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The micropolitics of obesity: materialism, markets and food sovereignty

Nick J Fox, University of Sheffield, UK

Paul Bissell, University of Sheffield, UK

Marian Peacock, Lancaster University, UK

Joanna Blackburn, Barnsley NHS Hospital Trust, UK

Abstract

This paper shifts focus from an individualised and anthropocentric perspective on obesity, and uses a new materialist analysis to explore the assemblages of materialities producing fat and slim bodies. We report data from a study of adults' accounts of food decision-making and practices, investigating circulations of matter and desires that affect the production, distribution, accumulation and dispersal of fat, and disclose a *micropolitics* of obesity, which affects bodies in both 'becoming-fat' and 'becoming-slim' assemblages. These assemblages comprise bodies, food, fat, physical environments, food producers and processing industries, supermarkets and other food retailers and outlets, diet regimens and weight-loss clubs, and wider social, cultural and economic formations, along with the thoughts, feelings, ideas and human desires concerning food consumption and obesity. The analysis reveals the significance of the marketisation of food, and discusses whether public health responses to obesity should incorporate a food sovereignty component.

Introduction: obesity beyond anthropocentrism

With two thirds of adults and one third of children in the UK overweight or obese [1] (Department of Health, 2008: xi), obesity has been described as an 'epidemic' (Gortmaker et al., 2011, Monaghan, 2014), and considered by the World Health Organisation (WHO, 2000, 2013) as a major challenge for public health in both the developed and developing world. From a biological perspective, obesity is considered due to excess caloric intake and/or decreased energy expenditure, with genetic, metabolic and environmental determinants (Department of Health, 2008: 3, Gortmaker et al, 2011: 838). Epidemiological and macro-sociological studies have linked overweight and obesity in developed countries to environmental, lifestyle and sociocultural factors (Barnidge et al, 2013; Booth et al, 2005; McGee and Hale, 1980), and to material deprivation and social inequalities (Devaux and Sassi, 2013; Foresight Programme, 2007: 30; McLaren 2007; O'Dea, 2008).

However, most proposed interventions to address increases in overweight and obesity among adults and children have focused at an individual level, advocating a mix of health education, improved diet and exercise, and specific interventions to both prevent and tackle existing overweight and obesity (Department of Health, 2008: 13-25; Department of Health, 2015). A recent UK study found that 17 per cent of people surveyed had attended slimming clubs such as Slimming World and Weight Watchers (Relton et al., 2014), organisations that – as will be seen later in this paper – reinforce individual responsibility for weight loss within a regime of surveillance and rewards. However, such efforts at weight loss based on dietary regimens may have only short-term effects, with many people yo-yoing between losing and gaining weight (Collins and Bentz, 2009: 125, Lupton, 2013: 72).

Some sociological and feminist commentaries have criticised such interventions for constructing obesity and body shape as a 'problem' of the individual human body (Fox et al., 2005; Fox and Ward, 2008; Fraser et al, 2010; Lupton, 2013; Sobal, 1995; Tischner and Malson, 2011). Furthermore, this individualistic discourse on obesity in both biomedical and popular media has moral and victim-blaming undertones (Aphramor, 2005; Felt et al., 2014; Guthman and Dupuis, 2006: 435; Lupton, 2013; Monaghan, 2008: 3; Rich, 2010), and can be insensitive to cultural differences in how body size is evaluated (O'Dea, 2008: 288-289), or

to the cultural norms and practical matters that affect food consumption (Aphramor, 2005: 332; Dumas et al., 2013). Monaghan (2007: 70) has also pointed to the contemporary institutionalisation and rationalisation of the 'war on obesity', which he has argued is more about bodily regulation and individualising and de-politicising health than about promoting biomedical health in the population.

Obesity and overweight have also been viewed through critical and political economy lenses, indicting consumerism and pressures of modern life (Crossley, 2004: 237-239) and the globalisation of food production and consumption for creating the obesity crisis (Albritton, 2009; Guthman, 2008; Probyn, 2009). Studies in both developed and developing countries document the association between increases in obesity, reductions in the time spent in food preparation and a shift toward consumption of processed foodstuffs (Lustig, 2013; Monteiro, 2009; Swinburn et al., 2011: 804); moves that Patel (2012) suggests are driven by concentrated control over food production and distribution by a small number of multinational corporations. Supermarket chains and fast food outlets dominate food retailing, enhancing access to obesogenic and highly profitable 'ultra-processed' foodstuffs (Monteiro, 2009). For Guthman (2008), these moves reflect the rise of neoliberal political economic practices that emphasise globalisation of free markets and free trade, an ideology of consumerism, and the consequent individualisation of food purchasing decisions; a critique that has been extended to include 'alternative' markets for food such as farmers' markets or locally-sourced restaurants (Alkon, 2013: 1). This critique has led to campaigns for 'food sovereignty' that seek to replace global food production, distribution and retailing with citizen control over food systems, including markets, ecological resources, food cultures, and production modes (ibid.; Wittman, 2011: 87).

This paper sets out to address the disjunction between these latter critical assessments of the political economy of food and the individualisation of treatments for obesity. We aim to step beyond both an individualised perspective on obesity *and* an anthropocentric analysis that takes the obese body as its focus. Instead, we explore the range of materialities, including bodies, food, fat, physical environment, food producers and processing industries, supermarkets and other food retailers and outlets, and diet regimens, plus the thoughts, feelings, ideas and human desires that can affect these material elements, and make

connections to wider social, cultural and economic formations. To this end, we have applied a 'new materialist' ontology (Coole and Frost, 2010: 4) which makes an 'obesity-assemblage' rather than a human respondent the unit of analysis.

New materialism and sociology

New materialism denotes a range of relational and post-anthropocentric perspectives within the humanities and social sciences, including Latour's (2005) actor-network theory-inspired 'sociology of associations', Barad's (2007) 'onto-epistemology', Braidotti's feminist posthumanism (2013), the 'vital materialism' of Bennett (2010), and Deleuze and Guattari's (1988) ontology of affects and assemblages. These approaches have in common not only a focus upon matter of all kinds (Karakayali, 2015; Latour, 2005: 117), but also a 'flat' or 'monist' social ontology (Braidotti, 2013: 4-5; van der Tuin and Dolphijn, 2010: 157) that focuses upon the relational and emergent (rather than essential) qualities of matter (Coole and Frost, 2010: 29), and thereby cuts across many conventional sociological dualities, including agency/structure, nature/culture, animate/inanimate, micro/macro, surface/depth and mind/matter. The materiality addressed by the new materialisms is plural, open, complex, uneven and contingent, drawing into association materialities as disparate as geopolitics and sexualities (ibid: 20).

The monism of the new materialisms supplies an alternative to dualistic sociological theories and approaches to the social world, including the historical materialism of Marxist sociology, which emphasised a 'base' of economic structures and a 'superstructure' comprising the 'general process of social, political and intellectual life' (Marx, 1977 [1859]), or 'explanations' of how societies and cultures work in terms of structures (such as 'neoliberalism' or 'patriarchy'), systems or mechanisms working 'behind the scenes' to make the social world do what it does, as in critical realist ontology (Danermark et al, 1997: 198). Meanwhile, the relationality of new materialism means that physical bodies and things on one hand, and human thoughts, feelings, memories and desires on the other can be addressed together in terms of their material effects, offering a means to transcend mind/matter dualism (van der Tuin and Dolphijn, 2010: 155), which has been at the heart of the realist/idealist sociological debate since Weber and Simmel (Shalin, 1990).

By stepping back from these conventional dualisms, new materialism provides novel opportunities to explore aspects of the social such as obesity and the processes of becoming-fat and becoming slim(mer). First, monism facilitates sociological engagement with the agency of the non-human – with other living things and the wider environment of matter and things (in this case, food, retail outlets, slimming clubs and so forth), as well as with semiotic relations such as concepts, ideas, values and memories (Haraway, 1997: 270). Second, monism elides 'micro-' and 'macro-' sociologies: rather than constraining the former to explorations of daily activities, experiences and agency, while reserving the latter for insights into economics and politics or assessments of structures, systems or mechanisms, the new materialism requires a re-focusing on the production of social world at the level of the everyday event. The endless, minute-by-minute procession of events – comprising the material effects of both nature and culture – alone produces all of the world and all of human history.

Together, these opportunities re-immerse sociology in the materiality of life and struggle (Braidotti, 2013: 95): the task of the sociologist now is to explain how elements from physical, economic, social and other 'realms' associate to produce every aspect of the social world (Latour, 2005: 5-6). This focus emphasises the detailed yet broad study of empirical data, and a methodological orientation that explores and analyses such data in ways that extend beyond conventional dualisms of animate/inanimate, agency/structure, micro/macro and mind/matter (Fox and Alldred, 2014, 2016). Methodologically, concern with the relationality and emergent properties of matter requires a different approach to data analysis, and in this paper we have chosen to apply a toolkit of concepts deriving from Deleuze's (1988) Spinozist ontology: *relations*, *assemblages, affects* and *territorialisation*, concepts we will now outline briefly.

Rather than taking a person, a body, a thing or a social organisation as a pre-existing unit of analysis, we consider all these as relations. In any event (a shopping trip to buy food, or a visit to a gym to exercise for example) disparate relations are drawn into assemblages by the micropolitical forces or affects (defined here, following Deleuze (1988: 101), simply as 'the

capacity to affect or be affected') that these relations manifest within a particular setting or event. So for instance, bodies, food, money, shops and many other relations affect and are affected within a 'food shopping-assemblage', and it is solely these affects that make it a shopping-event with particular products or outputs. The totality of affects in an assemblage can be described as its 'affect economy' (Clough, 2004: 15).

Acknowledging the affective capacities of materialities other than human beings (things, social formations, ideas) replaces a conventional conception of 'agency', emancipating matter from anthropocentric hierarchies (Braidotti, 2013: 43), and cutting across traditional concerns of micro-sociology with human lives, experiences and identities, and macro-sociology with industrial production, economic relations, law and government. However, from a sociological perspective, the real significance of affects lies in the *micropolitics* they generate between assembled relations. Affects produce particular capacities in assembled relations, and consequently constrain or enable action or opportunities. For example, a TV advertisement may work within an 'obesity-assemblage' to increase viewers' consumption of high-fat foods, with consequences for their weight, their health and other aspects of their lives. To use a further Deleuzian term (Deleuze and Guattari, 1988: 88–89), body capacities are '*territorialised*' (or specified) into a particular diet by persuasive marketing; subsequently other affects (for instance a health education initiative) may 'de-territorialise' (generalise) these capacities once again.

However, monism's rejection of 'another level' of structure or mechanisms means that, analytically, it is important to acknowledge that what may seem like a 'local' event is often part of a much broader assemblage, mediated through the multiplicity of each relation's affective connections. So, for example, a local supermarket's capacity to sell processed foods cheaply to consumers depends not only upon the immediate interactions between seller and buyer, but also upon a fluctuating and disseminated multiplicity of material relations (social, cultural, economic, legal, regulatory, political) – from the business model of corporate food processing to a cultural understanding of money and exchange (DeLanda, 2006: 36). Furthermore, the relations and affects in a specific 'shopping event' link micropolitically to other events in the past and the future, serving as the engine for both social continuity and change. It is this perspective that operationalises the connectivity between micro and macro.

Consequently, in the analysis that follows, the objectives will be both to disclose how the immediate micropolitical workings of obesity-assemblages enable or constrain actions or opportunities, and how they articulate wider affect economies.

Materials and Methods

We report data from a qualitative study that set out to explore food decision-making and associated practices among families living in the north of England. A sample of 45 adult participants was drawn from the ranks of the South Yorkshire Cohort.[2] To ensure a wide range of respondents, sampling was random, but stratified according to body weight and family income, based on BMI and Index of Multiple Deprivation scores, to provide 15 'low deprivation obese', 15 'high deprivation obese' and 15 'high deprivation normal body weight' respondents. NHS ethics approval was granted for the original cohort study, with subsequent ethics approval for this study obtained from the University of (removed for anonymisation).

Most participants were interviewed twice. The first interview used the 'free association narrative' approach of Hollway and Jefferson (2000: 53) to elicit past and present narratives around food and associated practices. This approach also reduces the impact of the researcher's own agenda and framework, and the chain of associations may be as much a surprise to the speaker as to the listener. While this methodology was developed within a psychosocial perspective – to provide access to the psychological and social contexts of the events described – it is also well suited to the purposes of new materialist analysis, as the associations that respondents make when providing narratives provide rich evidence of the physical, social and psychological relations that produce events. The second interview applied a more structured approach, to follow up and probe themes associated with food practices that emerged in the first interview, and to explore the social, familial and other factors affecting food choices; body size and (when relevant) efforts to lose weight. Once again, this interview methodology supplied insights into the material circumstances surrounding food choices and consumption and – in many cases – the impacts of these upon body size.

In this paper, the overall aim was to collect and analyse this data to reveal the breadth of materialities surrounding weight gain and weight loss. Methodologically, new materialism shifts focus from human agents to human/non-human assemblages, attending to the material effects of bodies, things, social formations, ideas, memories and emotions. Any data collection method capable of producing such data may be applied (Fox and Alldred, 2014); qualitative data such as ethnography and interviews provide rich seams of data on relations, affects and capacities, though analysis of such data must consciously de-privilege the 'authenticity' conventionally ascribed to human accounts in anthropocentric social inquiry (Jackson, 2013: 114).

However, this post-anthropocentric shift requires an approach to data that differs substantively from that to be found in a conventional anthropocentric approach. Using the new materialist conceptual framework described earlier, the objectives were a) to identify relations that assemble around particular events (for instance, food purchase or attendance at a gym); b) to disclose the affects (capacities to affect or be affected) that draw these relations into assemblage, and c) to discern the micropolitical consequences of the affect-economies in different assemblages on the capacities produced in 'becoming-fat' and 'becoming-slim' bodies – what these bodies can do. Analysis began by reading a number of the interview transcripts, dredging them – with the assistance of the software package NVivo, to identify the wide range of relations in the obesity-assemblage to which respondents referred (for example foodstuffs, diets and associated concepts, food retailers, slimming organisations, health professionals, family and friends).

To explore how these relations affected each other within the obesity-assemblage, the second stage of analysis entailed close reading of transcripts. The aim now was to identify the affects involved in the production, distribution, accumulation and dispersal of body fat – from the social relations of family mealtimes and the appetites and desires that fuel human food consumption to the broader economic relations that drive both food processing and distribution and the consumption of food. These constitute the affect economies (Clough, 2004: 15) that surround bodies as they gain and lose weight, producing specific micropolitics of obesity that affected body capacities physically, socially and experientially.

The micropolitics of obesity-assemblages were analysed in terms of territorialising forces that specify body capacities, and de-territorialising forces that fracture assemblages and open up new possibilities for 'becoming-fat' and 'becoming-slim' bodies and subjectivities (Deleuze and Guattari, 1988: 88-89). To illustrate these micropolitical movements, extracts from interview transcripts are reported. These should be treated not as descriptions of particular experiences of one respondent or another, but as a means to document the relations and (often very powerful) affects in an event, and the circulations of bodies, food, calories and fat that these make possible or constrain. To avoid any suggestion that – by using particular accounts – we are slipping back into an anthropocentric or humanist perspective, we have broken with the conventional sociological practice of offering background information about respondents in terms of their gender, age and possibly class or ethnicity. As has been noted, a foundational proposition of new materialism is that there are no stable, fixed, essential entities (Deleuze 1988: 123). Rather what a relation can do is entirely contingent upon the other relations with which it assembles within a particular event. Gendering, classing or age-ing a respondent suggests transcendent essential characteristics; to push this de-essentialisation further, we refer to respondents only by numbers.[3]

Findings

The interview transcripts revealed the range of relations surrounding food practices, including humans ('husband', 'little girl', 'Auntie', 'parents', 'doctor'); foodstuffs ('extra lean meat', 'curry', 'French cuisine', 'biscuit', chocolate'); resources ('money', 'time'), supermarkets, restaurants and take-away stores; body parts ('complexion', 'skin'); physical entities ('house', 'this area'); organisations and institutions ('Slimming World', workplaces, food bank) and abstract concepts ('BMI', 'metabolism'). The followings sections explore the detailed affect economies pertaining between these relations, and the consequent micropolitics of obesity-assemblages in terms of territorialisations and de-territorialisations, first in the 'becoming-fat' body, and then in the 'becoming-slim(mer)' body.

Micropolitics in the becoming-fat assemblage

Unsurprisingly, given the focus of this study, the pre-eminent material relation that respondents reported was food: respondents described the foods they consumed, and the foodstuffs they strongly desired (for example, chocolate, pickled onions, garlic bread, strawberries, etc.) or disliked (fish, vegetables etc.). From a materialist perspective, human appetites, desires and consumption territorialise materials into foodstuffs, and in due course into metabolic products. But at the same time, bodies become territorialised by these foods. Respondents' descriptions were replete with examples of how they and their bodies were affected by food, in turn fuelling specific desires and consumption to produce a fattening body.

> Oh I eat a lot of food, yes. I've got a really, really massive appetite, but I eat a lot of rubbish as well, do you know what I mean? Phenomenal amounts of cake, biscuits, chocolate, crisps, really loads and I mean loads. (6.2)

This respondent went on to describe the powerful affective desires that food such as cheesecake produced, leading to episodes of excessive consumption. For another respondent, the territorialising capacity of food overwhelmed an affect economy that linked food to her employment as a school kitchen manager and her knowledge of health and nutrition.

> I follow all these guidelines at work, nutrition guidelines for making food for the children, there's a lot of guidelines we have to follow with being in school meals. And I come home and I'll follow none of them. Piece of cake, oh yeah go on then. Thought you were on a diet, no. Would you like a drink, yeah go on, have to have a biscuit with that. Why not? (23.1)

In the becoming-fat affect economy, the circulations of matter and desire could be quite complex, as was seen in the following extract.

> Yeah, and chocolate was always seen again as a treat for like maybe on a Saturday night if we were watching X Factor, something like that we'd have a bar of chocolate.

But then it did get at one stage last year where it got ridiculous and we had lots in all the time, and that was purely me that was buying it. (26.2)

Here the respondent described how a particular foodstuff, that had already been territorialised by manufacturing, marketing and cultural norms from mere edible ingredients into 'chocolate', had such a powerful affect on the respondent's desire that an attempt was made to re-territorialise into 'a treat', in an effort to manage consumption. However, this territorialisation failed, as the chocolate overpowered these attempts to control its influence. Micropolitically, in this assemblage, the food remained the dominant relation.

These primary affects with food were assembled with a range of other relations, including friends and family, money, supermarkets and other food outlets. Respondent 7's own food consumption was territorialised within a food/family/meal preparation assemblage.

There's only certain things I'll buy that they make because of [husband], well it's probably [husband]'s influence because he doesn't like, like your Heinz, I always buy Heinz soup, always buy Heinz red sauce, always buy HP brown sauce. So then salad cream and mayonnaise, because [husband] doesn't eat and it's only me and [daughter] that eats that, we get Asda homemade because I'm not really bothered what it tastes like. (7.2)

Money or its lack was a further territorialisation of food consumption. For respondent 12, dependence on a food bank governed entirely the body/food relation, while for another, financial strictures and the pressures of caring for a young child together affected choice of foods, with processed foods favoured for their convenience.

It costs loads more, when we first had Thomas, which is why we put the weight back on, we were having processed foods, so we'd have a bag of chips in the oven, in the freezer, we'd have pizzas or veg fingers or something that was just cheap and cheerful because you were so tired you just had to put something in the oven. (8.2)

Food purveyors, and in particular supermarkets, were another important element in the becoming-fat assemblage. Interviews reviewed how powerful marketing techniques territorialised respondents as consumers and food as desirable commodities. The following respondent described how food choices were affected according to the availability of food in the local supermarket and the priorities of the retailer.

> That's what Morrison's is like to me. It's like a magnet, you know. Ooh look at this, you haven't seen this for ages. And when it were first opened they'd got like little areas, this area would be the continental stuff and this area'd be all the bread aisle and this area'd be all the fish aisle ... it were very much you've got to go in this way and then you've got to go round there, so you've got to go and look at everything, you know. (23.2)

Low prices and supermarket marketing ploys such as special offers and two-for-one deals mediated food spends, aggregating consumers around specific kinds of food choices, principally the highly processed foods that one respondent recognised were made from 'high fat, cheap meat and salt', but which were cheap and filling.

These extracts suggest a becoming-fat body located within an assemblage comprising physical, psychological, social and economic relations that combined in complex ways to territorialise bodies. However, this assemblage mediated other forces (for instance, genetics, education, inequalities in wealth and the political economy of food production and distribution) that indirectly impinged on bodies as a consequence of the micropolitics of the assemblage. We take up this point in the subsequent discussion, where we situate becoming-fat bodies within their broader context. In the meantime, we turn to the economy and micropolitics of the losing-weight body. Does the affect economy of the becoming-slim(mer) assemblage reflect the obverse of these micropolitics?

Micropolitics in the becoming-slim(mer) assemblage

Analysis of the data suggests that for those respondents who were actively attempting to lose weight, food was still the pre-dominant relation. However, many foodstuffs changed their affectivity: in the following extract from a respondent some foods that had been a source of pleasure were re-territorialised as unhealthy, while in the second extract from the same source, other foods were re-territorialised as a route to health.

> We were just so content and happy and that and we just seem to enjoy food and life and going out and whatever and we just piled weight on. ... we'd have a kebab, and it were grilled chicken meat and loads of salad and I'd think we were being good but then you don't, you're blindly like squirting loads of full fat mayo in it ... but there'd be like 100 calories in just the mayonnaise before you'd even put it in your mouth, kind of thing. (1.1)

> So, food wise now we're eating really, really healthily. Loads of fruit and veg and extra lean meat. I buy extra lean minced beef from Sainsbury's and (spouse's name) really doesn't like eating fish but about once a week I buy that cod loin that's got no bones and skin on and I'll probably poach that in milk and then put some low fat sauces on top (1.1)

Once embarked on a diet, food for these respondents lost its affectivity as an 'innocent' source of pleasure, and was re-territorialised as a source of negatively-perceived ingredients such as 'carbohydrate', 'cholesterol' and 'fat'.

> Like it says you've got to use lean meat with hardly any fat on. If you cook bacon you've got to cut the fat off. But I'm sorry but the bacon fat is my best bit of the whole thing. So if I want fat, I won't have butter on my bread or I do stuff like that. (12.2)

However, the attempts by respondents to move from a 'becoming-fat' assemblage to a 'becoming-slim(mer)' assemblage also shifted the affect economy between relations. Respondents had the same relations to money, to supermarkets, food outlets and family

members as before, but the affect economy between relations was altered. In the following extract, efforts to eat a healthy diet on a budget affected the complexities of supermarket shopping.

> I do try to buy that 50/50 bread as well, although I have bought white bread for the last couple of, just for a change really because I'm sick of eating it as well. But I am going to go back to buying 50/50 and I'm going to buy some brown bread as well and I'm going to freeze it and I'm going to take brown bread. Because I like brown bread, it's just nobody else does. But when you consider brown bread's like a pound a loaf and having to buy three different loaves for them and one load for myself, then it can get quite expensive in bread department. (7.2)

Respondents were territorialised by their need to find specific foods, and this could be a problem due to restricted stock in smaller supermarkets. Respondent 1 struggled to obtain the kinds of low-calorie foodstuffs recommended by her diet club at her street-corner supermarket branch.

> It's only a little one so I started going to do a big shop at the big Sainsbury's and stock up on the stuff that I know I can't get like me low fat and specific stuff. ... because I know about the Sainsbury's stuff, it's easier for me rather than to go to another supermarket. But only for convenience rather than for anything else. (1.2)

Faced with these constraints on food choices, respondents turned to different solutions to help them lose weight, including gyms and slimming clubs, sometimes on and off as they 'yo-yoed' between losing and gaining weight.

> So we either went to a gym class if you like, so we were doing boxercise, or we'd just go into the actual gym itself and do various bits on the running machines and the cycling machine and stuff like that. So that was good, I always swore I'd never go into

a gym but we did, and that worked really well. So yeah, so I managed to keep it off for ages actually, I think I crept up to about 11 stone and that was about it. (8.2)

Slimming clubs such as *Slimming World* or *Weight Watchers* imposed a complex system of food classification or points, based on permitted foods and 'Syns' (the *Slimming World* term for desirable but high calorie foods). However, the complexities of the dietary rules about what should or should not be consumed meant that, if anything, individuals participating in these slimming programmes were more highly territorialised by food than those not on a diet.

Well you had to average 70 points in a week to know that you were making a difference, and you could end up with 10 points a day, five of them came from the 10 minutes' worth of exercise up to 50 minutes, and five of them came from not losing your points on food. And that would be you had to eat two snacks which were not more than 5g of fat morning and afternoon, and lunch, breakfast and evening meal not more than 10g of fat. ... And so you could have some days when you ignored it completely and you lost all 10 points, but then you'd have to make up for it by other days when you didn't. (10.2)

For the following respondent, the constraints of these rules negatively affected the experience of supermarket shopping, altering the affectivity of food from a pleasure to a chore

I'm constantly thinking about what I should and shouldn't eat. Oh I'm hungry, I'd better not have anything to eat, if I'm going to eat that how many points is it? I've got an app, a Weight Watchers app on my phone, we can pop in the how much protein's in it, how much carbs and that kind of stuff, it works out how many points are in it. So sometimes if I'm really focussed on what I'm doing, I'm a bit anal because I've got my phone out all the time. (24.2)

The interviews also revealed small acts of resistance and de-territorialisation in the face of the territorialisations of being on a diet. One respondent had subverted the diet's emphasis on fresh food in the interests of both ease and enjoyment.

> Instead of having Slimming World chips where you get potatoes, slice them, partly boil them, then fry like in oven, I buy frozen chips and shove them in chip pan! But I use Crisp 'n Dry and I always let them, you know, when you take them out I let them drain then I shove them on kitchen roll to drain them even more before I eat them, so the fat's not really on them. (12.2)

To summarise, in the new materialist perspective, attempting to lose weight was an effort to shift the affect economy and thence the micropolitics of a body assemblage, re-territorialising foods as desirable or undesirable on the basis of their capacities to reduce or increase weight. Micropolitically, the affect economy of the becoming-slim(mer) assemblage was a struggle for control of a body between the desire to lose weight and powerful opposing forces deriving from food, food retailers and industry, family and other relations in the obesity-assemblage. While the becoming-slim(mer) assemblage had new relations within it (for instance, low fat foods, concepts of 'healthy eating', and slimming organisations), the de-territorialisations needed to enable a body to lose rather than gain weight depended entirely on the desire of the slimmer (to consume specific food or to adhere to guidelines from a health or slimming organisation), while all the other aspects of the affect economy (the food, retailers, money and so forth) remained within the assemblage. If anything, the becoming-slim(mer) assemblage produced new territorialisations and aggregations of bodies, particularly when slimming organisations were involved in the assemblage.

Discussion

This relational and non-anthropocentric analysis of food practices has provided a novel means to peer inside obesity-assemblages, to reveal the shifting micropolitics of bodies, food and fat, revealing the materiality of becoming fat and becoming slim(mer). Significantly, we have found that becoming-fat and becoming-slimmer assemblages are not mirror-images, as might be imagined. Becoming-fat bodies were part of an assemblage that included the

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nutritional and sensory properties of foodstuffs, family meal preparation and consumption practices, cultural and interpersonal relations around food and eating, and contemporary approaches to food production and retailing, as manifested in outlets such as high street supermarkets and fast-food chains. The literature suggests that in contemporary Western societies, many of these relations are obesogenic (Lake and Townshend, 2006), and the detailed analysis of the data in the 'becoming-fat' section provided insights into how these relations variously contributed to weight gain.

Micropolitical analysis of the becoming-slimmer assemblage indicated that these powerful obesogenic relations did not magically disappear from the assemblage when people sought to lose weight. The capacities of fat and sugar to affect bodies, the demands of family culture surrounding food and eating, supermarket offers and constraints on family budgets all retained their affectivity. A few additional relations were drawn into the assemblage: low-calorie or slow-burn foodstuffs; concepts such as 'dietary fat', 'healthy eating' and 'BMI'; weight loss organisations and dietary regimes. However, the principal affect countering these powerful obesogenic relations was the desire of individuals to lose weight. With just one small element in the economy of affects altering, this micropolitical analysis suggests why weight loss can be so hard to achieve or sustain, and why many people 'yo-yo' between weight loss and gain (Lupton, 2013: 72).

However, the monistic ontology of new materialism also permits us to move beyond a 'micro-sociological' analysis of local relations in obesity assemblages. In accordance with new materialism's rejection of structural or systemic 'explanations' of social events (Latour, 2005: 7-8), we have not sought to explain obesity in terms of anonymous powers such as 'neoliberalism' or 'the family'. Yet we noted earlier that relations gain their affective capacities from the breadth of other assembled relations, which may extend beyond the immediate event to a disseminated multiplicity of social, cultural, economic, legal, regulatory and political materialities. The extent of these myriad relations is daunting, and we could devote ourselves to exploring the material effects of pair-bonding, family life and child-rearing upon household food consumption, or how biomedicine, health educators and the media affect food consumption and body shape. We will however confine the rest of this analysis to examining the relations and affects of food production, distribution and retailing.

While a supermarket may be part of a local food purchasing event, it is simultaneously a relation in a national company that in turn is part of an international food production and distribution assemblage (Albritton, 2009: 6; Lustig, 2013). These latter assemblages comprise a multitude of further relations: with farms and farmers, small and large processers and distributors, nutrition scientists, food and hygiene standards and regulatory authorities, wholesalers and retailers. These are in turn assembled by economic, political, and legal affects that territorialise production, distribution and consumption of food. In these ways, the local relation between a consumer and a supermarket or take-away outlet attains its micropolitical character from the marketised character of global industrialised food production, processing and distribution; the relations in becoming-fat and becoming slim(mer) assemblages link bodies and desires to flows of money, things and ideas occurring at national and even global levels.

Returning to the insight at the start of this discussion concerning the affective forces ranged against an individual desire to lose weight, this subsequent analysis of the obesity assemblage becomes even more significant, because many of these economic and ideological relations are powerfully affective. For example, food production and processing is dominated by a small number of large, multinational agribusiness corporations that have a global reach (von Braun, 2007: 4-5), a massive investment in increasing productivity through research and development (Fuglie et al, 2011), and an economic and scientific orientation toward feeding mass populations rather than local communities. In the West, the consolidation of food production by industrialised agribusiness, of distribution by global logistics corporations and wholesalers, and retail by supermarket chains have together shifted food transactions from a local market where producers and consumers interacted around common nutritional objectives to an anonymised global market place in which profit mediates the relations between production and consumption (Albriton, 2009: 18; Goodman et al., 2010: 1784). As the data in this study indicates, at the local level of a consumer at a supermarket shelf, these developments have had the effect of transforming the means of satisfying a physical need for food into a market activity populated by food consumers (Lawrence et al, 2013).

This raises doubts about current individualised approaches to addressing obesity and overweight in both developed and developing countries. Diets, slimming clubs and weight loss pharmaceuticals may bolster people's resolve to change their food consumption or exercise more, but so long as the affect economy surrounding food is dominated by powerful environmental and economic affects such as those we have just discussed. Epidemiological evidence has indicated that access to material resources, health knowledge and cultural capital create a class gradient in the incidence of obesity (Devaux and Sassi, 2013). However, our analysis of other powerful relations suggests why obesity is not simply a problem of poor people: much of the affect economy of the obesity-assemblage is dictated by global markets well beyond the control of individuals.

With this in mind, public health interventions need to go beyond advising individuals about eating and exercise. An 'ecological' model of obesity (Egger and Swinburn, 1997, Foresight, 2007) has focused on a triad of educational, policy and technical interventions, for instance by altering the built environment policy to incorporate safe routes to walk or cycle to school or work within urban development, supporting healthy nutrition choices in schools, providing incentives to stores for offering healthier options, and sustaining farmers markets or city farms as means to provide vegetables to urban populations (Alkon, 2013: 1; Barnidge et al 2013: 98). Implementing such interventions involves partnerships between public health, planners, businesses and local communities (ibid; Hoehner et al., 2003).

However, some authors have argued that to change the micropolitics of the obesity-assemblage requires a much more radical and critical challenge to the marketisation and industrialisation of food production, processing and consumption, as operationalised within food sovereignty (Wittman, 2011) and fair trade (Goodman, 2004) movements. Initiatives under these have included encouraging local and regional ecological agriculture; mobilising collectively against policies (for instance, of the World Trade Organisation) that have facilitated multinational food corporations; establishing worker-owned food businesses; improving wages and conditions of farm and restaurant workers; and campaigning to restrict harmful agribusiness practices such as GM and pesticides, and thereby exposing the profit motive inherent in the global marketisation of food production (Alkon, 2013).

Micropolitical analysis of becoming fat and becoming slimmer in this paper supports those approaches to address overweight and obesity that move beyond what remains the mainstream focus in health and social policy on changing individual behaviour, and indicates the need for the sociological imagination to provide a broader context for interventions. Alongside public health's health promotion and ecological approaches, an obesity policy-assemblage (Fox and Alldred, 2016) that draws in relations from food sovereignty and fair trade activities could forge links between those working to provide food and those who consume it to live. Furthermore, such an approach to obesity would provide an active role for citizens and communities to take control of food, as one part of a broader strategy to change the micropolitics of bodies and fat, to move away from individualised solutions, and to look much more closely at what goes on within the obesity-assemblage.

Notes

1. According to WHO, overweight and obesity are defined by body-mass indices of 25+ and 30+ respectively.

2. The South Yorkshire Cohort was funded by the NIHR, and comprises more than 22000 patients recruited from 42 general practices in South Yorkshire in 2010 who expressed willingness to participate in subsequent studies, including the research that this paper reports.

3. Extracts are identified according to respondent and interview; hence (6.2) signifies the second interview with respondent 6.

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Biographical Notes

Nick J Fox is honorary professor of sociology at the University of Sheffield, in the School of Health and Related Research. He is the author of books and papers on the new materialism as applied to issues in health, sexualities, emotions and creativity. His latest book (with Pam Alldred) *Sociology and the New Materialism* is published by Sage in 2016.

Paul Bissell is a Professor of Public Health in the School of Health and Related Research, at the University of Sheffield and he has been working in the broad area of public health for the last 20 years. He currently leads a programme of research into habitual and reflexive decision-making around food practices. His background is in medical sociology and applied health research and he has an interest in using qualitative research to understand contemporary issues in social epidemiology.

Joanna Blackburn is a research fellow working in the Health Services Research Team at Barnsley Hospital NHS Foundation Trust. She is involved in the development of health services research within the Trust, expanding the scope of research and service evaluation across clinical services and increasing the number of patients and staff who are readily engaged with research projects. Her main area of expertise is qualitative research and her main research interests include healthy weight, eating disorders and obesity and mental health.

Marian Peacock is Senior Research Associate in the Department of Health Research at Lancaster University and a Research Fellow in the School of Health and Related Research, at the University of Sheffield. Her research interests are in sociological understandings of the impacts of inequality and contemporary neoliberalism, shame and psychosocial perspectives. She is also interested in the use of biographical-narrative approaches and the Free Association Narrative Interview method in particular, in collecting and analysing data.