

Annemette Nielsen & Arun Micheelsen

Strong Desires and Strategies of Self-control: A Semiotic Approach to Food Cravings

Abstract:

A semiotic analysis of qualitative interviews with obese individuals shows experiences of ‘food cravings’ (i.e. strong, temporary, desires to eat that are generally directed on specific types of food) to be instances of semiosis that intersect biological, psychological and cultural spheres. In its analysis, the article introduces a new distinction between non-symbolic and symbolic dominance in food craving. It also describes ways in which food cravers use different semiotic strategies to achieve self-control by manipulating the semiosis of food craving. It is suggested that the semiotic framework offers an approach that could be fruitful both in future interdisciplinary studies and intervention programmes relating to food craving.

KEYWORDS: Semiotics, Food craving, Qualitative method, Self-control, Food sociology

Introduction

A major problem facing those involved in obesity prevention and treatment is posed by the fact that most people who lose weight regain it within a relatively short time span. Repeated ‘weight cycles’ in which a person loses and then regains weight seem to have a severe impact on health (Montani et al. 2006). Consequently, inability to control one’s food intake, experienced by people across the spectrum of bodyweight, has attracted considerable scientific attention and is a core issue in obesity prevention and treatment programmes. The term *food craving* signifies one category of such inability.

Existing studies of food craving reflect a division between the natural (Cepeda-Benito & Gleaves 2001; Rogers & Smit 2000; Weingarten & Elston 1990) and the social/cultural sciences (Gofton & Murcott 2001; Osman & Sobal 2006). As noted by others (Tiggemann & Kemps 2005), the scientific focus on both sides has encouraged investigation of the causes of food craving at a general level,

which has only further underlined a tendency to discuss such craving in terms of a divide between, on the one hand, the influences of nature (in the form of biochemical processes) and, on the other hand, culture/society (in the form of symbolic systems). Tiggemann & Kemps (2005) have suggested that a shift in focus away from causes and towards an examination of the relevant phenomena at the level of personal experience may take research efforts further.

In this paper, we take up this challenge by focusing on the ways in which desires for food are experienced and handled in everyday life. We argue that a semiotic approach inspired by C. S. Peirce can be applied fruitfully in this kind of analysis, since it enables the integration of sign processes taking place on the physiological, psychological and cultural levels of food craving. Following this line of investigation, experiences of food craving, together with their strategic handling in everyday life, can be understood as processes of both symbolically and non-symbolically dominated semiosis in which logical, energetic and emotional interpretants become engaged. Drawing on our analysis we suggest that semiotics can be used not only to improve the scientific understanding of food craving, but also to secure advances in obesity prevention and treatment. Semiotics, in other words, provides new tools that offer us a better understanding of some of the problems faced by people who want to lose weight; it may also enable us to improve the efficiency of strategies recommended in obesity prevention and weight-loss initiatives.

Definition and delimitation of ‘food craving’

Existing definitions and measures of food craving in the literature are unclear. In the present paper ‘food craving’ is used as an empirical term which serves to describe the experience of an intense desire to eat something – a desire which the individuals interviewed in the study distinguished from hunger per se. In line with many other studies (Osman & Sobal 2006; Parker, Kamel, & Zellener 2003; Tiggemann & Kemps 2005; White et al. 2002; Zellener et al. 1999), our definition is based on subjective evaluations. However, it is useful for analytical purposes to

pinpoint some of the general elements of, and levels of action involved in, the experience of food-craving situations.

Food craving involves a relationship between two, as it were, entities: the craving individual and the stuff craved. However, these are not as easily defined as one might expect. The craving individual is (in this paper, at any rate) a human individual, or person, and the craved entity is some kind of food. However, individuals are not one-dimensional. As a biological entity, a person may relate to food through sensor-motor reactions that exceed the capacity for self-control, such as rumblings in the stomach, trembling hands, the production of saliva in the mouth, and nausea. As a social entity, a person may relate to food through socially and culturally established categories of what constitutes food in the first place, and where, how, when and with whom it is appropriate to buy it, cook it and eat it. Again, as a psychological entity, a person may relate to food through personal experiences and through memories operating at unconscious and conscious levels of cognition.

The stuff craved is also multi-dimensional. It may be identified, by the craving individual, in terms of its physical components – e.g. its taste, smell, nutrients and potential ability to satiate or satisfy. It may be identified in terms of certain emotions that it evokes at a psychological level – e.g. a feeling of comfort or fear. Alternatively, it may be identified in terms of social and cultural norms and values relating to it – e.g. its appropriateness in a given context or its status.

A food-craving episode, as we will analyse it in this article, may be temporally delimited as something that extends from the point in time at which the food craver experiences the first urge to consume some food to the point in time where the urge ceases to be experienced. The cessation may be caused either by the craver's ingestion of the craved food to the point of bodily (dis)satisfaction, or by his achievement of experienced self-control.

The framework of Peircean semiotics explains food craving as a sign process comprising both the causes of cravings and reactions to them within the

different dimensions mentioned above. Here, however, we are not concerned with the identification and analysis of the totality of cause-reaction processes involved in food craving, since this is a multidisciplinary task that goes beyond our competence. Instead we limit our analysis to semiosis as it is *experienced* in the *descriptions* of food cravers, and so its validity as to the cause-reaction processes involved in food craving is limited to this level of the sign process. Since the method we used to retrieve individual experiences refers to conscious reflections and descriptions in qualitative interviews, all experiences referred to in the article necessarily involved a strong symbolic element. This further limited the aspects of food craving we were able to study.

Food craving as semiosis

The semiotic outlook offers an understanding of reality as “perfused with signs” (Peirce 1998, 394). Things only exist for us in the shape of *something*, and this *some* is the meaning that we ascribe to it, depending on who we are and in what context the thing appears to us. Food is such a *something* for someone in some context. In short, food is a sign.

In the framework of Peircean semiotics, signs are explained as a triadic entity:

A sign, or representamen, is something which stands to somebody for something in some respect or capacity. It addresses somebody, that is, creates in the mind of that person an equivalent sign, or perhaps a more developed sign. That sign which it creates I call the interpretant of the first sign. The sign stands for something, its object. (Peirce 1955, 99)

Thus, the sign comprises three elements: the *representamen* (the sign’s ostensible part) has no meaning in itself but only in its capacity of referring to, or representing, something other than itself, i.e. the *object*. And the relation between the representamen and the object is the *interpretant*, which is not

necessarily a human interpreter, or an intellectual interpretation, but is simply the explicit outcome of the relational character between the representamen and the object. Signs are therefore not confined to the sphere of human experiences; they penetrate, if nothing else, all levels of living. And depending on the relationship between the representamen and the object, the sign can be an icon (where the relation is likeness), an index (causality), or a symbol (convention) (Peirce 1998)ⁱ.

However, signs are seldom 'clean': a sign is rarely just an icon, or just an index, or just a symbol (Peirce 1955, 115-119). Typically, signs involve all three sign-relations, but on an analytical level they can be distinguished as possessing a dominant sign-function, i.e. likeness, causality, or convention. As an index sign, the smell of food tells me that food is present. However, the smell can also reveal the kind of food that is present: the scent of roasted meat, the sweetness of pastry, and so on. When this is the case, the smell of food acts as an iconic sign, since the relation between the smell and the food is based on likeness. And finally the smell of a specific kind of food (e.g. the sweetness of pastry) can tell me whether or not the food would be good for me. This means that the smell of food acts as a symbol, because the relation between the smell and a specific piece of cultural knowledge is based on convention. In this sense, then, the sign has a dominant sign-function (i.e. likeness, causality or habit/convention) which develops in time through a continuous process of interpretation referred to as *semiosis* (Peirce 1998, 411).

Depending on the process of semiosis the sign can therefore develop into new signs, unfolding new meanings, transgressing different contexts and media. Like the sign, semiosis is not confined to the human species, or even to the human mind, but characterises all biological processes (Hoffmeyer, 1994). Once the sign appears the interpretant itself becomes a representamen for the same object to a new interpretant, and so on. Thus, signs become and produce new signs. This process may take place simultaneously at many different levels, so that the potential comprehensions of an object are in principle limitless,

although at the same time they are guided in a certain direction by the object. In stressing different qualities of the food, such as its smell, its appearance, its texture, and so forth, we reveal that one and the same food may have different representamens presented with different interpretants.

Peirce also makes a distinction between three specific types of interpretant, each corresponding to a significate effect of the sign. These are: the *logical* interpretant related to any sign which is a thought, concept, or meaning of a general concept, the *energetic* interpretant pertaining to any sign which is an (re-)action by thought or body, and the *emotional* interpretant of a feeling (Peirce 1998, 409ff.). Hence different aspects of the interpreter's experience through the semiosis can be described by the three types of interpretant: the emotional interpretant understood as the experience of a feeling in itself, the energetic interpretant as the mental or bodily (re-)action to such a feeling involving some kind of effort, and the logical interpretant as the habitual conceptualisation in relation to the energetic interpretant (ibid.). Since feeling is represented by iconic signs through similarity of qualia, (re-)action is represented through index signs by virtue of causality, and concepts are represented by symbolic signs via convention, emotional interpretants will be part of an iconic sign, energetic interpretants will be related to index signs, and logical interpretants will be associated with symbolic signsⁱⁱ.

In this article we refer to semiosis in the singular – i.e. *a* semiosis. We do so because we are investigating a singular phenomenon: food cravingⁱⁱⁱ. Peirce distinguished between a dynamic object and an immediate object. Immediate objects are the individual and seemingly different objects in the cascade of signs in a semiosis; the dynamic object is the ultimate object of a semiosis. As we shall illustrate in the semiotic analysis of food craving we present, the craving for food can be viewed as an entrenched dynamic object, existing in the craving party as a latent possibility instigating different experiences of food craving with the craved food as different and individual, immediate objects unfolding on biological, psychological and cultural levels. From this perspective semiosis – in the singular

– is a continuation of signs with specific, dominant sign-functions, i.e. likeness, causality and habit/convention. It has different immediate objects, but it ultimately refers to one common dynamic object. Signs react to signs which communicate and initiate emotions and experiences as specific interpretants (i.e. the emotional, energetic, and logical interpretants). Semiosis, and hence food craving, is a process of communication, because something only becomes meaningful in the process of being passed as information to some recipient. A cause, in other words, never exists in isolation from a reaction to it. Viewed as a process of semiosis, food craving involves the possibility of developing in different directions according to iconic, indexical or symbolic potential.

It can be seen, then, that with the introduction of the semiotic concept of a sign into the field of food-craving studies it becomes possible to analyse food craving as two different types of semiosis: the psychological and sensor-motor experiences of food craving as illustrated in the interviews can be analysed as cases of iconically and indexically dominated sign interpretations involving the emotional and energetic interpretants (which we here refer to as non-symbolically dominated sign interpretations); and the food craver's reflections on food craving based on social and cultural categories and conventions can be analysed as cases of symbolically dominated sign interpretations involving logical interpretants. Thus, focusing on the experiences of food craving as emotional, energetic, and logical interpretants represented successively as iconic, index and symbolic signs interrelated in the process of semiosis, the semiotic vocabulary of Peirce offers the analytical tools to delineate experiences of food craving as expressed by the informants in the interviews.

Method and data analysis

The present analysis of food-craving experiences is based on qualitative, semi-structured interviews conducted by the first author with 25 people participating in a dietary intervention project entitled Mono Unsaturated Fatty Acids in Obesity (MUFObes). The project was launched in 2004 at the University of

Copenhagen^{iv}. All interviewees were overweight or obese, according to World Health Organization definitions, at the outset of the intervention trial. All had achieved considerable weight loss by the time of the interviews, however.

The interview study was designed to shed light on the interviewees' acceptance of specific diet types being tested in MUFObes, and to investigate their experience of dietary change in general. It was not designed to investigate the specific experience of food craving, but this emerged as an important theme during data analysis, when interviewees' reflections on problems relating to weight control and dietary change were coded and systematised. The coding process revealed that interviewees especially emphasised problems associated with loss of control: for example, eating too much, and eating for the wrong reasons and in the wrong situations. They expressed less concern about the specific content of the diet.

Two tape-recorded interviews were conducted with each of the 25 individuals, each of which lasted between 30 minutes and 2 hours. From the recordings *ad verbatim* transcriptions of all the interviews were prepared, and these transcripts were read and coded repetitively. Searches were run on the interview transcripts for descriptions of food craving. To confine the craving phenomenon, and in particular to separate it from phenomena, such as physical hunger and habitual eating practices, in which no strong feeling of desire is necessarily involved (Rogers & Smit 2000), comparisons were made with other descriptions of eating situations. Food craving was distinguished from these descriptions if they involved, as an element, a strong desire to eat some kind of more or less specifically identified food.

No simple Danish translation exists for the term 'food craving', and although the English term is well known in Denmark interviewees rarely used it to describe what are here analysed as food-craving experiences. Common alternative terms included in the descriptions referred to desire, temptation, 'mental' hunger, urges, lack of mental power to resist food, bodily demand and

automatic behaviour. Of the 25 interviewees, 19 mentioned cravings for food in the sense applied here.

Non-symbolic dominance in food-craving semiosis

On the basis of the interviewees' accounts of such experiences as desire, temptation, 'mental' hunger, and urges directed upon food, one category of food-craving semiosis is identified in the following analysis: this is the semiosis characterised by non-symbolic dominance and by the activation especially of emotional and energetic interpretants in the food craver.

In these instances the semiosis of the food craving was dominated by an iconic, or indexical, relationship between the representamen and the object, in the shape of either the memory, the sight, the smell or the taste of food. Food craving, here, was experienced and described in terms of the body taking control of the situation:

But sometimes, I just get such a craving...when I just HAVE to have some confectionery, and everything else just doesn't matter to me. [...] It is a hunger for confectionery. I cannot describe it in any other way. [...] For example, yesterday evening, it was like that. [...] If I don't have any here [at home], I will go and buy it [at the convenience store].

In this quotation the emotional interpretant manifests itself as a spontaneous urge felt by the interviewee. Semiosis, at the moment at which that urge is experienced, is dominated by an iconic sign-function, as illustrated in Figure 1.

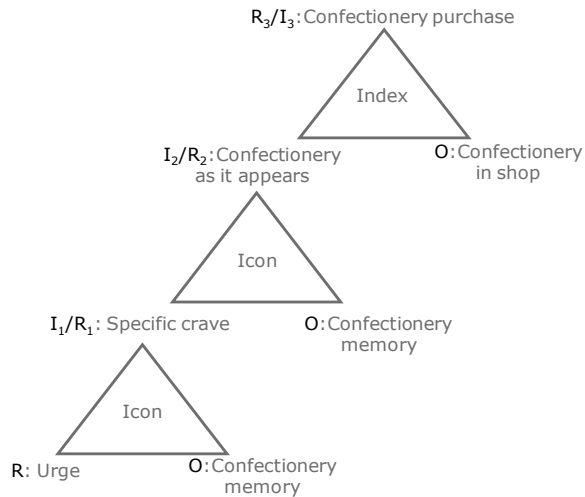


Figure 1. Food-craving semiosis: the experience of and reaction to a spontaneous urge.

The emotional interpretant, in the shape of the interviewee’s experience of the bodily urge ‘I just HAVE to have some confectionery’, depends on a prior experience, namely a conscious or unconscious memory of confectionery and the qualities related to it – its sweetness, texture and appearance, its ability to bring the interviewee to a certain desirable emotional state, and so on. This food memory is just one qualitative aspect of the dynamic object (food craving in its total existence), and it is the immediate object in the sign relation. The semiosis of food craving in this case is dominated by iconicity, since it consists of feelings, or qualities, linked to the experienced urge. The difference between the bodily urge as a representamen and the craving for confectionery as an emotional interpretant is that the craving is related to the object (some qualia from past experience) *via* the presence of an experienced urge.

As soon as the craving for confectionery is identified as something that is specifically attached to confectionery (I_1) it becomes the representamen for a new interpretant which consists in the interviewee linking his specific craving to the confectionery he expects to be available from the convenience store. Until he enters the convenience store the sign-function remains iconically dominated,

since his thoughts of confectionery in the shop are based on aspects of likeness between his memory of confectionery and his expectations about the confectionery in the convenience store. However, energetic interpretants are also activated at this level, since his craving has caused him to physically move towards the convenience store. As soon as he enters the convenience store and establishes a causal link between the specific craving of the memory of confectionery and the specific confectionery lying on the counter there, the sign-function becomes truly indexical and the immediate object shifts: the confectionery as it appears to him is now the representamen representing confectionery in its physical existence. The energetic interpretant consists in his shift of focus from memory to the actual confectionery on offer, which he buys^v.

Besides the emergence of food craving as an unspecific urge in the experiences described by interviewees in the study, desires for food were also experienced as more specifically linked to certain causes – or, in semiotic terms, sign-objects. Sometimes interviewees pointed to the experience of bodily deficits of energy, or specific nutrients such as fat or sugars. In other descriptions food cravings were traced to specific prior behaviours. For instance, drinking alcohol the night before would, for some interviewees, lead to a bodily urge to consume fatty and salty foods. As one interviewee describes in the following quotation, cravings for certain things occur sometimes in combination with the intake of certain other types of food and sometimes as sudden and unexplainable events:

All of a sudden, I just felt some kind of urge for more fat in my milk. It's a little like when I have eaten chocolate, for instance – then I just have to have some milk; or if I eat honey, then I also simply have to have some milk. And skimmed milk used to be fine. [...] I really don't know what it is, but it just gives me something DIFFERENT. [...] And I know it is the same with my mother, with the fatty milk – that once in a while she just has to have it.

In the experience of this interviewee the energetic interpretant in the shape of craving for fatty milk is activated sometimes out of the blue and sometimes in relation to her intake of certain other foods. She found it difficult to explain her bodily urge for milk fat rationally, but she framed her experience partly as an upshot of bodily memory, i.e. an emotional interpretant established in her childhood, when she used to drink fatty milk. She also indicated that biological inheritance from her mother may have caused the craving to occur in her as well. Another type of food-craving semiosis, in this case with non-symbolic dominance, centred on an unstoppable bodily drive to eat to the point of over-satiation. In cases like this a strong activation of energetic interpretants took place in the shape of bodily reactions to the craved food. The interviewee whose comments are set out below describes the unreflective way in which this happens to him:

I'd rather not SHARE it with my girlfriend, and if it is a package of 'flødeboller' [i.e. chocolate-covered marshmallow creams on a wafer base]... well, it is the feeling of bloatedness which makes me stop. It is not really the feeling that my sugar craving has been satisfied. No, I almost to get to the point of being sick before I stop, and that usually happens after six or seven flødeboller. And THEN that dialogue starts in my head: 'Oh, shoot! That was not too clever!'

By this interviewee, craving episodes are experienced as something driven by an urge that exists apart from, and prior to, any self-reflective judgements about food ingestion. The indexically dominated relation between him and the *flødeboller* ties the interviewee to the craved confectionery in a very direct sense, so that things and people around him, including his girlfriend, become potential, and unwanted, intruders on this tie. The tie is not broken until the physical limit of his body is reached. His experience of sickness constitutes a new energetic interpretant, which directs semiosis towards the dominance now of

logical interpretants in the shape of a moral self-judging of the behaviour of the previous craving self in an inner dialog.

In another description the craving episode runs in the opposite direction, beginning with the ability for self-reflective self-control and ending with body-control:

I can easily handle [refrain from eating] a big bowl of really tasty looking goodies on the table. It is worse once you get started (laughs), because then you can just go: 'Uhm, let me just have that one, and that one as well, and then that one, right?' Then the motor arm starts, and you just sit there and shovel into your mouth.

The experiences of this interviewee describe a case in which only certain indices and energetic interpretants set off food cravings and actual food ingestion. The actual tasting of the desired food leads semiosis in this direction, while representamens such as the looks and smells may in themselves be resisted, as they activate a logical interpretant entrenched by prior experience: 'I can easily handle'. The quotations illustrate a variety of food cravings, experienced as urges that exceed the individual's ability for self-control. Viewed from the perspective of semiotics such cravings for food are emotional and energetic interpretants in the body generated by non-symbolically dominated forms of semiosis. These interpretative processes which constitute interviewees' experiences depend on a mix of iconic and indexical representations of the food. The experiences take a variety of forms: they might involve a memory of the food's taste, the simultaneous physical presence of the food that is desired, or a spontaneous desire in the body that is linked to some kind of food.

It should be mentioned that the craving experience above often involves an element of symbolic dominance in the sense of habitual, or repetitious, food-craving experiences. In this paper, however it is not the repetitious element in food craving that concerns us, but rather the analysis of semiosis as it develops in

the unique instance of a food-craving experience. As we show below, however, symbolic dominance often plays an important role in the unique experience of food craving; and when it does, it does so in the form of the logical interpretants constituted by cultural convention.

Symbolic dominance in food-craving semiosis

Symbolically dominated forms of semiosis in food-craving situations became apparent when different social and culturally informed categories, such as norms related to eating practices, and ideas about physiological and psychological health, were activated by interviewees in food-craving situations.

When you live in this part of the city you pass by 50 convenience stores or so just in the course of 400 metres (laughs). So it is often tempting to enter one and buy something on the way home. [...] [My brain] demands something after a day at the office, where it has worked hard. And once I get outside, out of the office, something looks back and the brain goes: 'I want that now'. And then I have to convince it: 'well, it is not really necessary. Let us just go home, and then we will wait until the weekend comes'.

In these remarks semiosis can be seen developing from a non-symbolic form of signification into a symbolically dominated one, as illustrated in Figure 2.

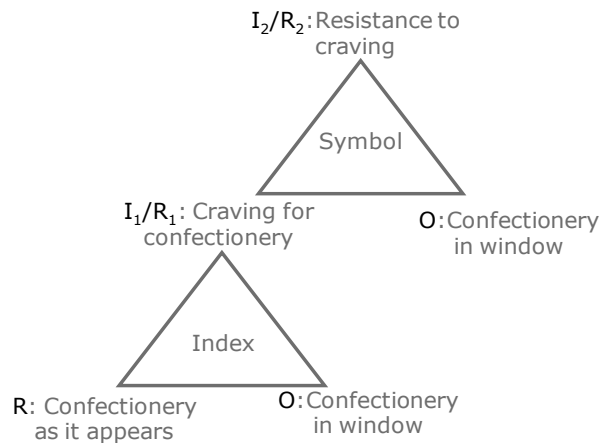


Figure 2. Food-craving experience: from temptation to control.

Initially, in this food-craving episode, an indexical sign-function is in play, since the energetic interpretant (the experienced strong desire for the confectioneries in the convenience store window) is the outcome of a causal relation between the confectionery as an object and the confectioneries as they appear to the craver as representamens. However, in this case semiosis develops into a symbolically dominated sign relation, as the interviewee is able to resist the acute urge for confectioneries by telling himself to wait until the weekend.

As can be seen from the remarks selected above, logical interpretants in the shape of norms determining the appropriateness of food intake ('the weekend') may be activated in the process of fighting a craving. When this occurs a system of symbols plays a role in food-craving experiences alongside another system of iconic and indexical representations. The symbolic system operates through interviewee's reflections on his or her relationship with food by means of social and cultural categories. Such reflections refer to general conventions about the meaning and interpretations of a sign.

In the remarks recorded below the interviewee refers to his experience of being confronted with food temptations on a regular basis at work:

Often cakes, and rolls, and chocolate, and sweets, and 'flødeboller' are available when people want to give a treat for some reason. And this is of course great for social life, but, well...it is not allowed for me. [...]I tell them 'no thanks'.

This interviewee interprets his craving for certain foods within a social context in which confrontations with the temptation to eat take place – namely, in social situations involving colleagues at work. His insight into these social mechanisms, together with his self-imposed concepts of healthy eating, constitute the logical interpretants which in the process of semiosis enables him to distance himself from his immediate temptation to eat by regarding the situation as a choice between interacting with colleagues (through joint eating) or rejecting the social norm in order to observe the dietary rules he follows. The interpretation of food in terms of its social function and 'unhealthiness' thus interacts with the interviewee's craving experience; it helps the interviewee control his physical desires.

Another set of logical interpretants that become engaged in the interpretation of food craving relate to the notion of *normal* eating. One interviewee reported that she often experienced cravings and was unable to restrain herself, especially in terms of the amount of food she would eat. At the same time she indicated that watching how others ate helped her become more conscious of her own way of eating, and that this was a way of controlling the craving situations more effectively:

I like being the type of person who is conscious of what I do. Often I have had problems with food...that it just takes over...that I just eat whatever is there at the moment. I think that I have become better at controlling it. I still eat a lot of food, I have noticed. Like, the others at work only eat two whole pieces of bread which they cut into halves, so that each half counts

as a piece. In comparison, I eat three or four whole pieces, and they count as a piece each. That's how it is!

This interviewee has become aware that her way of eating deviates from the norm, but her final outburst – ‘That’s how it is!’ – also shows that she has to some extent accepted her deviation from the norm. By referring to a cultural category of normality she is able to frame her own way of eating as a deviation from it; and, as is noted at the very beginning of the quotation, it is this awareness and framing that defines her experience of control, rather than the actual amount of food she eats. Deviation from a norm, or commoner pattern, of consumption is not in itself formulated as the problem by this interviewee. Lack of control is. The interviewee acknowledges that recognition of her own deviation from the norm has improved her self-control. In terms of semiosis, cultural categories of normality, and of deviation from it, act as logical interpretants. In this case, this directs semiosis towards, not a situation of eating restriction, but the interviewee’s experience of self-control, and hence towards the containment of her food craving problem as she views it.

References to scientifically authorised categories of healthy eating, and the need to balance energy input and output, were often involved in interviewees’ efforts to gain control of food-craving situations, as in the excerpt below:

For instance, when I go out for dinner [...] Well, I still slip up sometimes. The drool will be running from my mouth if I see something that I would eat to the point of bursting back in the old days. [...] But it is like I’m much more focused now, and I work to tell myself that it is no good – that when I can’t manage to burn off the calories, then it is of no use to eat as if I was still sixteen.

When this interviewee finds himself in a situation of craving, his experience is that the logical interpretant, in the shape of his abstract knowledge of energy

balance, sometimes (though not always) works effectively to overcome the energetic interpretant of drooling and enables him to re-obtain self-control.

Psychological categories through which to interpret food also commonly acted as logical interpretants in situations of craving. The interviewee whose comments are recorded below had attended a therapy group. She describes how she then came to take a different view of her eating:

I know that other things play a part, and so perhaps I can think about the fact that I do have a choice...I am not forced to eat this food. I could do something else. Perhaps it sounds strange that what you perceive as hunger or a desire for food... that this need could also be satisfied in ways other than through eating a whole bunch of food. By doing something socially. By calling someone. Perhaps you need contact. Perhaps it is comfort. Perhaps something else.

Being able to look at oneself in a different way – e.g. in terms of psychological needs and reactions – allows one, as is apparent in the case above, to step back and reflect on practices related to eating.

Besides illustrating the symbolic aspects of food-craving semiosis, the examples provided in this section clearly show that the ability to apply these symbolic categories was considered an important aid in efforts to obtain or regain control over food cravings. The food-craving experiences described typically represent processes in which non-symbolical semiosis eventually develop into symbolically dominated interpretations through the activation of logical interpretants in the shape of interviewees' self-evaluation in terms of established concepts of health, psychological and physical well-being and norms governing eating. However, the interviews also revealed that symbolic strategies were often experienced by interviewees as ineffective – that is, as failing to help them to actually refrain from eating in food craving situations. Instead the interviewees would activate non-symbolic strategies.

Non-symbolic strategies in craving situations

Since a sign is the product of a three-way interrelationship between representamen, object and interpretant, semiosis can be altered by inducing changes in these relations. The interviewees' descriptions of craving experiences revealed many efforts to make such changes in order to instigate the interpretant 'don't eat' into semiosis at the non-symbolic level.

Non-symbolic strategies involved attempts to affect emotional interpretants of the body prior to confrontation with craved foods or experience-based contexts of craving. Interviewees who knew that they were easily tempted when shopping would control their expected craving by instigating efficient energetic interpretants. They would eat 'allowed' foods or drink water before they went out and thereby minimise physical temptation. Interviewees who knew that late afternoons, or evenings, were risky points of the day for them would make sure that more acceptable substitutes were at hand at those times. Some interviewees would also smoke or drink plenty of green tea to minimise the desire to eat. Where interviewees experienced a craving for unspecified sugar, the use of sugar replacements was often successful. Thus Diet Cola was often referred to – it was used with greater or less success as a 'rescuer' to keep interviewees from falling into food-craving 'traps'. However, if the food craving was directed more specifically at a certain product, replacements often failed, as in the experience of the interviewee reported below:

I have started to eat raisins, and that kind of satisfies my sweet tooth (pause). It's a replacement. If I desire chocolate and then put some raisins into my mouth instead it curbs the desire a bit. But really, if I am focused on the chocolate, then it doesn't take long before I am ready to eat some again.

This interviewee describes how he attempts to use raisins to mitigate his craving for chocolate, but he explains that this attempt to satisfy his sweet tooth does not remove his desire for chocolate for very long. Successful or not, these are cases of semiosis being manipulated by changes to energetic interpretants, the aim being to induce a change of the emotional interpretant in the body so as to influence its reaction to confrontation by food representamens. Some interviewees also suggested that particular emotional states, such as grief, love and stress, influenced their body's reaction to food, although they did not report actively trying to attain these emotional states in order to control their food intake.

A physical relation to the representamen is often involved in food craving. It follows that semiosis can be affected by changes in the physical connection between interpretant and representamen. The avoidance of direct encounters with certain foods is an example of this type of semiotic strategy. Some interviewees defined 'off-limit zones' on shopping trips – zones, that is, in which potential emotional interpretants could evolve into energetic interpretants^{vi}. Some would take care not to put more food on the table than they planned to eat. Others reported making sure that the kitchen cupboards were cleared of possible sources of temptation.

A final strategy was to induce radical physical changes in the representamen, with the expectation that emotional and energetic interpretants would react differently to this new sign. Some interviewees, for instance, reported immediately deep-freezing new food purchases and leftovers. One interviewee described how he ensured that he would not eat too much of the foods he knew to be tempting by making them literally unpalatable:

And if one night, I should end up eating something unhealthy – like a pizza, then I would do as I used to do [i.e. before the MUFObes intervention study]: simply eat half and then, to be on the safe side, in order not to eat the remains, pour detergent over it or throw it in the bin, because, that is

probably the way to do it. My mother has taught me, that this is how it is handled.

The strategies of control described above operate in direct relation to the sensor-motor control that dominated some interviewees' experiences in craving situations.

In this section and the previous section, we have shown how, within a semiotic framework, control strategies connected with food craving can be analysed as symbolically or non-symbolically dominated semiosis, with the craver attempting to create 'don't eat' interpretants in his body. The planning of non-symbolic strategies depends, of course, on prior self-reflection and, in this way, on the activation of symbolic sign-functions. At the same time, however, efforts invested in non-symbolic strategies in order to avoid concrete situations of food craving bear witness to the common failure to activate symbolically dominated signs and logical interpretants.

Conclusion

Survey studies indicate that food craving – defined broadly as an intense, temporary desire to eat a particular food – is an extremely common experience, certainly in Western cultures, but also beyond (Osman & Sobal 2006; Parker, Kamel, & Zellener 2003; Tiggemann & Kemps 2005; Zellener et al. 1999). Although many researchers recognise the influence of biological as well as cognitive and cultural processes on food craving, so far no coherent conceptualisation of the phenomenon allowing insights from physiological, psychological and cultural research to be included has been suggested. Instead the focus on what causes food cravings seems to implicate the continuous reproduction of a dichotomy of nature versus culture. This is not fruitful, as it does not encourage recognition of the validity of other approaches. Homeostatic and incentive-based models of craving, which focus on physiologically or psychologically based reactions to internal and external cues to eat (Yen et al

2010; Weingarten & Elston 1990), leave little room to consider the role of social context and collectively shared norms in calling forward a desire for food. Studies that define craving as a self-reflecting cognitive process based on cultural values (Rogers & Smit 2000), or as tied to sociocultural constructs such as gender roles, life phase or national identity (Gofton & Murcott 2001; Osman & Sobal 2006; Parker, Kamel, & Zellener 2003; Zellener et al. 1999), similarly, limit the space in which interpretative processes that take place without reference to this realm of ascription to collective meaning can be recognised.

We suggest that a significant step towards a productive interdisciplinary understanding of food craving can be taken by treating it as a case of semiosis – a case, that is, of sign interpretation and communication. The process of meaning creation, as defined within the theoretical framework of Peircean semiotics, can be used to advance our understanding and analysis of food craving, including its causes and people’s reactions to it, since it offers tools for analysing natural as well as culturally informed aspects of this phenomenon within a single, unified framework. Although other theories in social science are highly useful in the study of specific aspects of food craving – e.g. the function of such craving within social and cultural discourse (Schiffrin, 1998), and its place within a semiologic system (Barthes, 1997; Lévi-Strauss, 1997) – they do not help us to bridge the contemporary divide between natural and cultural science, since the theoretical tools they offer only apply to symbolic and cultural levels of analysis.

A semiotic approach like the one used in this article allows us to analyse non-symbolic experiences – not by disregarding the fact that people are embedded in their culture, but by permitting an integrated analysis that recognises interpreting agents and elements in human interpretation that are not controlled by the culturally and socially mediated self. The semiotic approach allows us to move the focus from different *kinds* of factor influencing food craving (e.g. biological and cultural factors) to a discussion of different *levels* of signification process that builds on the interplay of various factors. Within this approach, biological processes relating to food cravings, such as hormone

imbalance, nutrient deficits or neural activities, may also be understood and analysed as cases of a non-symbolically dominated communication process taking place in the body^{vii}.

A semiotic framework recognising such processes need not prevent us from recognising, at the same time, cultural and symbolically constituted influences on food craving. On the one hand, symbolic ascriptions of meaning to food – in such categories as health, status, appropriateness, and gender roles – essentially build upon different kinds of non-symbolic interpretation that are prior to their (i.e. the symbolic ascriptions') constitution. Symbolic constructions, according to Peirce, do not emerge from thin air, but build on real connections at some point in space and time between the world of objects and their representations (Peirce 1998, 4-10). On the other hand, many forms of non-symbolic interpretation cannot be understood in isolation from the realm of symbols, because once symbols are constituted as a point of orientation in our individual development they reflect back on non-symbolic processes of interpretation (Deacon 1998).

Furthermore, our analysis of food craving as a process of semiosis involving a cascade of signs in which emotional, energetic, and logical interpretants build upon each other as different iconic, index, and symbolic signs seems to coincide with Peirce's understanding of emotion as interpreted by contemporary scholars (Savan 1981; Thellefsen 2009). Most noticeably, Thellefsen defines emotion as "a law which prescribes quality to a row of emotional events" in which the emotion experienced in the present "represents the past, related to memory, and [...] the future, related to expectation", concluding that "[t]he emotion is a sign endowed with [...] a norm for evaluation of emotion, or [...] a habit which makes the row of emotions move in a certain direction (2009, 93 and 95). Hence, understanding a food craving as an event guided by the habit of expectation, under the rule of normative evaluation, is another way of describing how the symbolic dimension in semiosis (habit/evaluation) is intertwined with the actual emotional event of

craving food. Such a perspective appears to be fruitful in future semiotic studies of food consumption and food craving.

The insight to be gained from semiotics is that even if symbolic reference possibilities exist, they do not always play a decisive role in concrete situations of interpretation. This allows us, among other things, to explain in a new way why symbolically dominated communication strategies, such as information campaigns about healthy and unhealthy eating practices, are not always effective in helping people to control their eating and bodyweight.

The data upon which this study was based were not obtained with the purpose of studying food craving from a semiotic perspective. Hence, the analysis presented here should only be considered as an initial step suggesting one possible way of developing the research field. This step points to other possible fields of semiotic analysis in future research, some of which call for interdisciplinary cooperation to a much wider extent than is taking place currently in the study of food craving.

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End notes

ⁱ The terminology of Peircean semiotics offers an alternative analytical strategy for investigating experiences of food craving. Peirce speaks of *the first*, *the second*, and *the third* (or Firstness, Secondness, and Thirdness). In several definitions, he explains these concepts as follows: The first is that whose being is simply in itself, not referring to anything nor lying behind anything. The second is that which is what it is by force of something to which it is second. The third is that which is what it is owing to things between which it mediates and which it brings into relation to each other (Peirce 1992, 248). Although food cravings could be analysed as examples of the first (i.e. the icon sign-function), the second (i.e. the index sign-function), and the third (i.e. the symbol sign-function), the focus in this article is primarily on the development of different dominating sign-functions throughout the process of semiosis, with a focus on the different types of interpretant.

ⁱⁱ Thus, Peirce's logical, energetic, and emotional interpretants do not seem to correspond, respectively, with the immediate (the semantic potentiality of a sign), the dynamic (the actual effect of the sign), and the final interpretant (the final result of the interpretant if sufficiently considered) – or with just the dynamic interpretant as some scholars have suggested (e.g. Liszka 1990; Nöth 1995, 43-44; Short 1996) Instead, the logical, energetic, and emotional interpretants appear to correspond, respectively, with Peirce's ontological categories of first, second, and third: The first is a positive qualitative possibility, in itself nothing more. The second is an existent thing without any mode of being less than existence, but determined by that first. A third has a mode of being which consists in the Secondnesses that it determines, the mode of being of a law, or concept. Do not confound this with the ideal being of a quality in itself. A quality is something capable of being completely embodied. A law never can be embodied in its character as a law except by determining a habit. A quality is how something may or might have been. A law is how an endless future must continue to be (Lowell Lectures, CP 1.536-537, 1903).

ⁱⁱⁱ Signification always happens as a continuous process of semiosis in which interpretants of representamens become representamens themselves of new interpretants without definite beginning and ending. Hence, any talk of a sign, in the singular, is only meaningful in the context of a pure analytical purpose with which we imagine a momentary freezing of semiosis. In many respects, the real object of investigation in the theory of semiotics is semiosis, since semiosis presupposes the sign.

^{iv} 127 MUFObes participants were randomly assigned to three groups, each following different types of diet over a period of four years. The main aim was to study the possibility of weight maintenance on these different diets. Compliance was improved through strict control of food intake during a period of six months, and through dietetic advice during the remaining period. The interview study was part of a larger study of food acceptability and dietary change which also included a survey of trial participants, observations of participants' shopping practices, and focus-group interviews, apart from the qualitative interviews reported here. A description of this study can be obtained at [http://www.forskningsbase.life.ku.dk/research/\(8156198\)](http://www.forskningsbase.life.ku.dk/research/(8156198)).

^v Of course, the purchase of the confectionery will demand a logical interpretant meditating the culturally dependent exchange of goods on a conceptual level, i.e. symbolic signs.

^{vi} Although this article has argued that the logical, energetic, and emotional interpretants do not correspond, respectively, with the immediate, the dynamic, and the final interpretants (see note 2 above), the reported strategies of the interviewees regarding, for example, 'off-limit zones' or foods for eating before shopping could be interpreted as interviewees trying to control the potential craving as an immediate interpretant by either inducing allowed dynamic interpretants (eating before shopping) or refraining from specific contexts which are known to induce unwanted dynamic interpretants.

^{vii} Bio- and neurosemiotic investigations would be needed to study and explain the processes at play in further detail.