

What's (in) a Real Smoothie

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What's (in) a real smoothie: A division of linguistic labour in consumers' acceptance of name-product combinations?

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ABSTRACT

Is being, say, a macaroon or a smoothie a matter of what these products look and taste like and how they feel in the mouth? Or is it a matter of which ingredients have been used and how they have been processed? Will ordinary consumers always rely on their own judgment in such matters, or delegate the final judgment to experts of some sort? The present experimental study addressed these issues in combination by testing the limits for consumers' acceptance of three different name-product combinations when exposed to taste samples alone (sensory product attributes), taste samples in combination with ingredients lists and nutrition facts (adding factual information), and both, in combination with authoritative definitions (adding experts' final judgments). The examples were modelled around authentic cases from the Danish food market which have been subject to vast legal as well as public concern. The results provide new insights into the socio-cognitive dynamics behind consumers' acceptance or rejection of specific name-product combinations and new leads for supporting the fairness of food naming practices with a view also to the product type, the stage it has reached in its life-cycle, and its degree of familiarity on the market.

KEYWORDS

food naming; fairness; conceptual analysis; sensory evaluation; expert knowledge; product evolution; consumer law; average consumer

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Introduction

Background, aims, and scope

According to EU law,¹ any food product sold in a Member State must carry a name. The rationale is that consumers should be informed on what they are buying and that companies should not gain competitive advantages by selling e.g. “apple cider” that is really a soda pop. However, ordinary consumers, consumer organizations, competing companies, and the national food authorities sometimes disagree with the name chosen by the manufacturer or retailer. Sometimes they even take formal action against it. A review of 821 Danish administrative cases on misleading food naming and labelling showed that 27% of the instances of alleged misleadingness concerned the product’s name (Smith et al., 2009: 125ff; Møgelvang-Hansen, 2010: 52-53).

While the formal basis for dealing with such cases is given by law,² the specifics to which the legal rules apply are communicative and cognitive rather than legal by nature: It is a matter of what words mean, and how consumers can be expected to understand them. In turn, as we shall see shortly, this cannot be determined in isolation from other cognitive phenomena such as knowledge, categorization, conceptual organization, and sensory memory. Nevertheless, the legal decision-making is generally not based on cognitive evidence or any explicit theorizing beyond the sphere of jurisprudence, but on case-by-case common sense assessments made by lawyers and government officials regarding the likelihood that someone might in fact be misled, with the “average consumer”³ serving as the primary benchmark. However, the accelerating harmonization of rules and practices across the EU has fostered an increasing call for harder evidence to underpin the legal decision-making in the present and related fields, drawing also on areas of research outside law, notably those often referred to as the cognitive sciences, so that the decisions could to a higher degree reflect up-to-date knowledge about the way in which consumers actually perceive certain types of communication (Legrand, 1996; Incardona & Poncibò, 2007; Trzaskowski, 2011).

The cross-disciplinary Danish research project “Spin or fair speak – when foods talk” (Smith et al., 2011) aims at contributing to this end by developing new knowledge and tools for assessing the fairness or potential misleadingness of concrete food labelling solutions on empirical grounds. Apart from supporting future legal assessments, a key objective is to support the self-regulation of the food industry by providing a firmer basis for integrating fairness checkpoints into product and brand development.

In this study, we specifically address one type of conflict scenarios among several identified in the above-mentioned case review, namely those arising from *contested food names*. In these cases, all interested parties agree that the name exists and entitles consumers and others to have certain pre-defined expectations to the product, but disagree on the exact nature of these expectations. In some cases the matter would seem to be settled *a priori* by food standards containing legal definitions, e.g. for fruit juices and for chocolate.⁴ While the legal conclusion in such cases is clear, it may be questioned whether such definitions always reflect the actual expectations of ordinary consumers (Ohm Søndergaard & Selsø Sørensen, 2008). However, the vast majority of food names in the EU are not legally defined and the question, therefore, comes down to what the name means as an element of the general language in question and hence presumably to the “average consumer”. One key question that emerges from disputes on such food names is whether it is the look, taste, smell, texture, and other immediate

sensory properties of the food that are ultimately decisive for the product identity, or more readily measurable facts about its ingredients, mode of preparation, origin, etc. Another key question is whether ordinary consumers have (and/or: should be considered as having) sufficient food knowledge to decide on these matters on their own, or will ultimately rely (and/or: would be best off by relying) on experts of some sort.




In the experimental study reported below, we addressed these issues in combination by testing the degree of consumers' acceptance of selected name-product combinations when exposed to taste samples alone (sensory product attributes), taste samples in combination with ingredients lists and nutrition facts (adding factual information), and both, in combination with authoritative definitions (adding experts' final judgments). Our aim was to contribute with new evidence on the socio-cognitive mechanisms behind consumers' acceptance or rejection of particular name-product combinations, and to provide new leads for ensuring the fairness of food naming and labelling practices.

Contested food names: Three cases in point

To enhance the external validity of our study, we modelled the experiment around three authentic examples from Danish administrative practice each based on one or more parallel administrative cases. The examples were carefully selected from a qualitative and quantitative review of 821 cases (Smith et al., 2009; see also Smith, Møgelvang-Hansen & Hyldig, 2010) to provide clear-cut illustrations of (a) opposing rationales and explicit assumptions put forward by the immediate actors in the written case files when assessing how consumers "actually" understand (or ought to understand) the food name, as echoed also in the wider public debate on the present and closely related examples in the Danish mass media; (b) variations in the essence of the dispute itself emerging from the product type, the stage it has reached in its life-cycle, and its degree of familiarity on the market (product repetition, gradual evolution, or recent innovation⁵). Bearing these criteria in mind, the final choice was made according to our best judgment with a view also to the quality and quantity of written documentation available on each example in the case files.

We considered variations along the dimensions mentioned to have the potential for affecting the relative role of immediate sensory impressions, additional factual information, and experts' judgments in ordinary consumers' conceptualizations of the product and hence acceptance of a particular name being attached to it, as further motivated in the theoretical discussion below (see also Smith, Møgelvang-Hansen & Hyldig 2010: 1020-1022). What could be learned from these examples might therefore potentially be generalized to other examples with essential traits in common with them and/or serve as an offset for continued hypothesizing on and testing of other name-product combinations.

What all three examples have in common, however, is that they relate to linguistic expressions that are acknowledged as valid food names by all parties, but differently conceived by different actors. In the absence of relevant national or international food standards, this renders them contested to a certain degree. Summaries of the three examples are given in Figure 1. Additional details mentioned in the discussion to follow are drawn from the original case files to which the reach group was granted full accesses by the Danish Veterinary and Food Administration (see Smith et al. 2009 and Møgelvang-Hansen 2010 for methodological details).

	<p>Example 1: Marzipan for texture or for taste? Consumer organization filed a series of complaints against Danish manufacturers for not obeying the essentials of traditional Danish recipes for a sort of small cookies known as <i>makron</i> (\approx 'macaroon'). According to these recipes, the main ingredients should be mashed almonds (marzipan), sugar, and egg whites, whereas the products sold as macaroons were based on either apricot kernels or, more commonly, starch and leavening, with almond flavouring added. The manufacturers insisted that this had been so at least since the 1940s and that consumers like and buy the products. One manufacturer also noted that almonds make the products either too "chewy" or too "dusty" to satisfy consumers' taste. The authorities concluded that the average consumer nowadays does not expect almonds in large-scale produced macaroons because the majority of macaroons marketed in supermarkets do not contain almonds and have not done so for many years. Case No(s)*: 2006-02-274-02545; 2007-20-272-02299; 2007-01-274-00571; 2007-01-2722-00019; 2007-20-272-02344; 2007-S5-274-0792; 2007-S5-274-0795; 2007-S5-274-00818.</p>
	<p>Example 2. What's (in) a real smoothie? Consumer maintained that a product sold as a <i>smoothie</i> did not feel and taste like what he would expect of a real smoothie. The authorities noted that this type of product was relatively new on the Danish market and hence unfamiliar to many consumers. However, based on an informal inquiry among people who did know and use the name, the authorities concluded that a fruit content of 0.2% was not consistent with the name <i>smoothie</i>. Case No(s): 2003-04-274-00297.</p>
	<p>Example 3. Filet vs. belly or taste vs. fat? Very traditional yet still very popular Danish cold meat product known as <i>rullepølse</i> (\approx 'spiced meat-roll') re-introduced in a low-fat version made of pork <i>filet</i> and not pork (or lamb) <i>belly</i> as demanded by all traditional recipes. The fat content was reduced from 15-20% or more to 3% while the traditional taste and looks were replicated to the highest possible degree. Nevertheless, a consumer organization complained against the name <i>rullepølse</i> being used for the new product, insisting that the relative high fat content resulting from using belly is an essential part of the taste and whole character of the product. The manufacturers argued that all food products undergo certain changes over time. Based on the fact that the labelling clearly stated that the product was made of pork filet and that it was in fact a rolled and spiced meat product, the food authorities concluded that the name was not misleading. Case No(s): 2005-S5-274-00776; 2005-04-271-00034; 2005-05-274-00437; 2005-07-274-00238.</p>

* Case numbers refer to the archives of the supervision system under the Danish Veterinary and Food Administration (DVFA).

Figure 1

In the following, we transpose the assumptions and arguments put forward by the immediate actors in the case files into more exact theoretical terms, as a basis for crystallizing a number of explicit research questions susceptible to experimental investigation.

Conceptual complexity

Like any name denoting a category of similar objects rather than one single object, the meaning of a food name can be identified with a psychologically salient *concept* which has been incorporated into language (Evans & Green, 2006; Talmy, 2000), but which also serves the wider purpose of *categorization* in the course of situated thinking and acting, e.g. while shopping or eating, or crystallizing new product ideas (Ratneshwar et al., 2001; Moskowitz et al., 2006; Gill & Dubé, 2007; Ares, Giménez, & Gámbaro, 2008).

For familiar names, a pre-determined set of criteria (conceptual components) will be activated automatically, i.e. retrieved from long-term memory as a basis for determining whether a given exemplar qualifies as a member of the category or not.⁶ In continuation of basic insights gained in prototype semantics and theories on graded conceptual structure (Smith, Shoben & Rips, 1973; Rosch, 1975; Wierzbicka, 1985; Taylor, 1989; Barsalou, 1987, 1999, 2005),⁷ we distinguish between: (a) *essential components*, i.e. criteria that cannot be dispensed with, e.g. <milk-based> for cheese, and (b) *prototypical components*, i.e. criteria that are salient in our conceptualization of the category as a whole, but do not need to be manifest in every particular exemplar, e.g. <yellow colour> for cheese. For both types of components, a further distinction can be drawn between: (i) *sensory components* which rely on immediate perceptual experience stored in sensory memory, e.g. the colour, texture, taste, smell, and visual appearance of cheeses previously encountered, and (ii) *propositional components* which presuppose

factual knowledge susceptible to truth-conditional evaluation, e.g. that cheeses are made through enzyme-induced coagulation of milk.

Applied to our present examples, the argumentation of the actors seems to indicate that they operate, and/or claim others to operate, with different variants of the concepts at issue, which display different numbers and “mixtures” of sensory and propositional components and different lines of demarcation between the essential and prototypical components of either type. Thus, in Example 2 (smoothie), the authorities ultimately canonized high fruit content as the main criterion for categorizing the product as a smoothie, notwithstanding that the complaint was (also) concerned about the texture and taste. By contrast, when speaking on behalf of their allegedly satisfied consumers in Example 1 (macaroons), the manufacturers not only recognized the importance of the immediate sensory impression to ordinary consumers, but, indeed, claimed that texture and taste was all that mattered to them, i.e. that consumers tacitly accepted (or simply did not care about?) the variations in ingredients and mode of preparation focused on in the complaint, including the absence of real marzipan. In the case summarized in Example 3 (spiced meat-roll), the manufacturers did not deny that they might have changed the recipe (and thus to some degree also the texture, taste, and visual appearance) beyond what some consumers would expect. Yet they were confident that consumers would accept this in the end for the noble cause of fat reduction. In other words, they expected the borderline between essential and prototypical components (both propositional and sensory) to change in consumers’ conceptualizations of the present product type over time.

It is noteworthy that although the “average consumer” is supposed to serve as the key benchmark in legal assessments like the present ones, consumers were only heard directly in Example 2 (smoothie). In the other two cases, professionals (consumer organisations, the food industry and its lawyers, gastronomic experts consulted by the parties, and the authorities themselves) spoke on the consumers’ behalf throughout the case proceedings. It therefore seems fair to ask what the respective concepts really “look like” inside the heads of ordinary consumers. Do sensory criteria really dominate over propositional ones in all cases? Will something also depend on the product type? Are the criteria relied on by ordinary consumers, be they sensory or propositional, quantitatively and qualitatively comparable to those set up by (various groups of) experts at all?

Rozin boldly states that “sensory properties are the most powerful influence on [food] choice, in most situations” (2007:17ff). If so, this would indeed seem to speak in favour of sensory impressions being more conceptually salient than knowledge-intensive facts. After all, people do gain most of their first-order experience with food from seeing, touching, smelling, and eating it, whereas the hard facts tend to become complex for many industrial food products and are accessed only occasionally and fragmentarily, e.g. when checking the back of the package once in a while, without necessarily fully understanding it (e.g. Roe, Levy & Derby, 1999; Williams, 2005; Clement, 2007). On the other hand, this can hardly imply that consumers will not take notice of *any* of the facts that such a “back check” might reveal. For example, in one case a consumer complained to the authorities after reading “0.4% dried avocado powder” on the back of a product that calls itself *guacamole dip* without having to resort to any experts.⁸ Moreover, even when consumers are not able to name the relevant criteria themselves (as some would for guacamole) they do sometimes turn to others for advice, e.g. when buying *Beluga caviar* for an exclusive dinner party. It has

been shown, also, that whereas consumers' positive criteria for choosing a product tend to rely on first-hand sensory experience, negative criteria tend to involve factual knowledge (e.g. worries about the method of preparation, health issues etc.) often in the shape of knowledge possessed by others, i.e. credence (Holm & Kildevang, 1996). While the studies mentioned above address assessments of food quality in general, our specific concern is whether the mechanism also extends to assessments of category membership, e.g. not just "is this *Beluga caviar* worthwhile buying?" but also "is it *Beluga caviar* in the first place?" If so, how can such "delegated" assessments of category membership be accounted for theoretically? How widespread are they? Isn't there a limit to what consumers feel a need for conferring with others?

A division of linguistic labour?

A viable path of explanation seems to lie in Putnam's (1975) hypothesis of *division of linguistic labour*. Briefly described, the basic assumption is that the members of society collaborate on knowing the exact meaning of the words they use: Most people will connect most words only with vague and not quite identical "stereotypes" which are however sufficient for ensuring mutual understanding in a great many instances. Yet whenever doubt arises, they leave the final judgment to those members of society that have been given status as "experts". The hypothesis is open to criticism on several counts (Talmage, 1998; Bryant, 1999; Briscoe, 2006), including its lack of distinction between "division of labour" and plain *polysemy*, i.e. the fact that a word can have several related, but distinct, meanings, and *terminologization*, i.e. the fact that a commonly known word can have a more specific meaning in a restricted professional field than in general language (Ahmad & Rogers, 1997: 752f). The key question for our present discussion, then, is whether ordinary consumers' variant of the concept can be said to incorporate in some way the experts' more elaborate variant without actually containing all relevant components itself. A way of modeling this situation would be to describe ordinary consumers' concept as containing a number of underdetermined conceptual slots (attributes) relating to the exact ingredients, mode of preparation, etc. for which only an expert can provide the required fillers (values). If the latter are stipulated by an explicit definition, the question amounts to whether ordinary consumers will take the definition into account if available.⁹ This seems plausible for luxury products like *Beluga caviar* and *foie gras* where prestige and (not least) money are at stake. But can the analysis be extended to, say, the kind of *peperoni* that your kids would expect to find on their pizza? Or to a likewise less expensive but still "high-end" product like a smoothie, or a mainstream but long known and very traditional one like (Danish) macaroons? Also, to what extent will the assessments of individual consumers be influenced by, say, their age, gender, or eating habits? The next natural question is: Who are the relevant experts? In the disputes summarized in Example 1 (macaroons), the consumer organization found clear support for its position in a number of authoritative written sources (encyclopaedia, textbooks, etc.). However, the industry managed to find its own alternative "expert witnesses" with less conservative positions. So if consumers care to listen to experts at all, this is bound to create additional confusion.¹⁰

Whether consumers care (and/or should care) to listen to experts frequently becomes a point of overt disagreement in real-life disputes on food naming, including our present examples. While the necessity of drawing on gastronomic expertise is taken for granted by the complainant in Examples 1 (macaroons) and 3 (spiced meat-roll), it is

vigorously rejected by the manufacturers in Example 1 (macaroons) and at least seen as “negotiable” with the end-users in Example 3 (spiced meat-roll). In Example 2 (smoothie), none of the opposing parties referred to any professional expertise at all, and neither did the authorities, which may have to do with the relatively novel status of the product on the industrial food market. Indeed, here ordinary consumers (i.e. those informally questioned by the food authorities) ultimately came to play the role of “experts” in that their opinion became decisive for the outcome of the case, overruling the opinion of the (arguably more professional) manufacturer. What is lacking completely, however, is empirical evidence that might support or contradict either of these positions.

Operationalizing the key assumptions

Transposed to operational terms, the key assumptions emerging from the above theoretical discussion (as echoed by the common-sense arguments put forward by the actors in the case files) is that one or both of the following effects may potentially be observed for at least some name-product combinations under some conditions:

- *A facts-added effect*, i.e. that consumers’ degree of acceptance of a name-product combination will display a significant difference depending on whether the consumer has access to evaluate a taste sample only, or a taste sample together with written product facts (ingredients list and nutrition information).
- *A definition-added effect*¹¹, i.e. that consumers’ degree of acceptance of a name-product combination will display a significant difference depending on whether the consumer has access to examine a taste sample only, or a taste sample in combination with an authoritative definition of the product type stipulating factual criteria *and* is given access to check these criteria against written product facts (ingredients list and nutrition information).

However, the generalizability of both assumptions across products and consumers remains controversial. To sum up with a non-food example: Most people distinguish *trees* from *plants* – but if they happened to read in Wikipedia that trees are also plants, unlike animals and fungi, this would hardly affect their use of the word in everyday conversation. Would something similar be true for *macaroons*, if not for *foie gras* or Putnam’s own favorite example: *gold*? The bottom line is that we do not know since the socio-cognitive mechanisms supposedly in play here have, to our knowledge, never been put to empirical test.

In the experiment described below we took an exploratory approach to the matter by using Examples 1-3 as templates for a controlled setup in which the defining conditions for the respective effects could be systematically varied and the results matched against the specifics of the cases and of the participating consumers, respectively. On that background, we expected the total data set to provide a versatile basis for approaching the questions raised in the preceding discussions, and perhaps making new discoveries.

Method

Participants

The consumer test was performed at Copenhagen Business School, Dalgas Have Campus, from 3 to 5 October 2010. On each test day, four sessions were conducted (at 10 a.m. and 13, 16 and 19 p.m.). A maximum of 20 consumers participated in each session. The selection criteria were that the participants should be Danish citizens, between 20 and 70 years old, eat pork, and not work in the food sector. Persons with food allergies or diabetes were not allowed to participate. The participants received a gift voucher on 200 Danish kroner in return for their participation. The participants were recruited by calling randomly selected telephone numbers in the local area where the test was going to be performed and asking the persons answering the phone to participate. The recruitment was performed by the agency Sermo Analyse (Århus, Denmark). Because of a relative low turnout, a few additional consumers (4 persons in all) were recruited at the campus immediately before the respective sessions. In total, 154 consumers completed the test.

Materials

The participants were divided into three different groups. The groups were balanced regarding gender, age, and education level. The different groups were given different levels of information about the products in the consumer test (Table 1). Group 1 rated the products on the basis of taste samples only. Group 2 also had written product facts (ingredients list and nutrition information) available during the evaluation. The participants were told that the product facts were for their general information. Group 3 also had the product facts available. In addition, on the table in front of them the participants had a written definition for the relevant product type signed by the consumer organization Danish Active Consumers (Danmarks Aktive Forbrugere), in short DAF. They were told that they could use the definitions for inspiration if they liked, but did not have to, because we wanted their own personal judgment.

Group number	Number of participants	The participants received the product samples and the following level of information		
1	47	No additional information		
2	55		Ingredients list and nutrition information for the product	
3	52		Ingredients list and nutrition information for the product	Authoritative definition of the product category

Table 1

All definitions were formulated in collaboration with DAF. The goal was to summarize the most important criteria considered to be indispensable to product identity by DAF and by several other authoritative sources. For this purpose, we used the descriptions found in the Danish and Swedish versions of Wikipedia which were very much in line with the criteria set up by DAF. The wording of the definitions was slightly adapted for clarity and conciseness, but the basic terminology was retained. The final definitions were reviewed and approved by DAF for the experiment and for future use. The definitions are shown below (the original definitions were in Danish, but they are here rendered in English).

Macaroons (DA: ‘makroner’), from French *macaron*, is a bakery product which is always made of egg-white, ground almonds (marzipan), icing sugar, and sugar. They are biscuit-shaped (round, dome-shaped with a flat bottom) cakes, with a diameter of a few centimetres, and with a relatively firm crust. Depending on the type, the inner is crispy and airy or soft and pasty. The texture resembles that of meringues due to the similar ingredients, while the airiness is caused by the egg-white.

Smoothie (DA: ‘smoothie’), from English *smooth* (tender, creamy) is a creamy cold drink, which is made of blended fruit or berries together with fruit juice and possibly yoghurt or other dairy products or/and crushed ice cubes, that is, only natural ingredients. The texture is thicker than slush-drinks but may resemble that of milkshakes.

Spiced meat-roll (DA: ‘rullepølse’) is meat salted in brine, rolled with spices, cooked, and pressed in a meat-roll press. The meat is always the belly from an animal, normally pork, but also beef and sheep can be used. This results in a relatively high fat content, but also a characteristic taste and texture.

Product category ¹	Product type ²	Ingredients list	Nutrition facts (content in 100 ml or 100g ³)			
			Energy	Protein	Carbohydrate	Fat
S	Ideal	Blueberries, banana, lime, melon, organic mini milk and organic blueberry juice.	283	7.0	67.6	1.8
S	Alt.	Yogurt, water, fructose, fruit juice of concentrates (blueberry juice and grape juice 1%), milk protein, thickeners (pectin), inulin, cellulose fibre, sunflower oil, concentrate of hibiscus and carrot flavour, vitamins (Sodium ascorbate, DL-alpha-tocopheryl acetate, niacinamide, retinylacetate, pyridoxine hydrochloride, riboflavin, thiamin mononitrate, pteroylmonoglutamic acid, D-pantothenate calcium, D-biotin and cholecalciferol, cyanobalamin), minerals (potassium citrate and magnesium salts of citric acid, Ferrous lactate, zinc sulphate, copper sulphate, manganese sulphate, sodium selenite and potassium iodide) and sweetener (acesulfame K and sodium saccharin).	260	4.0	9.5	1.0
S	Not	Milk 1.8% fat, sugar, whey protein concentrate, skimmed milk powder, glucose syrup, vanilla flavouring and stabilizer (carrageenan).	350	5.0	12.0	1.7
SMR	Ideal	90% pork belly, 3% water, spices (pepper and onion), acidity regulator (sodium lactate), dextrose, stabilizer (diphosphate and potassium phosphates), antioxidant (sodium ascorbate), and preservative (sodium nitrite).	830	17.0	1.5	14.0
SMR	Alt.	Pork filet: (97%), salt, gelatine, pepper, grape sugar, stabilizer (carrageenan), onion powder, antioxidant (sodium ascorbate) and preservative (sodium nitrite).	500	22.0	1.0	3.0
SMR	Not	62% pork loin, water, salt, glucose, stabilizer (pentapotassium triphosphate, carrageenan, processed eucheuma seaweed, locust bean gum, xanthan gum and potassium chloride), acidity regulator (sodium carbonate and trisodium citrate), antioxidant (sodium ascorbate) and preservative (sodium nitrite).	520	20.0	0-1	4.5
M	Ideal	Sugar, egg white, marzipan, iso-farin, wheat flour and leavening (ammonium bicarbonate).	1720	4.5	87.0	4.5
M	Alt.	Sugar, egg white, wheat starch, flavouring (almond), dextrose, glucose and leavening (ammonium bicarbonate).	1720	2.0	97.0	1.0
M	Not	Wheat flour, sugar, vegetable fat, leavening (sodium bicarbonate, diphosphate and ammonium bicarbonate), milk sugar, salt and flavouring (vanilla).	2053	6.5	70.0	20.0

¹S, R and M stands for Smoothie, Spiced Meat-Roll and Macaroon respectively.

² Ideal, Alt. and not stands for ideal, alternative and not-at-all-product respectively

³100ml for smoothies and 100g for rolled spiced meat-roll and macaroons. Energy is in Kilojoule (KJ) while protein, carbohydrate and fat are in grams (g).

Table 2

Within each of the three product categories, the consumers tested three product samples selected by us to ensure that each belonged to one of the following three categories:

A. Ideal product: The product meets all key demands¹² in the definition of the product type.

B. Alternative product: The product comes close to the ideal product in some respects and is marketed under the same name, but it does not meet certain key demands that have been the subject of complaints in real-life cases on similar products (including those summarized in Figure 1) and which are also reflected in the definitions.

C. Not-at-all product: The product is of an entirely different type and not even marketed under the name in question, but has some generic features in common with the other two products (i.e. is a variety of pastry, soft drink, and cold meat product, respectively) .

A detailed description of all the products can be seen in Table 2.

Procedure

During the consumer test, all product samples were served individually. To introduce as little bias as possible, the serving order was first the smoothie products, then the spiced meat-roll, and finally the macaroon products.¹³ However, the three samples (ideal, alternative, and not-at-all) for each of the three products types

(smoothie, spiced meat-roll, and macaroon), were tested in randomised order. During the consumer test, the participants were sitting at numbered tables with one participant at each table. With each sample the participants received a questionnaire which was removed before the next sample was served. The consumers were provided with water during the trial. Before each trial, the consumers were instructed on how to fill in the questionnaire and to remain silent during the test. The participants received one questionnaire for each product. For participants in Groups 2 and 3, the sheet with the questionnaire also included the product facts (ingredients list and nutrition information) for the product. The questionnaire included two questions about the product and an opportunity to write comments. The two questions (originally given in Danish) were:

Q1) Is this a real smoothie/spiced meat-roll/macaroon?

Q2) How much do you like or dislike this sample?

Apart from the degree of typicality¹⁴ we also asked the consumers how much they liked the samples, thus measuring acceptance along two dimensions: typicality and liking. The latter dimension was included to gain additional information about possible reasons for and impacts of the judgment of typicality. For example, would being a less typical macaroon mean that consumers would also like it less? The questions were both answered on a 9-point scale. The end-points of the scale for Q1 were “not at all a real smoothie/spiced meat-roll/macaroon” (1 point) and “a perfect smoothie/spiced meat-roll/macaroon” (9 points). For Q2, the scale was going from “do not at all like” (1 point) to “like extremely well” (9 points).

After testing all nine products, consumers were asked to complete one more questionnaire including questions about demographics and their consumption of the three different product categories.

Data analyses

Observations were decidedly non-normal so statistical methods not based on assumptions of normality were preferred over the conventional anova methods.

Data were analyzed with cumulative logit mixed models (Agresti, 2010) to test the significance of main effects of groups, products and types and interactions among these while controlling for inter-individual differences. The ordinal package (Christensen, 2012) for R (R Core Team, 2012) was used for estimation of the cumulative logit models. For more detailed investigations of effects of groups and product types the Kruskal-Wallis test was used and p-values corrected for multiple testing with Holm's method. Group effects were investigated for each combination of the levels of product, product type and question (27 in total) and similarly the effects of product types were investigated for each combination of the levels of group, product, and question (also 27 in total). All calculations were made with the statistical program R (R Core Team, 2012).

Chi-square analysis was used for testing the composition of the three different groups of consumers in order to check for equal distribution of gender, age and education, and consumption of macaroon, spiced meat-roll, and smoothies. These

calculations were performed with the statistical program Prism (Version 4.2, GraphPad, SanDiego, California USA).

Results

Participating consumers and consumption levels

A description of the consumers in the three different groups can be seen in Table 3. No significant difference between the groups was found by using chi-square analysis in gender, age, or education level. More females than males completed the consumer test, while there was a rather equal distribution between age groups.

	Group 1	Group 2	Group 3	All consumers
Total	47 (30 %)	55 (36 %)	52 (34 %)	154 (100%)
Gender				
Males	20 (43%)	26 (47%)	18 (35%)	64 (42%)
Females	27 (57%)	29 (52%)	34 (65%)	90 (58%)
Age				
20-29	6 (13%)	15 (28%)	8 (15%)	29 (19%)
30-39	13 (28%)	9 (16%)	13 (25%)	35 (23%)
40-49	11 (23%)	10 (18%)	5 (10%)	26 (17%)
50-49	9 (19%)	12 (22%)	13 (25%)	34 (22%)
60-70	8 (17%)	9 (16%)	13 (25%)	30 (19%)
Education				
Primary school	1 (2%)	3 (5%)	2 (4%)	6 (4%)
High school	5 (11%)	6 (11%)	4 (8%)	15 (10%)
Short/medium	21 (45%)	33 (60%)	19 (36%)	73 (46%)
Long	17 (36%)	11 (20%)	26 (50%)	54 (34%)
Student	1 (2%)	1 (2%)	0 (0%)	2 (1%)
Technical	2 (4%)	1 (2%)	1 (2%)	4 (3%)

Table 3

Figure 2 shows the consumers' reported consumption of macaroon, spiced meat-roll, and smoothie. There was no significant difference between consumers in the consumption levels of any of the three products and therefore only the consumption of all consumers are shown in the figure.

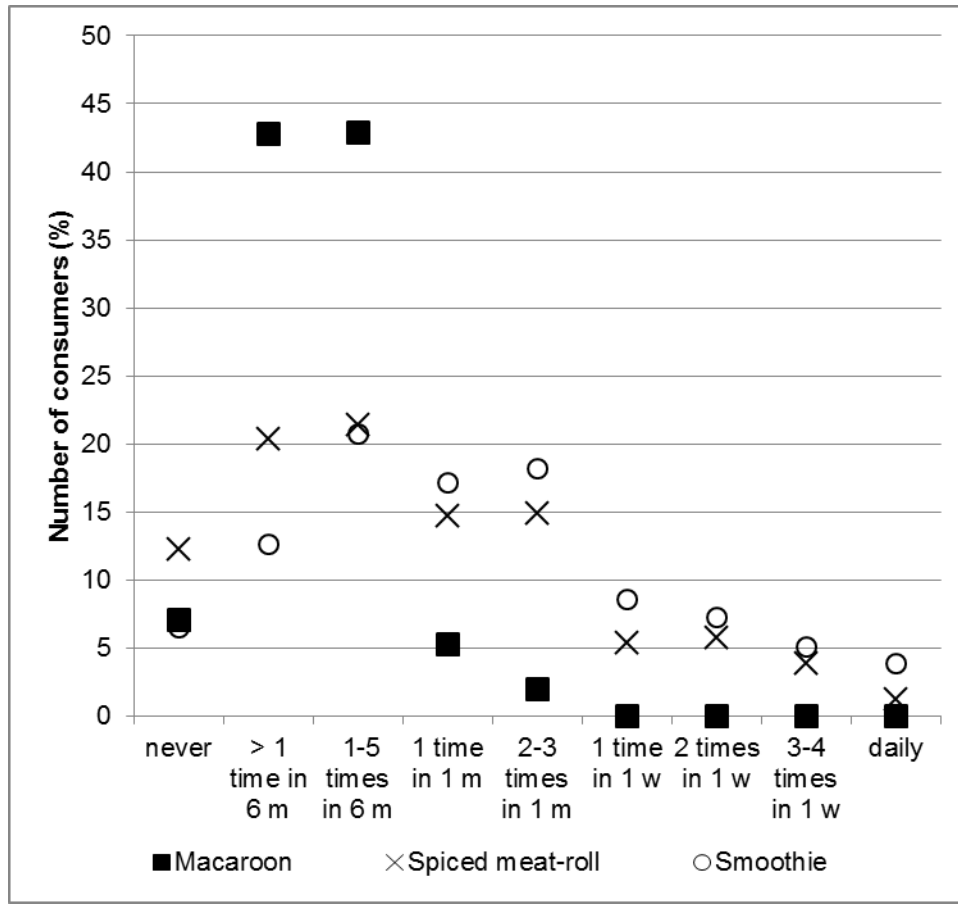


Figure 2

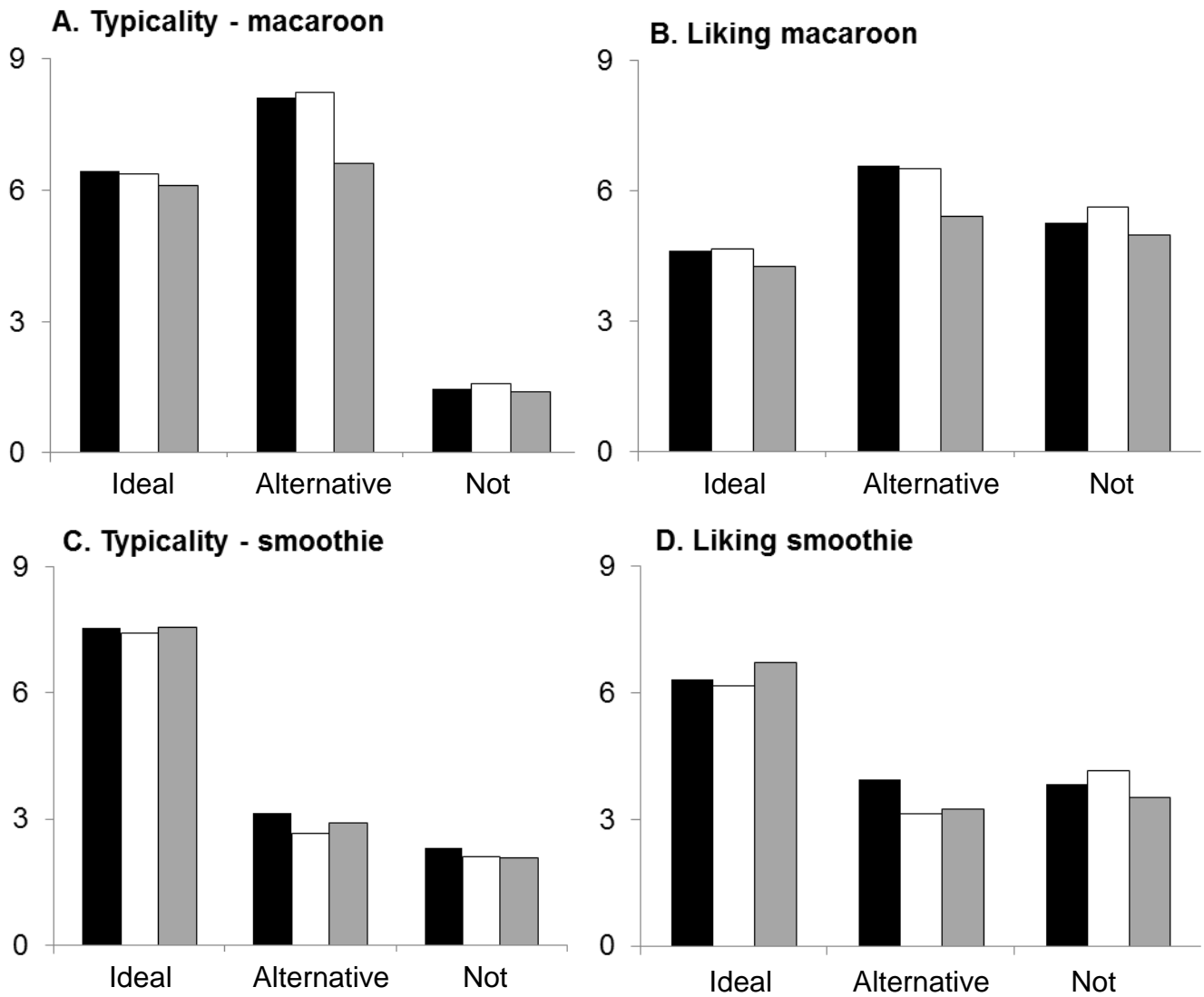
Figure 2 shows that a majority (approximately 86%) of the consumers eat macaroon between less than once and maximum 5 times every 6 months. The distribution of the consumptions levels of the spiced meat-roll and smoothie is rather different compared to the macaroons. For these two products, the consumption level is much more unevenly distributed. For both products, a big part of the consumers (approximately 70%) eat the product between less than once every six months and two or three times every month.

Rating scores

Cumulative logit models showed that there was no overall evidence of an effect of groups (not significant), while the effects of products, types and questions as well as their 2- and 3-way interactions were significant ($p < 0.001$). However, sub-group analyses with the Kruskal-Wallis test showed significant differences between information content/groups for the alternative macaroons on question Q1 ($p = 0.0146$) as further analyzed below.

Macaroons. A first salient observation is that the consumers in Group 1, i.e. those who were guided only by their immediate sensory experience, tended to consider the alternative macaroon to be more “real” than the ideal macaroon. And they liked it better than the real one as well. The picture remains the same for Group 2 in which consumers

had access to check the factual information; there is no significant difference between Groups 1 and 2 (Figure 3 and Table 4).



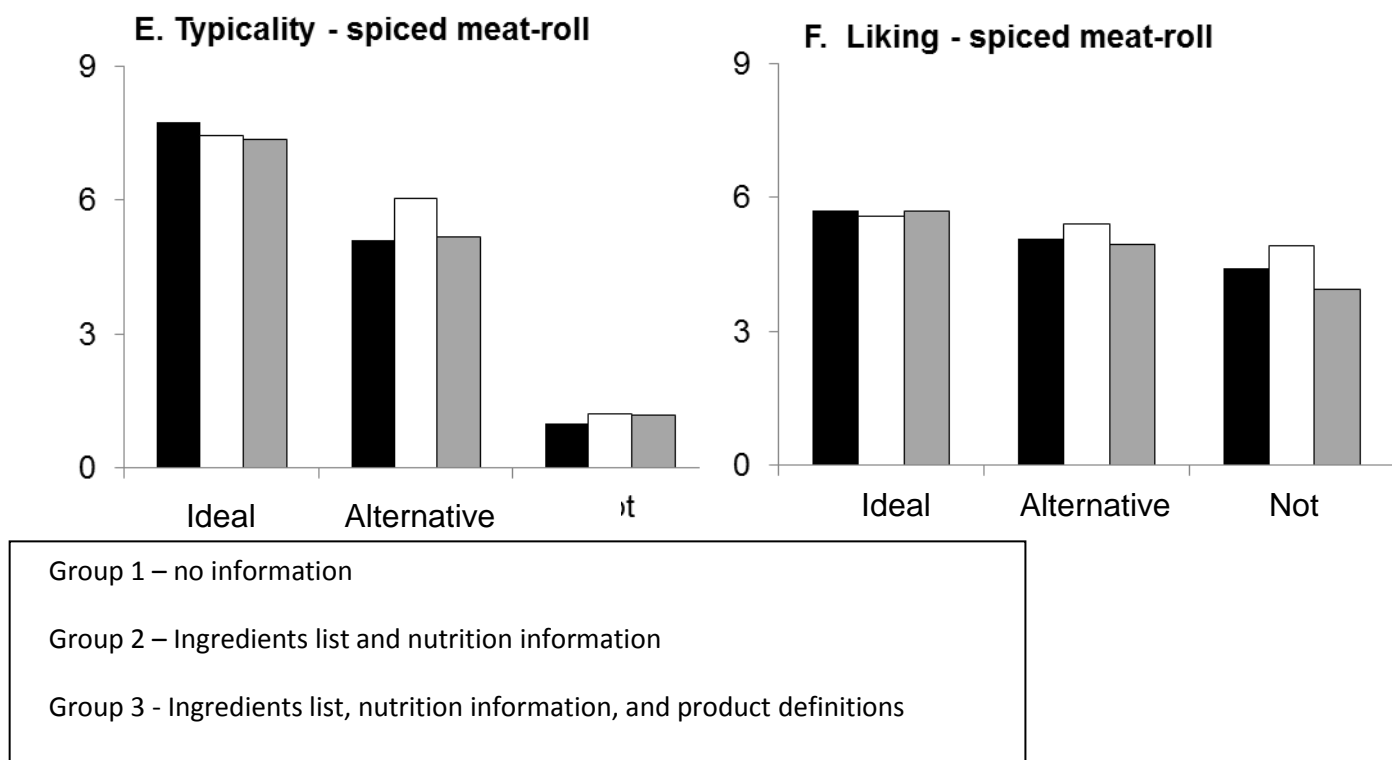


Figure 3

	Macaroons		Smoothie		Spiced meat-roll	
	Typ.	Liking	Typ.	Liking	Typ.	Liking
Group effect for each product						
Ideal	NS	NS	NS	NS	NS	NS
Alternative	0.015	NS	NS	NS	NS	NS
Not	NS	NS	NS	NS	NS	NS
Product effect in each group						
Group 1	<0.001	0.002	<0.001	<0.001	<0.001	NS
Group 2	<0.001	<0.001	<0.001	<0.001	<0.001	NS
Group 3	<0.001	NS	<0.001	<0.001	<0.001	NS

Table 4

The picture changes drastically for Group 3 that had access to an authoritative definition. Here the consumers' ratings of the alternative product dropped to the same level as of the ideal macaroon when answering the question "is this a real macaroon?" Similarly, there is also a trend towards a difference between Group 3 and the other two groups in the question about liking of the alternative macaroon. In Group 3 there is no significant differences in liking between the three test products, while there is a significantly higher liking of the alternative product compared to the ideal product in both Group 1 ($p=0.005$) and 2 ($p<0.001$). In sum, a *definition-added effect* was clearly demonstrated for macaroons whereas a *facts-added effect* was not induced in its own right, but only when triggered by the definition. Another observation found by looking further into the data was that consumers between 20-29 years liked the not-at-all product more compared to consumers older than 50 years ($p=0.0015$). Similarly, there is a tendency that consumers who never eat macaroons have lower liking scores for the ideal ($p=0.0326$) and the alternative ($p=0.0223$) macaroon product compared to the rest of the consumers.

Smoothie. Here the picture is entirely different (Figure 3 and Table 4). Regardless of whether the consumers had access to product facts, product facts plus a definition, or taste samples only, all three groups rated the ideal smoothie with the highest score for the question "is this a real smoothie?" In fact, the alternative product – which is demonstrably marketed under the name *smoothie* in Danish supermarkets – was not considered to be more of a smoothie than the not-at-all product. Similarly, all groups also gave highest liking scores to the ideal product. Another observation which was found by looking further into the data was that females gave lower liking scores and lower scores in the question "is this a real smoothie?" for both the alternative ($p=0.0005$ and $p=0.0231$ for liking and "real smoothie", respectively) and the not-at-all product ($p=0.0002$ and $p=0.0169$ for liking and "real smoothie", respectively). Consumers who never drink smoothies gave lower scores than the rest of the consumers in the question "is this a real smoothie" ($p=0.0074$) and on liking ($p=0.0032$) for the ideal smoothie product. Furthermore, there is a non-significant trend that the same group of consumers give the alternative and the ideal smoothie higher scores in the same questions compared to the rest of the consumers. However, it should be remembered that there were only 10 of the participating consumers who never drink smoothies.

Spiced meat-roll (rullepølse). In this case, all three groups of consumers rated the ideal meat-roll as the best match for the name, the alternative (in this case: the fat-reduced) one as a less good match, and the not-at-all product as an extremely poor match (Figure 3 and Table 4). That is, as in the case of smoothies, many consumers seem to have been able to tell the real thing from the not-so-real thing by simply seeing and tasting the products. However, they did not rate the alternative product "all the way down" to the level of the not-at-all product as was the case with the alternative smoothie. For the spiced meat-roll, there are significant differences between all products in each of the three groups (p -values are at least 0.01) for the question "is this a real spiced meat-roll?" Thus, as for the smoothies, neither a *facts-added effect*, nor a *definition-added effect* occurred for the spiced meal-roll. As for liking, there was no significant difference between the ratings of the three products for the consumers as a whole. However, female participants generally gave lower liking scores to both the ideal product ($p=0.0028$) and the not-at-all product ($p=0.0029$). It was furthermore observed that participants who reported that they never eat spiced meat-roll gave the ideal product lower liking scores ($p>0.0001$) compared to consumers who eat spiced

meat-roll one to a few times every six months or more. Also, the consumers' age influences their evaluations of the spiced meat-roll products. Consumers who were 40 years or older generally gave lower liking scores ($p=0.0020$) and lower scores in the question "is this a real spiced meat-roll?" ($p<0.0001$) than the younger consumers for the alternative product. Also liking scores for the not-at-all product were affected by age since the consumers with an age between 20-29 gave lower liking scores than consumers who were between 50-59 years old ($p=0.0028$).

Discussion

Let us first consider what manufacturers and others might learn for our case examples and findings in terms of supporting fair food naming and labelling practices. In this respect, our three examples may be taken as exemplars that illustrate constellations of fairness challenges some of which will recur also in other products, e.g. the role of tradition, expectations to the degree of naturalness, etc.

Lessons to be drawn from the macaroon example

Macaroons represent a highly traditional product which is familiar to most Danish consumers, though not very frequently consumed. To many, they are best known as a mandatory ingredient in a special kind of apple pie. Furthermore, the preference for the ideal/alternative macaroons (compared to our not-at-all product) seems to increase with age. The situation is thus comparable to that of many other "good old" classics found on food markets throughout the industrialized world: pastry, traditional dishes, etc. In the present case, our results suggest that consumers recognize the product mainly on the basis of immediate sensory experience without caring too much about "technicalities" such as exact ingredients (unless compelled to do so by a definition, see below). Moreover, the manufacturers' claim mentioned in the discussion of Examples 1 about consumers' expectations regarding texture and taste tending to favour the modern industrial variant of macaroons rather than the classic one appears to be justified. In categorization terms, consumers' concept seems to be dominated by sensory components reflecting their previous perceptual experience with (mostly industrial) macaroons whereas propositional components relating to factual information about ingredients, mode of preparation, etc., remain underdetermined. In the present setup, we cannot tell if the consumers in Group 2 actually did check the factual information, only that they had an opportunity to do so. Therefore, the lack of a facts-added effect may be ascribed to either *not* checking (possibly because the consumers in question did not have any imperative demands they felt a need to check for) or *checking* but not considering the facts to have any bearing on the evaluations of "macaroonness" or liking.

On the other hand, some consumers in Denmark like in the rest of Europe (Pieniak et al., 2009; Pohjanheimo et al., 2009), truly care about preserving authentic food traditions, and this *is* a Danish classic. It is fair to assume, therefore, that some people will be sensible to a definition-added effect, and such an effect did indeed occur in our experiment. Thus, the result in Group 3 can only be ascribed to the presence of a definition which, in turn, must have compelled some consumers to check the ingredients list – and what they saw there must have affected their judgment of "macaroonness" negatively. Moreover, whatever made the consumers in Group 3 more sceptical about the "macaroonness" of the alternative product also made them like it less. Perhaps they felt a bit cheated? In categorization terms, the definition must have enabled some

consumers to specify the underdetermined slots in their concepts and filter out the relevant fillers from the product information at hand, and this had a negative impact on both their acceptance and liking of the industrial product. What manufacturers might consider doing to enhance fairness in this and similar cases is to differentiate the “mainstream” variants more clearly from the “classic” ones to satisfy different groups. Indeed, in the legal cases summarized in Example 1 (Figure 1) the lack of such a clear differentiation was the major point of complaint, but it was presented as a misuse of the name only. However, a disambiguation might also be achieved e.g. by using additional claims like “nice price” or “perfect for a quickly-made apple pie” on the mainstream variant, and “know your classics” or “because tradition matters” on the classic one. The effect of such additional cues however remains to be tested under controlled conditions in future work.

Lessons to be drawn from the smoothie example

The smoothie is developed as a lifestyle product invented and consumed by people who care about taste *and* facts in terms of naturalness and healthiness. Indeed, the whole idea is that the product unites the two, and the results of the informal inquiry made by the authorities in Example 2 in Figure 1 suggest that at least some consumers are quite aware of that. This is consistent with our results in that the all-natural smoothie got by far the highest score in terms of both “smoothiness” and liking from all three groups. Neither a facts-added effect, nor a definition-added effect thus occurred. This does not necessarily mean that the consumers in Group 1 did not care about ingredients, or that they would not have agreed with the definition’s demand of high fruit content and all natural ingredients stated, had they seen it. It may also mean that they did not *need* the help of an experts’ definition to have such demands¹⁵, and were able to tell the all-natural product from the less-natural one (though they had a degree of “smooth(ie) feeling” in common) by simply seeing and tasting them. In other words, the consumers in Group 1 (and Group 2) might have been able to define their own expectations and make a “quality check” by relying on their immediate sensory impression (which could be confirmed by checking the ingredients list for Group 2). After all, the criterion “all mashed fruit plus/minus yoghurt” is not that hard to understand.

Where a fairness challenge may be lurking is if some manufacturer does a better job in imitating the “all natural” feeling while using non-natural ingredients than it was the case with the alternative product selected for our experiment. In that case, some consumer who forgot to check the backside of the package might indeed be fooled. Manufacturers of such “imitated naturalness” products run a risky business since profound consumer dissatisfaction seems to be a likely outcome if the consumer eventually does check the backside. For comparison, explicit consumer ambivalence has been demonstrated for so-called *neutrally marinated* (meaning calcium-chloride-and-water enhanced) chicken meat, where focus group members, on the one hand, liked its texture and taste better than ordinary chicken meat, but, on the other hand, disliked the fact that the product was not all natural (Nissen, Sandøe & Holm, 2012). Likewise, what triggered the consumer complaint in the previously mentioned authentic case with *guacamole dip* was not (or at least not presented as) the consumers’ negative experience with the product itself but the fact that the information on the back revealed a close-to-none content of avocado (where some competing products in fact contain up till 94% mashed avocado¹⁶). Notably, in neither of these cases did the consumers need to *also*

consult an authoritative definition to know what to demand, unlike what we saw in the more subtle case of macaroons. In other words, these examples seem to reflect a facts-added effect in its own right, not just as an element of a definition-added effect. However, while this assumption so far finds support in a focus group interview and a concrete consumer complaint, respectively, the possibility of such an effect occurring on a wider scale deserves to be tested on similar examples presented in a more strictly controlled experimental setup like the present.

Manufacturers of “imitated naturalness” products like those mentioned sometimes argue that they are targeting specific market segments where such products are in fact in demand¹⁷ – e.g. catering, hedonistic rather than nutrition-minded consumers (cf. Khan & Dhar 2005), etc.) – but, in that case, clear and unambiguous communication involving also the front of the package is crucial. In the case of smoothie-lookalikes, a minimum fairness precaution would be to avoid using the name *smoothie*, thereby undermining the clear expectations and consumer trust and loyalty presently connected with it. Pictures of natural fruits also have a potential for pulling in a wrong direction (e.g. Bone & France, 2001; Smith, Barratt & Selsøe Sørensen, forthcoming). All of this, of course, equally applies to the less-convincing lookalike tested by us.

Lessons to be drawn from the spiced meat-roll example

The spiced meat-roll (*rullepølse*) is a traditional product very much like the macaroons. However, where the industrial macaroons went through a process of gradual product (d)evolution that, according to the manufacturers statements in the case files, reached its peak about 50 years ago, the meat-roll is now in the middle of a comparable, but much faster process. In addition, the declared purpose of the change is fat reduction which connects it to what in the eyes of many consumers is a positive agenda, namely more healthy living. As in the case of smoothies, most of our test consumers were able to distinguish the ideal meat-roll clearly from the alternative one by simply seeing and tasting the products. At least on the face of it, this is surprising since the difference between pork belly and pork filet is somewhat more “technical” than a straightforward demand for high fruit content and all natural ingredients. In comparison, it did take a definition in the case of macaroons to make the consumers react to the equally subtle difference in terms of presence/absence of real marzipan. A plausible explanation is that the use of pork belly also affects the taste and texture of the product along with its visual appearance with plenty of visible white fat. If this “fatty” appearance is what consumers have grown accustomed to, they may conceive the low-fat version as less authentic even without knowing the exact recipe. The macaroon case is different in this respect since it is the alternative product that has dominated the market, and thereby consumers’ sensory experience, for 50 years.

The visible fat may also explain why the ideal product is not rated higher than the alternative one in terms of liking, but only in terms of typicality. Nutrition-conscious consumers may prefer buying and eating the “less-fat-looking” alternative despite the fact that it is less prototypical, exactly as the manufacturers had hoped for. If so, one would expect that the reading “3 g fat per 100 g” in the nutrition information would further enhance the effect, and there is indeed a tendency going in that direction, which however does not reach the level of significance with the present statistical power. The fact that female participant gave lower liking scores to the ideal product also supports the assumption that nutrition concerns might influence their liking of the ideal product, in that females often are more concerned about nutrition than males (a general trend that

was also observed in this study¹⁸). On the other hand, we also saw that the liking of the alternative product decreased with age (as well as the willingness to accept it as a real spiced meat-roll) which would seem to indicate a certain age-related conservatism, or simply a longer period of experience with the traditional product.

The inventors of the new, modified product are thus facing a clash between two prominent societal agendas, namely the preservation of authentic food traditions on the one hand, and supporting a healthier, low-fat lifestyle on the other. In this respect, the case is similar to many other traditional products (pates, sausages, cheeses, yoghurts, desserts, etc.) re-launched in fat-reduced “almost-like-the real-thing” versions. The challenge for the fairness-minded manufacturer is to get a sufficient contingent of consumers “on the boat” while trying to prevent misunderstandings about the nature of and intentions behind the new product, not less so since the change of ingredients is demonstrably being noticed on the sensory level by many consumers. Like for macaroons, then, manufacturers would do well in being even more precise and proactive in their differentiation between the “classic” and the “new” low-fat variants through explicit claims or other prominent verbal and visual means on the surrounding packaging, say, “the traditional” versus “new recipe - less fat, still great taste”. Unlike the macaroon scenario where this would merely be an *ex-post factum* follow-up and “correction” of earlier developments, for the meat-roll it would be an active guidance for consumers while performing certain conceptual adjustments that have become required to keep pace with market developments, even if the individual consumers may well regret these developments and refrain from buying the new product. That is, it is a way of supporting an informed choice and reducing the risk of complaints.

Improvement of the experimental paradigm

The external validity of the experiment could be increased by presenting the name-product combinations on actual (“dummy”) food packages presented in setups that come closer to real-life post-purchase evaluation situations (including the effect of brands, claims, pictures, etc.), and by monitoring the participants’ performance in further detail, e.g. by means of eyetracking techniques, to gain more information about the strategies they apply when looking for and utilizing other accessible verbal and visual cues when evaluating the adequacy of name-product combinations. While a number of previous studies into packaging design have been performed in such setups (e.g. Pieters & Warlop, 1999; Bone & France, 2001; Clement, 2007; Smith et al., in review), none of them have specifically targeted the impact of the total labelling on consumers’ acceptance of name-product combinations in the course of post-purchase product evaluation. Furthermore, as already mentioned, a wider array of names and product types clearly deserve to be taken into consideration, including consumers’ response to entirely novel names for equally novel products.

Interdisciplinary aspects

On a more general theoretical level, the study suggests new interdisciplinary links between the legal aspects of food labelling fairness evaluations (Howells, Micklitz & Wilhelmsson, 2006; MacMaoláin, 2007: 90ff) and societally and commercially oriented consumer research (see Frewer & van Trijp, 2007 for overviews). The bridging elements are linguistic and cognitive paradigms among which some have never before been applied in food research. Notably, this includes an operationalization of Putnam’s (1975) hypothesis of division of linguistic labour which was originally launched in a

highly abstract theoretical discussion, to make a philosophical point. In food research, the interest in consumers' comprehension of individual words has so far mainly been focussed on either the branding aspect, including brand names (e.g. Francis, 2002; Riezebos, 2003), or the comprehension of words used for describing food properties such as the sensory experience of creaminess, bitterness, etc. (Green-Petersen et al., 2009; Ares et al., 2010; Antmann et al., 2011a, 2011b). We here extend the interest to the generic names of the products themselves which are often taken for granted, but nevertheless sometimes turn out to be eagerly contested while remaining crucial to product identity – and hence to ensuring the fairness of product-to-consumer communication.

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Endnotes

¹ EU Labelling Directive (2000/13/EC), Articles 3 and 5; from 13 December 2014 replaced by Regulation 1169/2011 on the Provision of Food Information to Consumers, Article 17.

² In the EU, the general prohibition against misleading labelling of food products is found in Article 16 of the EU Food Regulation (2002/178/EC) and further specified by the Labelling Directive (2000/13/EC) and Regulation 1169/2011 (see note 1). General rules are found in the Unfair Commercial Practices Directive (2005/29/EC), as implemented in the national legislation of the EU Member States.

³ This idealized character was originally developed by the European Court of Justice as a benchmark for common sense reasoning in individual cases, but has now become a mandatory criterion for assessments of misleadingness according to the Unfair Commercial Practices Directive 2005/29/EC, Article 6. In recital 18 of the preamble to the Directive, the benchmark is defined as a consumer who is “reasonably well-informed and reasonably observant and circumspect, taking into account social, cultural and linguistic factors”. However, as also explicitly stated by EU legal sources, “the average consumer test is not a statistical test. National courts and authorities will have to exercise their own faculty of judgment, having regard to the case-law of the Court of Justice, to determine the typical reaction of the average consumer in a given case” (cf. recital 16 of Regulation 1924/2006/EC on Nutrition and Health Claims made on Food).

⁴ Directive 2001/112/EC relating to fruit juices and certain similar products and directive 2000/36/EC relating to cocoa and chocolate products.

⁵ Example 1 (macaroons) can thus be classified as an instance of plain *product repetition*, whereas Example 2 (smoothie) is an instance of relatively recent *product innovation* (at least when marketed as an industrial product) and Example 3 (low-fat variant of traditional spiced meat-roll) is an instance of ongoing *product evolution* (for details on this categorization, see Smith 2010: 61).

⁶ For established (familiar) names, the composition of the name itself is rarely an adequate reflection of the full concept conveyed. For instance, the Danish name *rullepølse* in Example 2 literally means ‘roll(ed) sausage’ which admittedly sounds somewhat odd, even to a Dane, considering that the product is made of solid, not of minced, meat, and by no means is a prototypical sausage. However, it is highly characteristic of conflicts relating to established food names that the disagreement concerns the full set of criteria (conceptual components) hiding behind the name, not the etymology or “anatomy” of the name as such. For novel names, the case is 180° reversed, however (for details, see Smith 2010: 63-69).

⁷ For matters of space, certain theoretical and terminological variations between the approaches mentioned are not addressed in the present account while the essence of the overall theoretical argument is preserved. We are indebted to Lawrence W. Barsalou for his critical and constructive comments on the present synthesis as stated in more detail in Smith, Møgelvang-Hansen & Hyldig (2010: 1021-22).

⁸ Danish Veterinary and Food Administration (DVFA), Case No: 2006-Ø2-274-01918.

⁹ To do that the consumer must however also be capable of understanding the definition and – not least – checking whether a particular product is consistent with it (both aspects may prove difficult, say, for the highly technical provisions of Directive 2001/112/EC on fruit juices. However, in our present experiment the definitions contained relatively straightforward criteria formulated in plain language so that we could expect at least some of our participants to be capable of checking the relevant facts themselves if they desired to do so. The case where the “expert’s final judgment” not only amounts to setting up a definition, but also to checking if and/or guaranteeing that a given product is consistent with it involves a number of additional considerations which deserve attention in future research.

¹⁰ To keep the number of variables manageable, in the experiment described below we restricted the expert’s-judgment variable (the authoritative definition) to one that supported the complainant’s position in all three actual cases, while bearing in mind the possibility of opposing judgments/definitions and the further complications that this might cause.

¹¹ To cover all instances of experts’ final judgments, a further diversification may be required between a simple *definition-added* effect (where the expert merely sets up the relevant criteria) and an *expert’s-opinion-added* effect (where the expert not only sets up the criteria, but also checks the product on behalf

of the consumer). Such a diversification was however not required for the case examples used in the present setup, as further explained in footnote 10.

¹² Following the definitions and the essence of the complainants' argumentation in the cases (see Figure 1), we considered key demands to be the use of almonds (marzipan), sugar, and egg whites as main ingredients for the macaroons, a high content of pure fruit for the smoothie, and the use of pork (or lamb) *belly* rather than *filet*, resulting in a higher content of fat, for the spiced meat-roll.

¹³ The macaroons have a very high intensity of sweet taste and the smoothies are also very sweet. To prevent a carry-over effect, it was therefore decided that the serving order should be smoothie, meat-roll, and macaroon. .

¹⁴ Typicality should here be understood in line with prototype theory (Rosch 1975; Taylor 1989) as distance from an ideal exemplar, here rendered in plain language by the wording of Q1 and descriptions of the end-points of the scale.

¹⁵ The assumption that at least some consumers have a recognized and explicit demand for a high fruit content in smoothies finds further support in the authorities' informal questioning of ordinary consumers in the case summarized in Example 2 (see Figure 1).

¹⁶ Pre-prepared product named *guacamole* distributed by KsKTrading GmbH (www.ksktrading.eu) under the brand name *GodeVarer* ('Good Goods').

¹⁷ For example, a manufacturer of frozen fish fillets in batter each made of several smaller bits of fish argued that consumers like the homogeneous shape and that the product was originally developed for the catering sector with this in mind, DVFA Case No(s): 2006-Ø1-274-00302; 22/2/2000, Jnr. 521.1971-0143.

¹⁸ After finishing the present test, the participants received an additional questionnaire designed by the FairSpeak Group as a generic tool for assessing consumers' general food knowledge levels (Selsøe Sørensen et al., forthcoming). In this test, female participants displayed a high average score to the question "How important is health for you when you are shopping" than male participants ($p=0.0025$). Another indication is that in the present test women tended to be particularly critical towards the non-ideal products in the product category where health issues are most prominent, namely the smoothie (see under Results above).

Table 1

Overview of the three groups of consumers, including group number, number of persons in the group, and level of information about the products in the consumer test.

Group number	Number of participants	The participants received the product samples and the following level of information		
1	47	No additional information		
2	55		Ingredients list and nutrition information for the product	
3	52		Ingredients list and nutrition information for the product	Authoritative definition of the product category

Table 2

Ingredients list and nutrition information for each of the three target products (ideal, alternative, and not-at-all) in each product category.

Product category ¹	Product type ²	Ingredients list	Nutrition facts (content in 100 ml or 100g ³)			
			Energy	Protein	Carbo-hydrate	Fat
M	Ideal	Sugar, egg white, marzipan, risofarin, wheat flour, and leavening (ammonium bicarbonate).	1720	4.5	87.0	4.5
M	Alt.	Sugar, egg white, wheat starch, flavouring (almond), dextrose, glucose, and leavening (ammonium bicarbonate).	1720	2.0	97.0	1.0
M	Not	Wheat flour, sugar, vegetable fat, leavening (sodium bicarbonate, diphosphate, and ammonium bicarbonate), milk sugar, salt, and flavouring (vanilla).	2053	6.5	70.0	20.0
S	Ideal	Blueberries, banana, lime, melon, organic mini milk, and organic blueberry juice.	283	7.0	67.6	1.8
S	Alt.	Yogurt, water, fructose, fruit juice of concentrates (blueberry juice, and grape juice 1%), milk protein, thickeners (pectin), inulin, cellulose fibre, sunflower oil, concentrate of hibiscus and carrot flavour, vitamins (Sodium ascorbate, DL-alpha-tocopheryl acetate, niacinamide, retinylacetate, pyridoxine hydrochloride, riboflavin, thiamin mononitrate, pteroylmonoglutamic acid, D-pantothenate calcium, D-biotin, and cholecalciferol, cyanobalamin), minerals (potassium citrate and magnesium salts of citric acid, Ferrous lactate, zinc sulphate, copper sulphate, manganese sulphate, sodium selenite, and potassium iodide), and sweetener (acesulfame K and sodium saccharin).	260	4.0	9.5	1.0
S	Not	Milk 1.8% fat, sugar, whey protein concentrate, skimmed milk powder, glucose syrup, vanilla flavouring, and stabilizer (carrageenan).	350	5.0	12.0	1.7
SMR	Ideal	90% pork belly, 3% water, spices (pepper and onion), acidity regulator (sodium lactate), dextrose, stabilizer (diphosphate and potassium phosphates), antioxidant (sodium ascorbate), and preservative (sodium nitrite).	830	17.0	1.5	14.0
SMR	Alt.	Pork filet (97%), salt, gelatine, pepper, grape sugar, stabilizer (carrageenan), onion powder, antioxidant (sodium ascorbate), and preservative (sodium nitrite).	500	22.0	1.0	3.0
SMR	Not	62% pork loin, water, salt, glucose, stabilizer (pentapotassium triphosphate, carrageenan, processed eucheuma seaweed, locust bean gum, xanthan gum, and potassium chloride), acidity regulator (sodium carbonate and trisodium citrate), antioxidant (sodium ascorbate), and preservative (sodium nitrite).	520	20.0	0-1	4.5

¹S, R and M stands for Smoothie, Spiced Meat-Roll and Macaroon respectively.

²Ideal, Alt. and Not stands for ideal, alternative and not-at all-product respectively.

³100ml for smoothies and 100g for spiced meat-roll and macaroons. Energy is in Kilojoule (KJ) while protein, carbohydrate, and fat are in grams (g).

Table 3

Distribution of gender, age, and education level in the three groups of consumers and in total.

	Group 1	Group 2	Group 3	All consumers
Total	47 (30%)	55 (36%)	52 (34%)	154 (100%)
Gender				
Males	20 (43%)	26 (47%)	18 (35%)	64 (42%)
Females	27 (57%)	29 (52%)	34 (65%)	90 (58%)
Age				
20-29	6 (13%)	15 (28%)	8 (15%)	29 (19%)
30-39	13 (28%)	9 (16%)	13 (25%)	35 (23%)
40-49	11 (23%)	10 (18%)	5 (10%)	26 (17%)
50-49	9 (19%)	12 (22%)	13 (25%)	34 (22%)
60-70	8 (17%)	9 (16%)	13 (25%)	30 (19%)
Education				
Primary school	1 (2%)	3 (5%)	2 (4%)	6 (4%)
High school	5 (11%)	6 (11%)	4 (8%)	15 (10%)
Short/medium	21 (45%)	33 (60%)	19 (36%)	73 (46%)
Long	17 (36%)	11 (20%)	26 (50%)	54 (34%)
Student	1 (2%)	1 (2%)	0 (0%)	2 (1%)
Technical	2 (4%)	1 (2%)	1 (2%)	4 (3%)

Table 4

P-values from Kruskal-Wallis test corrected for multiple testing with Holm's method for effects of groups and products for each product type (macaroons, smoothie, and spiced meat-roll) and each question (Typicality: "Is this a real macaroon/smoothie/spiced meat-roll?" and liking: "How much do you like this product?"). *P*-values higher than 0.05 are considered not significant (NS).

	Macaroons		Smoothie		Spiced meat-roll	
	Typ.	Liking	Typ.	Liking	Typ.	Liking
Group effect for each product						
Ideal	NS	NS	NS	NS	NS	NS
Alternative	0.015	NS	NS	NS	NS	NS
Not	NS	NS	NS	NS	NS	NS
Product effect in each group						
Group 1	<0.001	0.002	<0.001	<0.001	<0.001	NS
Group 2	<0.001	<0.001	<0.001	<0.001	<0.001	NS
Group 3	<0.001	NS	<0.001	<0.001	<0.001	0.008

Figure 1. Examples 1-3: Conflict scenarios involving contested food names.




	<p>Example 1. Marzipan for texture or for taste? Consumer organization filed a series of complaints against Danish manufacturers for not obeying the essentials of traditional Danish recipes for a sort of small cookies known as <i>makron</i> (\approx 'macaroon'). According to these recipes, the main ingredients should be mashed almonds (marzipan), sugar, and egg whites, whereas the products sold as macaroons were based on either apricot kernels or, more commonly, starch and leavening, with almond flavouring added. The manufacturers insisted that this had been so at least since the 1940ies and that consumers like and buy the products. One manufacturer also noted that almonds make the products either too "chewy" or too "dusty" to satisfy consumers' taste. The authorities concluded that the average consumer nowadays does not expect almonds in large-scale produced macaroons because the majority of macaroons marketed in supermarkets do not contain almonds and have not done so for many years. Case Nos.: 2006-Ø2-274-02545; 2007-20-272-02299; 2007-Ø1-274-00571; 2007-Ø1-2722-00019; 2007-20-272-02344; 2007-S5-274-0792; 2007-S5-274-0795; 2007-S5-274-00818.</p>
	<p>Example 2. What's (in) a real smoothie? Consumer maintained that a product sold as a <i>smoothie</i> did not feel and taste like what he would expect of a real smoothie. The authorities noted that this type of product was relatively new on the Danish market and hence unfamiliar to many consumers. However, based on an informal inquiry among people who did know and use the name, the authorities concluded that a fruit content of 0,2% was not consistent with the name <i>smoothie</i>. Case No.: 2003-04-274-00297.</p>
	<p>Example 3. Filet vs. belly or taste vs. fat? Very traditional Danish cold meat product known as <i>rullepølse</i> (\approx 'spiced meat-roll') re-introduced in a low-fat version made of pork <i>filet</i> and not pork (or lamb) <i>belly</i> as demanded by all traditional recipes. The fat content was reduced from 15-20% or more to 3% while the traditional taste and looks were replicated to the highest possible degree. Nevertheless, a consumer organization complained against the name <i>rullepølse</i> being used for the new product, insisting that the relative high fat content resulting from using belly is an essential part of the taste and whole character of the product. The manufacturers argued that all food products undergo certain changes over time. Based on the fact that the labelling clearly stated that the product was made of pork filet and that it was in fact a rolled and spiced meat product, the food authorities concluded that the name was not misleading. Case Nos.: 2005-S5-274-00776; 2005-04-271-00034; 2005-05-274-00437; 2005-07-274-00238.</p>

Figure 2. The consumers’ reported level of consumption for each of the three product types; m and w stand for month and week.

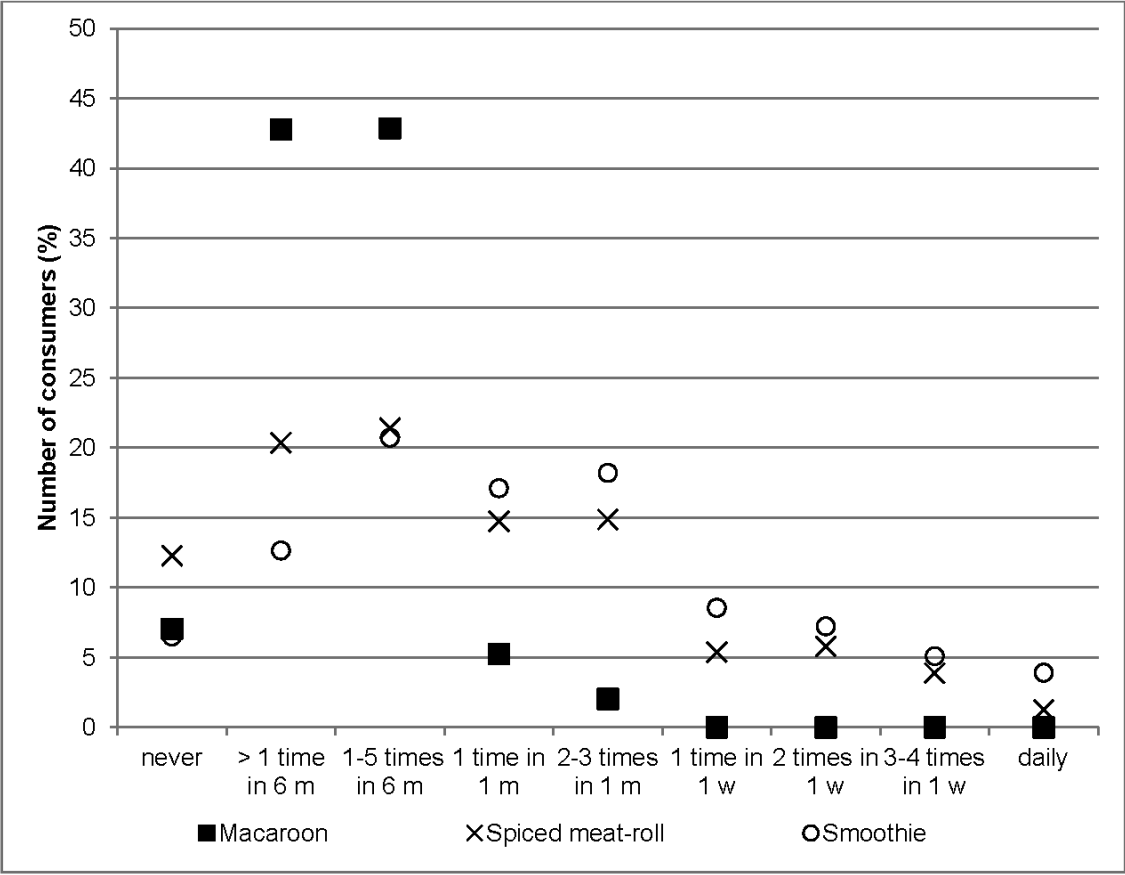


Figure 3. The results from the question about the macaroon (A and B), smoothie (C and D), and spiced meat-roll products (E and F). A, C, and E is the result from question Q1 “Is this a real macaroon?” B, D and F is the result from question Q2 “How much do you like this product?”.

