food and exercise choices fail to recognize both the history of differing attitudes toward body size across gendered, racial, and class lines (Stearns, 2002), and long-standing structural inequalities and injustices that impact bodies in material ways (Sullivan, 2015). These subtleties and contradictions are seldom captured in diet and fitness discourses and practices that focus on body size and weight loss. For example, BMI, which began to be used more frequently as a measure of acceptable body size after the recognition that rates of obesity were rising rather than declining, is a statistical formula expressing the relationship between weight and height. BMI charts do not differentiate between different sexes, body types, or ages, but rather apply a single formula ( $\text{kg}/\text{m}^2$ , where “kg” is body weight in kilograms, and “m” is height in meters) to all bodies in order to determine a number, which is then used to categorize a body as either “healthy” or “unhealthy.” The erasure of inherent differences among bodies works to maintain the notion that there is one acceptable range of body sizes, and creating a body that fits into an accepted range, and thus will be free of chronic disease, can be managed through the conscious application of eating and exercise strategies.

Phrases such as “I’m going to lose some weight” or “I’m trying to get healthy”—personal goals encouraged by public health paradigms that place the responsibility for weight management in the hands of the individual—suggest a level of control over these outcomes that may be illusory, or at least elusive. Although the focus of public health extends beyond the actions and experiences of any one individual and is, in practice, the domain of professionals and experts, rhetorics of choice and responsibility from public health nutrition place control of “the body,” which is the material object of any weight management effort to prevent disease, in the domain of the individual. Messages from health experts assert that the individual can prevent obesity—and thus chronic disease—by controlling body weight, and controlling body weight is a matter of controlling energy balance or “calories in—calories out” (Willett, Dietz & Colditz, 1999). DRFAs are promoted as tools for the pursuit of this goal.

### 4.3 - Diet-related fitness apps (DRFAs)

In a way, food itself was the original tool with which to control the body in a predictable manner. “An apple a day keeps the doctor away” assumes a predictable outcome between food habits and health. It further implies personal responsibility for making a choice that in today’s world, to put it somewhat facetiously, would be construed as reducing impact on the health care system. With earlier versions of federal dietary guidance to the public, remotely located experts began supplementing, if not displacing, the local authority of physician and family in terms of providing information about food and health. As discussed in Chapter 2, at the end of the 19<sup>th</sup> century, W.O. Atwater advised workers on how to spend their money on food in ways that would efficiently “fuel” their bodies as laborers in an increasingly industrialized America. The Recommended Daily Allowances, created in 1941, told consumers what foods were needed to avoid the “hidden hunger” of nutrient deficiencies. Paradoxically, as dietary health became more specifically the responsibility of the individual with the adoption of federal dietary guidelines for the prevention of chronic disease, which included the admonition to manage body size appropriately, the sources on which individuals were to rely for guidance in this undertaking became more even more abstracted from individual experience.

When the first federally-mandated nutrition labels were instituted in 1990 in order to provide “claims on foods that could be useful in reducing or maintaining body weight or calorie intake” (Institute of Medicine (U.S.), 2010, p. 21), the implicit understanding was that the label would let you know when you’d had “enough” food, information you could not expect your body to accurately provide. The most recent edition of the DGA (2016) notes that, “The best way to determine whether an eating pattern is at an appropriate number of calories is to monitor body weight and adjust calorie intake and expenditure in physical activity based on changes in weight over time” (p. 20). Keeping track of body weight, calories eaten, and calories expended is, according to public health nutrition guidance, a necessary part of dietary health, yet none of these tasks can be undertaken without the

intervention of mediating technology and expert information. Even in its most basic form, to “monitor body weight and adjust calorie intake and expenditure” requires the use of a scale, food labels or guides, and some way of measuring and tracking calories expended through activity, such as a watch or timer, a pedometer, and/or a chart linking activity to “calories out” (see **Figure 3** below). The text accompanying this particular chart notes: “A 154-pound

|   | Approximate calories used (burned) by a 154-pound man |               |
|---|---|---------------|
|   | In 1 hour   | In 30 minutes |
| <b>MODERATE physical activities:</b>    |   |               |
| Hiking                                  | 370   | 185           |
| Light gardening/ yard work              | 330   | 165           |
| Dancing                                 | 330   | 165           |
| Golf (walking and carrying clubs)       | 330   | 165           |
| Bicycling (less than 10 mph)            | 290   | 145           |
| Walking (3.5 mph)                       | 280   | 140           |
| Weight training (general light workout) | 220   | 110           |
| Stretching                              | 180   | 90            |
| <b>VIGOROUS physical activities:</b>    |   |               |
| Running/ jogging (5 mph)                | 590   | 295           |
| Bicycling (more than 10 mph)            | 590   | 295           |
| Swimming (slow freestyle laps)          | 510   | 255           |
| Aerobics                                | 480   | 240           |
| Walking (4.5 mph)                       | 460   | 230           |
| Heavy yard work (chopping wood)         | 440   | 220           |
| Weight lifting (vigorous effort)        | 440   | 220           |
| Basketball (vigorous)                   | 440   | 220           |

**Figure 3: Chart estimating how many calories are used for various activities.**

From “How Many Calories Does Physical Activity Use (Burn),” by United States Department of Agriculture, 2018 (<https://www.choosemyplate.gov/physical-activity-calories-burn>). In the public domain.

man who is 5' 10" will use up (burn) about the number of calories listed doing each activity below. **Those who weigh more will use more calories; those who weigh less will use fewer calories.** The calorie values listed include both calories used by the activity and the calories used for normal body functioning during the activity time” (emphasis in original). The simultaneous specificity and vagueness (exactly how many more calories someone who weighs more will burn is not indicated) of the chart’s accompanying text highlight the ways in which a focus on metrics can seem to create an illusion of scientific precision. This illusion is carried over into the use of DRFAs.

Compared to nutrition labels and calorie charts, DRFAs can add many further levels of abstraction and quantification to weight management, as well as a degree of personalization and interactivity not afforded by those earlier tools. However, in the DRFAs examined below, as in national dietary recommendations, there is a primary focus on the task of managing “energy balance” through tracking “calories in–calories out.” Although quality of food may be important for other reasons, the DGA stresses that “the total number of calories consumed is the essential dietary factor relevant to body weight” (U.S. Department of Agriculture & U.S. Department of Health and Human Services, 2011, p. 15). The focus that “calorie counting” places on “quantity” of food, of course, does not negate issues of “quality”; as I discussed earlier, these two discourses are always in operation simultaneously. This is true with regard to DRFAs as well. Although quantity, in terms of calories, tends to be foregrounded, issues of food quality are raised frequently and, in one case, tracking food “quality” is highlighted as a primary function of the app. Whether the focus is on quantity or quality of calories—or both—the uptake by consumers of DRFA appears to indicate a widespread acceptance of the assumption that a simplified, metric-based approach adequately represents a biological system that, while not chaotic, is highly complex and to a large extent, still mysterious. But by accepting this premise, the individual also must trust the expertise and the technology behind the representation while also accepting responsibility for making choices in alignment with that model and for the outcomes that result.

#### 4.4 - Research questions, methods, and sources

The proliferation of DRFAs seems to embody and extend the implications of the public health campaign around obesity prevention enacted as a moral obligation assumed by the individual but directed by expert knowledge. DRFAs are premised on a hierarchy that positions information about bodies as superior to embodiment, a hierarchy that has been produced by and in turn produces a modern conception of “the body,” as an entity—an object—that is separate from and subordinate to the mind. At the same time, these tools are not uniform in design and function and, as platforms, are associated with communities of users who may support, modify, or resist the authoritative knowledge and the conceptions of the body instantiated by the DRFA. For any given DRFA, some features are present, absent, promoted, or of more prominence than others. These same limitations and affordances help to define the nature of the work that an individual may undertake to discipline and transform “the body” through weight loss. I examine these similarities and differences to clarify what assumptions about “the body” are presented in DRFAs, how a user’s body is understood and acted upon through DRFAs, and if and how any challenges to these assumptions are addressed within communities associated with DRFAs, focusing on the following questions:

- What are the constraints and affordances of DRFA technology?
  - What information must be put in and what reports are given as output?
  - What networking, interactive, informative, or consumer contribution capabilities are present?
- How are knowledge, expertise, and authority represented in a DRFA?
  - What, if any, discord is expressed within a DRFA communities with regard to expectations about what “the body” can do?
- How do the material-discursive environments of a DRFA contextualize perceptions of causes and effects with regard to “the body”?
  - In other words, how are contradictions between “information” and “embodied experience” identified, presented, and managed?

#### **4.4.1 - Methods**

My two goals for collecting data were to understand each DRFA and its associated website as digital spaces and its community of users through these digital spaces. In January of 2018, I installed and interacted with each app as a “user” of the app and became a “member” of each website’s community—which involved providing an email address and a password—in order to gather data on the app and website as digital devices. To collect information on the communities of users associated with that app in the digital space, I acted as an “unobtrusive observer” of the fora, blog post discussions, comments, and other areas available for social interaction by the general community of users (Hine, 2015). I gathered data from these sources over the course of two weeks during the month of January 2018, using screenshots and links to posts to collect information of interest.

With regard to each DRFA and its website, I identified how information is gathered from consumers, how it is reported back to them as output or data, how consumers may interact with the data or with each other in networked configurations, and how information is dispensed or shared within that DRFA community. In order to identify the information users may put into the DRFAs and the reports or data that are given as output, I used each app and recorded what information I was prompted to give and what information or data is given as output. For each app, I put the same information into the app, including food and activity information for at least three days, so that I could receive the output generated. For example, on Day 1, I recorded all of the same meals and all of the same activities or activity levels in each app. I also noted the type of outputs or reports that could be generated from this input. Factors such as choice of report or output, content of output, format, placement, and accompanying textual explanation or commentary were also noted as an indication or reflection of the importance of the elements of that report or output.<sup>2</sup> DRFAs also typically

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<sup>2</sup> Although considerations of what user data are collected by the app and what is done with those data at a corporate or population level are important, they are beyond the scope of this

have a number of different networking, consumer contribution, and information-sharing (blogs, news updates, etc.) capabilities. I recorded which of these are available for each app and the extent to which these features allow reports and outputs to be used, combined, or compared.

My approach to getting to know the community of users for each DRFA within the digital space was to observe the activity on the websites as an “unobtrusive observer” (Hine, 2015). This kind of observation, popularly known as “lurking,” is a way that newcomers learn community norms and come to identify with them (Preece, Nonnecke & Andrews, 2004). In this endeavor, as I spent time getting to know each site, I kept present the differences in intentions for my involvement in that space in relation to the users I was observing (Beaulieu, 2004), not to mention the ironies of studying “the body” and “embodiment” from a remote distance by way of a screen, a keyboard, and a smartphone. Furthermore, I follow Anna Hickey-Moody’s (2013) interpretation of Spinoza in recognizing that “constructing bodies and actions in thought is an ethical enterprise” (p. 83). I have endeavored to have my (re)construction of the interactions that I encountered in these DRFA spaces be one that embraces an empathetic approach to the experiences of others.

I thought of my visits to the DRFA sites as analogous to wandering around different neighborhoods in an unfamiliar city to get a feel for the variety of communities and their inhabitants. Using this approach, during those two weeks, I would spend an hour or so on each site every day “unobtrusively observing.” In this digital equivalent of wandering around, I experienced the site and its users as they presented themselves at that time (Hine, 2015). Within these spaces, the personal styles of frequent posters, common concerns of the community, and “inside jokes” became familiar to me, Because there are thousands of

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dissertation and not relevant to this particular analysis. Lack of attention to concerns about how user data from a DRFA might be commercialized or commodified is certainly a limitation of this investigation.

possible pathways to wander down in such environments, I used the idea of “discord” to direct my attention. As I came across instances of what seemed to be disagreements, contradictions, and discontinuities, I would follow where they led. Although I was interested in all examples of discordance, I was particularly interested in situations that could be described generally by the comment, “I am doing everything ‘right’ and I am still not losing weight,” as this was, and still is, a recurring theme in my encounter with individuals and with patients as a nutrition professional and a recurring theme in user comments on these DRFA websites. I collected these comments and other comments that indicated discord, conflict, controversy, or discrepancies, the community’s response to them, and the contexts in which they appear.

The limitations of these data are that these DRFAs are not fully representative of all DRFAs that are available, and the features that I collected data on are features that are available without charge. Features that are available through paid plans may differ significantly from what is available for free. The selection of comments that I looked at are but a small percentage of feedback available on an app; I was, by design, not focusing on users who had no issues or problems with the ways the app they were using was configured nor on those who reported successful experiences at their weight-loss efforts as the object of my analysis is the disconnect between the body as an object to be worked upon and embodied experience. Those users may have reported very different concepts of “the body” and embodiment than those reported in my findings here. However, even if just a small percentage of users reported difficulties losing weight by balancing “calories in, calories out,” their experiences (which echoed the experiences of patients I saw in clinic) represent a disconnect between how “the body” is predicted to respond and the embodied experiences of a particular individual. Furthermore, users who leave comments may also differ in significant ways from those who do not. However, these data are likely to be comprehensive enough to provide an exploratory look into the world of DRFAs that may be confirmed or challenged in follow-up investigations.

#### 4.4.2 - Sources

There are hundreds of apps in the “Health & Fitness” category that can be downloaded to smartphones. Many focus on weight loss, particularly tracking calories and tracking activity; others focus on “healthy eating” more specifically, but these apps also seem to have a primary focus on calories. There are also apps for yoga and meditation, spending time outside, relieving stress, sleep, and pregnancy and women’s health. As my focus here is on calorie-counting and how food and health are related, I excluded apps aimed only at exercise, pregnancy, stress reduction, or wellness concerns unrelated to diet, as well as those that are focused solely on recipes. I looked at four top-rated (by Google Play) free “Health & Fitness” apps that are compatible with Android phones: MyFitnessPal, Fooducate, Fitbit, and LoseIt!. This is a sample of convenience as I use an Android phone, but the “Health & Fitness” category of the iTunes App Store (for iPhones) has a similar, and similarly vast, selection of apps. What follows is a brief introduction to each app.

- *MyFitnessPal (MyFitnessPal.com)*: Developed by Under Armour, a fitness wear company, MyFitnessPal is the top-rated free fitness app for the Android phone, which currently has over 50 million installations, more than any other fitness app (“Google Play,” n.d.). It is specifically billed as a “calorie counter” so it comes as no surprise that the “calorie in–calories out” paradigm is the basis for this app.
- *Fooducate (Fooducate.com)*: Winner of a 2012 Surgeon General’s Healthy App Challenge, Fooducate is a calorie tracker, which also has a primary emphasis on the “healthiness” of the calories rather than just the amount. This app emphasizes providing “independent, objective food recommendations” (“Fooducate,” n.d.) and showing the user “what’s really in your food” (“Google Play,” n.d.).
- *Fitbit (Fitbit.com)*: The Fitbit company has an extensive line of activity trackers, which can count steps, measure heart rate and sleep, and connect to “smart” scales that transmit weight measurements to the app wirelessly. This app is designed to work with Fitbit devices but can also be used without them, which is how I used it.

- *LoseIt! (Loseit.com)*: Another winner of a 2012 Surgeon General’s Healthy App Challenge, LoseIt! is designed and promoted as a calorie-counting app meant to help the user successfully lose weight. LoseIt! bills itself as using “the proven principles of calorie tracking and peer support for healthy, sustainable weight loss” (“Google Play,” n.d.).

From my data-gathering as a user of each DRFA, I created a summary report that compares and contrasts features of the DRFA under investigation. This allowed me to identify elements that are common to all apps, as well as differences between them. I could then compare the constraints and affordances of each DRFA to determine how, if at all, the discussions around problematic issues may be related to the configurations available for each app. For types of discord that I found common to all apps, specifically the issue of “balancing calories in and calories out isn’t working for me,” I compared how different DRFA communities handled the issue. Guided by a preliminary sense of each DRFA emerging from the information I gathered on constraints and affordances and what I observed about discord from user comments, I looked for themes that characterized the community and how a body “matters.”

My analysis overall is an exploratory, perhaps even impressionistic, one. Importantly, this exploration is not a matter of assessing the “truthfulness,” “real reality,” or usefulness of these apps, comments, and situations presented by users through the forums. Rather, I am interested in how the apps, as a form of technology, and the forums, as sites of discourse for a particular community brought together by their use of this technology in a digital space, accommodate concepts of the body at moments of disconnect or discordance within this particular arrangement of humans and technology. In other words, given the constraints and affordances of the app, the social milieu of the forums, and the particularities of the portion of the population that has the resources and inclination to comment on DRFA sites in the first place, how are contradictions between “information” and “embodied experience” identified, presented, and managed?

#### **4.5 - Findings: Constraints and affordances of diet-related fitness apps**

While the apps share many similar features, some important differences emerge from an examination of the data. What follows is an overview of what information users can input into each DRFA, what reports can be generated from this input, and what social, networking, and informational features are available, with similarities and differences highlighted. I describe how knowledge, expertise, and authority are represented in a DRFA and what discordances, discontinuities and contradictions are expressed within each DRFA community. Note that these apps are constantly being updated and modified, so details regarding features may have changed over time and be different from what I have reported here. Also, features that appear on the browser and on the smartphone app differ, but usually not significantly. In some instances, I have indicated these differences, but in most cases, I treat the smartphone version of the app and the browser version of the app as if they are identical, assuming that many people, as I did, move between both types of devices over the course of a day.

##### ***4.5.1 - What inputs and outputs are available for each DRFA?***

Regarding type of information requested as input, all DRFAs followed very similar protocols. Users were expected to put in information such as current weight, goal weight, height, gender, etc. on each DRFA (see **Figure 4** below). The app that differed most significantly from the overall pattern of input was Fitbit. Fitbit does not request information regarding normal daily activities or plans to exercise. It may be assumed that this information will be gleaned from one of the devices that the user wears that can capture this information and transmit it to Fitbit. The other interesting variation that Fitbit has is that, while it is compatible with devices that will track everything else about your body, it does not have a barcode scanner for entering food data as the other DRFAs do, nor does it have a way to set reminders about completing daily food logs. Also of note is the fact that while Fooducate and LoseIt! require paid memberships to access tools to track neck, waist, and hip measurements, these features come on the free versions of the MyFitnessPal and Fitbit apps.



| Input                              | MyFitnessPal | Fooducate | Fitbit | Loselt! |
|------------------------------------|--------------|-----------|--------|---------|
| current weight                     | x            | x         | x      | x       |
| goal weight                        | x            | x         | x      | x       |
| height                             | x            | x         | x      | x       |
| gender                             | x            | x         | x      | x       |
| date of birth                      | x            | x         | x      | x       |
| describe normal daily activities ? | x            | x         | n/a    | n/a     |
| plans to exercise during week?     | x            | n/a       | n/a    | n/a     |
| what is your goal weight?          | x            | x         | x      | x       |
| foods eaten                        | x            | x         | x      | x       |
| amount of exercise                 | x            | x         | x      | x       |
| water                              | x            | x         | x      | n/a     |
| daily weight                       | x            | x         | x      | x       |
| neck/waist/hips measurement        | x            | \$        | x      | \$      |
| barcode scanner                    | x            | x         | n/a    | x       |
| reminders                          | x            | n/a       | n/a    | x       |

Key: x – user input ; n/a – input not available ; \$ - input available on paid version

**Figure 4: Input options available in four diet-related fitness apps.**

As with the input parameters, output data are similar among the DRFAs. All apps provide a “calorie budget” for the day, consisting of a report of calories eaten and “burned” from both activity and basal metabolic rate (see **Figure 5** below). Some significant differences include the following:

- MyFitnessPal allows reports on body measurements—such as neck, waist, hips— not available on other apps, because it allows input on these. MyFitnessPal also generates reports on micronutrients and food components not available on other apps. However, despite the plethora of reports this app generates, it does not generate a report for body mass index (BMI), a ratio of weight to height considered to be a health biomarker commonly used to determine if a person is underweight, normal weight, overweight, or obese.



| Output                           | MyFitnessPal | Fooducate | Fitbit  | LoseIt! |
|----------------------------------|--------------|-----------|---------|---------|
| Default:                         |              |           |         |         |
| daily calorie goal/budget        | 1530         | 1470      | 1169    | 1822    |
| calories in - from recorded food | x            | x         | x       | x       |
| calories out - from BMR activity | x            | x         | x       | x       |
| net balance                      | x            | x         | x       | x       |
| User generated:                  |              |           |         |         |
| macronutrient breakdown          | x            | x         | browser | x       |
| micronutrient breakdown          | x            | \$        | \$      | \$      |
| projected weight loss            | x            | n/a       | \$      | x       |
| date goal should be reached      | x            | n/a       | n/a     | x       |
| BMI                              | n/a          | x         | x       | x       |
| food points                      | n/a          | x         | n/a     | n/a     |
| calorie "quality"                | n/a          | x         | n/a     | n/a     |
| "real" food                      | n/a          | x         | n/a     | n/a     |
| MyPlate                          | n/a          | n/a       | n/a     | x       |

Key: x – report; n/a – report not available ; browser – report available on browser version; \$ - report available on paid version; BMR – basal metabolic rate

**Figure 5: Output reports available in four diet-related fitness apps.**

- Only Fooducate reports on food “quality,” which indicates the suitability of a food for weight loss. This parameter is evaluated three different ways: “real” food, calorie “quality,” and “food points.” However, LoseIt! does provide a report feature that shows how daily intake meets federal nutrition standards as illustrated by MyPlate.
- Fitbit provides no reports related to food except for total calories taken in. A breakdown of macronutrients is, however, available on the browser version.

#### **4.5.2 - What networking, interactive or consumer contribution capabilities are present?**

DRFAs strive to be fully integrated into our digitally oriented social lives. Although this is not always the case, community features can usually be accessed through both the

browser version and the smartphone version of the application. Community features are typically connected to social-media platforms such as Facebook and Twitter so that users can share activities that take place within the DRFA.

Within the individual DRFA platform, Fooducate is most limited with regard to social networking. Users may ask questions or post comments and respond to others' questions or comments with either a "like" or a reply in the "community" section of the platform. These discussion threads are similar to the extensive forums found on the other three DRFA, but they are not organized by topic as the forums on the other apps are, just by recent activity; however, you may choose to "follow" a discussion that interests you. True to its focus on food quality, Fooducate does allow for extensive comments in response to ratings of particular foods. Users may "like," "not like," or reply to food ratings and may "like" or reply to comments that other users make about foods. Because comments are not linked or threaded to each other, however, each comment just appears as one in a list (I provide an example of this below with regard to comments about "tap water"). As with "community" comments and questions, you can choose to "follow" food comments that interest you, but the typical give-and-take that characterizes a "discussion" is absent.

All of the other DRFAs except for Fooducate have "activity" or "challenge" groups that users can "join" as a way to identify their interest in participating in various fitness or weight-loss activities. All of the other DRFAs except for Fooducate also allow a user to create her own community of friends within the network of the platform, with features that allow friends to view each other's information and message each other. LoseIt!, however, has the most extensive social-networking capabilities. LoseIt! has a unique feature, a "Community" tab that organizes your network of friends similarly to a social-media feed that you would find on Facebook, Twitter, or Instagram. Messages from friends or groups you are active in, plus badges, exercise activities, weigh-ins, goals, and notifications for not logging in all show up in this area. Another social feature on LoseIt! are the badges. On LoseIt!, a user earns badges for weight loss, but also for participating in LoseIt! activities, such as

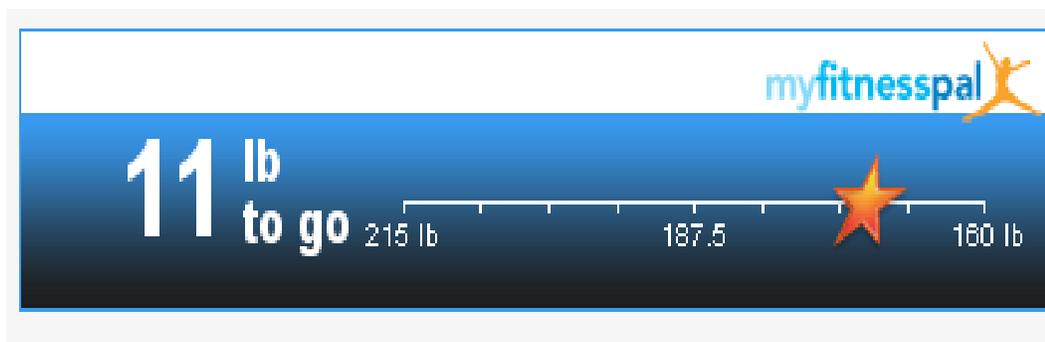
filling out the user profile, logging daily foods and activities, participating in challenges, sharing recipes, making friends, and even for accomplishing “feats of strength” during Festivus (a holiday made up by the scriptwriters from *Seinfeld*). You can also track a friend’s badges and friends can be notified of other friends not logging daily food and activities. Interestingly, the badge feature seems to be so popular, that MyFitnessPal is planning on adding this to their platform. In general, group and challenge participation in LoseIt! is significantly higher than in other DRFA with group and challenge features. At the time of my observation, a casual evaluation of the average number of participants in the top five “most popular” list of groups/challenges is approximately 250 on Fitbit and 4,700 on MyFitnessPal, while the average on LoseIt! is 14,600.

Although MyFitnessPal, Fitbit, and LoseIt! all have forum features for discussing topics of interest to community members, there are some interesting differences in how these are configured. The extensive community activity that is typical of the LoseIt! platform continues in its forums, although it is possible that the “community newsfeed” feature specific to LoseIt! moves some discussions to that space. The forums have a limited number of categories (eight total), and within those categories there are thousands of topics. As with other forums, users may post a topic or question to which other users may respond, but there are no “like” or “flag” buttons, and there is little additional information about a user besides her profile picture, username and number of messages posted. You can “watch” a topic if you are interested in following the discussion.

Fitbit’s discussion forums are separated into three distinct types: fifteen help forums for specific products (in addition to the main Fitbit forum); fourteen forums oriented toward the technology, with categories such as “Android App” and “SDK Development”; and six forums addressed toward “lifestyle,” with categories such as “Get Moving,” “Eat Well,” and “Be Inspired.” Within each category, there are thousands of topics. Users may post a topic or question, to which other users may reply, vote “thumbs up,” or “flag” as inappropriate. The original poster may select one or more responses as a “solution.” Users may also track, link,

and email posts. Users are represented by a profile picture, username, number of posts made, number of “accepted solutions” received, and number of “thumbs up” votes. Posts also specify a user’s “rank,” which indicates their involvement in the Fitbit community; however the titles are not obvious in this regard (i.e., is a “Powerwalker” more or less “involved” than a “Strider”?). Users may also have a signature line that indicates the fitness device that they use, along with additional information about them. In addition, each of Fitbit’s numerous activity groups also have their own message board area, along with a leaderboard for the top ranked “steppers,” although the posting feature in this area has minimal capabilities.

The MyFitnessPal message board feature has fourteen topic categories, plus three that deal with platform issues and questions. Within a category, there may be hundreds, or even thousands of topics, and thousands of posts within each topic. As with Fitbit, users may post a topic or question, other users may respond with a reply, “thumbs up” vote, or an inappropriate “flag,” which in MyFitnessPal includes the sub-flags of “spam,” “abuse,” and “reported post.” In addition, users may tag a post as “insightful,” “inspiring,” “woo” (explained further below), or “hug.” Users may also follow or bookmark a discussion. Users are represented by a profile picture, username, number of posts made, and identified as “member,” “MFP Staff,” or “MFP Moderator” (who volunteer in this capacity). Users may also identify themselves by a “banner” that indicates their starting weight, goal weight, and pounds lost (see **Figure 6** below).



**Figure 6: MyFitnessPal weight-loss progress banner.**

All four DRFAs have on-site blogs and information features about diet, food, and fitness written by editors or freelance writers employed by the app platform, many of which support either user comments, user ratings, or both. In addition, MyFitnessPal also has a user blog feature on the browser version of the app. Other users can up-vote or down-vote posts, as well as comment on posts; up-voted blog posts appear in a “popular blog posts” tab on the browser site.

#### ***4.5.3 - How are knowledge, expertise, and authority represented in each DRFA?***

With the exception of Fitbit, each DRFA refers to an expert source or sources to explain why the app “acts” the way it does with regard to calorie allotments and other calculations. This provides the app with the promise of an authoritative reporting of reality.

MyFitnessPal refers to a remarkable array of institutionalized sources of authority to justify how the app calculates calorie, carbohydrate, protein, fat, and micronutrient needs: the DGA, the National Institutes of Health, the Food and Drug Administration, the Institute of Medicine, the Academy of Nutrition and Dietetics, and articles in peer-reviewed biomedical publications. In addition, users are given a certain amount of “authority” to provide knowledge to other users through blogs and to monitor the content of other users’ posts through “flags” and “woos.” By monitoring the content that other users post, as on some other social-media platforms, users can block or promote that content.

Both Fooducate and LoseIt! refer to advisory boards. Fooducate’s scientific advisory board includes a nutrition professor, a nutrition research consultant, and a bariatric physician. Fooducate’s editorial staff also indicates that the app’s algorithm uses current evidence-based science for its recommendations and calculations (“How Fooducate grades products,” 2011). Fooducate also gives its users the opportunity to act as “experts” by rating foods and commenting on the ratings of others. The LoseIt! advisory board includes two “lifestyle and fitness experts,” a registered dietitian, and a gastroenterologist. The LoseIt! website indicates that the advisory board provides the guidance that enable the LoseIt! team to deliver an effective weight-loss program (“Lose It! Advisory Board,” n.d.). Notably, there is little

opportunity for users of the LoseIt! app to place themselves in position of authority relative to the other users on the app. Although users can comment on others' posts and there are a few site "moderators," there are no up- or down-votes or any other types of rating systems anywhere on the app or site that I could find, and I never found any instances of any moderators getting involved in forum discussions to remind users of community guidelines. In other words, there is little "policing" of comments.

Fitbit, on the other hand, does not refer to much beyond the technology of Fitbit device themselves. A question from the "Fitbit Help" forum asks, "How does Fitbit estimate how many calories I've burned?" The response simply references the "basal metabolic rate" (BMR), plus the activity recorded by the Fitbit tracker, and any activities logged manually. There is no discussion regarding what sort of expertise or authority determines which BMR formula is used (there are a number of different ones) or why, or how activities recorded by the tracker are "translated" into calories. Users, however, can act as authorities by providing answers to other users' questions and can become verified as "experts" within the community by the number of "accepted solutions received."

#### ***4.5.4 - What, if any, discordances are expressed?***

Within the configuration of each DRFA and its community, recurring themes emerged around the contradictions or challenges that were apparent within that app. In the MyFitnessPal community, issues that emerge as discontinuities seem to revolve around something that might be called "micromanagement" within the user community. Examples of these sorts of issues include:

- a warning from app administrators against reducing carbohydrate intake below the federally recommended level of 130 grams per day, which exists simultaneously with groups that are specifically devoted to low-carbohydrate diets.
- complaints about the numerous community rules (26 in number) posted by MyFitnessPal, which also appear to be violated frequently without repercussions.
- concerns about using the app to maintain disordered eating patterns, such as those

associated with anorexia nervosa; “very low calorie” diets were forbidden, yet were frequently discussed, and meticulous accounting for calories was encouraged.

- a “woo” button, which can be used to indicate a post or comment in a forum that is not “science-based”; if a post gets enough “woo” votes, it is hidden from the thread.

In contrast to the MyFitnessPal community, where issues seemed to be about managing how individuals behaved, in the Fooducate community, these challenges to authority seem to consist largely of disagreements over whether information about health benefits or harms of food could be trusted. Issues include:

- an extended discussion about whether or not tap water should have been given a food grade of “A,” discussed further below.
- concerns about the app’s central reliance on using a packaged food barcode to track food. Users point out that the very nature of the primary feature of the app seems to prioritize packaged food over the preferred, according to the philosophy indicated within the app itself, “real” unpackaged food.

In keeping with the Fitbit focus on the technological aspects of the DRFA interactions, recurring issues that emerged in that community were often related to inaccuracies of the data, specifically:

- Fitbit’s calorie budget calculation and calorie counts of food in the databank seemed to be either too high or too low.
- concerns about how individuals who were “community leaders” in “activity groups” were logging 50,000 steps per day, as this seemed to many users to be unrealistic.

Issues that emerged as discordances in the LoseIt! community often pointed to concerns about the ways in which weight-loss efforts impinged upon the lives of those who undertook it. Some examples of these kinds of issues include:

- concerns about the time-consuming nature of calorie-counting, prompting users to advise ways to use short cuts so that calorie-counting doesn't become oppressive, even though counting calories is a primary purpose of the app.

- questions about the long-term benefits of weight loss, doubts about how many calories are “in” a pound of fat, and skepticism about the value of measuring body weight on a daily basis were all topics raised in LoseIt! forums.

In all the DRFA forums, some users expressed the concern that they were having a lack of success following the “calories in–calories out” approach. For example, a discussion topic in a MyFitnessPal forum is entitled, “Stopped losing weight and don’t know why.” In a Fooducate post, user mina9876 says, “I’ve tracked my food for months, never exceeding my calories while eating all the right foods but my weight has continued to increase.” A Fitbit poster known as 65sro titled her post, “Beyond demotivated from not losing weight.” A LoseIt! participant describes a similar experience as frustrating:

I’ve been eating 1500 cal and walking/jogging an hour every day for about two months. However, I haven’t lost any weight. If I eat less I’m way too hungry and if I eat more I actually gain weight. I count everything I eat so I’m not underestimating... How is it possible? I don’t want to give up but not seeing any result is frustrating. What I am doing wrong? Thanks in advance! (betsy)

This is such a common complaint that a MyFitnessPal user created a flowchart to this effect, which has been reposted in a number of different place on the internet. The flowchart suggests that the first thing to do is “give it more time,” but then indicates that the most likely explanation for not losing weight is that an individual is inaccurately measuring “calories in” or “calories out,” or both.

#### **4.6 - Analysis**

To the extent that the whole project of weight loss is to treat the body as an object, DRFAs participate in the production of a body constructed as something to be measured, known, and controlled. As I explored the various configurations of the apps, my attention was focused on identifying how ideas about how “the body” works are instantiated in DRFA technology and how ideas about “what happens” to “the body” are explained or justified. In essence, the context of a DRFA asks an individual to subordinate her own knowledge and

experiences of her body to an authority outside of herself, the DRFA and its related components, including in some cases, its community of users in the digital space. The social arrangement of subordinating embodied experience to information about “the body” has parallels in federal dietary guidance, and it is no surprise that at least one aspect of that guidance, a focus on managing body weight through “calories in–calories out,” is fundamental to the logics represented in all the DRFA examined. In exploring the interactions among a DRFA, the community that arranges itself around a particular app, and individual users, it seems that privileging the abstract version of “the body” over embodied experience, which entails a privileging of a remote authority over more proximate ways of knowing, is frequently at the center of contradictions or discontinuities that users encounter in their weight-loss efforts within these contexts.

One of the first concerns is that, depending on which DRFA was used, individuals might get very different reports regarding how their bodies are conforming to expectations set by the app. The first and most striking thing I noticed after completing identical input for all four DRFAs is that I was given a different “calorie budget” (meaning how many calories I could consume each day) on each app, with the difference between the lowest (Fitbit) and the highest (LoseIt!) being over 650 calories, more calories than are estimated to be in a McDonald’s BigMac™. Because calorie budget calculations are not transparent, it is difficult to know why this discrepancy exists, but the discrepancy may indicate that different app developers, relying on different scientific details, perspectives, and expert opinions, ultimately ended up with very different versions of what “the body” can do. Users also seemed to frequently be confused about what the “calorie budget” budgeted for. A question often raised in situations where an individual was not losing weight was whether the individual was “eating back” her exercise calories.

Further, the overall “orientation” of each DRFA seem to vary considerably. The sense I got from the input and the output capabilities and limitations of MyFitnessPal is that this app is very much about quantification of all aspects of food, activity, and body; multiple

ways of quantifying the body and the food that goes into it are available for users. LoseIt! is similar to MyFitnessPal in this respect, but also calculates BMI as a measure of “health, compares food intake to MyPlate as a measure of diet quality, and provides a far more generous “calorie budget.” Fitbit expects its related devices to provide information about activity levels (although the user may also add this information manually), and the only aspect of food that is monitored is calorie content. In contrast, Fooducate directs the user to attend to “quality” of food, with outputs describing “quality” in a variety of ways, and there is no attempt to calculate “projected weight loss” based on inputs of meals and activity.

From attention to the social features on the apps, it is clear that LoseIt! and MyFitnessPal have a stronger orientation toward community interactions relative to the Fitbit and Fooducate apps, but this manifests itself in different ways. The LoseIt! community seems configured to support and guide, while the MyFitnessPal community seems configured to monitor and inform. Unsurprisingly, the Fitbit community seems to be more focused on the devices and the technology than on interactions with other users, although the “friendly competition” that “counting steps” is supposed to foster appears to frequently backfire, as I explain further below. Also unsurprisingly, Fooducate tends to direct users toward interacting more with food choices than with each other, and the most engaged—and heated—exchanges tend to be about food ratings, which I will also discuss further.

The work of losing weight and managing health is value-laden, but values surrounding weight and weight loss seem to differ from one DRFA to another. The technological limitations and affordances of a particular DRFA, its community rules (tacit or explicit), and the opportunity for interactions (or lack thereof) appear to both reflect and shape the values of the community of users that develops around it in the digital space. DRFAs provide “rules” surrounding the work of weight loss through the algorithms, assumptions, and information built into the device; in other words, the technology of the DRFAs determine what an individual’s body “should” do based on what expert information selected from science says “the body” can do. All of the DRFAs but Fitbit refer to some

expert authority regarding the rationales “behind” the way the app is configured; Fitbit seems to rely on the technology of Fitbit devices as source of authoritative information. However, the algorithms behind all of the reports and predictions provided by the DRFA are proprietary and unavailable to the public. It is difficult to know how the contradictions and controversies within nutrition science and dietary guidance are resolved for the purposes of any particular app. However, through explicit and tacit community rules, the developers of a DRFA, as well as others given positions of authority within a DRFA community, such as moderators on discussion forums, indicate and reinforce the values embedded in the technology and the assumptions it relies upon about how the work of weight loss is to be accomplished. At the same time, although the social rules that organize the community of users around a DRFA in the digital space generally align with those embedded in the technology and enforced by community leaders, interactions among users create the space for resistance to these rules, including challenges to authority and determinations about what “the body” is and does that are part of the context of interactions with the DRFA.

#### ***4.6.1 - Bodies as objects; bodies as material-discursive phenomena***

For feminist new materialist theorists, “the body” is a problematic concept. “The body” is the abstracted figure in Hayles’s (2008) Platonic backhand; it is a summary, an averaging of many bodies. But more—or less—than that, it is a body that is somehow “neutral.” This, as Hayles (2008) explains, is the body of the “liberal humanist subject”:

Identified with the rational mind, the liberal subject possessed a body but was not usually represented as being a body. Only because the body is not identified with the self is it possible to claim for the liberal subject its notorious universality, a claim that depends on erasing markers of bodily difference, including sex, race, and ethnicity (pp. 4-5).

Hayles’s description of the body of the liberal subject aligns with the view of what Linda Nash (2007) calls the “modern body.” This is the body found in medical textbooks, public health discourses, and American consumer capitalism; significantly, this body is one that is

“composed of discrete parts and bounded by skin” (Nash, 2006, p. 11). This idea of “the body” is also one that feminist theorists have thoroughly critiqued, arguing that the “neutral body assumed by the liberal state is implicitly a masculine body” (Gatens, 1996, p. 24), an argument supported by the information that accompanies the USDA activity chart in **Figure 3** above. For feminist theorists, placing “the body” outside of any historical and biological contexts serves to reinforce a hierarchy with “maleness” (also whiteness and heterosexuality) as “normal” and all other bodies as deviations. The “universality” of “the body” that erases the particulars of history and biology and the positioning of the body as an object of the rational mind, separate from the self and separate from its environment, are both notions that are central to weight-loss efforts and the technologies that support these efforts. The DRFAs that mediate these efforts not only project the illusion of providing an “objective” report on a “neutral” body, but this “objectivity” produces a body that may be acted on as an object. The DRFA presents “the body” in a way that indicates how all bodies are expected to behave in response to an application of willpower and resolve, and it provides an orientation to some aspects of experience rather than others, namely ones that can be identified, quantified, and ostensibly controlled.

Contrast this version of “the body” to the way Jane Bennett (2010) describes “a body” following the ideas of Spinoza and Deleuze. In her reading, a body is a heterogeneous assemblage engaged across time and place with other bodies. This configuration changes the way agency is understood so that it is not “a capacity localized in a human body or in a collective produced (only) by human efforts” (p. 23). Instead, agency is seen as distributed, as a confederacy of “many striving macro- and microactants” (p. 23). The implication for the rhetorics of choice that are part of public health nutrition messages and which are embedded in the features of a DRFA is that “choice” regarding control over your body size or health outcomes is of a very limited and partial nature. Although this way of understanding a body does not only refer to human bodies, it can be applied to human bodies as a way of highlighting the differences between understanding the human body as heterogeneous

assemblage whose agency is distributed across time, place, and disparate elements and understanding the human body as a neutral, bounded, object to be controlled through rational cognition. In my examination of DRFAs, the technology by necessity relies on the latter view, but embodied individual experiences that are reported as discontinuous or in tension with this technology suggest the more complex reality of Bennett's description.

#### ***4.6.2 - Embodiment, incorporation, and affect***

The promise of DRFA technology is that it provides objective feedback and parameters for conducting the business of weight loss. At the same time, this technology is no more politically or historically neutral than "the body" of the "liberal humanist subject" described above. In some cases, the numbers associated with a DRFA take on an existence that may be seen as apart from and "more real" than the individual body they are meant to represent. In this manner, as Hayles (2008), puts it, "the body" can disappear into information in a way that "embodiment" cannot. Embodiment is not separate from "the body"; rather they exist on a material-discursive continuum of interactions. According to Hayles (2008), "embodiment differs from the concept of the body in that the body is always normative relative to some set of criteria" (p. 196). As she explains, "the body" is "an idealized form," while embodiment is "the specific instantiation" (p. 196). Although the neutral, decontextualized concept of "the body" may have material implications, only specific instances of bodies exist as bodies. Hayles uses the example of a PET (positron-emission tomography) scan to show how embodiment may be transformed into a body through the work of technology: "embodiment is converted into a body through imaging technologies that create a normalized construct averaged over many data points to give an idealized version of the object in question" (p. 196). Likewise, DRFAs are a sort of "imaging" technology that presents the body in a particular way. DRFAs present an idealized version of "the body" generated from many specific instances of embodiment.

DRFAs are constructed upon information gleaned from bodies (of cells, mice, and humans, among others) studied in nutrition science and abstracted to algorithms and

principles that provide a sense of what “the body” is and how it can be expected to interact with inputs related to food and activity. These constructions of “the body” are continually in play with embodied experiences (Hayles, 1993); we know our own bodies, at least in part, through discourses about “the body” to which we are exposed. As Stacy Alaimo (2008) asserts, “one’s own putatively ‘individual’ experience and understanding of one’s body is mediated by science, medicine, epidemiology” (p. 262), all of which may, in turn, be part of the idealized version of “the body” presented by a DRFA . But, because the tensions between embodied experience and “hegemonic cultural constructs” can at any time “widen into a perceived disparity, Hayles (1993) argues that, “Embodiment is thus inherently destabilizing with respect to the body” (p. 155). How, and even if, the body constructed by a DRFA and the embodied experience of the user coincide is itself an idiosyncratic phenomenon. With regard to the concept of “the body” constructed by any given DRFA, some individuals will see their experiences as already in line with it, while others will adjust their experiences to bring them into alignment; in either of these cases, presentations of the “the body” built into the app and embodied experience will have no “perceived disparity.” Yet others may use disparities between their embodied experiences of food and health and the expectations linked to the version of “the body” constructed by a DRFA as an opportunity to question and “destabilize” those expectations.

With regard to a material-discursive approach, concepts of “the body” and embodiment parallel those of inscription and incorporation (Hayles, 2008, p. 199). Far from being a theoretical abstraction, the idea that the body is inscribed by culture is a visible aspect of everyday life. Tattoos and piercings that would have been far outside cultural norms a few decades ago are now fashion accessories for middle-aged suburbanites. Beyond these voluntary adornments, however, as Elizabeth Grosz (1994) notes, “every body is marked by the history and specificity of its existence” (p. 142). If the concept of inscription approaches these mechanisms from the perspective of discourse, then the concept of incorporation approaches them from the perspective of embodiment. Although Hayles uses

the term “incorporation” primarily to refer to the ways that repeated performances of an action can become encoded into physical memory, as with typing or riding a bicycle, because I’m discussing food, I want to extend this term further. Food practices can certainly become habitual, but food itself is taken into the body in ways that suggest just how entangled inscription and incorporation are; it may be impossible to make clear distinctions between the material and cultural implications of food.

Food is central to any culture’s history, geography, and identity. But food is also an excellent example of why the notion of a consciousness removed from embodiment can only get as far as “brain in a vat” thought experiments. To a large extent, sensory inputs are a matter of sorting through signals; this is what makes virtual reality technology so marvellously convincing; with sophisticated enough signaling, we see, hear, and feel things that aren’t really there. But with food, it is simply not possible to digest food that isn’t there. This isn’t to say that flavors, smells, and ingredients in food can’t be manipulated to imitate things that they are not, but eating food is a specifically embodied encounter. Even the most processed, generic food item is still only going to be consumed and digested one time, by one body.<sup>3</sup> It is through the process of digestion and incorporation that food provides information to the body in the way that a sound wave does; the difference is that a food becomes part of a body in a way that a sound wave does not.

The information that food provides, however, can tell a body about the environment just as the sound of thunder or the sight of dark clouds gathering on the horizon might, only in a far more complex manner. Food, as it is broken down in the gut and assimilated into a body, brings information from the “world out there”; the gut responds accordingly as the “world out there” becomes “the world in here,” sending signals to the brain and elsewhere about how to respond to the material messages that have been incorporated. Food becomes us, and in that process of becoming, we are shaped to the environment that is read into the

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<sup>3</sup> In the human time scale, that is.

body through food. However, although isolated biochemical and physiological mechanisms follow predictable patterns, they operate as part of a web of ongoing interactions and incorporations that make all encounters between a food and a body a unique moment in a complex, unfolding history. To repurpose Grosz's words, every *encounter* between food and a body is marked by their histories and by the specificities of this encounter, to the extent that nutrients in a food may be more readily absorbed if the food is culturally familiar to a person (Hallberg, Björn-Rasmussen, Rossander, & Suwanik, 1977). These interactions suggest a view of a body that echoes Bennett's description of a complex heterogeneous assemblage engaged with other bodies over space and time. These interactions also suggest how incorporation and inscription are linked and indicate that "inscription," far from indicating social forces applied to a universal, neutral body, works on and through different bodies differently.

Although I have made the point that DRFAs are abstracted, quantified spaces, they too are configured in different ways, as are the communities that arrange themselves around these technologies in a digital space. These differences in configurations of technology and community interact not only with differences in the ways authority and expertise are built into the app, but with differences in embodied experiences of the users. As attention to affect is a way of understanding how the material and the discursive are interconnected, I turn here to an exploration of how affect figures into technological, social, and embodied configurations present within the context of a given DRFA. First, I should make clear that there is not any way to detect "affect" in this context; it is by definition pre-cognitive. By the time a DRFA user expresses his feelings about engaging with the app or with weight-loss efforts more generally, whatever prompted that expression has been filtered through any number of other material-discursive phenomena. Rather what I'm describing are commonalities of perceptions of effects and how these are explained or managed within the technological and social context of a DRFA. As Deleuze (1988) notes in his reading of Spinoza, consciousness only registers effects; it cannot know causes:

We are in such a condition that we only take in “what happens” to our body, “what happens” to our mind, ... But this is only our body in its own relation, and our mind in its own relation, and the other bodies and other minds or ideas in their respective relations, ... the conditions under which we know things and are conscious of ourselves condemn us *to have only inadequate ideas*, ideas that are confused and mutilated, effects separated from their real causes. (emphasis in original; p. 19)

Yet, as Deleuze goes on to explain, we *think* we do know what “causes” things to happen. By invoking the power of the consciousness over the body (what Deleuze calls “the illusion of free decrees”), we confuse effects with causes (Deleuze’s “illusion of final causes”) and assert that “what happens” to us is a matter of conscious action on our part. For example, we assume that if we eat “too much,” a matter over which we believe we have control, then we “get fat.” Yet it is just as possible that it is the phenomenon of “getting fat,” a matter over which we may not have as much, or any, control, that might then cause us to eat more food (or it may be both circumstances, or neither). When these explanations are insufficient, Deleuze argues that we invoke a deity (“the theological illusion”) to explain why things happen the way they do. In the context of the DRFA, references to science serve to bring messages of nature’s (rather than a god’s) will, although invocations of a type of *deus ex machina* are present in terms of explaining how technology itself may be the “cause” behind some effects. In other words, what I am interested in describing here is not the “real reality” of “what happens” in users’ reports of engaging with a DRFA or with attempts to lose weight, but in how various “inadequate ideas” are used to explain “what happens.”

Individual experiences of DRFA users are folded within the discursive and non-discursive aspects of the enabling network of diet as a means to prevent chronic disease (Foucault, 1980; Mayes, 2015), as discussed in Chapter 2. This enabling network is materialized in the technologies of these apps, but the affordances and constraints of different apps contribute differently to interactions between how a specific DRFA characterizes “the body” and the embodied experiences of its community of users. To the extent that we are

constituted differently by different technologies (Kittler, 1999), the ways that individuals are called upon to interact with these DRFAs creates communities that enact “the body” differently. As I moved back and forth between attending to the platform aspects of the apps, the commentaries posted by the users, and how they related to each other, certain orientations toward the concept of “the body” seemed to emerge and to shape responses to a concern common to the users of all of the different DRFAs, namely, the problem with not losing weight when an individual felt he “should” be losing weight. According to “calories in–calories out,” “the body” is supposed to lose weight when an individual eats less and moves more. However, when a user reports otherwise, it appears, to use Hayles’s term, to be a “destabilizing” moment, when tensions between embodiment and cultural constructs of “the body”—specifically the idealized body incorporated within the DRFA—widen into a perceived disparity. That material-discursive phenomenon, however, is an effect that the community then attempts to contextualize in a way that aligns with the values instantiated within that DRFA system. Because each DRFA and its co-constituted community values are different, each community responds differently in characterizing “what happens” to the body in these situations.

#### **4.7 - Interpretations: Stabilizing “the body” and (re)presenting embodiment**

From my observations, when a user reports embodied experiences in such a way that constructed concepts of “the body” are destabilized, the community formed through the interactions within a particular DRFA invokes ideas (inadequate though they may be) to provide a causal explanation for “what happens.” These ideas are made legible and acceptable to its community of users by the affordances and constraints of the app and the values these reflect. The explanation of causes may be illusory, as Deleuze (1988) argues, but they serve to stabilize the concept of “the body” that has been challenged. This concept of the body has a material-discursive relationship to the presentation, which is really a *representation*, of embodiment that exists within the space of the app. In the framings I provide below, I do not aim to suggest that my interpretations pin the users of a community

to a particular way of characterizing “the body” that is immutably true for all users in all instances, and in my investigations of these apps, there were indications of a variety of responses in each DRFA. Rather, I am suggesting that technological configurations shape how experiences of embodiment and constructions of “the body” might interact. What follows is my interpretation of the shaping that I see taking place within each app.

#### **4.7.1 - MyFitnessPal: “Body as child”**

MyFitnessPal offers an approach to weight loss that includes detailed counting and tracking of multiple outcomes. MyFitnessPal also offers the most comprehensive rationale for explaining the expert knowledge “behind” the app. As noted earlier, MyFitnessPal recognizes multiple authoritative institutions to justify the parameters placed on food and activity tracking. For example, MyFitnessPal notes that it will notify members when “daily carbohydrate intake falls below 130g ... The rationale for this is based on carbohydrate's role as the primary energy source for the brain and aligns with recommendations put forth by the [Institute of Medicine] and Academy of Nutrition and Dietetics” (“A message about MyFitnessPal’s updated nutrition goals,” 2018). The idea that the app is somehow monitoring an individual’s carbohydrate intake aligns with the generally extensive and invasive system of rules for both managing an individual’s body and managing an individual’s interactions with others. MyFitnessPal also configures users’ interactions in a way that seems to encourage users to monitor each other’s behavior. In numerous respects, MyFitnessPal is, as one user put it, “the kindergarten teacher of websites” (“sammybarry”). This is reinforced by the emphasis on recording food, activity, and body measurements in a detailed and accurate manner.

Weight-loss efforts are a value-laden undertaking, and with the MyFitnessPal configuration, the overarching value seems to be that rules must be followed, whether they are community rules or the laws of thermodynamics, which is often invoked to suggest that “calories in–calories out” in an inviolable principle. If a user raises the concern that “‘calories in–calories out’ is not working,” a typical response is “You are not a special

snowflake,” a phrase conveying a belief in both the “calories in–calories out” paradigm and the likelihood that the user with the complaint is not “following the rules” of accurately recording her food and activity. Often calls are made for the user to open her food diary so that others may evaluate the accuracy of her claims. When a user does so, the questioning begins: “Are you sure you’re putting in every little thing you eat?” “Do you measure your solids with a food scale?” “A 75g avocado is about 105 calories [and not 85 calories, as the original poster put in her food diary].” The level of micromanagement of the embodied experience that is perceived to be needed in order to ensure that it will be brought in line with the notions of “the body” is, at times, remarkable:

cups are inaccurate for solid and semi solids. so weigh your salad and fruit too. if its packaged salad use the grams on the package as the serving size. if you are making the salad yourself. weigh everything separately and log it or use the recipe builder as well. weigh all solids and semi solids. measure all liquids in cups and spoons (“cindybuns”)

The assumption that the calculations embedded in the app must be correct as the ultimate authority on “the body” directs the attention of MyFitnessPal users to address discordances between “the body” and embodiment with corrective actions, expressing a conceptualization of “body as child,” one that is need of discipline or at least “tough love.”

Within the “body as child” framework, the embodied self is (re)presented as body weight. This is seen in the graphic of starting weight, goal weight, and how many pounds the user has left to go which every user has on her profile page, and which some users place in their signature line in their posts (see **Figure 6** above). With the attention to body weight, the user is acting—recording foods and activities—in accordance with the “calories in–calories out” rules of the weight-loss game that is paradigmatic within the MyFitnessPal community in order to transform something that is seen to be separate from herself. “The body,” like a wayward child, might be difficult to manage, but should be brought under control, for its own best interests. Using discipline to make “the body” comply is understood to lead infallibly to

weight loss; for those whose embodied experiences do not correspond to the conditions of the “calories in–calories out” rules, the only recourse is further discipline.

#### **4.7.2 - Fooducate: “Body as temple”**

Fooducate offers an approach to weight loss that is focused almost solely on food, with the app’s affordances focused primarily on selecting, grading, and commenting on food and on getting the “right” information about food. At the same time, one of the primary “metrics” for judging food on the Fooducate app is by how “real” it is. In terms of authority, Fooducate emphasizes the use of “evidence-based science,” a concept that is itself unclear, and one that in any case does not promise to provide straightforward answers about what people should eat with regard to a food’s “realness.” The Fooducate configuration seems to balance the tensions between an emphasis on the importance of “evidence-based science” and the importance of “real” foods (a distinctly non-scientific concept) by presenting both as part of a belief system where the operative value is a continual pursuit of truth through accumulation of information. The use of Fooducate users as “crowdsourced” experts with regard to food ratings suggests that a type of consensus-based “truth” will emerge from allowing individuals to voice their own ideas about what foods are “healthy,” “real” or “processed.” This, along with the fairly limited social opportunities otherwise, means that the most extensive responses, as noted above, revolve around disagreements regarding why a food (or in the case of water, a beverage) receives the rating that it does.

Within the Fooducate app configuration, the overarching value seems to be a pursuit of “truth.” But this is not the quantified truth of the MyFitnessPal user, but rather a transcendent “truth” that speaks to not only the purity of a food, but the purity of knowledge about food. For reasons I’ve argued in previous chapters, however, knowledge about “healthy food” is a moving target. In the situation where users raise the issue that “calories in–calories out” isn’t working, the most typical response is related to quality of food. Often, other users suggest that it is best not worry about calories, but to “Just eat a healthy diet with plenty of whole foods,” an approach that effectively undercuts the whole premise of tracking

food with a weight-loss app, while still failing to provide specific guidance regarding what a “healthy” diet is and what foods should be considered “whole” in order to achieve weight loss. It seems to be a matter of faith that if the user’s food was more “real,” weight loss and health would automatically occur. But what makes a food “real” is unclear. “Real” seems to be a way of characterizing the “purity” of a food, having something to do with level of processing a food goes through and additives it contains, with little consideration of the possibility that processing and additives may serve to make foods safer and, as in the case of enrichment or fortification, more nourishing. However, if I were to raise this issue within the Fooducate community, I am certain it would be highly contested, as are many issues related to how foods are evaluated. Fooducate administrators, through blog postings and food ratings, present one version of the “truth” about a food, which is frequently challenged by users who present other versions of the “truth,” versions that are then further evaluated by others in the community for their veracity and challenged. These discordances entail a continual search for what one user calls “nutritional enlightenment.” Only the “truth” about what foods are “really real” or “really pure” can bring good health.

The importance of evaluating the purity of both food and food knowledge seems to express a conceptualization of “body as temple,” with an emphasis on the ideological stance that this metaphor provides. The example of the discussion of tap water is illustrative. Currently, there are 2,292 comments regarding the “A” rating that Fooducate gave tap water. Comments include:

- “tap water in any municipality should be a d or F. absolute poison fluoride mercury pesticides. Parasites Pharmaceuticals”
- “Tap water is fine for you! Think about bottled water and how many chemicals form the plastic you are consuming ...”
- “Eww. Bottled Water Is Better. I Would Only Drink Tap If It Was Filtered. But Plain Tap? No Thanks.”
- “Doesn’t matter if your city doesn’t put fluoride in the water out of you have spring

- or well water, there is other leads and metals in it that cause health problems”
- “Distilled water is the purest water on the planet. It’s the only way to remove fluoride which is a poison ... Look it up”
  - “distilled is not pure ... the only natural water is that that comes straight from a spring ...”
  - “Aquafina (Pepsi brand) and Dasani (Coca Cola brand) are nothing more than purified river water so you are wasting your money. You might as well drink tap water. It is not spring water unless it is labeled spring water.”
  - “Everything you all have suggested does not remove fluoride from your water. Plus anything else you drink was manufactured with fluoridated water. Most of the off the shelf filters don’t do much”
  - “Fluoride makes you docile. Hitler used it to dumb down the population.”
  - “Some of you people need to get educated. Fluoride is naturally found in fresh fruits and vegetables too.”
  - “FLUORIDE is NOT good for you in ANY [way] so FOODUCATE is wrong and I no longer trust you. Fluoride causes CANCER.”

For the configuration present within the Fooducate app, “the body” is expected to require purity of food and drink, and the user is expected to acquire the “right” information about what food and drinks are pure. This effort directs the attention of Fooducate users to vigorously pursue an ever elusive “truth” about “real food.”

Within the “body as temple” framework, the embodied self is (re)presented as something not unlike the tap water discussed above (there is no “profile page” on Fooducate); seemingly transparent and innocuous, but potentially poisoned. Only transcendent knowledge about food will allow the user to provide the purest, most “real” food to “the body,” ultimately resulting in weight management and good health. For those whose embodied experience does not respond to the provision of “real food” with weight loss and good health, the understanding is that the person is inadvertently poisoning herself with

the “wrong” foods because she lacks a full grasp of true food knowledge.

#### **4.7.3 - Fitbit: “Body as machine”**

Fitbit offers an approach to weight loss focused less on “calories in” and more on “calories out.” In terms of what authorizes the assumptions behind the operation of the app, there is little transparency. Fitbit seems to leverage the sophistication of technology as a form of expertise, but, like all expertise represented in the DRFA, it does not go unchallenged. The focus of the app is the ability to track the body automatically during physical activity or exercise, but this means that sometimes bumpy car rides are “counted” as steps and activities like snowboarding are not. However, the multiple ways of precisely measuring the work a body engages in (heart rate, number of steps) and the focus on physical activity orients the community toward the “objectivity” of the data collection devices and the data they produce.

This orientation suggests that the overarching value in the Fitbit configuration is rationality. As Hayles would have predicted, such a configuration privileges information over embodied experience. If a Fitbit user raises concerns that “‘calories in–calories out’ is not working,” a typical response is a variation on *deus ex machina*, more appropriately understood as *diabolo ex machina*. In other words, the device has a “bug” and is not making the correct calculations, with technical fixes usually suggested as steps to remedy the problem. These can be things like deleting the app and reloading it, updating the software, upgrading the device, and recommendations for other tracking tools to supplement the Fitbit to enhance the accuracy of tracked metrics. But while users may not trust the information the device provides, neither do they trust embodied experience. In the end, the device is considered more reliable. As one user explains:

You feeling full, and your body being fully fed for your level of activity [are] 2 very different things ... Undereat long enough, hunger will no longer be a reliable indicator. Come back close to maintenance, and your body will desire to go back to old levels of fat and make you feel hungrier than you need to be, again not reliable. Use your brain, not your stomach. (“HamWheels”)

The assumption that rationality serves as the best way to manage discordances between “the body” and embodiment seems to harken back to Atwater’s “body as machine” thinking, where thinking logically about the cost and nutritional value of food was supposed to be prioritized over gustatory pleasures. In this case, thinking rationally about “the body” is what will provide you with the best information about how much to eat and exercise.

Within the “body as machine” framework in the Fitbit configuration, the embodied self is (re)presented as data. This is apparent in the way that community interactions center on the translation of embodied experience into a measurable metric; the “profile page” on Fitbit contains graphs of calorie intake and “burn,” steps and distance, actual and target weight, and “achievements” of steps, floors, and distance. In the competitions that take place in activity groups, this way of (re)presenting embodiment reveals at least one problematic aspect: When individuals seem to be taking an unrealistically high average number of steps, such as 50,000, should the data be considered “truthful”? On the one hand, some users take a “rational” approach and use math to assert that this would be close to walking or running a marathon every day, something that would be tremendously time-consuming and difficult to accomplish on a daily basis. As with Pollan’s explanation for women who didn’t lose weight as expected, these users argue that the only “logical explanation” for these unrealistically high numbers of steps per day is that the person reporting them is cheating. On the other hand, using a similarly “rational” approach, other users come up with different answers that suggest a different embodied experience:

It would take a shade under seven hours of continuous walking to get to 50,000 steps. Runners average about 180 steps per minute. It would take a little over four and a half hours to get 50,000 steps. ... The person who walks 50,000 steps a day will probably be retired without any family commitments. Walking or running will be one of the focuses of their life. Let's break down a typical day: Sleep: 8 hours; Meals: 1.5 hours Personal hygiene: 1 hour; Shopping: 1 hour (estimated high); Walking: 7 hours; Total 18.5 hours (“Hershey”)

In this case, the “logical explanation” is the individual posting the high step per day averages is likely to be a very active retired person. This answer, however, suggests a more productive effect of (re)presenting embodied experience as data. It shifts the notion of health away from body size to a metric that is far more likely to be within the scope of an individual’s embodied experience. The user manages “the body” by meeting fitness metrics, which can be defined in many ways, such as taking 10,000 steps per day, having your heart rate elevated to a targeted level for thirty minutes per day, or moving for five minutes out of every sixty. Within the Fitbit configuration, meeting fitness metrics does not only have to act as a way to “become” healthy; meeting a targeted fitness metric can count as the equivalent of health.

#### ***4.7.4 - LoseIt! : “Body as collective”***

LoseIt! offers an approach to weight loss that is less focused on tracking the particulars of body measurements, qualities of food, or numbers of steps and more interested in supporting and encouraging others in their weight-loss efforts while pursuing your own. A highlighted aspect of the app is its extensive social-networking features and opportunities for community participation. Although LoseIt! relies on expert authority to rationalize the parameters used in the app and is the only app to make direct comparisons between tracked food and the USDA MyPlate food guide, the configuration of the app does not encourage users to take positions of authority relative to each other. For as much time as I spent on the forums, there was no indication of anyone having to “moderate” discussions (as there were on Fitbit and MyFitnessPal). The multiple ways of establishing individual goals for the user, of connecting with others, and of participating in the community suggest that the work of weight loss may be undertaken in different ways for different individuals.

This sense of egalitarianism and flexibility seemed to express a conceptualization of the “body as collective.” The definition of “collective” is “cooperative enterprise” and cooperation is an overarching value within the LoseIt! configuration. The app seems to orient users toward connecting with others, and users tend to be responsive and supportive of each other, rather than critical and accusatory. As one user put it, “I’m here for the peeps.” When a

user raises a concern that “calories in–calories out” is not working, a typical response is to suggest that the person who is having difficulties try a different approach and “figure out what works for you.” In many cases, users who are not experiencing “success” as defined by weight loss are (gently) taken to task by the community for forcing the body to comply with a set of rules that may not be appropriate for it. “[The app] is not the boss of you” is how one user voiced this sentiment. This is often followed by a redefining of success as persevering towards goals, while accepting that setbacks are inevitable, and enjoying the camaraderie of a community in the meantime, responses that challenge the reductive approaches found in the other DRFA and the oversimplifications of “calories in, calories out.”

Within the “body as collective” framework, the embodied self is (re)presented as community relationship. This is indicated by the activity feed that makes up the profile page of each user. The activity feed consists of all the interactions that you are involved with on LoseIt!, plus messages from friends. These activities highlight both individual achievements—weight loss or vegetable consumption—as well as social activities and group participation. Although users are ostensibly working on their own weight-loss efforts, there seems to be a larger sense of acting together as a community to support each other.

[Being on LoseIt!] gives you access to people that have lost weight, gotten to a goal and then stuck to it and maintained. What I’ve found is I have a lot of friends on here that have lost 50, 75, 100 pounds plus and have kept it off. Most of them aren’t on the “forums”, but by being their friends, you’re incredibly inspired by them. You also see what they do - their activity, which they quietly log every day along with their food logs, which show how “clean” they eat. (“MrKellogs”)

The work of weight loss—tracking calories and activity—becomes work for and with the community. Within this orientation, “the body” does not need to be controlled or protected, but cooperated with. For those whose embodied experiences do not correspond to the conditions of “calories in–calories out,” the response is flexibility, patience, and a redirection of energies and attention toward interactions with community members.

#### 4.8 - Conclusion and implications

It is not my intention to pass judgment on the effectiveness of any of these DRFAs or to rate which are “better” or “worse,” as I am sure that for different individuals at different times, different apps will serve different purposes. Thus, the first implication of this research is that discourses of “healthy diet”—with their rhetorics of choice and individual control—are embedded in the constraints and affordances of diet-related fitness apps and differently so in different apps. As a material manifestation of this discourse, DRFAs provide a variety of frameworks that influence how embodied experiences are understood and acted upon within these configurations. Some of these frameworks may enhance an individual’s capacity to act in the world, and some may diminish it. Which frameworks work for which individuals is likely to be idiosyncratic and to vary over time.

Both MyFitnessPal and Fooducate rely on the rules about “eating right” to make the individual responsible for health outcomes. In this regard, they clearly embody and express the discourses present in the DGA. Although Fitbit also centers the individual’s actions, the focus on physical activity as a positive aspect of health, rather than just a way to “balance” calories, offers some alternative ways of conceptualizing health. Loseit! seems to feature the most radical departure from the worldview present in the DGA, even though it too relies on a focus on “calories in, calories out.” The LoseIt! app highlights community participation in ways that shift the meaning of pursuing health away from individual responsibility and failure for managing body weight to cultivating a sense of belonging and seeing the pursuit of health as a journey undertaken rather than a goal to be reached.

With that in mind, I want to look for a moment at how weight-loss efforts figure into configurations of affect and power by referring back to a quote I discussed in the introduction. Deleuze’s (1978) interpretation of Spinoza’s theory of affect asserts that affect is central to the workings of power: “this is a profound point of connection between the despot and the priest—they both need the sadness of their subjects ... sadness is the affect [that] involves the diminution of my power of acting” (paragraph 19). The exercise of

relations of domination is appropriation of energy, inspiring, as Spinoza would put it, “sad passions.” I suggest that being made entirely responsible for something over which I have little control is the very definition of “diminution of my power of acting.” There is little wonder in my mind, as a dietitian and as a critical cultural scholar, why weight-loss efforts, as they are typically undertaken, may inspire “sad passions” in many. We ask individuals to maintain tight control over something many may only have trivial jurisdiction over in the first place: body weight. That the diet and fitness industries, of which these DRFAs are a part, benefit from the disconnect between responsibility for our body size and our ability to consciously control is an unsurprising manifestation of the ways in which capitalism relies on consumer sadness in the same way that a despot and a priest do. If we take Bennett’s (2010) view of the human body as heterogeneous assemblage whose agency is distributed across time, place, and disparate elements, then the task of “weight loss”—if that is even to be the goal at hand—must be a collective, interactive undertaking of years of nourishing food, safe neighborhoods, clean air and water, adequate housing, meaningful work, quality education, and freedom from violence, aggression, and harassment (Marmot, 2006).

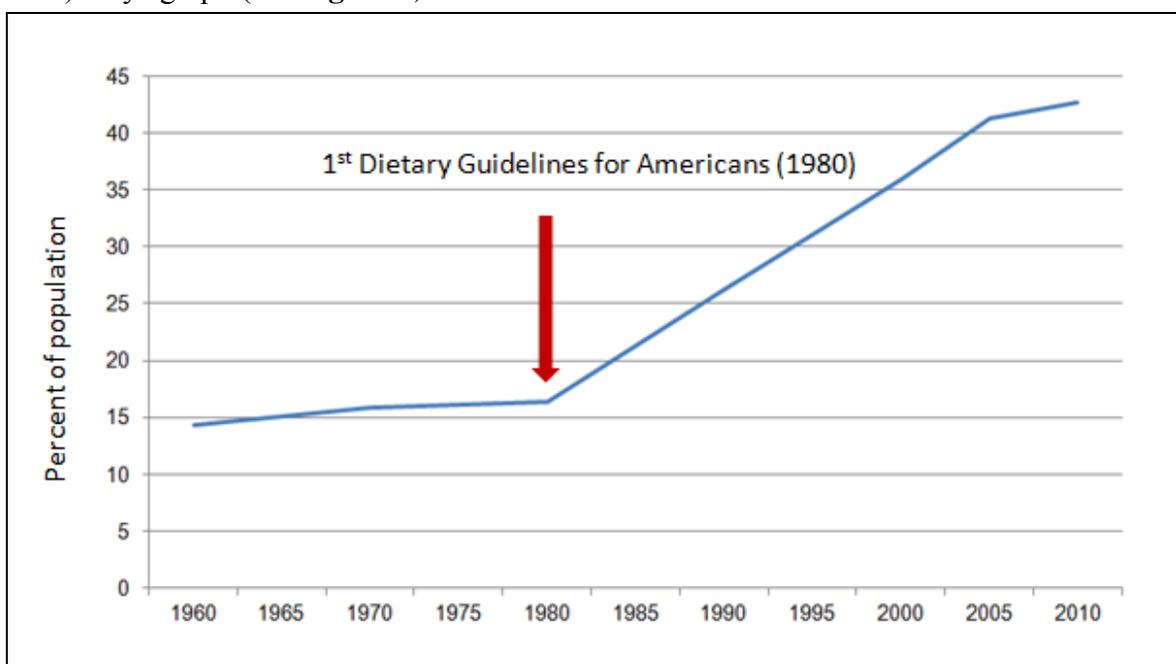
In the meantime, my research here offers possibilities for improving public health endeavors to prevent truly devastating diseases like diabetes from diminishing the quality of life of many Americans. These efforts don’t have to make people sad. Instead, public health directives could foster a sense of confidence, competency, and mastery—thought to be an important facet of health (P. D. Larsen & Lubkin, 2009)—by encouraging individuals to control things that truly are within their power. Current public health messages echo the “micromanagement” approach present in MyFitnessPal and the impossible pursuit of “nutritional enlightenment” characterized by Fooducate by making individuals responsible for pursuing the “right” nutrition knowledge and eating and exercising the “right” way to control body weight. Both of these approaches are ultimately disempowering, as knowing what knowledge is “right” and controlling body size may both be beyond the control of the individual.

Instead, we could redefine what the pursuit of health looks like. We could, for example, create a model for health that captures some of the positive aspects of the ways in which Fitbit constructs “health.” In this model, a flexible approach to health would rely on activity metrics and forget about BMI and body weight altogether. Or, more radically, we could create a model that builds upon the ways in which interactions of participants in the LoseIt! forums are supportive and community-oriented. We could focus creating public health models where work of improving quality of life is undertaken together and is a collective, rather than an individual, matter—and forget about BMI and body weight altogether. Currently the American public health approach to chronic disease is designed around an inflexible framework of preventing obesity by managing “calories in–calories out” and making “health” the sole responsibility of the individual. This investigation points towards some possibilities for change. Public health experts have suggested a need for interventions that “make the healthy choice the easy choice” for consumers that are seen as lacking the agency to make wise choices on their own (Kirkland, 2011; McKay, 2012). However, even an “easy choice” may not be a “healthy choice” if the intervention is based on a framework that defines “success” in a way that ignores embodied experience and denies the materiality and agency of the physical body, which acts in relation to many other bodies and beyond conscious control. Current public health nutrition messages are limited to a “mind over matter” intervention and ignore the possibility that a “successful” outcome of this intervention—weight loss—may be beyond the control of the individual. If we want public health measures that will succeed, maybe we need a different definition of success.

## CHAPTER 5: CONCLUSION

### 5.0 - “My” graph

When I was a PhD student in nutritional epidemiology at the University of North Carolina at Chapel Hill, I developed a bit of local notoriety for a graph that I put together showing a relationship between the rise in obesity rates in the U.S. and the development of the 1980 Dietary Guidelines for Americans (DGA). Now, if you search the internet for images of “obesity” and “dietary guidelines,” you will find various versions of (what I think of as) “my” graph (see **Figure 7**).



**Figure 7: Temporal relationship between the rise in age-adjusted rates of obesity (defined as BMI  $\geq$  30) in the U.S. and the creation of the 1980 Dietary Guidelines for Americans.** Obesity data from the Centers for Disease Control (Ogden & Carroll, 2010).

Faculty in my program at the time responded to the graph and my insistence on discussing it in a variety of ways. Although some were intrigued, the most common reactions I got were various levels of rebuke for even making such an image, which was characterized as “political,” “controversial,” or “misleading.” I was also accused of committing an “ecological fallacy,” which is when population-level data (here, the rise in obesity rates) is

used to argue for a biological mechanism that operates at the individual level. I would be committing an ecological fallacy if I were to argue that the rise in obesity rates was caused by individuals following the recommendations in the DGA, but this was not my argument. Rather, what the graph shows is the relationship between a population-level outcome (rise in obesity rates) and a population-level intervention—or “exposure” in epidemiological terms—for which there is no corresponding individual analogue, namely the creation of national guidelines that endorsed some foods and discouraged others in an effort to reduce population-level rates of chronic disease and obesity. Although I never asserted that the graph showed a cause-effect relationship—as a nutritional epidemiology student, I had been taught not to make those sorts of claims—many people responded to the graph with their own ecological fallacy. In this version, the rise in obesity rates is a result of individual Americans not following the recommendations the DGA provide for “healthy eating.”

Whether Americans have failed to follow the DGA recommendations is arguable—and a matter of significant controversy in the field of nutrition. There is plenty of evidence that some aspects of the U.S. food supply have shifted in favor of eating patterns outlined in the DGA, indicating reduced consumption of red meat, eggs, butter, and whole milk and increased intake of grains, vegetable oils, poultry, vegetables, and fruit (Bentley, 2017). That these shifts began even before the DGA were created indicate that, to some extent, the DGA followed and reinforced a trend already underway in many American households (Hiza & Bente, 2007). There is also evidence that in the 1980s, Americans did not really begin eating less fat or fewer calories, but did increase their intakes of carbohydrate foods; the percentage of fat in the diet of Americans seems to have decreased only because calorie intake from carbohydrate went up (Cohen et al., 2015). Ironically, much of the controversy over establishing claims of fact around whether Americans follow DGA recommendations has to do with the assumption that when individuals are surveyed, they report intakes that align with those very recommendations (Hebert, Clemow, Pbert, Ockene & Ockene, 1995). Yet few questions are raised regarding the origins and implications of the social norms that underpin

this so-called “social desirability bias.” Thus I am less interested in the question of what Americans eat—a reality that is extremely difficult to pin down—and more interested in how the response that “Americans don’t follow the guidelines” indicates an important assumption, namely, that if Americans *had* “followed” the recommendations given in the guidelines, a rise in obesity rates would not have taken place. This assumption sits on top of other assumptions that are, as I argued in Chapter 2, pervasive in dietary health discourses, namely that preventing obesity and chronic disease is simply a matter of making the right dietary choices, instructions for which are provided by nutrition science and presented in the DGA. It has taken me a number of years—and a different PhD program—to begin to appreciate the similarities, differences, and interactions between the potential effects of the specific recommendations provided by the DGA and the potential effects of the more general assertion that an individual can simply choose to avoid chronic disease by selecting the right diet. Although I am still in the process of understanding these similarities, differences, and interactions, in this conclusion I begin to explore some of their implications and to work towards creating a space for continued inquiry into the rhetoric of “healthy diet” and the material-discursive implications of the assumption that avoiding chronic disease is a matter of choice.

Perhaps a good place to start is with an interview I had in 2015 with Dr. Michael McGinnis, who was a member of the *ad hoc* committee that authored the 1980 DGA. We have little information about who was on that committee, but in a Dietary Guidelines Advisory Committee meeting for the creation of the 2015 DGA, he stated that he had been and agreed to tell me about this experience. When I asked him who the intended audience for the DGA was at the time they were created, Dr. McGinnis noted that the primary audience was the American consumer, but he added that the implications that the DGA would have for research and for the food industry were not lost on the committee. He recalled that the committee was aware that the DGA would do more than offer a plan for “healthy eating” to those who were interested. Dr. McGinnis went on to say that the DGA were to be a “starting

point” for a broader, sustained effort that would improve the eating habits of Americans. In other words, although the rhetorical effects of specific recommendations may be more difficult to identify, we can look to the intentions of the creators of the DGA, at least as articulated retrospectively, to help describe potential material-discursive effects of the policy and the assumptions upon which it was created. And the intentions, as stated by Dr. McGinnis then, were not only to improve the diets of Americans, but to impact research agendas and the food environment in the service of this goal.

Dr. McGinnis’s recollections point to a central insight from my research: The creators of the DGA developed their initial policy as if uncertainties in the science that existed at that point—and which were acknowledged by the more qualified language of the DGA relative to the 1977 Dietary Goals—would be resolved in a way that would not undermine the practices established or the worldview promoted by that policy. At least part of the tension between the uncertainty of the science and the implications of certainty inherent in policymaking was managed by simply acting as if future science would confirm the policy already in place. As I’ve noted previously, the creators of 1977 Dietary Goals were fully aware that they did not have consistent findings on which to base their recommendations. When the 1980 DGA reiterated the as-yet-unproven connections between diet and disease, its creators were proceeding, as some critics at the time pointed out, under the assumption that definitive proof would be forthcoming (Harper, 1978). This was less a matter of proving that the specific recommendations were correct (indeed, many of the recommendations from the 1980 DGA are still highly contested and the subject of active research), and more a matter of asserting more generally that links between diet and chronic disease could be known and acted upon. When the DGA, through the processes and relationships of authorization discussed in Chapter 3, became established as a meta-genre that directed the discourses of food and health in America, the definition of a “healthy diet” shifted from one that prevents nutritional deficiencies to one that prevents chronic disease. Although the DGA did provide specific recommendations for what this sort of “healthy diet” should look like, the dynamics of the

meta-genre processes and relations suggest that guidance that confirmed that chronic diseases could be prevented was important to those who would authorize such guidance, perhaps more important than what the specific recommendations would be.

It is worth noting that the anticipated influences on science and the food environment that Dr. McGinnis mentions are not specific to any particular dietary recommendations; rather, they indicate an expectation that, for the general population, links between diet and prevention of chronic disease are knowable. I also want to emphasize that I am not arguing that Dr. McGinnis and the *ad hoc* committee felt that they could manipulate research agendas, consumer information, or food industry participation with regard to the DGA, only that they were aware that the DGA would have repercussions on these areas. Within this context, the DGA, in its assertion of a relationship between diet and the prevention of chronic disease, acts to enhance the possibility of some outcomes and constrain the possibility of others. At the same time, the contradictions built into the very existence of the DGA means that these effects are not the planned or intentional outcomes of one group's ideological influences, but rather the result of the tensions among a variety of forces as they operate within a particular historical context (Packer, 2003).

However, my research has also demonstrated that the existence of the DGA was a product of numerous historically situated social and cultural phenomena, including a shifting economic situation that widened the income gap between the wealthiest Americans and everyone else. Robert Crawford (2006) and Barbara Ehrenreich (1989) have both asserted that the struggles of middle-class professionals to maintain their social status was manifested in a large part by the pursuit of "healthy" lifestyle behaviors that would separate them from the poor and working classes. This occurred within the context of the spread of an economic philosophy of neoliberalism that made the marketplace—rather than government or institutions—the solution to social ills. Another insight from my research, then, is that the pursuit of health that engaged middle-class professionals beginning the mid-1970s was reproduced in and reinforced by dietary guidance for the prevention of chronic disease. The

DGA institutionalized the notion that prevention of chronic disease was a matter of “choice,” a position that aligned with the expansion of neoliberal economic approaches. Furthermore, the long history of the links between dietary practices and moral concerns, particularly for middle-class consumers in America (Biltekoff, 2013), was threaded through the changes in how “healthy diet” was defined. If preventing chronic disease was a matter of making the “right” dietary choices—and these choices were provided by the marketplace—the consumer was then responsible for presenting to the world a slender, disease-free body as proof that she had made those choices responsibly. Under these circumstances, individuals whose bodies failed to conform to standards of health or size could be held accountable for their actions, as indicated by the conditions of their bodies. Digital technologies, such as the DRFAs discussed in the previous chapter, have provided new ways to monitor and discipline the self, ways in which the expertise and authority that is overtly presented in guidelines or self-help books is obscured by the media platform. Although it is but a small sample of how relationships between food, health, and bodies might be experienced within this context of accountability, my investigation into the world of DRFAs indicates that individuals are frequently held responsible—by themselves, by others, and in some ways, by the technology of the DRFA itself—for whether their body conforms to expectations established by the idea that individuals can choose their weight and health outcomes. Under the guise of “personalized” metrics, individuals are held to a single common standard of how “the body” should behave.

When I began this investigation, I sought a better understanding of the apparent paradoxes surrounding nutrition and health in America, to examine how they came to be and how their history manifests itself in everyday life today. I did not expect to be able to resolve them, nor have I done so. I did find that my research has crystallized around the three assumptions that are embedded in the notion that diet prevents chronic disease, with each assumption directing attention to a feature of current dietary health discourses. In this conclusion, I begin by looking at how the assumption that links between diet and chronic

disease are knowable has shaped knowledge production in nutrition science and the science-policy interface. I then look at the assumption that individuals can use nutrition knowledge to control their health outcomes. This assumption is expressed in rhetorics of choice and responsibility, yet the context of neoliberalism and marketplace solutions both problematize and require the notion of choice. I continue by looking at the ways in which the assumption that individuals have both the knowledge and the capacity to control their health through diet has created rhetorics of failure and blame targeting those whose bodies don't conform to expectations of health and size. Next, I describe what I see as our current dietary health imaginary, a collectively imagined form of social life and social order that organizes our understanding of food, health, and related concerns. I conclude with some final thoughts on my research and its implications for other scholars.

### **5.1 - Nutritional epidemiology of chronic disease and the science-policy interface**

With regard to nutrition science, my research helps to explain the paradox between the many contradictory findings about relationships between diet and chronic disease and the relative stability of the recommendations in the DGA themselves. By authorizing nutritional epidemiology of chronic disease (NECD) as a “technique and procedure accorded value in the acquisition of truth” (Foucault, 1984, p. 73), the DGA promoted an area of nutrition science still in its infancy to the primary means whereby dietary guidance for the prevention of chronic disease could be established. In current dietary health discourses, this means that the many weak and contradictory findings generated by NECD cannot simply be dismissed as preliminary hypotheses, because these same kinds of findings serve as the basis for national nutrition policy. At the same time, the policy itself influences how science gets made, what findings are deemed acceptable and thus made to “function as true,” and which experts are “charged with saying what counts as true” (Foucault, 1984, p. 73).

In this regard, the creation of the DGA has been an object lesson in the kinds of observations that rhetoricians of science make about the interactions of science and

policy. As Carolyn Miller (2005) and other rhetoricians of science point out, there is no clear demarcation between epistemic and policy issues. Governments influence the scientific knowledge production process through the provision of various forms of support, from funding to public platforms for dissemination of information (Goodnight, 2012; Taylor, 1991). With the DGA operating as a regularizing meta-genre that endorsed some types of discursive activity and discouraged others, scientists who wished to find themselves as “insiders” with regard to the authority of that text would generate grants and scientific articles that aligned with the worldview—and often the specific recommendations—present in the DGA (Taubes, 2007). The *ad hoc* committee that created the DGA in 1980 provided a “direction” in which nutrition scientists were expected to look to find the scientific evidence that was missing then, but the provision of funding from the federal government for that effort provided material feedback that scientists’ discursive efforts were in line with the expectations of the DGA as meta-genre. Although the development of national nutrition policy may have increased funding for research into the relationships between diet and chronic disease, the role of the DGA as meta-genre may have had the effect of, to use Janet Giltrow’s (2002) words, “patrolling or controlling individuals’ participation in the collective” (p. 203), with the “collective” here being the community of nutrition scientists who have their work funded and published. Once the framework for public health nutrition policy in the U.S. had been laid, what remained was to solidify an evidence base to support this agenda, even as the existence of the DGA constrained the open back-and-forth that is typically relied upon over time to resolve scientific uncertainties and controversies (Taubes, 2007). Although the dramatically expanded program of NECD studies that followed the creation of the DGA may have led to an increase in research that supported the recommendations in the DGA, it also revealed the many weaknesses in the field of NECD itself.

Problematic features of early NECD studies would become even more so once these studies were undertaken in a social context where assertions that links existed

between diet and chronic disease were in circulation. NECD is based on logics and methodological frameworks from earlier ways of understanding links between diet and diseases of deficiency and toxicity. Critics of Ancel Keys and the *Dietary Goals* questioned whether NECD was suited to the task of generating evidence substantial enough to support population-wide dietary recommendations for the prevention of chronic disease. That question was answered, in essence, by the creation of the DGA; although NECD may not have been up to the task of generating appropriate levels of evidence, the perceived need for authoritative guidance overrode considerations of evidentiary standards. The imperative of creating and maintaining national dietary policy to prevent diseases thought to be associated with dietary habits elevated the status of NECD beyond a means for generating hypotheses to a means for drawing conclusions about cause-effect relationships between diet and chronic disease. However, transferring earlier methods of nutritional epidemiology to the study of chronic disease within a context where links between diet and chronic disease had already been established as part of public health nutrition guidance for the entire population appears to have exacerbated the weaknesses of using NECD as a way to study those relationships.

The Framingham study mentioned in Chapter 2 was conducted before the DGA were created, but it provides an early example of the kinds of problems that would become even more pronounced once the DGA were established as policy. First of all, the Framingham study surveyed only white Americans; this tendency to assume that the “average” person was of European descent would be replicated in many of the studies that would act as evidence to support the DGA in later decades. In addition, as the Framingham investigators discovered, individuals who volunteer to participate in NECD studies tend to be healthier than those who don’t (Kannel & Gordon, 1968, pp. 1f–15). Furthermore, the study participants in Framingham report eating differently over time, matching their responses to dietary surveys to prevailing ideas about dietary health, which they may have gleaned from the study context itself (Kannel & Gordon, 1970). Thus, to a large degree, NECD studies had already been

seen to be exercises in documenting relationships that appeared to exist between diet and chronic disease in populations of convenience who were both healthier to begin with and who were very likely to report behavior that aligned with currently circulating beliefs about health. These problematic features would be carried forward in the surge of NECD studies that followed the creation of the DGA (Hite, 2018).

Since 1985, the federal government's investment in nutrition research has more than doubled (Toole & Kuchler, 2015), and much of this expansion has been for NECD studies that are relatively less expensive to administer than randomized, controlled trials and have longer time-lines suited for informing policy regarding prevention of chronic disease. The theoretical gaps that occurred when methods used to study diseases caused by single agents were transferred to diseases with complex, extended etiologies were largely obscured by the increasing complexity of the methods of NECD as a technology-based science. Just as advances in industrial technology created conditions for efficient replacement of unwanted food components with substitutions from food science laboratories, advances in computer technology, along with the development of survey tools that could collect reports about dietary practices from large numbers of individuals, allowed for the development of nutrition guidance based on the analysis of multiple forms of data from thousands of people. As NECD studies became larger and more complex, the statistical models used to represent the relationships studies become more complex as well. At the same time, the size of associations between foods or dietary patterns and chronic disease outcomes identified in this manner in non-experimental, indirect, observational studies is small. Measures of relative risk from these studies are typically on the order of 0.8 to 1.2 (Potischman & Weed, 1999). When effect sizes are small, it is possible that bias can account entirely for the association seen (Aschengrau, 2008). Repeated studies that show a "consistency" of small associations, meta-analyses that pool the data from many studies with small associations, and ever-larger datasets may seem to be ways of overcoming the weakness of findings, but they may instead serve to add an artificial level of precision that reinforces biases present across a range of

studies (Egger & Smith, 1997; Ioannidis, 2013; Shapiro, 1994).

Because the indirect methodology of NECD cannot be used to definitively establish cause–effect relationships, causality, as I argued earlier, is established rhetorically. The increasing robustness of the enabling network that supports the assumption that links between diet and chronic disease are knowable, of which the DGA are a central part, strengthened the rhetorical power of findings from NECD. Advances in technology have provided an additional rationale for accepting correlations from NECD studies as causal relationships. Because the number of participants is larger, more variables can be examined, and models are more complex; presumably, then, the results must be more definitive.<sup>1</sup> As national nutrition policy acts to certify and reinforce what findings from NECD are to be considered the most credible, researchers may position their work in ways that will allow it to be considered as evidence in national nutrition policy. It is common for NECD researchers to use cause–effect language, make policy recommendations, and over-generalize their findings to populations not included in their samples (Cofield, Corona, & Allison, 2010; Menachemi et al., 2013). Although the specific recommendations of the DGA continue to be supported by NECD studies, numerous other studies of similar quality that contradict those recommendations can be found in the biomedical literature (Hite et al., 2010)

For these reasons, and many others, NECD has been the target of a number of powerful critiques in recent years, with one Stanford researcher asserting that NECD is a “scandal” and “should just go in the waste bin” (Crowe, 2018). In the face of such criticism, prominent NECD researchers have defended the methods used in NECD and justified using NECD to make claims of causality by arguing that “policy decisions have to be made” (Satija et al., 2015). The symbiotic relationship between NECD and dietary guidance reinforces the notion that science has determined the links between diet and prevention of chronic disease.

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<sup>1</sup> Critics have suggested that the complexity is used to justify “a large volume of poor research camouflaged by the arcana [of epidemiological methods]” (Shapiro, 2008, p. 82).

But the weakness of NECD as a method for discovering those links has led to a situation where the nutrition literature seems to indicate that commonly eaten foods both cause and prevent chronic disease (Schoenfeld & Ioannidis, 2013). The conflation of the scientific enterprise of developing nutrition knowledge through NECD studies with the political enterprise of developing national nutrition policy has made them mutually dependent: we need NECD studies to create dietary guidelines, and we need dietary guidelines to promote the findings of NECD studies.

Furthermore, the enabling network that supported the development of both NECD and the DGA also included the imperative for individuals to take responsibility for their own health outcomes as part of the rise of the related ideologies of healthism and neoliberalism. However, as Harvey (2007) notes, this requires the expansion of the scope and authority of knowledge production practices and information technologies needed to manage (or manipulate) consumer choice. As individuals were held responsible for “choosing” health through lifestyle options provided in the marketplace, information about how to make those choices was needed in order for individuals to be responsible for their health outcomes. This information would come from the interrelated enterprises of NECD and the DGA. This means that NECD studies ultimately serve the purpose of providing the basis for the DGA to provide individuals with information that will help them prevent obesity and chronic disease by making “healthy” choices. However, flaws in NECD methodology and lack of a theoretical framework make it unclear what choices are, in fact, “healthy,” undermining the authority of the DGA and contributing to consumer confusion, but ultimately providing food manufacturers with increased opportunities to promote products that leverage consumer fear, uncertainty, and doubt.

## **5.2 - Rhetorics of choice and responsibility**

The debate about links between diet and chronic disease had been going on in science journals and conferences for many years before the 1977 *Dietary Goals* were created (Austin & Quelch, 1979). But the specific recommendations found in the 1977 *Dietary Goals* and the

1980 DGA gave visibility to these debates and moved them into the public forum. As I've noted throughout this dissertation, the creators of 1977 *Dietary Goals* were fully aware that they did not have consistent, conclusive findings on which to base their recommendations, but by asserting that a connection between diet and chronic disease existed, they created the impression that the question about links between diet and chronic disease had been in some way "settled." In a similarly contradictory fashion, the *Dietary Goals* called for increased funding for human nutrition research (which suggested that current knowledge was insufficient for providing recommendations) and increased nutrition education for the public (which suggested it was).

When the 1980 DGA was created, its creators rationalized their reinforcement of the as-yet-unproven connections between diet and disease these claims through rhetorics of choice. The assumption was made that any uptake of these recommendations would be completely and deliberately voluntary. As Carol Tucker Foreman, one of the individuals identified as being on the *ad hoc* committee that created the 1980 DGA, put it, the DGA are "simple recommendations which people can follow if they choose" (*Dietary Guidelines for Americans: Hearings before the Committee on Appropriations, 1981*). During this hearing, she describes pamphlets based on DGA recommendations and given out to food stamp recipients as only offering "suggestions" for dietary changes: "Participants are given helpful hints on how to cut down (not eliminate) sugar, fat, and salt if they want to. The choice is left up to the recipient" (*Dietary Guidelines for Americans: Hearings before the Committee on Appropriations, 1981*). At the same time, the pamphlet's first page of text begins: "Eat better. You owe it to yourself and your family. ... Eating better may not make you feel any different .. but it may make it less likely that you will be hit by some diet-related diseases which can strike people when they are older" (USDA Food and Nutrition Service, 1979). Voluntary or not, the rhetoric makes it clear that only an irresponsible person would not at least attempt to follow the guidance in this pamphlet. However, by positioning the recommendations as something an individual may choose to follow or disregard, the DGA's authors shift the

responsibility for outcomes onto the consumer. Rather than the authors being responsible for providing recommendations that were supported by strong, consistent evidence, the rhetorics of choice create the sense that consumers have been given a new opportunity to control their own health outcomes.

If nutrition science had indeed confirmed links between diet and prevention of chronic disease, why leave the choice of prevention up to the individual? It would seem like a fairly straightforward matter for governments to restrict or abolish the production of foods known to cause disease and promote and financially support the production of foods known to prevent disease, greatly simplifying the choices that consumer make. However, my research indicates that the heterogeneous network of discursive and non-discursive elements that supported discourses of diet as a means to prevent chronic disease also supported the manufacturing and marketing of foods that aligned with this concept, from which the consumer—armed with dietary guidelines—could choose a “healthy diet.” Within the context of the rise of neoliberalism, the market would provide foods for a “healthy diet” as defined by the DGA, and the individual would be responsible for making the “right” choices. However, neoliberalism also entails limited regulation of corporations more generally. This means that along with “healthy foods,” food manufacturers could make and market “unhealthy foods” with impunity. And because claims of links between diet and chronic disease are numerous and contradictory as generated by studies from NECD, this also means that, under relatively weak regulatory conditions, how “healthy” and “unhealthy” foods and food components are defined on labels and in advertisements is flexible. Consumers continue to be educated by label claims, as they were during mid-century concerns about vitamin deficiencies, a situation that allows food manufacturers to again leverage fears and uncertainties generated by limited evidence from science. And, as before, consumers with the economic and social resources to pursue health through diet have become consumers of dietary health information and the products associated with that pursuit as well, even as discourses of “diet” and “health” have expanded to include many other social concerns and

opportunities for marketplace interventions. Nutrition experts, findings from NECD, and dietary patterns promoted as “healthy” contradict each other, a situation that produces consumer confusion, but also offer limitless opportunities for consumers to pursue dietary health and its related social agendas through consumption of products, information, and services.

Making a responsible choice about personal health is linked to the provision of information about how to choose, but issues of “responsibility” are context-specific. When a patient asks a physician for advice about how to manage a health issue, responsibilities are shared relatively equally. The physician is required to offer the best information available, and the patient is responsible for either complying with this advice or seeking a second opinion (Hite, 2017). The rhetorics of “choice” used by the creators of the 1977 *Goals* and the 1980 DGA position national dietary guidelines as a similarly shared responsibility. This stance is neatly captured in remarks made by Julius Richmond (1979), who served as the United States Surgeon General and the United States Assistant Secretary for Health from 1977 to 1981: “Individuals have the right to make informed choices and the government has the responsibility to provide the best data for making good dietary decisions” (p. 2621). This remark places the status of the DGA as a public health intervention as equivalent to that of a patient-clinician encounter, a paradoxical position that is at the heart of the DGA and its legacy. The rhetoric of “choice” implies national nutrition policy has no other impacts, but acts merely as a vehicle for nutrition advice that consumers may follow or not as they see fit. At the same time, the very existence of policy implies that government authorities have reviewed and vetted a set of recommendations that consumers ignore at their peril, undermining the notion that a true set of options is available. Presenting the DGA as merely a set of recommendations to be complied with or ignored disregards the responsibility of government to create policy that is likely to provide the most benefit with the least amount of harm, whether deliberately followed or not, and that uses the strongest possible levels of evidence to establish this likelihood. More importantly, however, it also disregards the role

that policy plays in shaping the material-discursive environment in ways that may undermine the notion of individual “choice” while reinforcing the notion of individual responsibility for health outcomes.

In the case of national nutrition policy, although there was enough political—or at least administrative—will in the 1980s to create dietary recommendations telling consumers how to “eat right,” there has never been the political will—nor sufficient scientific evidence to stimulate that will—to actually eliminate from the food supply foods or food components deemed by the recommendations to be “wrong.”<sup>2</sup> This environment provides plenty of opportunities for both “control” and “release” or the manifestation of both the “work ethic” of what is seen as maintaining health and the “pleasure ethic” of what is understood as leisure and indulgence (Crawford, 2006, p. 412). The recommendations to drink fat-free or low-fat milk created a surplus of dairy fat, which could be used to make cheese. More cheese made cheese cheap. Cheap cheese meant that pizza makers could make triple cheese pizza with a cheese-stuffed crust affordable for consumers. In one of my favorite examples, the national push to encourage Americans to eat a low-fat diet directly contributed to the widespread popularity of one of America’s favorite—and distinctly not low-fat—snacks: Buffalo chicken wings. These deep-fried snacks appeared in Buffalo in the mid-sixties, but were slow to catch on elsewhere. In the 1970s, chicken wings were typically sold attached to whole birds or as part of a chicken quarter attached to the breast. Ironically, the demand for boneless skinless

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<sup>2</sup> Many nutrition scientists will point to trans fats as an example of NECD studies contributing to the successful removal of an “unhealthy” food component from the food supply. What is typically left out of this narrative is that *trans* fats became common in the food supply when nutrition scientists and food activist groups campaigned, during the 1980s, for the food industry to switch from using tallow and lard (ostensibly dangerous because of their saturated fat content) to using hydrogenated vegetable oils, which at the time were considered “safer” but are now associated with *trans* fats. Most food manufacturers complied. (Schleifer, 2012).

chicken breasts, a recommended staple of the kind of low-fat diet promoted by the DGA, created a steady supply of wings for restaurants and food manufacturers and established Buffalo wings as one of America's most ubiquitous snack foods ("Late-night snack spawned an industry," 2014, p.64). Changes in the food supply since the 1970s were in part a direct response to consumer demands for "healthy" food generated by early NECD studies and, later, by the DGA, but were also a result of indirect effects related to those demands. Consumers who choose to be "good" and eat "healthy" foods and consumers who choose to be "bad" and eat "unhealthy" foods are supported in their choices by the marketplace in both cases.

In a similar way, consumers with the resources to choose to pursue other forms of dietary health besides the one presented by DGA recommendations are also supported in this pursuit by the marketplace. Information, products, and services are available to follow any number of ostensibly "healthy" dietary patterns. Individuals may characterize their diets as some variation on or combination of a long list of dietary ideologies—paleo, Mediterranean, vegan, vegetarian, low-carb, keto, carnivore, raw, local, slow, and others—and may be able to provide credible support from nutrition science or expert opinions that their dietary pattern will prevent chronic disease. Furthermore, among the general public and to some extent within public health and healthcare circles, advice regarding a "healthy diet" is not strictly about eating. For example, advice to prevent obesity or chronic disease through diet has expanded to include a host of other affiliated behaviors—most notably exercise, but also sleep, household and shopping activities, parenting, and use of leisure time—many of which reflect the values of middle-class professionals providing such advice.<sup>3</sup> In addition, desired

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<sup>3</sup> This is apparent in the 2015 Dietary Guidelines Advisory Committee (DGAC) Report, the report which provides the rationale for the eighth edition of the Dietary Guidelines. The 2015 DGAC Report not only indicates what dietary patterns are to be followed to ensure health but includes "promising behavior change strategies" that replicate middle-class values, such as reducing "screen

outcomes of a “healthy diet” are not limited to prevention of chronic disease or even to prevention of the effects of aging or physical deterioration more generally. Dietary patterns have also explicitly been assigned the ability to ameliorate a host of other perceived social ills, including global hunger, social isolation, inefficiencies in the food system, and environmental harm. Biltekoff (2014) points to advocates of “the alternative food movement” who “emphasize a distinction between moral eaters who do the right thing for both themselves and the planet and irresponsible ‘others’ whose bad eating habits are a threat to us all” (p. 36-37). In this regard, “diet” seems to act as a metonym for “lifestyle,” and “healthy” seems to indicate normative goals beyond individual health. For example, a report sponsored by a “global, non-profit start-up,” EAT, promotes a diet very low in meat and animal products, which the report claims has been scientifically proven to be both the healthiest diet for humans and the dietary pattern that will ameliorate climate change while feeding a growing global population (W. Willett et al., 2019). In order to transform the food system according to their vision, EAT has partnered with global food manufacturers (e.g., Nestle, Kellogg’s, and Pepsico) and agribusinesses (e.g., Bayer, Cargill, and Unilever), who would be positioned to provide the foods consumers would be eating once convinced to give up animal products (“FReSH,” n.d.). In many regards, this campaign recapitulates many of the elements of the enabling network that initiated the acceptance of diet as means to prevent chronic disease, only now the stakes are higher—climate change—and the stage is global rather than American. In both cases, moral concerns and dietary concerns have been conflated in ways that make “eating right” an obligation and, to a large extent, one that is fulfilled by consumer activity.

Driving consumption is the fact that, within the context of neoliberalism, the freedom to choose a “healthy diet” cannot be disentangled from a responsibility to do so. Although

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time”; reducing eating at fast food restaurants; increasing family meals; improving sleep patterns, and self-monitoring diet and body weight (Dietary Guidelines Advisory Committee, 2015, p. A-5),

dietary regimes carry with them the notion of “discipline,” the obligation to pursue a dietary regime that will prevent chronic disease, and possibly address any number of other social concerns, is a symptom of what Deleuze (1992) referred to as “societies of control,” discussed in the introduction. My investigations into DRFAs highlight that, at least with regard to the pursuit of dietary health in these spaces, individuals not only work to conform their own bodies to expectations meant to apply to all bodies, but do so within a digital context that can capture these efforts and capitalize on them. This capture may take many forms: upgraded memberships for those struggling with weight loss, advertisements in “free” memberships aligned with your browser activity, data to food corporations about what items have their barcodes scanned, or the generation of more general information about what increasingly personalized products and services can be developed to meet the needs of the participants. Although my investigation focused on DRFA that used the logics of the DGA, particularly the “calories in, calories out” model, to direct the activities of users, it is easy to imagine DRFA based on other principles (for example, counting carbohydrates or avoiding animal products), but with similar properties for capturing its users as data points in a market.

The freedom to choose a “healthy” diet—however an individual defines this—may seem to be the product of an enlightened health care system and an expansive marketplace that advantages the individual consumer. However, the interconnected origins of the DGA, NECD, healthism, and the rise of neoliberalism mean that food manufacturers, nutrition experts (self-proclaimed or otherwise), healthcare providers, and policymakers are the primary beneficiaries of rhetorics of choice. Their services, products, and information are central to the ability to “choose” dietary health. Rhetorics of choice also absolve these groups of individuals of any responsibility for adverse outcomes. And, although this context facilitates the impression that individuals have the freedom (as well as the obligation) to “choose” health, whether an individual’s body conforms to expectations of weight or health meant to be produced by a “healthy diet” may not, as I have suggested previously, be entirely

under conscious control or even a matter of dietary health at all. This facilitates the continued proliferation of goods, services, programs, and messages designed to improve upon past interventional “failures.” There are often offered as “finally” providing a “successful” solution to a matter that may not in fact be amenable to any of the solutions typically offered in the marketplace or by experts. The response to the failure of dietary approaches to prevention of chronic diseases has been an increase in medical—particularly pharmaceutical—interventions to treat them (Stegenga, 2018). Ironically, although one of the early influences on the development of the concept of diet as a means to prevent chronic disease was the lack of advancement in biomedical treatments for these diseases, the healthcare sector is one of the most robust sectors of the economy, and chronic diseases are a substantial part of this economic engine.

At the same time, the responsibility to know how to pursue dietary health, to manage body weight, and to avoid chronic disease—and then to put this knowledge into practice—has become an obligation that falls differently on different segments of the population. For those with resources, acquiring the knowledge and the materials to “eat right” and exercise circumscribes how they might spend their days, and, in many cases, entangles those individuals as data points in marketing strategies to encourage further consumption: of information, products, services, and food. The struggle to control body weight and health may be successful to varying degrees, but no one would doubt their literal investment in the project. For those without the resources to invest in both the pursuit of knowledge and the material means and practices that “eating right” and exercising sufficiently entail, the likelihood is that they will become targets both of interventions to help them “make the healthy choice the easy choice” and of rhetorics of failure and blame.

### **5.3 - Rhetorics of failure and blame**

For those whose bodies do fail to conform to expectations of body size and health, rhetorics of choice and responsibility become rhetorics of failure and blame. As discourses of diet as a means of preventing chronic disease and, later, as a way of managing long-term

health more generally, took shape, different populations in the U.S. have been characterized within these discourses differently. In the context of the enabling network of diet as a way to prevent chronic disease, avoiding fatness—and thus illness—through diet and exercise took on the added moral valence of caring for one’s health as a responsible citizen and avoiding being a burden on others in society. Although discourses about relationships between diet and chronic disease may have begun in the 1950s with concerns over heart attacks among professional (white) men, as the conversation broadened, issues of class, race, gender came to the forefront. Avoiding “fatness” had already been, by the 1970s, a way for Americans in the professional classes to distinguish themselves from the lower classes (Stearns, 2002). As the earliest concerns about an “obesity epidemic” were taking shape (before the far more marked rapid rise in obesity that began in the 1980s), class, gender, and racial differences in body size were highlighted. Findings presented at 1977 obesity conference held at the National Institutes of Health indicated that obesity, soon to become a focus of official dietary recommendations, was a problem for women more than for men, for black women more than white women, and for those whose incomes were below the poverty level rather than above; for men, fewer than 15% were characterized as “obese” (Bray, 1979). Furthermore, populations that were less educated were seen as less willing to participate in “personal health practices,” such as “controlling one’s weight” (Wilson & Elinson, 1981). As fatness became medicalized as “obesity” and identified with the development of chronic disease, it not only marked bodies as belonging to groups lower on the social status ladder, it also served as an outward sign of apathy about personal health (Biltekoff, 2013).

With the help of the methodologies of NECD, the pursuit of health that became central to the lives of middle-class professionals in the 1970s has also helped to certify their reported eating preferences—if not their actual eating habits—as the scientifically proven “right” way to eat. NECD studies consistently demonstrate that better health outcomes are more likely to be associated with many other health-related behaviors besides “good nutrition” (Shrank & Brookhart, 2011); in addition, these healthy behaviors are linked to

higher education and income levels (Satia, 2009). At the same time, persistent health differences exist within U.S. populations, differences that often align with socioeconomic status and structural inequalities based on racial/ethnic identities (Krieger, Chen, Waterman, Rehkopf, & Subramanian, 2003; Marmot, 2006; Mechanic, 2002). In the vast majority of NECD studies, wealthier, better educated individuals have better health outcomes and report eating “healthier” diets—as defined by recommendations in the DGA—than their less-wealthy, less-educated and less-healthy counterparts.<sup>4</sup> Whether or not lower-income, less-educated individuals eat differently than wealthier individuals with more education is a matter of debate; national dietary surveys (as well as many NECD studies) suggest that the differences are minor, if they exist at all (USDA Agricultural Research Service, 2016). In NECD studies, however, there is no way to differentiate between health advantages that accompany class status, other health-related behaviors, and effects of the “healthy diet” that conscientious participants report eating. And, in current dietary health discourses, which place a primary emphasis on individual control of health outcomes through food choices, there exists no reason to suggest that such differentiation is important.

Observational studies about chronic disease indicate without exception that more privileged U.S. populations have better health outcomes than populations with lower incomes, less education, and minority status. In current discourses, better health is often attributed to making better lifestyle choices. Nutrition expert Marion Nestle states this position clearly:

The healthiest people in the United States are the ones who are best educated and have the most money. They choose the best foods, they eat the best, they follow a

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<sup>4</sup> Importantly, we do not know what these healthier individuals are actually eating. Dietary self-reports are notoriously inaccurate, with reports of intakes incompatible with life (Archer, Pavea, & Lavie, 2015). Of note, however, is the fact that the accuracy of dietary reports are seldom questioned by researchers whose results conform to expectations set by DGA recommendations.

whole range of healthful practices. They don't smoke. They don't drink too much alcohol. They don't take drugs. They lead active, busy, productive lives. These are the healthiest people in our country, and these are the people who need the advice [about "healthy food"] least. ("Diet Wars," 2004)

As "healthy" behaviors that are characteristic of privileged groups became a signifier of responsibility and good judgment within the discourses of "healthy diet" as a means to prevent chronic disease, the good health that frequently accompanies privilege became proof that good health can be attributed to the character traits of those who have it. Backed by the associations from NECD studies, this perspective reinforces the notion that low-income individuals who develop chronic disease have made irresponsible choices that make them a liability to rest of society:

In contrasting a vision of autonomous, prudent and self-responsible individuals to images of the careless and the foolhardy, a link was easily made to the burden of social spending: the virtuous would have to pay taxes to provide medical care for those whose unhealthy lifestyles led to overutilization of medical care. Health talk became responsibility talk. The body's truth became an axiom of the body politic. The body in question, of course, belonged to mostly white, middle-class Americans, privileged in being able to adopt healthy lifestyles, vindicated in their privilege because they had done so, and confirmed in their privilege with a body that outlived the less responsible (Crawford, 2006, p. 410).

The legacy from the DGA, NECD, and the moral obligation to manage health by making the "right" dietary choices has meant that better health is attributed to "choosing the best foods" and not to the good health and lower burden of chronic disease that wealthier, better-educated individuals already enjoy as a result of their position in society. Being wealthier may result in better access to health care, clear air and water, leisure time, and other tangible resources, but, according to social epidemiologist Michael Marmot (2006), "there is a social gradient in health in individuals who are not poor: the higher the social position, the better

the health” (p. 1304). Social status alone may ensure the good health of the individuals that Nestle praises for making “healthy” lifestyle choices.

For those whose bodies do not meet standards of healthiness, particularly as defined by body size, this legacy has meant being targeted in rhetorics of failure and blame. Headlines proclaim that obesity is driving up health care costs, and *Time* magazine suggests we “just blame the fat people” (Kiviat, 2009). Unlike those Americans mentioned by Nestle, who are the “best educated and have the most money,” low-income, less-educated consumers are characterized as consuming large quantities of junk food, having lower levels of physical activity, and needing specially tailored guidance for following DGA recommendations (Belluz, 2018; Murray, Baker, & Auld, 2017). As Mayes (2015) has argued, “when the bodies and choices of individuals deviate from norms associated with the health of the population,” this allows social relations to be structured so those individuals may be treated differently (p. 26). They may be excluded from care, as with obese patients who are denied surgeries until they lose weight. Or they may become the target of increased surveillance, as with low-income or minority populations whose lives and communities are recommended as sites for intensive interventions (Dietary Guidelines Advisory Committee, 2015). The logics of preventing chronic disease through dietary choices often make individuals “responsible for outcomes that are not necessarily within their control” (Mayes, 2015, p. 27). But, beyond that, they also increase the likelihood that a body marked as “obese” and “sick” from a “preventable” disease, particularly one already set apart by race or class distinctions, will be seen as proof of poor judgment and a lack of civic responsibility. Differences in burden of chronic disease that have more to do with social class, education, and wealth influence health outcomes become characterized as a lack of agency or opportunity at best, if not an inexplicable failure to care sufficiently about one’s own health (Kirkland, 2011).

Regardless of how “healthy food” is defined, the rhetoric of choice and responsibility built into public health dietary guidance suggests that addressing the increased burden of chronic disease in minority and low-income populations must revolve around interventions that increase

opportunities for these individuals to make “healthier food choices” (such selling fresh produce at neighborhood convenience stores in low-income neighborhoods); maneuver these individuals toward “healthier food choices” (“make the healthy choice the easy choice”); or make “healthier food choices” for them (which is, in essence, what many nutrition programs do). All of these types of interventions suggest that what is “healthy” for these populations has been determined by a science untouched by politics or social norms, an assumption that forecloses any understanding of chronic disease in these populations as a result of inequalities, discrimination, or social and environmental conditions apart from food.

As I have noted throughout this dissertation, the transition from defining “healthy diet” as one that provides adequate essential nutrition to one that prevents chronic disease has not affected all segments of the U.S. population in the same way. As a manifestation of the values of middle-class professionals, the DGA and related ways of thinking about dietary health helped to create an obligation to maintain a slender, fit body as a way of signaling participation in the practice of lifestyle behaviors that maintained good health more generally. This obligation, in turn, is used as a rationale for blaming, monitoring, and excluding from care those whose bodies or health failed to meet normative standards. That these rationales may be more often applied along racial lines is directly related to the rhetorics of choice as applied to diet and chronic disease and to the history of discrimination and prejudice in the U.S. This has not been the primary focus of my dissertation due to the extensive scope and attention to detail needed to put forward an argument that may seem unusual, or even perverse, to some: that we should critically examine the assumption that a “healthy diet” can prevent chronic disease. However, I will briefly outline some points that should be taken into consideration in this regard, and I anticipate other scholars taking up this topic with a specific focus on its racial aspects.

With a list of foods to eat and others to avoid in order to prevent chronic disease, the DGA asserts that individuals can avoid obesity and chronic disease by making the “right” dietary choices, an obligation predicated on accurate knowledge about links between diet and

chronic disease. However, it is possible that this knowledge may not apply to African Americans. There is some evidence that differences in population characteristics may mean recommendations that are merely neutral with regard to preventing chronic disease in white Americans are in fact detrimental to the long-term health of African Americans. Some compelling research has shown that, despite adherence to healthy eating patterns as determined by the DGA, African Americans have increased rates of diabetes, hypertension, and high cholesterol and remain at higher risk for development of obesity, diabetes, and prediabetic conditions (Lindquist, Gower, & Goran, 2000; Zamora, Gordon-Larsen, Jacobs & Popkin, 2010). Yet individuals from minority populations who seek care for conditions that are treated as if they are diet-related are very likely to be given guidance based on the DGA. Furthermore, the long history of social inequalities and structural discrimination to which African Americans have been subjected may mean that many of these individuals have fewer resources for pursuing alternatives to DGA-driven advice.

The groups with the fewest resources are the ones most likely to participate in government nutrition programs where dietary “choices” are limited to foods deemed as healthy according to DGA recommendations. Low-income women, children, and older adults remain the primary recipients of federal nutrition programs, and many of these participants are from minority populations. Black, Hispanic, and American Indian children are more likely to qualify for free or reduced-price school lunches; non-white participants make up disproportionate percentage of those enrolled in the Special Supplemental Nutrition Program for Women, Infants, and Children compared to population demographics (Aud, Fox & KewalRamani, 2010; USDA Food and Nutrition Service, 2012). The rationale for the nutritional education components of these programs and the nutritional content of the foods provided are based on the DGA, a dietary plan that may be particularly ill-suited for African Americans in terms of its effects on health outcomes. At the same time, African Americans shoulder a disproportionate burden of diseases thought to be diet-related and may become targets for increased control and surveillance as a result. For example, the 2015 Dietary

Guidelines Advisory Report calls for expanded data collection and measurement of dietary health-related markers in government, healthcare, and workplace sites, with a particular emphasis on minority populations as a focus for intervention and monitoring because, as the report notes, “high chronic disease rates” disproportionately affect these groups (Dietary Guidelines Advisory Committee, 2015, Part B, Chapter 2, p. 1). The implication is that individuals from these populations are unable or unwilling to make appropriate decisions about food and health for themselves. Using prevention of chronic disease through diet as a defining criterion and underlying rationale for assistance to minority populations runs the risk of perpetuating rather than ameliorating structurally imposed health disparities.

Fundamentally, the rhetorics of choice and responsibility assert a “mind over matter” perspective that seeks to master and control the materiality of a body that is driven by, among other things, physiological needs of essential and adequate nutrition and enmeshed in a complex food environment where those needs must be met somehow. These material needs are translated into eating behaviors, augmented and shaped by a body’s complicated relationships to history, culture, other bodies, and the discourse that surrounds it. Beginning in the 1970s, that discourse included coding food as “good” or “bad” according to its ostensible ability to prevent chronic disease and, likewise, coding eating behaviors, culinary traditions, and ultimately bodies as “good” or “bad.” The notion that prevention of chronic disease is a matter of individual responsibility and personal choice disavows the history of the bodies of those in less-privileged positions in society *as bodies*, and this is particularly relevant to bodies defined by race (Sullivan, 2015). The history of restricted food access that is part of slavery and poverty is held within these bodies through the mechanisms of epigenetics, as are the physiological effects of racism and discrimination that accompany that history; this is history that is not erased by changes in educational or income status (David & Collins, 1991). Yet the set of assumptions that have been made to “function as true” (Foucault, 1984, p. 73) through the enabling network of diet as means to prevent chronic disease indicate that the individuals whose bodies carry these histories now may “choose” to prevent chronic disease by eating

“right” and achieving the “right” body size, and the power of these assumptions prevents public health professionals from seeking out other ways to work improve the health of these populations.

#### **5.4 - Dietary health imaginary**

In my work, I have traced the history of the assumptions that link diet to the development of chronic disease, from the enabling network of discursive and non-discursive elements that allowed these assumptions to become visible and legible to the creation of national nutrition policy that institutionalized a worldview where individuals could control their health outcomes through dietary choices. I have explored how this worldview is expressed—and challenged—in just one narrow slice of technology and digital interactions, that of DRFA and the communities that form around them in a digital space. Throughout my research I have tried to understand the “powerful emotional legitimacy” (Anderson, 1983, p. 14) of the sense that long-term health is dependent on making the “right” dietary choices. Trying to question the power of this association in the face of its sheer ubiquity and its influence has been overwhelming at times. Then I remember that it wasn’t always like this.

When I was growing up as a part of the American middle-class in a small Southern town in the 1970s, food was an expression of worldliness (I think of my mother’s early experiments with making “Chinese food” at home) or of domestic skill (I think of the fried chicken my friend’s mother used to make). Tang—the drink of astronauts—showed us food as a form of progress and technology. I’m sure that there were other ways that food represented and symbolized the social world that I inhabited that I was too young to grasp, and I’m sure that things were different in other, especially more urbane and progressive, parts of America. But I do know that at that time, in my social world, health talk around food was limited. The four food groups and the “eat your vegetables” rule reflected the focus on getting adequate nutrition. Few food rules singled out foods or behaviors that were “bad for you.” The ones that I grew up could be summarized as sugar would “rot your teeth,” snacking would “spoil your appetite,” and swimming right after you ate would give you

stomach cramps. My parents had friends who were frequently on diets, but this was understood as a concern with appearance, not as a means to prevent diabetes. Farmers' markets and fitness centers, like free-standing dialysis clinics, were unheard of in my town.

Things have changed. The small town that I grew up in now has all of these—a farmers' market, multiple fitness centers, and its own free-standing dialysis clinic—and in my 21st century middle-class American social circle, few eating events are not accompanied by commentary on the effects of the food served on the health of those consuming it. One friend eats a slice of birthday cake, noting that she was “good” and had salad earlier that day. Another friend's second slice of pizza is justified by tomorrow's workout schedule. My social landscape is populated with people avoiding a disparate array of foods or food components: carbohydrates in general; gluten more specifically; animal fats; vegetable oils; genetically modified products; meat, eggs and dairy products from conventionally raised animals; all meat, eggs, and dairy products; all plant foods in general; legumes more specifically; salt; packaged foods with more than some small number of ingredients; those with ingredients deemed unpronounceable; and innumerable combinations of the previous. Some friends start the year off with a “Whole 30™” elimination diet. Others practice “intermittent fasting.” Some are vegans and eat only plants; others are “zero-carbers” and eat only meat. Although some of these eating practices are tied to ethical issues, concerns about the environment, and desire for a particular body shape, none are without some justification related the prevention of chronic disease, and upon finding out I am a dietitian, most people are willing to regale me with all that they know about what diet is best for long-term health and longevity. If I offer that we don't really know how food and prevention of chronic disease are linked, these same people respond with considerable skepticism that they could eat whatever they wanted and live as long as they would otherwise. At the same time, most people will admit that our knowledge about what ways of eating ensure a long healthy life is limited at best. Nevertheless, the expectation that we should be vigilant about learning and applying what *might* be known, rather than “eating whatever we want,” remains.

The power of this expectation has led me to postulate the existence of a “dietary health imaginary.” As I noted in Chapter 3, a social imaginary is a shared world of expectations, ideologies, and assumptions. And, as I argued in that chapter, the DGA, as a meta-genre, participates in constructing and reinforcing the social imaginary that frames our beliefs, practices, and identities as they relate to food and health. Although it may seem strange to introduce a new theoretical construct as part of my concluding thoughts, I did not know that what I was seeing all along was the power of a collective social understanding about links between diet and chronic disease prevention, embodied by the DGA and reinforced along a continuum of material-discursive phenomena. As I see it, the “dietary health imaginary” is a way to explain the continuum of discourses and practices that constitute how food, health, and other social concerns and commitments have become inextricably intertwined. To paraphrase Sheila Jasanoff and Sang-Hyun Kim’s (2009) definition of a “sociotechnical imaginary,” a dietary health imaginary is a collectively imagined form of social life and social order reflected in the discourses and practices linking food to health and both of these to other social concerns. For 21<sup>st</sup> century Americans, this collective understanding has been produced over the past half century by middle class professionals, developed, promoted, taken up, discussed, modified, and reified by the activities characteristic of this segment of the population. The concept of a dietary health imaginary provides a way to make sense of the many contradictions and paradoxes that are part of our collective understanding of these discourses and practices, but it is important to remember that this collective understanding is applied to different individuals and groups differently. As I noted in Chapter 3, the values and worldview of dominant social groups may be expressed through texts that become positioned as meta-genres because these groups are in positions of power from which they have greater influence over discourse. Likewise, a social imaginary—and in this case, the dietary health imaginary—reflects and reinforces relations of power and the influence of dominant groups.

The concept of the imaginary has its roots in social theory, sociology, and

anthropology, and a gloss of its history of meanings would support Braidotti's (2002) characterization of the imaginary as the "symbolic glue between the social and the self" (p. 143). Charles Taylor (2002) describes social imaginaries as "the ways people imagine their social existence, how they fit together with others, how things go on between them and their fellows, the expectations that are normally met, and the deeper normative notions and images that underlie these expectations" (p. 106). In this regard, the "expectation" that a "healthy diet"—however that is defined—will result in the prevention of chronic disease is "normally met," if only because those with the resources and interests to pursue such diets are also most likely to have a lower risk of chronic disease in the first place. This reflects and reinforces the "deeper normative notions" that people who pursue a "healthy diet" are rewarded for their prudent behavior and self-discipline with a slender body and good health; those who become obese and sick do so through neglecting their responsibility to pursue health in such a manner. Thus, a social imaginary is not merely imaginary. As Dilip Gaonkar (2002) explains, social imaginaries are:

ways of understanding the social that become social entities themselves, mediating collective life ...They are imaginary in a double sense: they exist by virtue of representation or implicit understandings, even when they acquire immense institutional force; and they are the means by which individuals understand their identities and their place in the world. (p. 4)

A social imaginary is co-constituted with discourses and materialities; it is not just imagined, but practiced. It has "institutional force," material repercussions, and embodied effects.

Why is the concept "dietary health imaginary" needed? Other scholars have provided ways of capturing current ideological, political, and discursive frameworks related to nutrition and health. What does a "dietary health imaginary" do that those concepts do not? "Nutritionism" is a useful term for capturing the ways in which nutrition science has turned our attention to food components, rather than other aspects of food (Scrinis, 2013). But this concept implies that the issue lies with the reductionism that is a part of viewing food

through the lens of science. However, the concept of nutritionism fails to provide a way to explore how other approaches to categorizing food as “healthy” and “unhealthy”—such as by levels of processing—recapitulate some of the same problematics associated with a focus on nutrients. Healthism—nutritionism’s predecessor—is also a very useful concept in positioning the pursuit of health as a powerful organizing social force (Crawford, 2006). It emphasizes the moral valuation of this pursuit and its political repercussions. But, as I mentioned before, in terms of pursuit of health, food holds a special place in the catalogue of lifestyle behaviors. Unlike exercise and smoking, it is not something that can be taken up or discarded; unlike concerns about sleep and stress, it has a strong social component and is linked to a history of traditions and knowledges. Pursuit of dietary health was (and is) a central component of healthism, but because of these differences, deserves to be considered on its own. The concept of “hegemonic nutrition” (Hayes-Conroy & Hayes-Conroy, 2013), although useful in terms of organizing the ideology of nutritionism, fails to capture the sense in which this ideology is built on a knowledge foundation that is elusive, if not illusory. “Hegemonic nutrition” describes the ways in which we connect food to health through discourses and practices that are standardized, reductionist, decontextualized, and hierarchical. However, “hegemonic nutrition” does not describe the ways in which connections between food and long-term health are also largely ungraspable as an empirical reality, particularly in regard to prevention of chronic disease. Rather, our collective sense that diet and prevention of chronic disease are powerfully linked exists primarily “by virtue of representation or implicit understandings.” These “implicit understandings” are the assumptions that “function as true” (Foucault, 1984) within the discourses of “healthy diet.” They serve as an expansive backdrop to the specifics of hegemonic nutrition.

As with Gaonkar’s (2002) more general description of a social imaginary, a dietary health imaginary is imaginary in a double sense. First, as noted, a dietary health imaginary exists more fully as an implicit understanding of the relationships between food and health than as an empirical reality. We may never know, or know only in a limited way, how and

why certain foods are linked to the prevention of certain diseases, but the imagined relationships that exist in common understanding may be more important than any ontologically real ones. This is not to dismiss the contribution that nutrition science makes to dietary health imaginaries in the modern world, but to emphasize that scientific explanations may contribute to, but cannot fully constitute, a dietary health imaginary. In this way, a dietary health imaginary may exist for times and cultures where nutrition science does not play a role in creating links between food and health.

Second, a dietary health imaginary is, as Gaonkar (2002) suggests, a way for individuals to construct their own identities within this set of discourses and practices. A social imaginary allows individuals to “traverse a social space and inhabit a temporal horizon, entertain certain beliefs and norms, engage in and make sense of our practices in terms of purpose, timing, and appropriateness, and exist among other agents”; importantly, it is “complex, unstructured, and not fully articulated” (Gaonkar, 2002, p. 10). Likewise, a dietary health imaginary may provide a backdrop of common understandings about food and health, but it also encompasses a wide range of practices that “make sense” within this imaginary, including those that are only tangentially related to nutrition, such as exercise regimes, use of technologies for measuring fitness, and animal rights activism. Unlike a dietary ideology, a dietary health imaginary allows a person in 21<sup>st</sup> century America to be a vegetarian at one point and a “paleo” meat-eater at another point without damaging or contradicting the integrity of his expectations about how and why food, health, and other social concerns are related.

I offer the concept of a dietary health imaginary as both a framework for analysis and as object of analysis in itself. As a framework for analysis, it might be used to try to understand how ways of linking food, health, and other social concerns came to exist. It is this work that I have undertaken here, as I have tried to understand how diet, chronic disease, and personal responsibility became so strongly linked in discourses in 21<sup>st</sup> century America, although I didn’t know it when I started down this path. However, other dietary health

imaginaries are likely to exist in other places and times, with their own history of processes and events that brought them into being. For example, traditional Chinese medicine categorizes foods as “hot” or “cold” depending on their effect on the body, a way of relating food to health that has its own contingent history and cultural implications. Alternately, making a particular dietary health imaginary the object of analysis could bring into focus the qualities of the collective sense of food and health in a particular time and place or permit the investigation of the ways the discourses and practices of a particular dietary health imaginary shape and interact with other food- or health-related discourses and practices.

As I noted earlier in this conclusion, when I began this investigation, I sought to understand the reason for the paradoxes, tensions, and contradictions I saw as part of current discourses of dietary health. Thinking of these contradictions in terms of a dietary health imaginary allows me to explain why some of them exist and why they don't seem terribly concerning to most people, even my fellow academics. I conclude that dietary health is imagined in 21<sup>st</sup> century America as knowable, controllable, and obligatory, characteristics that have at their root the assumptions that “function as true” (Foucault, 1984, p. 73) within current dietary health discourses. These interrelated characteristics animate, but do not resolve, the tensions and paradoxes that populate these discourses: for example, the proliferation of contradictory nutrition science and “science-based” dietary guidelines that remain essentially unchanged since their creation; the explosion of “healthy food” products and the rejection of these foods as “healthy”; the acknowledgement of the increased burden of chronic disease carried by low-income and minority populations and the efforts to relieve these burdens with supplies of fresh produce. It is, I conclude, precisely the “imaginary” aspect of our current dietary health imaginary that allows us, in our social worlds, to maintain a number of contradictory practices and beliefs related to food, health, and other social concerns.

First, in 21<sup>st</sup> century America, dietary health is imagined as knowable. Links between diet and chronic disease are imagined to be “there” even if they cannot quite be pinned down.

This aspect of our dietary health imaginary allows us to both follow certain “healthy eating” practices and scan the internet for affirmation of or contradictions to these practices. Dietary health is also imagined as controllable. Rhetorics of choice characterize avoiding obesity and chronic disease as a matter under the control of the individual, given the appropriate resources of food and food information. That this notion of control is part of an “imaginary” construct allows us to maintain differential explanations for the development of chronic disease. It’s the result of bad luck when it happens to someone we know who eats a “healthy” diet; it’s the result of “bad choices” when it happens to someone who we think doesn’t. Finally, and closely related to the previous, dietary health is imagined as obligatory. The imagined existence of dietary health knowledge that allows an individual to prevent chronic disease is accompanied by a moral obligation to eat in such way that disease is prevented. What this means is that it is unlikely that any individual in 21<sup>st</sup> century America would not have some impression of how she “should” be eating to be healthy, even if she has “chosen” not to. The moral obligations that attend how dietary health is currently imagined allow us to rationalize both our adherence to and our deviations from that “should,” as we place ourselves within the social fabric as, among other things, responsible food rule followers or cavalier rebels; helpless in the face of cravings and food industry seductions or virtuously resistant to them; concerned consumers of quality food or hungry, tired, and in need of some food, any food. The ways that dietary health are currently imagined allow us to place ourselves in different relations to food, health, and related issues at different times, without releasing us from the underlying obligation to be concerned about them.

My research suggests that dietary health imaginaries can be questioned and altered over time. The way that dietary health was imagined prior to the 1970s seems quite different than today. For example, public health nutrition guidance during the first half of the 20<sup>th</sup> century asserted that once essential nutrition needs were met, it was fine to “then eat other foods you also like,” guidance that seems unlikely to occur in any context today (Kamps, 2011, p. 67). Seeing the links between diet, health and social practices as an expression of a

current collective imagining rather than an assertion of empirical truths may direct our attention to different aspects of these relationships. The concept of a dietary health imaginary may help scholars of rhetoric and communication to begin problematizing the notion of a “healthy diet” as it stands now in the U.S. and treating the assumptions of relationships between diet and chronic disease critically. The concept of a dietary health imaginary permits the suspension of belief in conclusions from nutrition science without having to “disprove” them. Although if scholars of rhetoric and communication begin from the premise that maybe we don’t know what sort of “healthy diet” will prevent chronic disease, I am confident that they will find plenty of evidence to justify this approach.

This is a critical point: bracketing off the conclusions of nutrition science from interrogation also serves to bracket off interrogation of the idea of personal responsibility to “eat right,” because—as Charlotte Biltekoff (2013, 2012) has long argued—science-based advice about “good nutrition” has always been closely aligned with the moral imperative to follow it. To miss this connection is to miss a fundamental opportunity to change the way we think about food and health. For example, Hayes-Conroy and Hayes-Conroy (2013) argue that information from nutrition science is used to motivate food justice issues such as making “better” foods available to inner cities and native American communities. However, when definitions of what foods are “better” rest on recommendations from the DGA and the assumption that avoiding obesity and chronic disease is a matter of making the “right” dietary choices, social justice activities around food serve primarily to make the “right” foods available. But when those definitions are based on a policy and science that serve to replicate middle-class notions of “healthy diet” and “healthy lifestyle,” provision of the “right” foods is less likely to benefit these communities and more likely to deflect attention and resources from more difficult work that would create lasting change in the system. In other words, under those circumstances, not much justice is being done. In contrast, an approach to social justice could begin with acknowledging that, beyond essential adequate nutrition, we don’t know what foods or dietary patterns are going to be “healthiest” for any given individual or

community. This approach could also allow for the possibility that emphasizing individual responsibility for making “healthy choices” may not be a way that an individual or community values food or health and that other concerns—clean water, affordable housing, living wages—must be prioritized. Similarly, issues of sustainability are distorted by the assumption that, in the words of Dean Ornish (2012), “What’s good for you is good for the planet,” or in other words, that reducing or eliminating the consumption of meat is both beneficial to health and to the environment. Because notions of “what’s good for you” have been shaped since the 1970s by beliefs about what is “good for the planet,” neither can be taken at face value, and both must be interrogated simultaneously. The controversies, uncertainties, and complexities that exist in discourses of food and health are also present in discourses of food and environmental sustainability, for similar reasons related to the mixing of politics and science (Freidberg, 2016). It is perhaps here, in allowing a fundamental repositioning of how current definitions of “healthy diet” are taken for granted and how that affects all related discourses, that the concept of a dietary health imaginary may be most pragmatically useful to both scholars and public health nutrition experts.

### **5.5 - Final thoughts**

Many critics of the DGA assume that it is specific recommendations in the DGA—namely the advice to lower fat, saturated fat, and cholesterol intake and to increase consumption of carbohydrates, or that this advice is focused on nutrients rather than food—that are at the root of increases in obesity and diabetes seen after the DGA were created. I cannot entirely discount these concerns, particularly in regard to how DGA recommendations were taken up by food manufacturers. Others are convinced that it is the public’s failure to comply with DGA recommendations that have been the problem, and, again, food manufacturers take much of the blame for seducing consumers into eating “too much” of the “wrong” foods. It is possible that, for at least part of the population, adherence to the DGA’s dietary prescription would result in good health. My argument here, however, is that we must move beyond these discourses. They are polarizing and paralyzing, implying bad faith on the

part of policymakers, food producers and manufacturers, consumers, or all of these.

Instead, I call on social science scholars, humanities scholars, public health professionals, nutrition scientists, and scholars from elsewhere across the academy to consider that what needs to be examined more closely is the general assumption that avoiding obesity and chronic disease is simply a matter of making the right dietary choices— instructions for which are provided by the DGA or by nutrition experts. That this assumption may be valid in certain cases does not exempt it from critique, because its history as the foundation of national dietary guidance demonstrates that it was not scientific certainty that made it central to our current dietary health imaginary. Although this dietary health imaginary has been taking shape since the beginning of nutrition science and dietary health policy in the U.S., the DGA are the means by which it has acquired, in Gaonkar's (2002) words, "immense institutional force." When the federal government began advising individuals to increase or limit consumption of certain foods in order to prevent chronic disease, the world of food became divided into foods that are "good" for you and "bad" for you, with the promise that avoiding the "bad" and choosing the "good" would prevent chronic disease and obesity. The DGA were portrayed as a matter of "choice" by those who created them, and rhetorics of choice and responsibility (as well as rhetorics of failure and blame) are also central to most "alternative" approaches to nutrition guidance. These rhetorics of choice ignore the influence that dietary guidance issued by the federal government has had on food production and nutrition science, facilitating the proliferation of both highly processed food and highly processed science. Rhetorics of choice overlook the ways in which official dietary guidance colors social norms, shifting the blame for poor health onto the shoulders of those who may not have the same values as middle-class professionals regarding the pursuit of health and who have the fewest resources for doing so if they did. Rhetorics of choice also disregard the imperatives and histories of bodies themselves, and they obscure the legacy of racism, classism, and sexism captured in the ways that "healthy food" and "healthy bodies" are defined.

In terms of public health, our current dietary health imaginary—institutionalized in the DGA—has hindered our ability to see food assistance as way to nourish and care for one another and instead has framed it as means for disease prevention for populations. It has diverted time and resources away from opportunities redefine health around communities, relationships to people and places, support for mothers and children, and living wages for everyone, things that might impact health outcomes a great deal more than continued admonitions to “eat right.” And it removes the shock of outrage that should accompany a suggestion by a leading public health expert in obesity that obese people who receive Medicare, Medicaid, or government administered health care should either lose weight or wear a collar that monitors how often they swallow (Big Think Editors, 2010), a suggestion that reminds us that our current dietary health imaginary has different implications for different populations. It is women who are typically charged with the responsibility and significant time commitment of ensuring their families eat “healthy” meals (Parker, 2012), a task involving not only preparing food, but acquiring the knowledge needed to identify what foods are healthy. They in particular are tasked with minding calories in and out in order to keep their own body weight from deviating more than five pounds from what they weighed at 18 years of age, as recommended by public health experts (Willett et al., 1999). These burdens may fall particularly heavily on women at low levels of income and education or those who are racial minorities in the U.S., as those responsibilities are added to the work of navigating the structural inequalities and institutionalized racism that helped build a food system and a health system that already fail to support their health or account for their embodied histories. It is worth considering how assigning women with these Sisyphean tasks in the 1970 and 1980s, at about the time they were poised to take on greater economical and political power, might have left them with little time, energy, or (as Ancel Keys’s starvation studies demonstrated) interest left over to invest in activities that might result in social changes to a system that reinforces the sexism, classism, and racism embedded in those responsibilities.

Developing an awareness of our current dietary health imaginary may allow scholars of rhetoric and communication to help facilitate a shift in the discourses around food and health in ways that are sensitive to issues of gender, race, and class; that recognizes the relationship between food and health as part of a material-discursive continuum, rather than as problem of “mind over matter”; and that helps public health experts, policymakers, and nutrition scientists find better ways to work together towards improved health and a just and sustainable food system for everyone. More than anything else, though, it opens up opportunities for re-imagining how those discourses might be restructured so that they do not recapitulate a hierarchy of ways of engaging with food that devalues the lives of those whose bodies or ways of being do not fit with current discourses around food and health.

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**APPENDIX**

### Moving Towards Dietary Guidelines for Americans

1973 - 1980

