



# Pursuing a Low Meat Diet to Improve Both Health and Sustainability: How Can We Use the Frames that Shape Our Meals?



Joop de Boer \*, Harry Aiking

*Institute for Environmental Studies, VU University, Amsterdam, The Netherlands*

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## ABSTRACT

This paper adds to the food, health and sustainability literature by examining the content, merits, and limitations of a frame-based approach to assist consumers on the path to a healthy and sustainable diet, focusing on reducing conventional meat consumption. The paper combined literature on frames with literature on meat consumption. It showed that meat eating was connected to the frames that guide consumer choices through sensory-based associations (savory, satisfying) and conceptual interpretations of meals and social situations. It also showed that the science-based health and sustainability arguments in favor of a diet change do not sufficiently reach consumers or are too difficult for them to comprehend. To reach consumers, therefore, it is crucial to develop bridging frames that work as push factors away from routine meat eating, or pull factors that encourage the consumption of primarily plant-based protein and special meat types. These frames (recipes, point-of-sale information) should build on the familiar culinary principles of variety, balance, and moderation, offer a moderate amount of novelty, and enable consumers to make positive sensory associations and coherent interpretations of healthy and sustainable protein dishes. A potential limitation of a frame-based approach is that it requires much attention to detail and context.

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\* Corresponding author at: Institute for Environmental Studies, Vrije Universiteit Amsterdam, De Boelelaan 1087, 1081 HV Amsterdam, The Netherlands.  
E-mail address: [joop.de.boer@vu.nl](mailto:joop.de.boer@vu.nl) (J. de Boer).

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**1. Introduction**

An increasingly problematic characteristic of modern Western cuisine is the widespread and growing use of industrially produced meat (Grigg, 1999; Swatland, 2010). Although meat is a valuable source of nutrients, the meat produced by Western feedlot animals is quantitatively and qualitatively much less sustainable than the meat and other animal foods acquired by hunting and herding populations in the distant past. According to several reviews (e.g. Aiking, 2014; Leonard, 2014; Westhoek et al., 2014), the world's future protein supply can only be ensured by making a transition to 1) a diet lower in meat, accompanied by 2) a shift away from industrially produced meat (grain-fed livestock) to extensive meat production based on grazing livestock. The latter do not compete with humans for arable land, water and energy, and their meat is considered much less problematic from health and sustainability perspectives. However, altering diets to improve both health and sustainability is a new concept, which until recently had little real-life implementation (Mertens et al., 2017; Mithril et al., 2012; Reynolds et al., 2014). Policy-makers in government, industry, and even environmental NGOs are often reluctant to inform consumers specifically on meat reduction, although the degree of and the reasons for this reluctance may vary between countries and organizations (Laestadius et al., 2014; Markham and van Koppen, 2014; Reynolds et al., 2014). Obviously, typical political considerations, such as fear of evoking business opposition or of being associated with vegetarianism, may play a role here. In addition, a general theme seems to be that policy-makers should not intrude into this private corner of people's lives by telling them what to eat. Although researchers have started to study meat reduction as one of the key behaviors that consumers could adopt to protect the environment, they have largely focused on the 'gap' between consumers' environmental attitudes and their actual behavior (de Bakker and Dagevos, 2012; Hoek et al., 2017; Stoll-Kleemann and Schmidt, 2017). Hence, it is unclear how the science-based, health and sustainability arguments for a diet change can be linked to the behavior of consumers.

The present paper develops a novel approach to this issue. It examines the content, merits, and limitations of a frame-based approach to assist consumers on the path to a healthy and sustainable diet, focusing on reducing conventional meat consumption (e.g. eating less meat or different meat) as a case study. Briefly, *frames* are knowledge structures that capture the typical features of an object (a food) or an event (a meal) to promote a coherent understanding (Barsalou, 1999; Bednarek, 2005). The frame concept is crucial for all communication with consumers, as their responses depend on frames that filter and organize their awareness, interpretation and appreciation of food options. Moreover, significant changes in culinary practices have to be implemented within (or in association with) the existing frames that guide consumers about the amounts and sources of food they eat. From this perspective, the challenge is not only to ask consumers to eat, for example, more protein rich vegetables, but also to avoid disruptive side-effects, such as when consumers want to complement a plant-based dish by adding meat (Micheelsen et al., 2013). Hence, it is vital to examine how the required diet shift may be guided by frames that bridge a transition from behavior guided by existing frames to behavior guided by newly emerging frames (Fogel, 2011). An example of a bridging frame is 'hybrid' meat (a combination of meat and a meat substitute), which, however, does not appeal to all consumers (de Boer et al., 2013). To make a step forward, the present paper analyses the recent literature on meat consumption to identify frames that can bridge a transition by highlighting 'push' factors away from routine meat eating, or

'pull' factors towards encouraging the consumption of alternatives. By doing so, this review aims to provide coherent ways to interpret prior research and to reveal opportunities for effective use of bridging frames in the context of Western cuisine and its market-related opportunities and constraints, as well as wider cultural changes.

The paper is organized as follows. Section 2 introduces some of the main features of frames, focusing on their role in supporting meat choices, on the one hand, and facilitating diet changes, on the other hand. This section also explains how frames can interact, which is particularly important to gain an understanding of push and pull factors. Section 3 presents an analysis of the current situation in order to examine how the health and sustainability arguments put forward by experts might be linked to the frames that guide consumers on the sources and amounts of protein they eat. The analysis suggests some starting points for a diet change, which are elaborated in Section 4. Sections 4.1 and 4.2 examine prior research on meat consumption to identify frames and frame interactions that may help to advance dishes with health and sustainability gains, based on 1) plant-based protein and 2) special meat types (i.e. the term 'meat types' is used to distinguish organic and other certified meat from conventional meat (GfK EU3C, 2012)). In addition to focusing on one type of product, Section 4.3 shows a broader approach to diet change. Section 5 discusses the implications of the review and presents promising avenues for further research and policy-making. Section 6 provides conclusions.

**2. Background: Frames that Shape Our Meals**

*2.1. The Main Features of Frames*

The term frame is very popular among practitioners, policy-makers and researchers, but its coherence-inducing functions are not always well-understood. Frames are mental knowledge structures that enable structured ways of perceiving, thinking, communicating and persuading, which are studied by cognitive linguistics (Bednarek, 2005; Fillmore, and F., and Atkins, B., T., 1992), psychology (Barsalou, 1999), sociology (Goffman, 1974; Snow et al., 1986), and political science (Schön and Rein, 1994). Each of these fields points towards different features of the frame concept, such as its role in the perception of particular objects or in the unfolding of dynamic events, such as interactions with others. Due to their dynamic and social character, the latter are sometimes distinguished as social interaction frames (Fillmore and F., 1976; Goffman, 1974). Each frame involves associations and conceptualizations, which are based on a shared cultural background of experiences, beliefs and practices, and which can often be created by or reflected in the language or elicited by non-verbal perceptions. By way of overview, Fig. 1 shows the main features of the frame concept with some examples to be explained below.

Some very relevant associations and conceptualizations are involved in the polarity that has developed in Western cuisine between the sweet and savory tastes, which shapes the order of dishes and their expected sensory consequences (Douglas and Nicod, 1974; Leschziner, 2006). Each individual frame (sweet) has certain attributes (sweetness) that describe some conceptual relationships (the polar opposite of savory). The activation of frames is partly a matter of associations; just a few cues (a word or the opposite of that word) may trigger whole frames that shape diet choices. A specific non-verbal association has been found between savory dishes and proteins (Griffioen-Roose et al., 2012); this is in particular important because food intake at the level of macronutrients (including protein) will not be directly transparent to consumers. Humans (and animals) seem to regulate their protein

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