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Misleading Marketing Communication

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Preface

This small book is written in the spirit of the Palgrave Pivot series which encourages the publication of original research at its natural length, "longer than a journal article, but shorter than a monograph".

Food labelling and its effect on consumer behaviour is a highly versatile topic which is being investigated by a substantial number of disciplines that span from law and politics, through food development, human nutrition and health, and sustainability studies, to marketing and branding, with contributions from both the social, the behavioural, and the natural sciences, and from the humanities. As a result, vital research questions and findings that evidently supplement each other tend to remain scattered across different theoretical paradigms, real-life concerns, and publication channels with few natural touchpoints.

Our intention with this work was to bridge some of these gaps by addressing a topic which connects to several, ultimately to all, of the perspectives just mentioned by its very nature: the question whether and how the legal comprehension of potentially misleading food labelling could be transposed into empirically measurable terms, thereby offering new leads to the development of fair food marketing and labelling practices also beyond strictly legal demands. This goal is pursued in four experimental studies which complement each other on essential points. To keep the task empirically manageable, the point of reference throughout is EU law and selected grey-zone scenarios found on the Danish food market. However, the present format allows us to further contextualize these empirical specifics to a range of issues of wider methodological, theoretical, and societal interest.

Still, we cannot possibly cover all current perspectives on the topic in a concise work like the present. That includes, for instance, the detailed legal treatment of unfair commercial practices beyond EU and further implications for private–public collaboration in such fields as health promotion and support of local food production. However, we hope to have provided some new leads for continued work in these and other relevant directions in future research.

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PART I

Background

CHAPTER 1

Setting the Scene

Abstract The chapter addresses the divide between marketing approaches to food labelling and marketing, which rely extensively on empirically founded behavioural and cognitive insights, and socio-political and regulatory approaches, which tend to be primarily concerned with legal rule-making *per se*. In continuation of earlier debates, the chapter stresses the need for a more dynamic interplay between the two domains and sets the scene for the contributions to facilitating such developments presented in this book.

Keywords Food marketing • Food labelling • Legal regulation • Unfair commercial practices • Empirical evidence • Social sciences • Cognitive sciences • Behavioural sciences

In most developed societies, a major influence on people's choice of foods and drinks are the elaborate symphonies of words, texts, numbers, pictures, colours, and shapes that "speak" to consumers from the product packaging and, increasingly, from e-store pages, during the few seconds it usually takes to take a purchasing decision in a physical or digital supermarket (Dobson & Yadav, 2012; Gidlöf et al., 2017; Sivaji et al., 2011). The communicative and cognitive mechanisms involved have for many years been subject to extensive empirical investigation from a marketing

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perspective, focusing on the capability of various design elements and combinations of such to attract consumers' attention and support product interest, preferences, and choice (Clement et al., 2013; Hoyer, 1984; Pieters & Warlop, 1999; Underwood & Klein, 2002; Vermeir & Roose, 2020; Wang, 2013).

However, the other side of that coin is that an attractive verbal and visual framing of the product may lead some consumers to take factually misguided decisions relative to such essential product properties as ingredients, nutrition and health benefits, origin, organic farming, animal welfare, climate impact, and so on. Such perspectives have received the most versatile attention in socio-political and regulatory contexts where the problem is traditionally referred to as misleading food labelling[1] (Albert, 2014; Grabowicz & Czaja-Bulsa, 2019; IMCO, 2012; Kanter et al., 2018; Kariyawasam & Wigley, 2017; Kelly et al., 2009; MacMaoláin, 2007, 2015).

Arguably, this too is an empirical issue: If a product carries a highlighted verbal message saying that it is "sugar free" on the front but nevertheless contains 20 g sucrose per 100 g, the truth of that claim can be checked against measurable facts and the claim deemed untruthful and hence misleading. But what if the product carries no nutrition information on the front at all, but a photo of a famous sports team sponsored by the manufacturing company, while being higher in fat, sugar, and calories than competing products? Or what if a product has an Italian-sounding brand name but is made in Germany? It seems fair to argue that the answer must ultimately come down to an empirical assessment of the effect that such labelling solutions actually have on consumers' expectations and purchasing decisions.

While some subtleties of this sort have been addressed from empirical angles as well (e.g. Bone & France, 2001; Hastak & Mazis, 2011; Ketelsen et al., 2020; Lähteenmäki, 2013; Mueller & Umberger, 2010; Roe et al., 1999; Wansink & Chandon, 2006), the primary focus tends to remain on the underlying societal and political agendas *per se* and on the legal perspective. In other words, the question of whether the product labelling is

[1] The term *product packaging* predominates in the marketing literature, whereas *product labelling* is more common in the socio-political and legal literature (as illustrated by the titles quoted). The reference of these terms overlaps to a substantial degree in that the current legal understanding of product labelling covers any potentially informative design features of the packaging (see Sect. 2.2) while companies see the packaging not only as a physical wrapping but also as a vital communicative platform also known as "the silent salesman" (Slater, 1999).

misleading or not often comes down to whether it is consistent with current legislation and day-to-day administrative and court practices and/or whether adjustments through legislative intervention or self-regulation are needed (e.g. Hastak & Mazis, 2011; IMCO, 2012; Kariyawasam & Wigley, 2017; Schaldemose & Engelbrecht, 2011).

As for the European Union (EU), which will be our primary frame of reference in this work, the ultimate benchmarks for assessing potentially misleading product labelling and other unfair commercial practices directed towards ordinary consumers are the provisions stipulated by the Unfair Commercial Practices Directive (UCPD, Directive 2005/29/EC), as further scrutinized in Chap. 2. In case of doubt, the final decision comes down to case-by-case assessments made by government officials and, ultimately, courts as to whether an average consumer is likely to be misled. By contrast, no proof that somebody has indeed been misled is usually required (see Chap. 2 for further details).

The ongoing harmonization of the originally quite diverse national rules and practices on these issues across the EU has however fostered an increasing call for harder evidence to support the legal decision-making. Notably, this includes drawing also on other research disciplines than law and the social sciences, in particular those often subsumed under the headings of cognitive and/or behavioural sciences, comprising such disciplines as perceptual and cognitive psychology, linguistics and semiotics, sensory research, and neuroscience (Bauer & Reisch, 2019; Conradie, 2016; Duivenvoorde, 2015; Incardona & Poncibo, 2007; Legrand, 1996; Trzaskowski, 2011). Given that insights and tools from the latter fields have been systematically exploited for marketing purposes for many decades, it seems fair to argue that they should have a say on the potential misleadingness of such endeavours as well. To this day, however, their influence on food politics and daily regulatory practices remains marginal which, in turn, may plausibly be explained by the complexity of the cross-disciplinary synergies required to fulfil such an ideal and perhaps also a certain inertia on the part of the professional environments involved (Conradie, 2016; Trzaskowski, 2011).

Contributing to these developments, the cross-disciplinary research group FairSpeak[2] at Copenhagen Business School has for some years been pursuing the twofold goal of (a) pinpointing the communicative and cognitive essence of such conflict scenarios that repeatedly emerge between

[2] https://www.fairspeak.org/

the immediate actors when assessing the potential misleadingness of concrete food labelling solutions, and (b) developing empirical tools suited for putting opposing arguments in that regard to test. Notably, the legal conception of misleadingness was retained as a major benchmark also in this work in that comparable lines of reasoning are echoed in the commonsense arguments put forward by the immediate actors, including ordinary consumers. Part of the challenge is therefore how to transpose the legal criteria into empirically manageable terms, that is, how to make potential misleadingness measurable.

This book reports the results of four complementary studies implementing the so-called ShopTrip test paradigm which was developed and refined in the course of ongoing FairSpeak work but has not yet been presented in integration. ShopTrip is a simulated e-shopping environment from which essential observations may be transposed also to physical shopping; see Sect. 3.2.2. Consumers are encouraged to make choices between commercial food products selected by the researches so that some of them would pose an arguable risk of misguiding the buyer in predictable respects according to some stakeholders, but not to others. The set-up allows a systematic variation of priming for pre-shopping preferences, real-time monitoring of the actual decision-making process, and ex-post registration of consumers' self-reported priorities and expectations. Relying on a combination of these data, it becomes possible to argue, on empirical grounds, that some consumers have been misled (or at least severely (self-)misguided) "before the very eyes" of the observer.

On that background, the account to follow aims at: • pinpointing some of the major challenges connected with transposing the legal conception of misleading food labelling into empirical terms, focusing on status quo in the EU and, specifically, Denmark; • showing the potential of the ShopTrip test paradigm to meet some of these challenges, as illustrated by results gained on selected scenarios of allegedly misleading food labelling identified on the Danish food market; • connecting these findings to the wider cross-disciplinary debate(s) on misleading food (and other product) labelling and on the cognitive, communicative, and societal pitfalls of persuasive communication more generally; • considering possible implications for future regulatory practices and companies' best practices for self-regulation.

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CHAPTER 2

The Legal Conception of Misleading Product Labelling and its Operationalization

Abstract The chapter outlines the basic approach taken by EU law to unfair commercial practices in general and to misleading food labelling in particular. It discusses the challenges connected with transposing the legal rules and the underlying reasoning into empirically manageable terms, that is, making potential misleadingness measurable, This includes the understanding of the nature of information, the link between knowledge and action, and the much-debated notion of the average consumer.

Keywords Unfair Commercial Practices Directive • *per se* rules • The average consumer benchmark • Nutrition and health claims • Food standards • Truthful information • Verbal information • Visual information • Routine choices • Impulse-driven choices • The preference-conscious choice

2.1 The Prohibition against Unfair Commercial Practices and Misleading Labelling in EU Law

The general prohibition against misleading marketing of food products is stipulated in Regulation (EC) No. 178/2002, **which lays down the fundamental principles and requirements of EU food law.** Article 16 **states** that "the labelling, advertising and presentation of food or feed, including their shape, appearance or packaging, the packaging materials

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used, the manner in which they are arranged and the setting in which they are displayed, and the information which is made available about them through whatever medium, shall not mislead consumers."

The provisions **of** Regulation No. 178/2002 are supplemented by a flood of more detailed rules distributed across a vast number of other EU and national acts which makes food law one of the most intensely regulated areas of law both at the European and the national level. Article 7 of Regulation (EU) No. 1169/2011 on the provision of food information to consumers lays down more detailed rules on fair information practices:

1. Food information shall not be misleading, particularly:
   (a) as to the characteristics of the food and, in particular, as to its nature, identity, properties, composition, quantity, durability, country of origin or place of provenance, method of manufacture or production;
   (b) by attributing to the food effects or properties which it does not possess;
   (c) by suggesting that the food possesses special characteristics when in fact all similar foods possess such characteristics, in particular by specifically emphasising the presence or absence of certain ingredients and/or nutrients;
   (d) by suggesting, by means of the appearance, the description or pictorial representations, the presence of a particular food or an ingredient, while in reality a component naturally present or an ingredient normally used in that food has been substituted with a different component or a different ingredient.
2. Food information shall be accurate, clear and easy to understand for the consumer.

Notably, none of the provisions mentioned so far include a single overarching definition of the term *misleading(ness)* itself. However, rules to this effect are found in the Directive 2005/29/EC concerning unfair business-to-consumer commercial practices (Unfair Commercial Practices Directive, UCPD).

Article 6.1 of the UCPD lays down that a

> commercial practice shall be regarded as misleading if it contains false information and is therefore untruthful or in any way, including overall presenta-

> tion, deceives or is likely to deceive the average consumer, even if the information is factually correct [...], and in either case causes or is likely to cause him to take a transactional decision that he would not have taken otherwise.

Recital 18 of the UCPD states inter alia that

> this Directive takes as a benchmark the average consumer, who is reasonably well-informed and reasonably observant and circumspect, taking into account social, cultural and linguistic factors, as interpreted by the Court of Justice.

Although the rules of the Directive are "without prejudice to Community or national rules relating to the health and safety aspects of products" (cf. Articles 3.3 and 3.4), the criteria mentioned above are nevertheless widely applied (also) in the domain of food law as a general yardstick used by authorities and courts when deciding whether a commercial practice is likely to mislead consumers. Moreover, the approach of the UCPD is echoed in several other EU acts, including Regulation (EC) No. 1924/2006 on nutrition and health claims to be further addressed below (cf. Article 5.2 and Recital (16)). The case law evolving around these provisions centres on the question whether the (average) consumer is likely to be misled, whereas evidence that a particular consumer has in fact been misled at a particular moment in time is generally not sought or taken into account (for some critical case reviews, see Schebesta & Purnhagen, 2019).

However, the provisions of the UCPD do not stand alone. Historically, food law has a strong tradition for prohibiting certain practices *per se*, that is, irrespectively of any assessments of their potentially misleading effect *in concreto*. A classic example of such *per se* rules are national and international food standards and "recipe laws" which lay down specific demands that must be obeyed by manufacturers of some categories of food products in order to legally sell their products under the corresponding names. In the context of EU economic integration, such rules have been seen as an obstacle to the free movement of food products and provided a major input to endeavours to harmonize food standards at the EU level and to the development of EU case law on mutual recognition. Some relics of food standard harmonization are still found in the directives on chocolate, fruit juices, honey, coffee, minced meat, milk, butter, margarine, and certain other food categories (cf. MacMaoláin, 2007: 93ff and 123ff).

A related area of regulation are the quality schemes known as PDO, PGI, and GI stipulated in Regulation (EU) No. 1151/2012 which are aimed at protecting regional and local food traditions and specialities (an issue to which we will return in Study 4). Unlike the provisions mentioned earlier, the present find relatively widespread political support. However, like other variants of food standards, these schemes have been criticized for being out of touch with the expectations and knowledge of ordinary consumers. One much-debated example is *feta cheese*, which was granted status as a Protected Designation of Origin (PDO) in 2002 and may since then only be legally used in the EU for products made in Greece, but which is nevertheless widely understood by ordinary consumers as referring to a special *kind* of cheese that is also made, for example, in Denmark, Germany, and France (cf. Gangjee, 2007; MacMaoláin, 2007: 108-118).

Still, the vast majority of food products sold in the EU are not covered by legal definitions. In these cases, the general rules of the UCPD, including the average consumer benchmark, apply, the question being who should be entitled to speak on this fictitious character's behalf. Thus, ordinary consumers and (different kinds of) experts may demonstrably have very different ideas about what exactly qualifies a product, say, as a *macaroon*, a *smoothie*, or as traditional *mead*, and the consumer's voice tends to be the last one to be heard (cf. Smith et al., 2013; see also Smith, 2021: 53-57).

Another direction in EU food law where *per se* rule regulation has attracted renewed attention in recent years is the introduction of rules that define the precise legal meaning of a wide range of nutrition claims, one example being "reduced x"; cf. Regulation (EC) No. 1924/2006, Article 8:

> Nutrition claims shall only be permitted if they are listed in the Annex and are in conformity with the conditions set out in this Regulation.

The Annex entitled "Nutrition claims and conditions applying to them" (as amended by i.a. Commission Regulation (EU) No. 1047/2012) lists a number of different claims, including:

> REDUCED [NAME OF THE NUTRIENT]
>
> A claim stating that the content in one or more nutrients has been reduced, and any claim likely to have the same meaning for the consumer, may only be made where the reduction in content is at least 30% compared

> to a similar product, except for micronutrients where a 10% difference in the reference values as set in Council Directive 90/496/EEC shall be acceptable and for sodium, or the equivalent value for salt, where a 25% difference shall be acceptable.

The assessment of potential misleadingness thus comes down to whether or not the product meets certain pre-defined criteria that do not necessarily follow in full from the wording of the claim itself. This renders any further attempts to assess how individual consumers understand the claim irrelevant, at least as a starting point. Notwithstanding, the average consumer benchmark remains the overarching criterion also in Regulation (EC) No. 1924/2006 as already mentioned above (cf. Article 5,2 and Recital (16)). We will return to the complications potentially arising from this state of affairs in Sect. 2.2 and in Studies 1 and 2.

Another essential aspect of the far-reaching regulation of nutrition and health claims implemented by Regulation 1924/2006 and surrounding acts is an increased interest in (and allocation of substantial EU funding for) empirical research aimed at underpinning the legislative work. Apart from research into the immediate health benefits and hazards of particular products and ingredients (dominated by the medical and health sciences), this also includes research into consumers' understanding and use of the corresponding claims. The latter research has so far mainly taken the shape of large-scale survey-based or qualitative investigations uncovering consumers' self-reported attitudes and behaviours (e.g. Grunert & Wills, 2007; Lähteenmäki et al., 2010; Stranieri et al., 2010; Sunstein et al., 2019). However, some studies also integrate more realistic or semi-realistic choice tasks and controlled variation of labelling stimuli (e.g. Aschemann-Witzel et al., 2013; Banovic et al., 2019; Clement et al., 2017). Nevertheless, many aspects of, consumers' decoding and use of labelling information in realistic shopping scenarios still call for further investigation (see Bauer & Reisch, 2019, for a critical review). We will return to the methodological challenges of doing so in I.3.2.

In sum, even if *per se* rules play a prominent role in some areas of food law, and even if some forms of empirical evidence have been taken into account at the political and legislative level, the reasoning canonized by the UCPD still predominates when it comes to assessing the potential misleadingness of concrete food labelling solutions in day-to-day regulatory practices. Both when implementing the more detailed provisions mentioned above and when judging about issues not directly covered by

them, a holistic consideration of the concrete circumstances at hand will often be required. Generally speaking, legal assessments of how the various elements of food labelling affect the average consumer will therefore be rough estimates based on common sense rather than detailed empirical inquiries and operational knowledge of how the decoding process functions in practice.

The overall question dealt with in the following concerns the operationalization of such estimates. In other words: How can evaluations of the likelihood to mislead be based on, or supplemented by, empirical evidence that one or more consumers indeed appear to have been misled, be it in real life or as modelled in a close-to-reality test environment?

2.2 Operationalizing the Legal Criteria

There are several challenges connected with transposing the legal criteria just described to an actual purchasing situation in a supermarket or e-store, or a simulation of such.

First, what counts as information? The answer seems straightforward for a verbal claim such as "no added sugar", which conveys an explicit statement that can be checked against facts. But how about non-verbal elements, say, a photo of a healthy-looking family doing sports on a product high in sugar and fat? Or a synthetic soft drink the appearance and mouthfeel of which resembles unfiltered fruit juice? What exactly do these design features "say" in the first place, and does this pose a risk of misleading anyone?

The communicative potential of visual and other non-verbal means of expression has been subject to extensive theorizing and empirical investigation from a variety of perspectives (Ares & Deliza, 2010; Bone & France, 2001; Krishna, 2012; Ledin & Machin, 2020; Magnier & Schoormans, 2017; Messaris, 1997; Peschel et al., 2019; Rettie & Brewer, 2000; Wang, 2013). However, legal judgments on potential misleadingness do not normally refer to such sources, but either abstain from referring to non-verbal factors altogether (see below), or rely on general assumptions crystallized in earlier regulatory practices, as matched against the specifics of each concrete case and, ultimately, plain common sense (for some illustrations, see Smith, Barratt, & Selsøe Sørensen, 2015).

The current definition of "labelling" in EU law nevertheless does cover a wider array of elements in that it extends to:

> any words, particulars, trade marks, brand name, pictorial matter or symbol relating to a food and placed on any packaging, document, notice, label, ring or collar accompanying or referring to such food (Regulation (EU) No. 1169/2011, Article 2, section 2 (j)).

However, day-to-day regulatory practices both in the EU and beyond tend to foreground verbalized information whenever possible, a trend that Jones (2014) labels a "language-centric" view of food labelling. Notably, this also includes foregrounding whatever verbal specifications may be found for more or less conventional visual elements such as the Nordic Keyhole label to be addressed in Study 3, even if such specifications are not to be found on the packaging itself. By contrast, "pure" visuals and other sensory cues remain open for free negotiation which, arguably, gives them a head start when it comes to escaping legal intervention (Bone & France, 2001; Jones, 2014; Messaris, 1997). A plausible explanation for the current state of affairs seems to lie in the obvious virtues of verbalized information when it comes to substantiating a formal complaint or a final decision in writing which is the format normally required (Smith et al., 2010).

We will address the communicative potential of conventionalized visual symbols in the shape of so-called signpost labels (as represented by the Nordic Keyhole label) in Study 3 and that of purely visual elements in the shape of stylized pictures in Study 4, while returning to possible paths of theoretical explanation for the results gained in the general discussion from Sect. 8.2 on.

Second, how can factually correct information deceive consumers? That this may indeed be the case has been demonstrated in several empirical studies (e.g. Roe et al., 1999; Sörqvist et al., 2015; Sundar & Kardes, 2015; Wansink & Chandon, 2006) and can be explained theoretically in terms of misguided assumptions (inferences) that consumers make at their own risk to make communicative sense of what is said explicitly (for further theorizing, see Sects. 8.2–8.4). For example, the claim *no added sugar* may be entirely true, but if a consumer takes it as an indication that the product is sweet enough in itself (which is sometimes the case) whereas facts are that the sweet taste stems mainly from artificial sweeteners (which should then be stated in the ingredients list, but may not be noticed by the consumer), miscommunication will result. We will dig deeper into the cognitive and communicative mechanisms contributing to such misguided

inferences from Sect. 8.2 on, with specific reference to our own test results regarding expected fat content and localness.

As touched upon earlier, current EU legislation and practices place part of the responsibility for preventing such pitfalls on the manufacturer, in particular when it comes to nutrition- and health-related information. Explicit *per se* rules exist for the use of such claims as "reduced x", "light", "sugar free", "high fibre", and others, and for claims suggesting concrete health benefits (for overviews, see DVFA, 2020; European Commission, 2021). However, some diligence is expected on the part of the consumer as well. Thus, a manufacturer can hardly be blamed if some consumer takes "cholesterol free" to (also) mean fat free (cf. Hastak & Mazis, 2011; Roe et al., 1999) or expects organic products to taste better than conventional ones (cf. Sörqvist et al., 2015). This leaves room for an extensive grey zone in which companies and authorities presently navigate on a case-by-case commonsense basis, whereas ordinary consumers' actual responses to the labelling elements of interest are usually not assessed directly.

We will attempt to do so in Studies 1 and 2, focusing on grey-zone scenarios pertaining to low-fat claims. Moreover, in Study 3 we consider whether comparable miscommunications may occur in cases where the labelling element in question is not intended to support particular commercial interests but a widely acknowledged societal agenda such as promoting a healthier diet.

Third, can an immediate link always be assumed to exist between the information that is made available and consumers' subsequent transactional decisions? The UCPD and surrounding legislation and practices have been criticized for treating the (average) consumer as an altogether rational Homo Economicus who will compare all available options and then choose the best path of action, despite the existence of good reasons to question the reach of that assumption (Franck & Purnhagen, 2014; Trzaskowski, 2011). Research into real-life human decision-making thus suggests that people routinely compromise on their rationality under influence of such factors as limitations in time, knowledge, cognitive capacity, and involvement, and instead base their decisions on isolated cues, established habits, stereotype thinking, and spontaneous emotional responses (Kahneman, 2011; Schwartz, 2004; Jones, 1999; see III.1.2ff for further discussion). This has led some authors to suggest that protecting consumers against miscommunication is ultimately a futile enterprise given that they do such a good job misleading themselves (cf. Gidlöf et al., 2013).

However, despite the indisputable portion of truth in the latter argument, at least when it comes to routine- and/or impulse-driven choices (which are a major focus in marketing research due to their vital contribution to sales) it does not stand unchallenged. Thus, it cannot be neglected either that a great many consumers *sometimes* try to be more conscious about their choices with regard to food properties that are particularly important to them, from nutritional value to climate impact. Moreover, some consumers loudly voice their disappointment when they feel that the labelling has led them astray in such respects. This is mirrored not only by recurrent news stories and debates in the mass and social media (one manifestation of this is further pursued in Study 4), but also by a steady flow of consumer complaints to manufacturers, authorities, and self-regulatory bodies.[1] When asked, ordinary consumers furthermore stress the importance of having easy access to reliable product facts, with the product packaging being the primary source (Bosman et al., 2014; Wandel, 1997). Moreover, consumers demonstrably are capable of navigating even in relatively complex information when pursuing set goals such as finding the least unhealthy among "healthier" sweets (FairSpeak, 2014) or choosing dietary supplements to meet specific health-related demands (Kamrath et al., 2019).

On this background, we argue that the scope of situations against which the potential misleadingness of food labelling may be assessed in a meaningful way could be beneficially narrowed down to what we will here call a *preference-conscious choice*. By that we understand a scenario where the consumer is making a conscious effort to accommodate one or more specific preferences acknowledged by himself or herself to have a bearing on the purchase decision at hand, given realistic time constraints and the prior knowledge and experience available to that consumer. This scenario is neither identical to a purely impulse- or routine-driven choice, nor (per definition) to a fully informed one.

To take a simple example: If a consumer has decided to go for less fat or to support local farming and ends up picking a product that contains more fat than the one next to it or one predominantly made of imported ingredients, it makes sense to ask whether the labelling might have played

[1] Examples of relevant national authorities are the Veterinary and Food Administration in Denmark and the Food Standard Agency in the UK. Examples of influential self-regulatory bodies are the European Advertising Standards Alliance in the EU and Ad Standards in Australia.

a part in that outcome. By contrast, if a consumer snatches a product in passing because (s)he liked the fancy packaging design, but is later badly disappointed, it is hardly fair to hold anyone else responsible. Studies 1–3 were especially designed to prime for an increased level of preference consciousness, yet without favouring any specific preferences in advance, whereas Study 4 directly targets a preference for local products, thus replicating one widespread consumer trend on today's food markets.

Fourth and last, who exactly is the average consumer in the specific sense consolidated by Recital (18) of the UCPD (see Sect. 2.1)? Apart from the overall reservations to this character's presumed rationality already mentioned, an additional complication seems to lie in the very wording. While being "well informed" may thus indeed be taken as a relatively stable characteristic of a given individual—although it may, of course, evolve over time and come to include new domains—being "observant" and "circumspect" rather describes a psychological state that a person may or may not be in at a given moment in time. That is, these terms do not (necessarily) correspond to permanent characteristics of that person.

For example, a consumer may be both observant and circumspect when selecting foods to be served to an environmentally conscious person who suffers from multiple food allergies, but less so when grabbing a quick meal on the go. Arguably, the latter two criteria are thus situational rather than inherently personal (see Duivenvoorde, 2015, for a related point) while at the same time being necessary preconditions for performing what was described as a preference-conscious choice above. We will therefore accommodate them in Studies 1–4 in that capacity, that is, as manifest in the participants' way of meeting the specific tasks performed, rather than ascribing any personal traits to them in advance.

As regard informedness, on the other hand, consumers may indeed be categorized as average, above average, or below average, using, for instance, a benchmark questionnaire indicating their level of all-round food- and nutrition-related knowledge. Moreover, such differences demonstrably do correlate with variations in performance on some labelling-related tasks (Selsøe Sørensen et al., 2013; Smith et al., 2014). Likewise, the UCPS's additional criterion of "taking into account social, cultural, and linguistic factors" also covers (relatively) stable characteristics of individuals and groups of individuals across and within national borders with a potential bearing on the "likelihood to be misled".

Notwithstanding, the four studies reported below do not encompass any further subdivisions of the participants along the two dimensions just

mentioned. This was considered an acceptable limitation given that all four studies consistently targeted adult urban Danish consumers, that is, representatives of a population which, as a whole, is relatively well-balanced in these regards (see also Sect. 3.1). For research specifically targeting variations in potential misleadingness across particular lingua-cultural or informational barriers, an integration of such additional variables would, however, definitely be required. The same is true for assessments of the effect of food labelling on particularly vulnerable groups of consumers, such as children, for which the text of Recital (18) of the UCPD states that the benchmark should apply to the average member of that group.

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CHAPTER 3

Measuring Misleadingness: The Preference-Conscious Choice Modelled and Observed

Abstract The chapter addresses the methodological intricacies of investigating consumers' spontaneous responses to product labelling and other forms of immediate product presentations and its impact on actual consumer behaviour. It proposes a new methodological approach as implemented in the so-called ShopTrip test paradigm which simulates natural e-shopping behaviour under relatively controlled conditions, thereby balancing some of the advantages and drawbacks of existing approaches.

Keywords Consumer behaviour • Consumer expectations • Purchasing decisions • Experimental control • Ecological validity • Simulated e-shopping • Real-time behaviour monitoring • Eyetracking • Preference consciousness • Priming • Combined measures • Miscommunication

3.1 Aims and Scope

In Part II, we report four complementary studies replicating such real-life scenarios that have been the subject of explicit concerns about the potential misleadingness of and/or risks of miscommunication posed by concrete food labelling solutions. While modelled on the Danish food market, they mirror comparable scenarios found also in a great many other countries.

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Each study focuses on one or more types of labelling elements that will be referred to here as *Potentially Misleading Element*s or *PME*s (in continuation of Clement et al., 2017). Such a wording does not imply that the elements are misleading per definition, but merely that they have been claimed to have that potential by some actors. In other words, we enter the grey zone mentioned earlier where the specifics of each case and the arguments put forward by the interested parties may lead to different conclusions.

To maximize realism and relevance, the target products were either real-market products (Studies 1 and 4), anonymized versions of such (Study 3), or fictitious products modelled on existing ones (Study 2). It needs emphasis that all products considered were legally sold in Denmark at the time of testing and not subject to any outstanding legal restrictions. The sole reason for including them was to provide realistic illustrations of such categories of labelling solutions that sometimes give rise to opposing judgments regarding their communicative fairness. Hopefully, this will contribute new leads to future debates on these issues, to the benefit of all interested parties. In accordance with this agenda, no products are identified by brand name or depicted in full. Copies of the original stimuli sets can be made available by the research team upon request for impartial research purposes.

The studies are exploratory and observational by nature given that the overarching goal was to replicate and observe, under relatively controlled conditions, such situations that allegedly pose a risk of consumers being misled. While some research questions and predictions were given in advance, we remained open to any additional observations that might complete the picture.

The studies were performed with adult urban Danish consumers randomly recruited in public city areas or among students and non-faculty staff at Copenhagen Business School, that is, relying on so-called homogeneous convenience sampling (cf. Jager et al., 2017), which is a widely used method in both general and marketing-oriented cognitive-behavioural research (e.g. Ares et al., 2013; Clement et al., 2017; Fenko et al., 2018; Pieters & Warlop, 1999). Compared to larger-scale survey-based investigations such as those mentioned in Sect. 2.1, this approach leaves less room for integrating specific demographic and lingua-cultural variables within a single study. However, what is gained in return is a manageable format for simulating and monitoring realistic e-shopping behaviour in sufficient detail to gain statistically valid results for the test populations at

hand. Moreover, some of the findings appear to reflect general or even universal trends in human decision-making, which means that the set-up could be modified and extended for targeting also other demographic and lingua-cultural specifics involving such mechanisms in future work.

3.2 The ShopTrip Set-up: First Overview

Before turning to the individual studies, we present the basic rationale behind the ShopTrip set-up which, with some variations, was applied in all four studies.

3.2.1 Ecological Validity versus Experimental Control

Existing approaches to investigating consumers' spontaneous responses to product labelling and other forms of immediate product presentations vary substantially with regard to both how the response is brought about and how it is monitored.

At one end of both scales, consumers may simply be presented with the products and/or the communicative cues of interest (at the researcher's desk, in a questionnaire, on a screen) and asked how they conceive these stimuli, which expectations they evoke, if the consumers would consider buying the product, and so on (e.g. Ahmed et al., 2004; Cavaliere et al., 2015; Grunert & Dedler, 1985; Laasholdt et al., 2021; Roe et al., 1999; Stancu et al., 2021; Van Trijp & Van der Lans, 2007). The responses may be supplemented by more objective measures such as registration of the respondents' eye movements while examining the stimuli using eyetracking equipment (e.g. Ares et al., 2013; Smith et al., 2014). Such approaches have the benefit of relative simplicity and maintenance of a clear focus on the variables of interest. A major limitation, though, is that consumers' incentives for looking at the stimuli and responding to the questions may differ substantially from those that would determine their actual behaviour in a real-life purchasing situation, limiting the so-called ecological validity of the findings (cf. Schmuckler, 2001).

At the opposite end of both scales, consumers may be directly observed (and/or videotaped, eyetracked, or even have their choices monitored via till receipts) while shopping in real or close-to-real purchasing environments according to their own needs, possibly supplemented by post-shopping interviews (e.g. Chandon et al., 2007; Chynał et al., 2016; Clement et al., 2013; Sigurdsson et al., 2011). Such approaches have the

benefit of a relatively high level of ecological validity, but they are labour-intensive, make it more difficult to predict and control which products and product attributes will be attended to, and subject to other inaccuracies. These also include the limited capability of most present-day non-stationary (mobile) eye-tracking equipment and data analysis software to capture in sufficient detail how consumers distribute their visual attention on the labelling elements found on a single package, in addition to monitoring their overall orientation in the store and on the product shelf (for further discussion on the possibilities and limitation of existing eyetracking methods, see Valtakari et al., 2021; Ooms et al., 2015).

3.2.2 Simulated e-Shopping

The ShopTrip set-up was developed to find a new way of balancing the advantages and drawbacks just addressed. It has at its core a simulated e-shopping environment which, on the one hand, allows consumers to engage in a behaviour comparable to that displayed in an actual purchasing situation, and, on the other hand, allows researchers to control which products will be available "on the shelf" and thus how many and which alternatives consumers will be allowed to consider for any given product category (for a comparable design, see Machín et al., 2018). This makes it possible to settle in advance which labelling elements will constitute the recognizable differences between the products at hand, including the presence/absence of a PME.

Furthermore, the set-up allows a relatively detailed monitoring of the consumer's examination of the products during the decision-making process, even without resorting to eyetracking techniques which were included only in Study 4. Studies 1–3, on the other hand, featured the most interactive version of the set-up which allowed the participants to (a) see bitmaps of the packaging fronts of alternative products within each target category placed next to each other with a price tag underneath ("shelf view") (b) click on any of these products to see an enlarged view, while the alternatives remained visible in a smaller scale to the right ("zoom"), (c) activate a separate display panel with additional product information (ingredients list, nutrition facts, etc.), and (d) to select and buy any product in the category in question at any of these stages. Each of these actions (in terms of number, duration, and sequence) was logged automatically during each trial.

Appendix 1 a–d illustrates the key functionalities just mentioned as implemented in Study 2 (which contained some minor updates of the layout compared to Studies 1 and 3 in terms functionality and realism: see Sects. 5.2 and 6.2. Although eyetracking measures were not used, this set-up was capable of producing some data comparable to those obtainable through eyetracking. In effect, three Areas of Interest (AOIs) could thus be created for each product (full shelf, front of single package, additional product information) and data could be obtained that were roughly analogous to fixation number, duration, and sequence. Moreover, while simulating an e-shopping situation, the above-mentioned operations also allow (cautious) analogies with consumers' behaviour during physical shopping: looking at the shelf, picking up a product to look closer, turning the product around to read more on the back, and putting the product in the basket.

As regards Study 4, an eyetracking component was included to gain more detailed information about the participants' fixations on qualitatively different types of PMEs on the packaging fronts, and on different parts of the detailed product information for the individual products. To ensure a sufficient degree of precision, the interactivity was reduced somewhat compared to Studies 1–3 due to the existence of essential technical challenges with combining extensive interactivity with reliable eyetracking recordings (for further discussion, see Ooms et al., 2015).

What the participants saw were the packaging fronts of two alternative products for each target category placed next to each other within the same visual frame, with a price tag and additional product information shown underneath each of them. We assumed that this simplification would still preserve a sufficient degree of realism considering that consumers do indeed come across comparable layouts in some instances and phases of real-life e-shopping. This overall layout is shown in Appendix 2.

3.2.3 Adding and Assessing Preference Consciousness

As explained earlier, a key consideration behind the present research is that potential misleadingness can only be meaningfully assessed against the background of a preference-conscious choice, that is, one where the consumer made an honest attempt to accommodate certain self-recognized preferences, but failed. To enhance the level of preference consciousness displayed by the participants throughout the shopping trip, we used the instructions given to each participant before initiating the decision-making.

In Studies 1–3, the participants were initially instructed on-screen to imagine that they had taken the task upon them to buy some food and drinks needed for a planned picnic with some friends (with some minor variations of that basic cover story between the studies). The e-shop was presented as a portal especially designed to collect the best offers from different retailers and bring them directly to the buyer (thus leaving an option to realistically include private labels from different retail chains). The participants were told that the shopping list had already been loaded into the system so that they should simply select a product from each category when it appeared on the screen and then proceed to the next category, choosing as they saw fit: "Your friends trust your judgment!" The purpose was to prime the participants for additional preference consciousness (i.e. an expectable desire to be able to justify the choices for others) while not promoting any specific preferences in advance (since people are different and are likely to imagine different types of friends as potential participants in such a picnic).

After completing the shopping trip, the nature of the preferences in fact displayed by each participant for each choice was assessed by showing them the original shelf views once again one by one with the products chosen identified by a green border. For each product, the participants were asked to rate on a nine-point scale how important selected predefined parameters had been to them relative to that particular choice. Appendix 1 e shows the template used throughout Studies 1–3 where the parameters of interest were prices, expected taste, and relative healthiness. Depending on the ratings, relevant follow-up questions could then be asked.

A well-known limitation of such ex-post self-reporting of the motives for one's own behaviour is the conscious mind's limited access to all aspects of the decision-making processes (Pozharliev, Verbeke, & Bagozzi, 2017; Evans, 2008; Wilson & Dunn, 2004; Nisbett & Wilson, 1977). However, compared to the entirely decontextualized questions about preference and likely choices found in many questionnaire- and interview-based investigations (see Sects. 3.2.1 and 2.1), the present set-up offers a more realistic framing and a closer temporal proximity between behaviour and follow-up questions. This contributes to improving the informativeness of the responses relative to the issues of interest although they do, of course, still need to be interpreted with sufficient care. Further considerations along these lines follow under the individual studies and in the general discussion.

As for Study 4, the framing was simpler in that we had decided in advance to prime overtly for one specific decision parameter likely to be considered essential by a substantial number of consumers (and/or to their imaginable friends), namely a preference for local products. The participants were instructed from the outset to "buy Danish and as local as possible", thus eliminating any need for further priming or post-shopping questions.

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PART II

Studies

CHAPTER 4

Study 1: Low-Fat Claims on Real-Market Products

Abstract The chapter reports an experimental study based on the ShopTrip set-up which explores the effect of low-fat claims on consumers' purchasing decisions and post-shopping expectations. The results suggest that the presence of a low-fat claim on the packaging front tends to prompt health-oriented consumers to choose the corresponding product even when the alternative products available on the shelf are equally low or lower in fat according to the declared product facts.

Keywords Low-fat claims • Simulated e-shopping • Real-market products • Real-time purchasing behaviour • Health consciousness • Halo effects • Brand bias • Miscommunication

4.1 Fairness Challenges and Target PMEs

By low-fat claims, we here understand visually highlighted verbal statements placed in the Principal Display Panel (or PCP, cf. Klimchuk & Krasovec, 2013), most commonly equal to the front, of food packages, which convey condensed messages such as "fat free", "fat reduced", "light", "max. 9% fat", "less fat", "30% less fat", and others (with corresponding wordings in other languages).

Although the scientific and public view of fat as a major threat to public health has been challenged and in some respects moderated in recent years

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(Gunnarsson & Elam, 2012; La Berge, 2008; Seid & Rosenbaum, 2019), the use of low-fat claims remains a widely applied marketing tool for targeting health-conscious consumers. These claims have furthermore been widely investigated empirically, both for their contribution to brand loyalty and sales (e.g. Krystallis & Chrysochou, 2011; Küster & Vila, 2017) and for the possible risks of miscommunication and reverse health effects (e.g. Schermel et al., 2016; Wansink & Chandon, 2006).

As indicated earlier, information about nutrition- and health-related food properties is covered by a number of so-called *per se* rules in EU law, some of which apply directly to low-fat claims. This includes "reduced x" and "light" (or words to a similar effect), which presuppose a fat reduction of at least 30%; "low fat", which presupposes a maximal fat content of 3 g fat per 100 g for solids and 1.5 g for liquids; and "fat free", which presupposes a fat content of no more than 0.5 g per 100 g or 100 ml (for further details, see European Commission, 2021). As a general rule, Article 7, 1 (c) of Regulation (EU) No. 1169/2011 furthermore prohibits "suggesting that the food possesses special characteristics when in fact all similar foods possess such characteristics".

However, as also indicated earlier, these rules leave substantial room for negotiation when it comes to concrete labelling solutions in that it may be questioned what exactly counts as similar products, as a relevant basis of comparison, as a description of a single product versus a general brand policy, and so on. Some opposing lines of argument on such issues have eventually been brought before the relevant authorities (for some earlier Danish cases, see Smith et al., 2009; Møgelvang-Hansen, 2010). However, a great many other cases have not been and are currently not being attended to legally, although they do from time to time give rise to public debates and critical media coverage.

For the purpose of Study 1, we decided to take an agnostic stance on these subtleties from the outset and see if we could identify such examples on the current Danish food market (if any) where a product carrying a low-fat claim would have a declared fat content equal to or higher than that of one or more otherwise substitutable products not carrying such a claim. Such examples would appear to entail a risk of miscommunication both according to the basic rationale of the UCPD and the specific rules mentioned above, with no prejudice to what a competent authority might ultimately rule in a particular instance, if heard.

Field research in Danish supermarkets and e-stores revealed a substantial number of such examples. As a final input for Study 1, we selected three

product sets covering three types of mainstream cold-meat products (boiled ham, liver paste, and smoked pork loin) with three alternative products in each set among which one was carrying a low-fat claim. Each of the latter featured a different variant of mainstream low-fat claims: a self-contained statement reading (in Danish) "max. 4.5% fat", a comparative statement reading "30% less fat", and a statement reading "3% fat" while being visually integrated in a product-line logo. These variations gave us a versatile basis for discussing which decoding mechanisms the respective formulations might trigger and what bearing this might have on consumers' choice when expanding on the results gained in Studies 1–4 in the general discussion; see Sects. 8.2, 8.3, 8.4, and 8.5. However, for the test itself we simply treated all of them as (candidates for) Potentially Misleading Elements (PMEs) in order to assess empirically whether their presence affected consumers' spontaneous expectations and purchasing decisions.

4.2 Test Design

The basic research question operationalized by the set-up was whether the presence of a low-fat claim on the packaging could lead some consumers to take a transactional decision that they "would not have taken otherwise" (see Sect. 2.1), thus applying the definition of the UCPD to observable consumer behaviour. We predicted a positive correlation between consumers' choice of a product carrying a low-fat claim and subsequent rating of relative healthiness as an important criterion for that particular choice. That would be groundless in the present cases given that neither the declared fat content nor any other evident differences between the products could motivate such expectations.

Elaborating on this rationale, we furthermore reasoned that if a consumer *both* displayed a substantial interest in healthiness *and* indicated low-fat content as contributing to their expectations about healthiness for a particular choice, but still chose a product that was equal or higher in fat compared to available alternatives, while carrying a low-fat claim, that consumer was likely to have been misled or at least severely (self-)misguided. To test this, we used the virtual e-shopping environment introduced in Sect. 3.2. The participants were allowed to choose freely between three pre-selected products from each of the cold-meat categories addressed and subsequently requested to elaborate on their choices regarding their preferences and expectations by responding to a predefined set of post-shopping questions.

4.2.1 Target Products

For clarity, we will refer to the alternative products in each category as A, B, and C, notwithstanding that their position in the opening shelf display (left, centre, or right) was shifted randomly for each trial.

The A-products were of well-known independent brands and carried a PME in the shape of a low-fat claim on the packaging front. The B-products were also of well-known independent brands but carried no fat-related information on the front. The C-products were discount private label products and carried no fat-related information on the front either. The declared fat content of products B and C was equal to or lower than that of the A-product which could be checked by the participants if so wished by activating the panels with detailed product information copied directly from the original product packages. A- and B-products were set at the same price whereas the C-products were set at a somewhat lower price, ensuring a realistic price span. The same net weight was indicated on the front of all three alternatives in each set, which required minor adjustments for a couple of products achieved through digital image manipulation.

Table 4.1 a-c summarizes the key variables just mentioned for each product set.

While the use of real-market products ensured a maximally realistic choice situation (i.e. a high degree of ecological validity), it excluded a complete isolation of the low-fat claims as independent variables and hence complete experimental control. Thus, some additional differences were bound to exist between the target products in terms of visual style and supplementary textual information. However, we considered this a minor limitation for the present targets given that the differences at hand were all working with rather than against the ones we were interested in.

Thus, two of the A-products carried additional verbal claims (while less visually prominent in terms of size and colour contrast[1]), namely *let* ("light") for the boiled ham product and *lavt fedtindhold* ("low fat content") for the smoked pork loin product. The latter product furthermore featured the claim *et minimum af tilsætningsstoffer* ("a minimum of

[1] A definite assessment of relative visual salience (and, even more so, of the relative visual attractiveness of the A-/B- versus the C-products mentioned later) would, of course, require additional qualification and pre-testing if the focus had been on the effect of these factors in their own right. However, for our present purpose it sufficed that they were not inconsistent with the product properties of primary concern.

Table 4.1 a-c Overview of target product sets for Study 1

	Product A	*Product B*	*Product C*
a. Boiled ham			
Brand	Established brand	Established brand	Discount private label
Low-fat claim	*max 4.5% fedt* ("max 4.5% fat")	None	None
Declared fat content per 100 g	4.5 g	2 g	3.5 g
Net weight	100 g	100 g	100 g
Price	18.95 DKK	18.95 DKK	11.95 DKK
b. Liver paste			
Brand	Established brand	Established brand	Discount private label
Low-fat claim	*30% mindre fedt* ("30% less fat")	None	None
Declared fat content per 100 g	15 g	15 g	14 g
Net weight	400 g	400 g	400 g
Price	15.95 DKK	15.95 DKK	10.95 DKK
c. Smoked pork loin			
Brand	Established brand	Established brand	Discount private label
Low-fat claim	Product-line specific logo with the wording *3% fedt* ("3% fat") visually incorporated	None	None
Declared fat content per 100 g	3 g	3 g	3 g
Net weight	100 g	100 g	100 g
Price	16.95 DKK	16.95 DKK	14.95 DKK

additives") thus presenting an additional sales argument with potential implications for the perceived healthiness. However, the number of declared ingredients qualifying as additives for that product was equal to that declared for the B-product (four in both cases) while the C-product

contained a few more additives.[2] In other words, the A-product did not constitute a better choice in that respect either. Also, there were minor differences in the declared energy (calorie) values which were, however, proportional with the differences in declared fat content for all products. This excluded the emergence of any second thoughts on that account in the mind of weight-loss oriented consumers as could have been the case, say, for sweets or soft drinks which may be low in fat but high in sugar and/or other carbohydrates and hence calories.

As for the B-products, these did not carry any highlighted health-related information on the front at all which were instead dominated by such design elements as appetizing product and serving-suggestion photos and highlighted verbal references to thick slices, delicious taste, etc. Finally, the lower-priced C-products tended to have a more simplistic and "modest" design than both the A- and the B-products (though any definite judgements on that account would, of course, come down to a subjective personal evaluation considering also socio-cultural factors).

In sum, each set contained a packaging front that would seem to be tailored for a health-focused, a taste-focused, and a budget-focused buyer, respectively. This provided us with an excellent basis for assessing consumers' spontaneous responses to such influences, including the degree to which they would match them against the more detailed product information readily available "one click away".

4.2.2 Fillers/Distracters

Before and interchangeably with the three target sets, the participants were presented with nine other sets of food products with three products in each. Six of these sets served as fillers/distracters only, whereas three served as targets for a different inquiry conducted in parallel with the present while being suitable as additional fillers/distracters for the present purpose. These products all displayed substantial differences in terms of food category, brands, featured product properties, and price spans. The purpose was to obscure our specific interest in low-fat claims on cold-meat products and activate a wide range of potential decision-making criteria.

[2] To be exact, for the A-product the additives in question were listed by full name and not by E-numbers, whereas E-numbers were used for the two competing products. While this might well have contributed to a more "natural" impression of the A-product, it did not alter the declared facts.

4.2.3 Participants

The participants were 100 adult urban Danish-speaking consumers (49 female, 51 male; age range 18–76 years, mean age 35.2 years) randomly recruited in a public area located between the main building of Copenhagen Business School and a large shopping mall. All participants had normal or corrected-to-normal vision. Data for one participant were lost due to a computer error. The participants were reimbursed with either a bottle of wine, a box of chocolates, or a pack of coffee at their own choice with a monetary value of about 30–50 DKK (= approx. €4–7).

4.2.4 Apparatus and Procedure

The participants were seated in front of a computer monitor in separate boxes. The aspect ratio was 4:3, and the resolution was 1024 × 768 pixels. The viewing distance was approximately 60 cm. Responses were entered using a keyboard and a mouse. The experiment was run on five Microsoft Windows compatible desktop computers. The presentation of stimuli and the recording of responses were controlled by E-Prime software with inline scripts written in E-Basic (Psychology Software Testing, Pittsburgh, PA).

The participants were first presented with the cover story introduced in Sect. 3.2.3 about shopping for a picnic with friends. After a short practice session, the target and fillers/distracters sets were presented in random order. For each new triad, the name of the food category was briefly shown, followed by a fixation cross and then an opening display: the shelf view. The participants could activate all of the functions described in Sect. 3.2.2 (zoom, more info, buy) by moving the cursor and clicking on virtual buttons and activated areas; all actions were logged automatically.

After the virtual e-shopping trip, the participants were confronted with their choices again one by one in the shape of shelf views with the chosen product marked by a green border. For each display, they were asked to use three nine-point scales placed underneath the shelf view for indicating how much importance they had placed on each of the following parameters (see also Appendix 1 e):

- Price;
- expected taste;
- relative healthiness.

Importantly, in an instruction display preceding the actual products and scales, the latter parameter was explained as meaning "a bit more healthy (or a bit less unhealthy) than the other two products" to focus the attention on the three alternatives at hand and not the food category as such compared to other categories encountered during the shopping trip. The scales ranged from 1 ("Not important") to 9 ("Crucial"). The participants were also given an "Other" option as well as an opportunity to add their own comments in the shape of free text responses via pop-up input boxes.

To gain additional information on the possible effect of low-fat claims, we wanted to single out those purchasing decisions where the participant had indicated a substantial interest in relative healthiness as compared to taste or price. Operationally, we equated this to either of the following conditions being satisfied:

Condition 1: health > price AND health > taste
Condition 2: health > 5 AND health >= price AND health >= taste

Participants whose rating of one or more of their own choices satisfied the above conditions (registered automatically) were presented with the shelf view(s) of the corresponding product set(s) a second time. This time they were asked to indicate which factors had been essential to them when rating the selected product as healthier than the alternatives. Seven pre-defined options were presented, followed by an "Other" option allowing free text responses via pop-up input boxes. The participants were instructed to choose one or more of these options. The pre-defined options corresponded to food properties that are widely societally recognized and recommended as contributing to a healthier diet, one of them being lower fat content. The options can be seen in Fig. 4.9 in Sect. 3.2, listed by received score.

Both the initial and the follow-up questions (for choices that qualified for the latter) were asked for the totality of products presented during the shopping trip, including fillers/distracters, to divert the attention away from our current focus on low-fat claims and activate a dynamic interplay between a variety of potential decision-making criteria.

4.3 Results and Discussion

Figure 4.1 summarizes the distribution of choices between A-, B-, and C-products for the three target categories taken together while Figs. 4.2, 4.3, 4.4 specify the results for each category. Overall, the most preferred (49%) were the private-label C-products featuring a relatively lower price. However, taken together the higher (but identically) priced A-and B-products still accounted for a marginal majority of the virtual sales (51%). Among these, the products carrying a low-fat claim were chosen more often than those that did not for two of the three categories (33% vs. 18% in total).

What remained to be sorted out was whether this overall distribution was a merely a product of many random influences or a connection could be established between particular consumer preference and the likeliness of particular choices.

Figure 4.5 shows the relationship between the participants' choice of A-, B-, and C-products and their subsequent ratings of the relative importance of price, taste, and relative healthiness for the respective choices for the three categories taken together. Figures 4.6, 4.7, 4.8 specify the results for each category.

Given that the participants' choice of product was a dependent variable (as opposed to an independent variable that we manipulated directly) and given that the rating questions were asked after the fact, we submitted the corresponding data to a correlational analysis and calculated the point biserial correlation coefficient.

The strongest correlations were obtained for price. Those participants who rated price most highly tended to choose the category C-products for

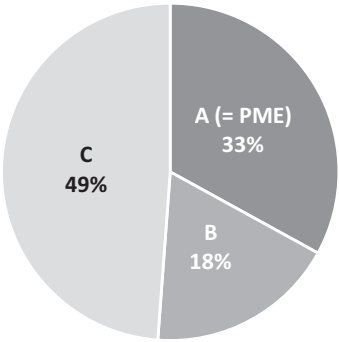


Fig. 4.1 Choices for all three target product categories

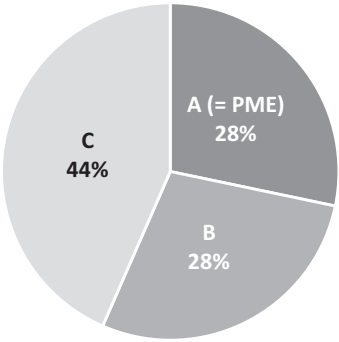


Fig. 4.2 Choices for boiled ham

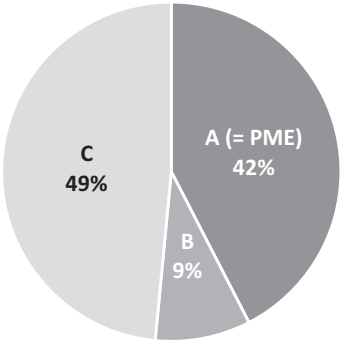


Fig. 4.3 Choices for liver paste

all three target products: boiled ham, $r(97) = -0.679$, $p < 0.001$; liver paste, $r(97) = -0.476$, $p < 0.001$; and smoked pork loin, $r(97) = -0.676$, $p < 0.001$. For both expected taste and relative healthiness, the results were significant for two out of the three product categories. Those participants who rated expected taste most highly tended to choose the category B-products for the target products boiled ham, $r(97) = -0.385$, $p < 0.001$, and smoked pork loin, $r(97) = -0.294$, $p < 0.01$, but not for the target product liver paste, $r(97) = -0.188$, $p = 0.062$. Similarly, those participants who rated relative healthiness most highly tended to choose the category A-products for the target products smoked pork loin, $r(97) = -0.327$, $p < 0.01$, and boiled ham, $r(97) = -0.323$, $p < 0.01$, but not for the target product liver paste, $r(97) = -0.030$, $p = 0.768$.

The results thus demonstrate a tangible mismatch between the consumers' expectations and factual product properties as regards relative healthiness for two of the A-products. Opting for C-products when prioritizing price and for B-products when prioritizing taste makes immediate

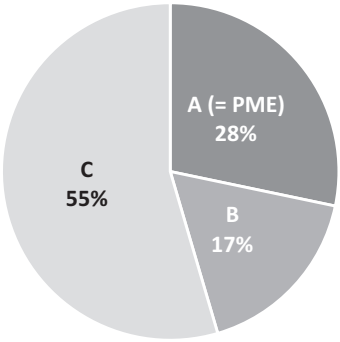
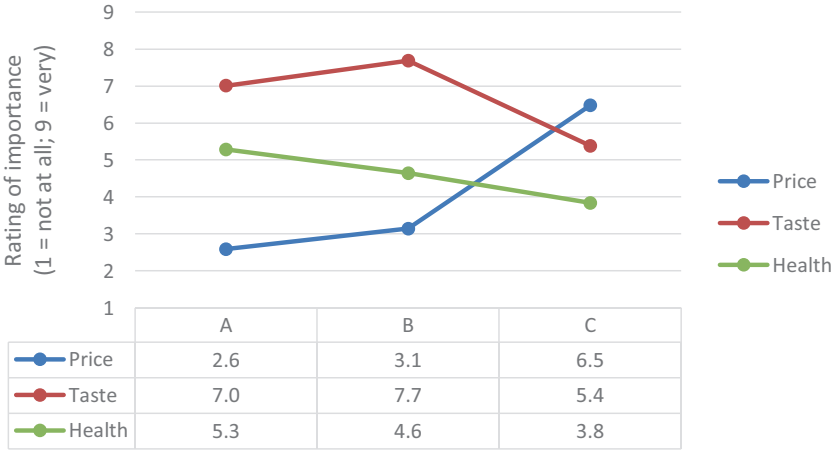


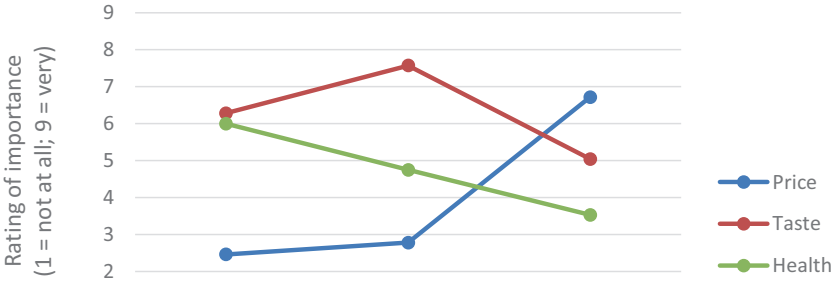
Fig. 4.4 Choices for smoked pork loin



	A	B	C
Price	2.6	3.1	6.5
Taste	7.0	7.7	5.4
Health	5.3	4.6	3.8

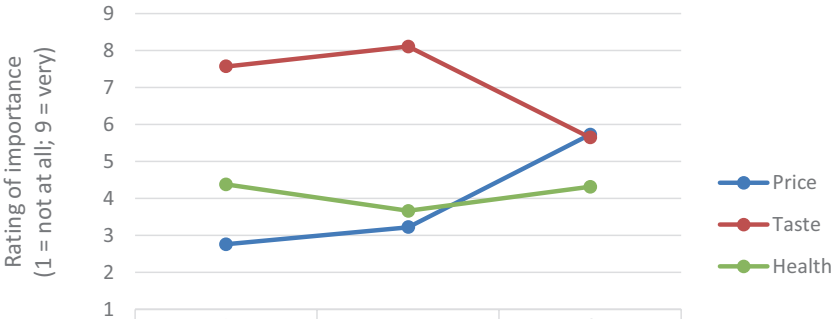
Fig. 4.5 Mean ratings for all three target products

sense; the former linkage is justified per definition and the latter is in line with the dominance of taste-related cues in the front-of-package presentation with no competing factors being highlighted (although a definite judgement about taste would, of course, require tasting the product afterwards or remembering the taste from earlier sensory experiences). By contrast, there is not much there to support a preference for A-products if one prioritizes relative healthiness. That is, choosing these products does *not* offer the consumers any obvious benefits in terms of healthiness compared to the alternatives which might be established by comparing the product



	A	B	C
Price	2.5	2.8	6.7
Taste	6.3	7.6	5.0
Health	6.0	4.8	3.5

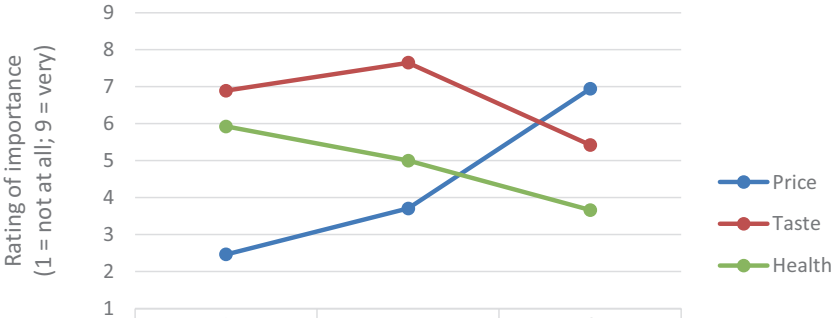
Fig. 4.6 Mean ratings for boiled ham



	A	B	C
Price	2.8	3.2	5.7
Taste	7.6	8.1	5.6
Health	4.4	3.7	4.3

Fig. 4.7 Mean ratings for liver paste

information available "one click away". These findings thus contribute essential leads to the continued discussion of the sense-making mechanisms in play and the possible commercial, societal, and regulatory implications thereof from Sect. 8.1 on.



	A	B	C
Price	2.5	3.7	6.9
Taste	6.9	7.6	5.4
Health	5.9	5.0	3.7

Fig. 4.8 Mean ratings for smoked pork loin

The absence of a corresponding result for the liver-paste products is also noteworthy and might as such be taken as an indication that the low-fat claim did not have a clear effect in this case. However, the possible role of so-called brand bias must also be take into account, that is, the circumstance that knowing and having a pre-established liking (or disliking) of a brand may settle the matter in advance, regardless of other factors (cf. Tasci et al., 2007, and Blair & Innis, 1996, for relevant findings from other domains). The A-product selected by us for the test was thus a highly popular, to some perhaps even "iconic", brand of liver paste on the Danish market. This may have led some consumers to prefer it for that reason alone, low-fat claims or not. This finds further support in the free-text comments which included such statements as "that's the one I always buy". We will return to this methodological issue in Study 2 where the occurrence of brand bias was excluded by using fictitious products, while at some expense of ecological validity.

As indicated earlier, those consumers who displayed a pronounced interest in relative healthiness for one or more of their choices (satisfying the conditions indicated in Sect. 4.2.4) were subsequently asked to specify which factors they more specifically saw as contributing to the relative healthiness of the products chosen. This procedure was applied to all "qualified" choices, including those for fillers/distracters, and regardless

of whether the consumer had chosen a product carrying a PME or not, thus excluding any thematic biases from the products and choices asked about. However, the ultimate purpose was to single out those cases where the consumer had displayed a pronounced self-declared interest in relative healthiness *and* chosen an A-product to see how these consumers would be motivating these choices.

Out of the 297 (99 x 3) choices registered for the three target sets, 36 choices (12%) met these criteria. The factor(s) ticked by the corresponding subset of participants are shown in Fig. 4.9 as percentages of the total number of responses. The most frequently chosen option was lower fat content (64%) followed by better quality of raw products (53%), and fewer additives (42%). None of these expectations find explicit support in the available product information considered in its totality.

For twenty-three choices (seven for the boiled ham, ten for the liver paste, and six for the smoked pork loin), the consumers had not only displayed a pronounced interest in relative healthiness *and* chosen a product carrying a PME, but also indicated low fat content as a reason for that choice. Following the rationale presented in Sect. 4.2, these participants thus qualify as having taken a transactional decision that they would "not have taken otherwise". Whether this also qualifies them as being misled or merely as utterly (self-)misguided will be further discussed from Sect. 8.1 on. It also deserves mention that the liver-paste products account for the largest number of these cases (with low fat ticked for ten out of ten of

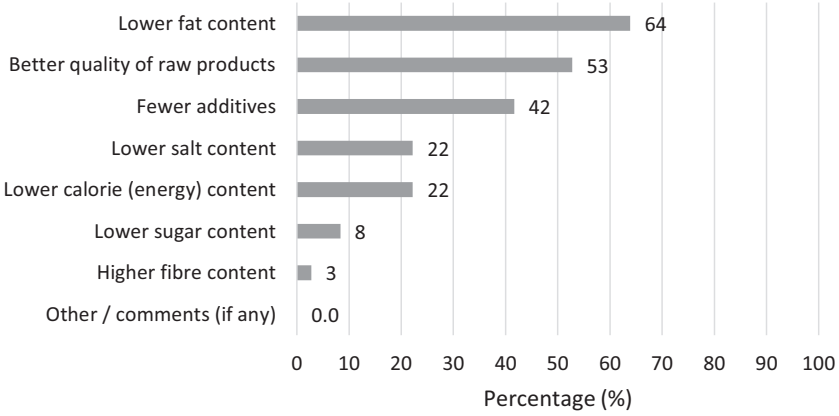


Fig. 4.9 Rated importance of health factors

the pronouncedly health-oriented choices), despite the inconclusive results on a possible correlation between rating of relative healthiness and choice of the A-product in that category for the participants taken as a whole.

An often heard argument from the food industry in grey-zone cases like the present is that the problem is not misleading labelling, but inattentive consumers who do not read the full labelling information. To keep a door open to that line of argument, it should be noted that only in three out of the twenty-three cases considered here (13%) did the consumer activate the panels with detailed product information for the product chosen and for at least one alternative product. This means that in the rest of the cases, the consumers had no chance of knowing that they had not made a better choice as far as fat content is concerned. In turn, the consumers who did check do not seem to have utilized the available information in full. This is particularly noteworthy considering that during the shopping trip as a whole, the consumers displayed more engagement in scrutinizing available product facts than could be expected according to the mainstream marketing literature, as further substantiated below. A possible explanation would be that the consumers felt less need to do so in the present cases due to the very fact that a PME was already present on the packaging front (see Wansink & Chandon, 2006, for a related point). For example, in a free-text comment one participant mentioned that a low fat content was highlighted on the products chosen and that she (therefore?) did not check the fat content for the equally priced alternative product.

However, any further discussion on whether a clear line can be drawn between being misled by the labelling and self-induced misguidance must wait until the general discussion in Part III.

Another issue that deserves brief comment is why low fat content was *not* ticked as a reason for the health-oriented choices in 36% of the cases concerned, given that this health-related property was highlighted by a PME. A possible explanation may lie in the psychological phenomenon known as halo effects, in casu: health halos (cf. Chandon & Wansink, 2007; Sundar & Kardes, 2015). Thus, it is well documented that consumers sometimes subconsciously generalize specific health messages into a more vague idea of "something" about the food being more healthy and settle for that as a basis for choice. Indeed, for a product such as the smoked pork loin, many Danish consumers are likely to know from the media, health recommendations, etc. that this is a rather lean sort of meat per definition so that ticking "lower fat" as a differentiating criterion

might make them feel a bit foolish, once subsequently asked. But the PME may still have caused them to experience a vague idea of additional healthiness in the moment of choice (in line with their overall preferences) and choose the product on that basis. In the concrete case, the additional claim about fewer additives of the front (see Sect. 4.2.1) may also have helped along, while being just as unjustified compared to the alternatives at hand as the low-fat claim.

The total data set furthermore gave us some indications of whether our cover story about a picnic trip with friends succeeded in priming the participants to display enhanced preference consciousness. It is a widespread observation in the marketing literature that during routine shopping, customers spend only a few seconds looking at each product and hardly ever turn it around to read more information on the back (e.g. Clement, 2007; Fasolo et al., 2009; Hoyer, 1984; Pieters & Warlop, 1999). However, during the present shopping trip—considering, for this purpose, the decision-making sequences for both targets and fillers/distractors—the participants spent 10.6 seconds on average looking at the shelf display and 21.0 seconds on average on the entire transaction, including the zoom, product details, and buy displays. Moreover, the participants zoomed the products 1.16 times on average and activated the display with detailed product information ("turning" the products) 0.63 times on average. In short, the participants were not nearly as superficial about their decision-making as the mainstream marketing literature tends to suggest.

Of course, part of the explanation may lie in the well-documented phenomenon known as social desirability bias, that is, people's tendency to try to do better than usually when participating in an experiment (McCambridge, De Bruin, & Witton, 2012; Fisher, 1993; Orne, 1962). However, an element of preference consciousness was definitely present in its own right as well which is particularly evident for the health-conscious consumers (meeting the conditions given in II.1.2.4). When considering the virtual shopping trip as a whole, these consumers tended to check product details more frequently and for longer durations ($r = 0.213$, $p < 0.05$; $r = 0.241$, $p < 0.05$) and furthermore displayed a slight tendency to zoom the packages more frequently and for longer durations ($r = 0.130$, $p = 0.201$; $r = 0.176$, $p < 0.10$). The seemingly ironic circumstance that the very same consumers became less careful when encountering a product carrying a PME was already addressed above and will be further scrutinized from Sect. 8.1 on. Another, while less conclusive, indication that our cover story did exert a tangible influence on the participants'

reasoning was the explicit question asked by some of them before starting the test: They were keen to ensure that they had understood the scenario correctly, asking whether there were any restrictions as to what kind of friends they could imagine, if there were any budget limits, and so on.

Still, some support was also found for the old marketing wisdom that "what you see is what you buy", perhaps driven by the less engaged among the participants. On average, the participants zoomed the chosen product more frequently than the two rejected products (0.53 vs. 0.32) and they also turned the chosen product more frequently than the rejected ones (0.26 vs. 0.19). We will return to the implications of these observations for operationalizing the legal notion of potentially misleading labelling and the formulation of best practices for fairness-minded food manufacturers and retailers in Part III.

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CHAPTER 5

Study 2: Low-fat Claims on Fictitious Products

Abstract The chapter reports a follow-up study which replicates the same basic research questions and set-up as in Study 1 while using fictitious products instead of real-market products in a between-group design to eliminate any confounding variables such as brand bias. Even firmer evidence was thereby provided for the observation that the presence of a low-fat claim on the packaging front tends to prompt health-oriented consumers to choose the corresponding product even when the alternative products available on the shelf are equally low or lower in fat according to the declared product facts.

Keywords Low-fat claims • Simulated e-shopping • Fictitious products • Real-time purchasing behaviour • Health consciousness • Halo effects • Miscommunication

5.1 Fairness Challenges and Target PMEs

This follow-up study addressed the same fairness challenges and types of PMEs as Study 1: the possibility of low-fat claims interfering with purchasing decisions in such instances where the product carrying the claim is no lower in fat than the alternatives available. However, this time we wanted to exclude any possibility of brand bias (see Sect. 4.3) by using fictitious

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products and by presenting otherwise identical mock-ups of packaging fronts with or without a PME to different groups of participant in a between-groups design.

5.2 Test Design

Apart from using fictitious product stimuli presented with and without PME in a between-groups design, the set-up was largely similar to that used in Study 1. However, some adjustments were made to the layout and functionalities of the virtual e-shop as further described in Sect. 5.2.4.

5.2.1 Target Products

Three sets of target stimuli were created covering three types of mainstream cold-meat products with three products in each set. The products were modelled over real-market products as regards product names and declared product facts. However, the packaging fronts were created through digital image manipulation, combining visual and verbal elements from a variety of sources, including brand elements from actual products not widely sold in Denmark. For each set, two of the products were designed to resemble high(er)-end brands (corresponding to the A- and B-products in Study 1) and one was designed to resemble a less prominent budget brand (corresponding to the C-product in Study 1). The two former products were set at the same price and the latter at a somewhat lower price throughout. The PMEs in the shape of low-fat claims were integrated on the front of either of the two high(er)-end products, reversely for the two participant groups. The detailed product descriptions were likewise reversed so that the product that did *not* carry a PME in each case had a declared fat content that was slightly lower than that declared for the one that did. For the C-product, the declared fat content was also slightly lower throughout.

Another adjustment compared to Study 1 was that the liver paste products were replaced by chicken salads because this category displays a greater variation of real-market brands. With 3–4 brands of liver paste having a very dominant position on the Danish market, we gathered that their collective absence might render the task less convincing. Furthermore, for the smoked pork loin products we abstained from reproducing the visual integration of a low-fat claim in a product-line specific logo featured by the real-market A-product from Study 1. We gathered that such a

prominent design feature might compromise plausibility for a product/brand not actually existing on the Danish market. Instead, we included the claim *lavt fedtindhold!* "low fat content!" which was already present on the front of the original A-product in Study 1 in a less visually prominent position (see Study 1). Also, the overall price level was slightly reduced compared to Study 1 to offer even stronger support for the "best-offer-brought-directly-to-you" cover story in view of a still harder price competition on cold-meat products on the Danish market. A final minor difference is that the boiled ham products were presented under the name *sandwichskinke* (lit. "sandwich ham") to keep in line with the original products used for modelling these targets. The latter name is widely used in Denmark for the same type of ham as that also known as *kogt skinke* ("boiled ham"), especially when it comes in square sandwich-sized slices.

Table 5.1 a-c summarizes the key variables for each product set. What differentiated the A- and the B-products throughout were thus the detailed product descriptions and the presence/absence of a PME whereas the remaining features of the packaging fronts were reversed between the A- and the B-products for the two groups of participants.

5.2.2 Fillers/Distracters

The target product sets were preceded by and presented interchangeably with other products serving as fillers/distracters. These were all real-market brands displaying substantial variations in terms of food category, brands, featured product properties, and price spans.

5.2.3 Participants

The participants were eighty adult urban Danish-speaking consumers (46 female, 34 male; age range 20–65 years; mean age 26.9 years) randomly recruited among non-academic (managerial, administrative, technical) staff members and students at the Dalgas Have campus, Copenhagen Business School. All participants had normal or corrected-to-normal vision. The participants were reimbursed with a cinema ticket with a monetary value of 80 DKK (= approx. €11) for participating in the experiment. The participants were randomly assigned to two groups of equal size (40 participants in each). Both groups saw the same stimuli sets apart from the alternations in the placement of PMEs described above.

Table 5.1 a-c Overview of target product sets for Study 2

	Product A (Packaging front alternating with B)	*Product B (Packaging front alternating with A)*	*Product C*
a. Sandwich ham			
Brand	Fictitious brand	Fictitious brand	Fictitious brand (budget style)
Low-fat claim	*max 4,5% fedt* ("max. 4.5% fat")	None	None
Declared fat content (per 100 g)	4.5 g	2 g	3.5 g
Net weight	100 g	100 g	100 g
Price	11.95 DKK	11.95 DKK	9.95 DKK
b. Chicken salad			
Brand	Fictitious brand	Fictitious brand	Fictitious brand (budget style)
Low-fat claim	*30% mindre fedt* ("30% less fat")	None	None
Declared fat content (per 100 g)	19 g	17.4 g	18 g
Net weight	175 g	175 g	175 g
Price	17 DKK	17 DKK	12.95 DKK
c. Smoked pork loin			
Brand	Fictitious brand	Fictitious brand	Fictitious brand (budget style)
Low-fat claim	*Lavt fedtindhold!* ("Low fat content!")	None	None
Declared fat content (per 100 g)	4 g	2 g	3.5 g
Net weight	100 g	100 g	100 g
Price	11.95 DKK	11.95 DKK	9.95 DKK

5.2.4 Apparatus and Procedure

Except for the stimuli sets used and the between-group design, the procedure was largely identical to that in Study 1. However, some adjustments were made to the layout of the virtual e-shop to further enhance realism and functionality. This includes replacing the (Danish equivalents of) the wording "Buy" with "Add to cart" for the button indicating a purchasing decision, and presenting the detailed product information as a drop-down panel next to the enlarged product photo in the "zoom" display rather

than in a separate display copied directly from the original packages as in Study 1. In turn, this required some minor adjustments of relative sizes which did however not compromise readability. The post-shopping questions and the criteria for selecting which questions would be asked to which participants were similar to those in Study 1.

5.3 Results and Discussion

Figure 5.1 summarizes the distribution of choices between A-, B-, and C-products for the three target categories taken together while Figs. 5.2, 5.3, 5.4 specify the results for each category. Compared to Study 1, the overall distribution is somewhat more even as could also be expected considering the exclusion of any pre-established product preferences. The cheaper private-label C-products remained the single most preferred (38%), followed by the B-products not carrying a PME (31%) and the A-products carrying a PME (31%), yet with some variation between the product categories.

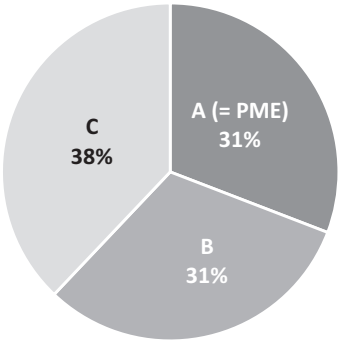


Fig. 5.1 Choices for all three target product categories

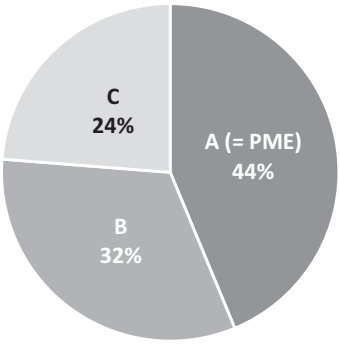


Fig. 5.2 Choices for sandwich ham

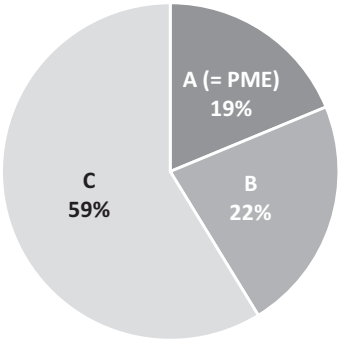


Fig. 5.3 Choices for chicken salad

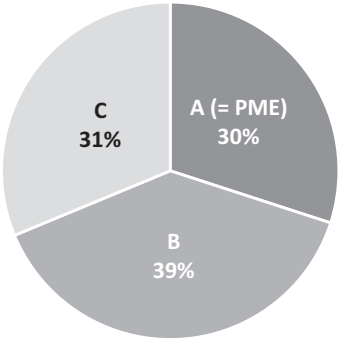
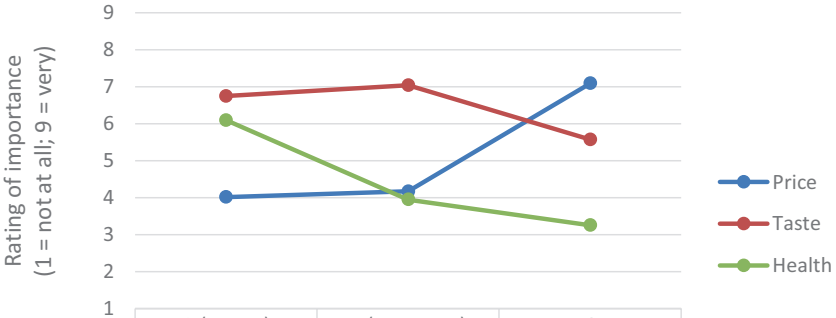


Fig. 5.4 Choices for smoked pork loin

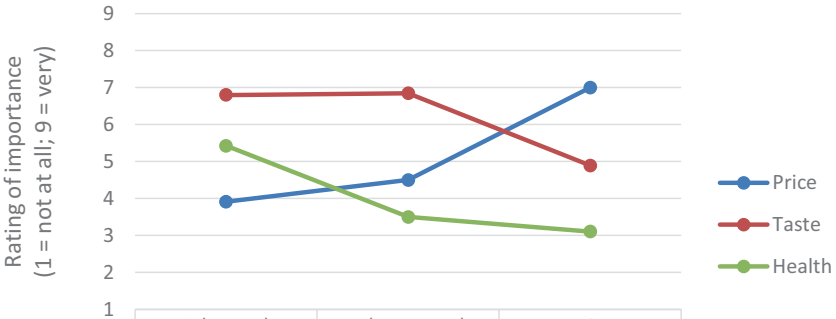
Our key concern remained whether there would be a significant relationship between the participants' choice of A-, B-, and C-products and their subsequent ratings of the relative importance of price, taste, and relative healthiness, respectively. Figure 5.5 shows the relationships established for the three categories taken together, and Figs. 5.6, 5.7, 5.8 specify the results for each category.

Those participants who rated price most highly tended to choose the category C-products for all three target products: smoked pork loin, $r(78) = -0.597$, $p < 0.001$; chicken salad, $r(78) = -0.557$, $p < 0.001$, and sandwich ham, $r(78) = -0.452$, $p < 0.001$. Those participants who rated expected taste most highly tended to choose the category B-products for the target product smoked pork loin, $r(78) = -0.295$, $p < 0.01$, but not for the target products chicken salad and sandwich ham, $ps > 0.05$. Those participants who rated relative healthiness most highly tended to choose the category A-products for all three target product sets: smoked pork loin, $r(78) = -0.506$, $p < 0.001$; chicken salad, $r(78) = -0.520$, $p < 0.001$; and sandwich ham, $r(78) = -0.424$, $p < 0.001$.



	A (= PME)	B (= no PME)	C
Price	4.0	4.2	7.1
Taste	6.7	7.0	5.6
Health	6.1	3.9	3.3

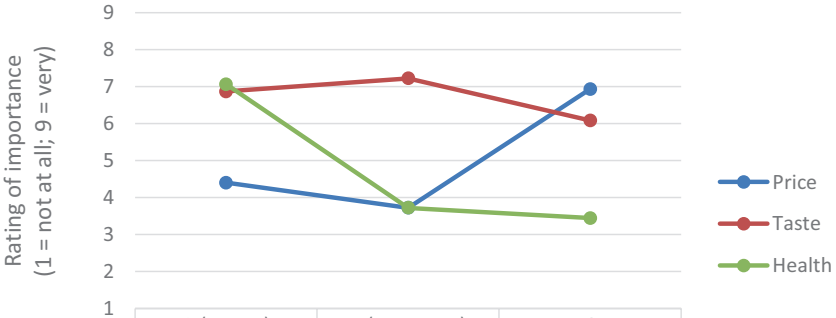
Fig. 5.5 Mean ratings for all three target products



	A (= PME)	B (= no PME)	C
Price	3.9	4.5	7.0
Taste	6.8	6.8	4.9
Health	5.4	3.5	3.1

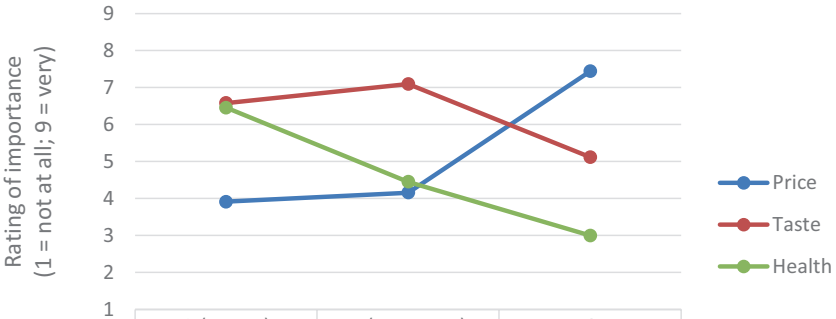
Fig. 5.6 Mean ratings for sandwich ham

The results thus demonstrate a clear connection between prioritizing relative healthiness and choosing the A-product carrying a low-fat claim. In the present case, the positive correlation can neither be explained by the detailed product information available for the respective products (which would contradict such a choice), nor by any characteristics of the packaging-front design of the A-product apart from the low-fat claim



	A (= PME)	B (= no PME)	C
Price	4.4	3.7	6.9
Taste	6.9	7.2	6.1
Health	7.1	3.7	3.4

Fig. 5.7 Mean ratings for chicken salad



	A (= PME)	B (= no PME)	C
Price	3.9	4.2	7.4
Taste	6.6	7.1	5.1
Health	6.5	4.5	3.0

Fig. 5.8 Mean ratings for smoked pork loin

itself. Contrary to Study 1, in the present study everything else was thus switched between the A-product and the B-product for the two subgroups of participants.

In turn, the correlation between prioritizing price and choosing the C-product is amply justified by the plain circumstance that the C-products

were somewhat cheaper than the alternatives. The less conclusive results on a possible correlation between prioritizing taste and choosing the B-product, on the other hand, can be seen as an expectable consequence of the change of set-up compared to Study 1. Since all other labelling details apart from the PMEs were shifted between the A- and the B-products for the respective participant groups, whatever anticipations they might jointly evoke with regard to taste could be expected to even out each other.

It is therefore indeed somewhat surprising that a significant connection between taste-orientation and choosing the B-product could nevertheless be established for the smoked pork loin with a trend going in the same direction for the chicken salad. A possible explanation might lie in the very presence of a health-related message in the shape of a low-fat claim on the competing A-product. Maybe some taste-oriented consumers willing to pay a higher price preferred to opt for the "real thing" rather than pay extra for undesired health-motivated recipe modifications. Whatever the explanation—and more importantly to our present research focus—the capability of low-fat claims to elicit consumer responses not consistent with situationally available facts was clearly supported.

Like in Study 1, those consumers who displayed a pronounced interest in relative healthiness for one or more of their choices (satisfying the conditions indicated in Sect. 4.2.4) were subsequently asked to specify which factors they more specifically saw as contributing to the relative healthiness of the products chosen. Out of the 240 (80 x 3) choices registered for the three target sets, fifty-three choices (22%) met these criteria and in thirty-seven (70%) of those did the choice fall on the A-product.

Figure 5.9 shows the factor(s) ticked by the relevant subset of consumers when further motivating their choices. The most frequently chosen option was lower fat content (87%) followed by better quality of raw products (62%), and fewer additives (49%). None of these expectations find explicit support in the available product information when considered as a whole. Moreover, while the expectation of lower fat content may be attributed to the presence of a low-fat claim, the remaining expectations can only be explained in terms of a more generalized health-halo effects triggered by it, or, stated more plainly, as a result of wishful thinking (see also Sect. 4.3).

For a total of thirty-two choices (eleven for the sandwich ham, nine for the chicken salad, and twelve for the smoked pork loin), the consumers thus had not only displayed a pronounced interest in relative healthiness *and* chosen a product carrying a PME, but also mentioned low fat content as the predominant reason for that choice. This qualifies them as having taken a

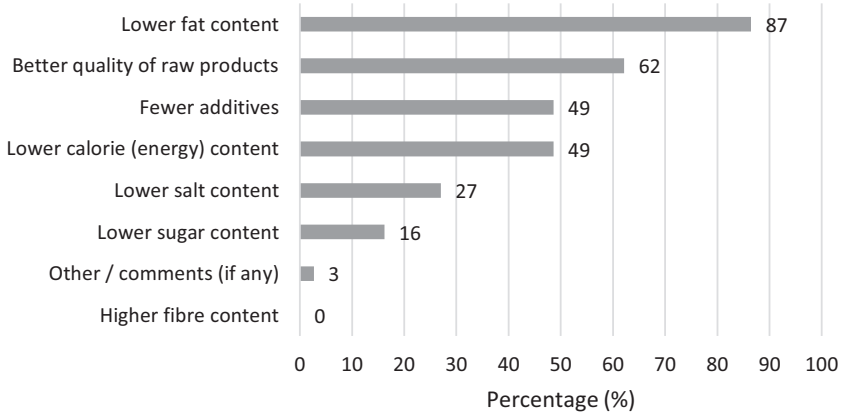


Fig. 5.9 Rated importance of health factors

transactional decision that they would "not have taken otherwise" according to the rationale presented in Sect. 4.2. Whether this necessarily means that they have been misled, will be further discussed Sect. 8.1 on. There we will also address the essential observation that, in line with what was observed in Study 1, only in four out of the thirty-two cases just considered (13%) did the consumer check the detailed product information for the product chosen and at least one alternative product, thus gaining a due basis for comparison. Possible explanations for this circumstance have already been discussed in further detail in Sect. 4.3, focusing on Study 1.

For now, it suffices to conclude that the trends observed in Study 1 also hold true when controlling for the confounding variables inevitably accompanying the use of real-market target products, including brand bias.

Notably, this also includes the observation that, for the shopping trip as a whole, the participants tended to be more elaborate about their choices than usually assumed in the mainstream marketing literature. On average, the participants spent 10.1 seconds looking at the shelf display and 21.2 seconds on the entire transaction (including zooms, checking the detailed product information, and operating the buy displays). Within these time spans, the participants zoomed the products 1.65 times on average and activated the displays with detailed product information 0.88 times on average. All the same, as just mentioned, those who cared most about health nevertheless appear to have overlooked essential information in precisely that regard when it was most needed. We will return to possible psychological explanations for this paradox in Sects. 8.1–8.5.

CHAPTER 6

Study 3: What's behind the Keyhole

Abstract The chapter reports an experimental study based on the ShopTrip set-up which explores the effect of the Nordic Keyhole nutrition label on consumers' purchasing decisions and post-shopping expectations. The results indicate that the presence of the Nordic Keyhole label on the packaging front tends to prompt health-oriented consumers to choose the corresponding product even in such cases where the alternative products available on the shelf are equally consistent with the Keyhole criteria. Moreover, the reasons subsequently stated by these consumers for expecting the Keyhole product to be healthier were for the most part inconsistent with both the declared product facts and the exact Keyhole criteria in force for the product categories in question.

Keywords Nordic Keyhole nutrition label • Simulated e-shopping • Anonymized real-market products • Real-time purchasing behaviour • Health consciousness • Halo effects • Unsubstantiated competitive advantage • Miscommunication

6.1 Fairness Challenges and (Accidental?) PMEs

Apart from overtly commercial messages, the packaging fronts of many present-day food products carry verbo-visual symbols serving to indicate that the product meets certain standards set by (more or less) independent

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bodies regarding such widely acknowledged societal concerns as a healthier diet, organic farming, allergy safeness, animal welfare, fair trade, recyclability, CO_2 reduction, and so on (cf. DCC, 2019; Hodgkins et al., 2012; Lang, 2016). These so-called signpost labels typically recur on products of many different brands in the relevant food categories, including otherwise competing products. The circumstance that visually similar labels are sometime launched by individual companies will be taken up in Sects. 9.3 and Chap. 10.

Despite the emphasis on guidance rather than sales promotion, it is widely acknowledged that consumers do not always fully recognize what such labels stand for and that this may lead them to expect virtues of the product carrying them that the product does not have and that do not follow from the explicit criteria behind the label either (e.g. Andrews et al., 2014; Laasholdt et al., 2021; Lobstein & Davies, 2009; Sörqvist et al., 2015; Sundar & Kardes, 2015). To further qualify the discussion on whether a line can be drawn between misleading labelling and self-induced misguidance, in Study 3 we applied the basic set-up and rationale from Study 1 (as taken further in Study 2) to consumers' real-time decision-making involving the Nordic Keyhole Label.

The Nordic Keyhole labelling system was introduced in Denmark in 2009 as a means of helping consumers making healthier choices across a wide array of food and drink categories (NCM, 2010). The label itself is shaped as a stylized green keyhole (alternatively black or white) with no additional verbal or visual cues explaining the underling agenda. However, after more than a decade of repeated public campaigns and extensive media coverage, the label is one of the most familiar to Danish consumers with 93% recognizing it and 68% declaring to be confident in what it stands for in 2019 (DCC, 2019: 8-9).

While the overall agenda may be easy to grasp, the exact conditions for using the label are rather complex and laid down in full only in the underlying body of legislative acts administered by the Danish Veterinary and Food Administration (Executive Order 456 of 9 June 2009 and subsequent acts). This means that the full meaning of the label is accessible only in a format not likely to be consulted (let alone comprehended) by the majority of Danish consumers. The key criteria include less and healthier fats, less sugar, less salt, and more dietary fibres and wholegrain. However, other factors are taken into account as well and the ultimate outcome relies on detailed assessments of individual food categories and sometimes even individual products which are furthermore subject to periodical

revisions. For some food categories, the Keyhole indicates that the category represents a healthier choice *per se* (e.g. fresh vegetables, raw fish, some types of cold-meat products) whereas for other categories it indicates a healthier alternative within that category (e.g. bakery products, convenience meals). Moreover, not all products qualified for a Keyhole label carry one since it is up to the individual manufacturer or retailer to decide whether to invest the time and effort needed to acquire a formal certification for one or more of their products.

As a result, some products on the Danish food market carry a Keyhole label while otherwise comparable products do not, even if equally qualified for it. On that background, we wanted to investigate whether the presence of a Keyhole in such instances would have the potential for not just triggering unwarranted expectations, but also lead consumers to take a transactional decision that they "would not have taken otherwise", thus (perhaps unjustly) qualifying the Keyhole as a PME. With the assistance of VIFOSS Knowledge Centre for Food and Nutrition, a number of product categories and types were identified which qualify for a Keyhole *per se* while still requiring a formal permission to be equipped with one. Three categories were ultimately singled out as a suitable ecological framing for the present study: red Kapia bell peppers, frozen Pangasius fish fillets, and sliced smoked turkey breast. For each category, three real-market products were selected as templates for the final stimuli, one carrying a Keyhole label and two not carrying one. The products were presented to the participants in anonymized form to exclude any risk of brand bias.

6.2 Test Design and Procedure

Like in Study 2, we used a between-groups design where the Keyhole label was switched between (the anonymized counterparts of) the product originally carrying it and one of the alternative products. A third product was presented without a Keyhole throughout and set at a somewhat lower price. Contrary to Study 2, however, the detailed product information was not switched between participants together with the PME (here: the Keyhole) meaning that the products were not complete constructs, but anonymized versions of real-market products presented with and without a Keyhole.

Thus, while the purpose in Study 2 was to model the simple situation where a low-fat claim was presented on a product no lower in fat than the alternatives, in the present case we were interested in *any* possible

health-related expectations that the Keyhole might evoke and whether they were consistent with *any* situationally available facts. These facts were identical for two of the three product categories (the fish and the pepper) while in the third category (the turkey breasts), the product originally carrying the Keyhole was slightly inferior to the alternatives in certain healthiness-related respect while still meeting the Keyhole demands. This means that opting for the Keyhole product would *not* result in a better choice in terms of healthiness in the vast majority of the present cases, apart from the one condition where the participant saw the Keyhole on the turkey-breast product that did not originally carry one. To those who saw the Keyhole on the product that did in fact carry it originally, in turn, this would mean a slightly inferior choice. Our goal was to find out if consumers would evaluate the products accordingly, judging from their choices and their ways of motivating them. The present stimulus sets gave us a versatile basis for doing so reflecting also some existing real-market variations in the basic scenarios of interest. Compared to Studies 1 and 2, more emphasis was thus put on a qualitative analysis of consumer responses, while at the same time assessing whether the quantitative trends identified in the other studies would recur for Keyhole products.

6.2.1 Target Products

Two of the three products in each target set were originally of high(er)-end brands among which one originally carried a Keyhole label while the other did not. The third product in each set was originally a discount private label carrying no Keyhole label either. The two former products were set at the same price while the latter product was set at a somewhat lower price. For the purpose of the experiment, however, the placement of the Keyhole was reversed for the two high(er)-end brand products through digital image manipulation in the stimulus sets shown to the respective participant groups while keeping constant its size and approximate placement on the packaging front.

The use of anonymized products rather than entirely fictitious ones requires a slight adjustment of terminology compared to that used for Studies 1 and 2. Thus, we will once again refer to the two high(er)-end products as A and B and to the discount product as C. Product A is the one that originally carried a Keyhole and Product B is the one that originally did not. However, when reporting consumers' responses to the latter products when presented either with or without the Keyhole, we will

speak of Product A/B with Keyhole and Product A/B without Keyhole. The third product will be referred to as Product C throughout. The products were anonymized using digital image manipulation by replacing the original brand names and logos on the packaging fronts with comparable elements which could plausibly have represented Danish real-market brands but did in fact not.

Apart from brand-related information, all declared facts were identical for the bell peppers and the frozen fish products, in full accordance with the original products. As for the peppers, these facts amounted to an indication of net weight and of Turkey as the country of origin for all three products. This information was stated on a sticker placed on the fronts of transparent plastic bags (shown to the participants in the front photo) together with the brand-related information. No nutritional facts were declared, which is not mandatory for fresh fruits and vegetables according to current Danish and EU legislation. Since there was no other information on the back of these bags, the participants were shown a text reading "no back text" if clicking the more-info ("turn") option.

As for the fish (*Pangasius bocourti*, widely sold as Pangasius in Denmark), a separate panel with detailed product information was indeed present, while stating virtually the same facts for all three products: that the fish was without skin and bones, frozen, and farmed in Vietnam (with slightly different wordings) along with lists of nutrition facts stating identical values throughout. Each turkey-breast product likewise came with a separate panel with detailed product information. However, in this case the A-product (the one originally carrying the Keyhole) was slightly inferior to the B-product on four parameters of interest from a nutrition and health viewpoint: It contained less meat (90% vs. 93%), more fat (3 g per 100 g vs. 1 g), less protein (20 g per 100 g vs. 22 g) and had a higher energy value (470kJ/111kcal per 100 g vs. 430kJ/100kcal) than its equally priced competitor. It was furthermore inferior to the discount C-product on two of these accounts (the declared fat content of the latter being 1.5 g per 100 g and the energy value 390kJ/90kcal per 100 g) while being slightly better in terms of meat and protein contents. Importantly, none of these (moderate) variations alter the circumstance that the products all live up to Keyhole standards as explained in Sect. 6.1. Table 6.1 a-c summarizes the key variables for each product set.

Table 6.1 a-c. Target product sets for Study 3

	Product A	*Product B*	*Product C*
a. Red Kapia peppers			
Brand	Anonymized brand	Anonymized brand	Anonymized brand (budget style)
Keyhole label	Originally present. Alternated with Product B between groups.	Originally absent. Alternated with Product A between groups.	Absent throughout.
Declared product properties	Identical across products. Nutrition values not declared for fresh vegetables.	Identical across products. Nutrition values not declared for fresh vegetables.	Identical across products. Nutrition values not declared for fresh vegetables.
Net weight	500 g	500 g	500 g
Price	16 DKK	16 DKK	12 DKK
b. Frozen fish fillets (Pangasius)			
Brand	Anonymized brand	Anonymized brand	Anonymized brand (budget style)
Keyhole label	Originally present. Alternated with Product B between groups.	Originally absent. Alternated with Product A between groups.	Absent throughout.
Declared product properties	Identical across products.	Identical across products.	Identical across products.
Net weight	300 g	300 g	300 g
Price	34.95 DKK	34.95 DKK	19.95 DKK
c. Smoked turkey breast			
Brand	Anonymized brand	Anonymized brand	Anonymized brand (budget style)
Keyhole label	Originally present. Alternated with Product B between groups.	Originally absent. Alternated with Product A between groups.	Absent throughout.
Declared product properties	Inferior to B on four and to C on two nutrition-related parameters (see text).	Superior to A on four nutrition-related (see text).	Superior to A on two nutrition-related parameters (see text).
Net weight	100 g	100 g	100 g
Price	16.95 DKK	16.95 DKK	11.95 DKK

6.2.2 Fillers/Distracters

The target product sets were preceded by and presented interchangeably with other products serving as fillers/distracters. These were all real-market brands displaying substantial variations in terms of food category, brands, featured product properties, and price spans.

6.2.3 Participants

The participants were forty-six adult urban Danish-speaking consumers (thirty-one female, fifiteen male; age range nineteen to sixty-one years; mean age 26.7 years) randomly recruited among non-academic (managerial, administrative, technical) staff members and students at the Dalgas Have campus, Copenhagen Business School. All participants had normal or corrected-to-normal vision. Thirty-three participants were reimbursed with a cinema ticket with a monetary value of 80 DKK (= approx. 11 EUR). Thirteen students participated as part of a mandatory methodology course. The participants were randomly assigned to two groups of approximately equal size, with twenty-four participants in one group and twenty-two in the other group.

6.2.4 Apparatus and Procedure

Except for the stimuli sets used and the between-group design, the course of the virtual shopping-trip was identical to that described for Study 1. The same applies to the initial post-shopping questions and the criteria for selecting those participants who showed a particular interest in relative healthiness for a second round.

However, in this case the pre-defined options offered to the latter subset of participants were replaced by free-text response boxes since we were interested in hearing any conceivable reasons for expecting the product carrying a Keyhole to be more healthy (or less unhealthy) than the alternatives available, including reasons that we might not have thought of in advance. The free-text responses of those participants who opted for the Keyhole were subsequently cross-coded and categorized by two researchers yielding the results shown in Fig. 6.9.

6.3 Results and Discussion

Figure 6.1 summarizes the distribution of choices between the A/B-products presented with and without a Keyhole, respectively, and the somewhat cheaper C-products products which were presented without a Keyhole throughout. Figures 6.2, 6.3, 6.4 specify the results for each of the three categories. Once again, the single most preferred products were the discount C-products (43%), followed by the A/B-products presented with a Keyhole (32%) and the A/B-products presented without a Keyhole (25%), with some variations between the product categories.

The next goal was to find out if a connection could be established between particular consumers' preferences and the likeliness of particular choices. Figure 6.5 shows the relationship between the participants' choice of A/B-products presented with a Keyhole, A/B-products presented without a keyhole, and C-products, on the one hand, and their subsequent ratings of the relative importance of price, taste, and relative healthiness on the other hand. Figures 6.6, 6.7, 6.8 specify these results for each product category.

Those participants who rated price most highly tended to choose the C-products for all three target products categories: turkey, $r(44) = -0.699$, $p < 0.001$; fish, $r(44) = -0.621$, $p < 0.001$; and pepper, $r(44) -0.593$, $p < 0.001$. Those participants who rated expected taste most highly tended to choose the A/B-products presented without a Keyhole for the target products turkey, $r(44) = -0.311$, $p < 0.05$, and pepper, $r(44) = -0.452$, $p < 0.01$, but not for the fish, $r(44) = -0.082$, $p = 0.590$. Those participants who rated relative healthiness most highly tended to choose the A/B-products presented with a Keyhole for the target products turkey, $r(44) = -0.415$, $p < 0.01$, and fish, $r(44) = -0.431$, $p < 0.01$, but not for the target product pepper, $r(44) = -0.078$, $p = 0.608$.

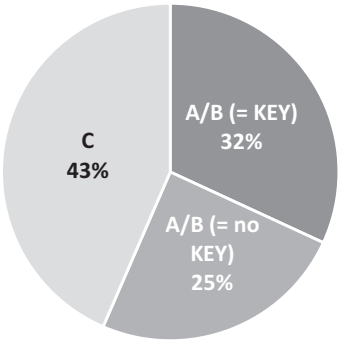


Fig. 6.1 Choices for all three target products

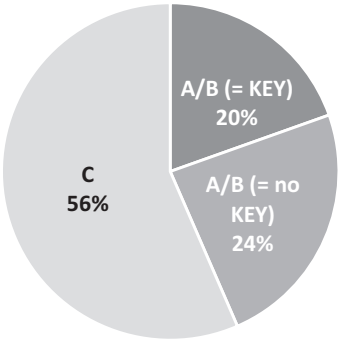


Fig. 6.2 Choices for red Kapia peppers

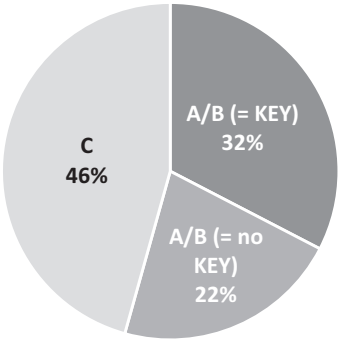


Fig. 6.3 Choices for frozen fish fillets ("Pangasius")

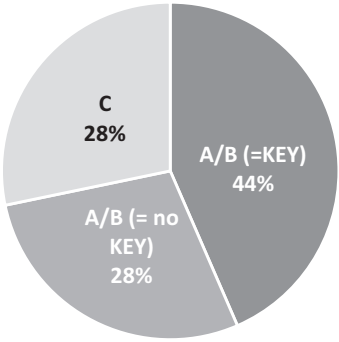
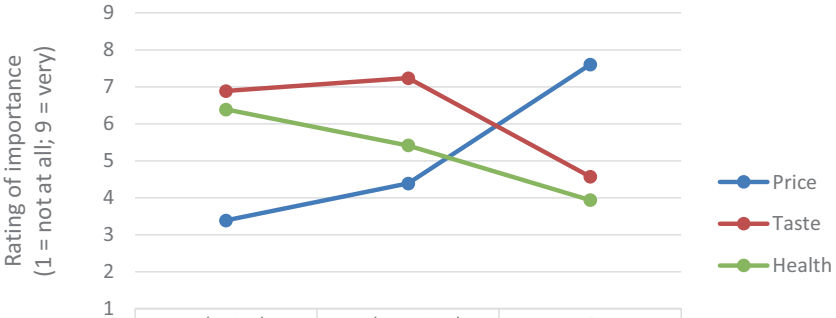
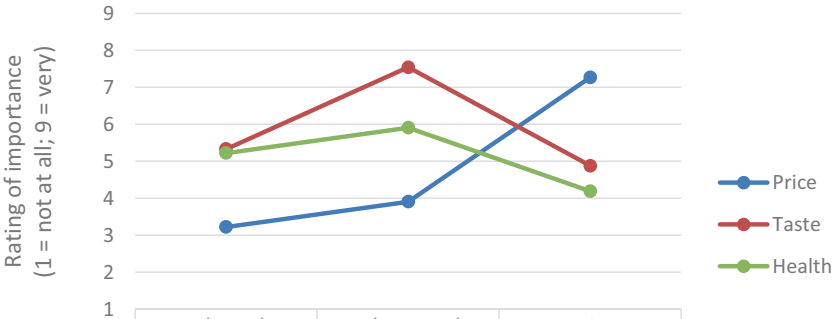


Fig. 6.4 Choices for smoked turkey breast



	A (= KEY)	B (= no KEY)	C
Price	3.4	4.4	7.6
Taste	6.9	7.2	4.6
Health	6.4	5.4	3.9

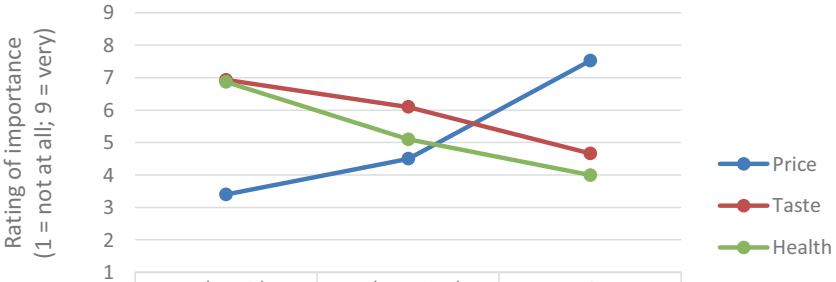
Fig. 6.5 Mean ratings for all three target products



	A (= KEY)	B (= no KEY)	C
Price	3.2	3.9	7.3
Taste	5.3	7.5	4.9
Health	5.2	5.9	4.2

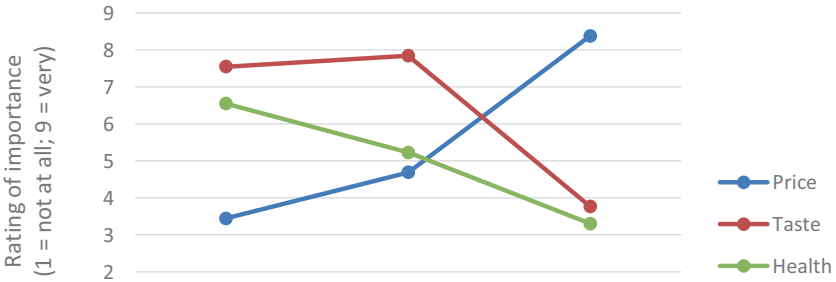
Fig. 6.6 Mean ratings for red Kapia peppers

The results thus demonstrate a clear connection between prioritizing healthiness and opting for a Keyhole product for two of the three product sets, the turkey and the fish. However, this was not the case for the red Kapia peppers. Perhaps the immanent health benefits of fresh vegetables of this sort were so obvious to many consumers that they let other factors



	A (= KEY)	B (= no KEY)	C
Price	3.4	4.5	7.5
Taste	6.9	6.1	4.7
Health	6.9	5.1	4.0

Fig. 6.7 Mean ratings for frozen fish fillets ("Pangasius")



	A (= KEY)	B (= no KEY)	C
Price	3.5	4.7	8.4
Taste	7.6	7.8	3.8
Health	6.6	5.2	3.3

Fig. 6.8 Mean ratings for smoked turkey breasts

determine the final choice in the present case. On the other hand, for those consumers who were subsequently singled out as particularly interested in healthiness (see below), the presence of a Keyhole was the most frequently mentioned reason for choosing the product carrying it, including the peppers. All in all, a non-accidental relation between seeing the Keyhole on a product and expecting it to be more healthy prevails in the

data set as a whole. In our present cases, however, this does not mean that the products are healthier than the alternatives, just that they are considered a healthy type of product *per se*. Whether this necessarily compromises the overall rationale behind the Keyhole labelling system will be further discussed in Sect. 9.3.

The connection between prioritizing price and choosing the cheaper C-product, in turn, was to be expected, given the lower price of the latter. More remarkable is the connection between prioritizing taste and choosing the A/B-products presented without a Keyhole which was established for the turkey and the pepper, while not the fish. Given that the Keyhole was switched between the A- and B-products between groups, it could be anticipated that any other factors that could potentially affect taste expectations would outbalance each other. A possible explanation would be that the very presence of a health-related cue could prompt some taste-oriented consumers to rather opt for "the real thing", as argued earlier also for the comparable results in Study 2 (see Sect. 5.3).

Like in Studies 1 and 2, our next step was to single out those participants who had displayed a particularly high interest in relative healthiness for one or more of their choices (meeting the conditions indicated in Sect. 4.2.4) and asked them why they saw the product chosen as more healthy than the others. However, in this case the responses were given in the shape of free text rather than in the multiple choice format applied in Studies 1 and 2 to ensure the widest possible range of responses (see Sect. 6.2.4). Out of the 138 (46 × 3) choices registered for the three target sets, 39 choices (28%) met the above criteria. In 24 (62%) of those did the consumer's choice fall on the product presented with a Keyhole. These choices were made by seventeen different participants in all.

Figure 6.9 sums up the top-five reasons for expecting the chosen product to be more healthy than the alternatives pointed out by those participants who qualified as being particularly interested in relative healthiness *and* had chosen an A/B-product presented with a Keyhole. Other reasons—each of which was given only by a single participant for a single choice—included expecting the product to be less processed, seeing the price as an indicator of higher quality, a higher content of healthy fatty acids, and the circumstance that the participant conceived the product as familiar (despite the anonymization).

What is striking first of all is that only in a single instance (not part of the top five) did a consumer refer to a property that is directly covered by the official Keyhole criteria, namely the content of healthier fatty acids in

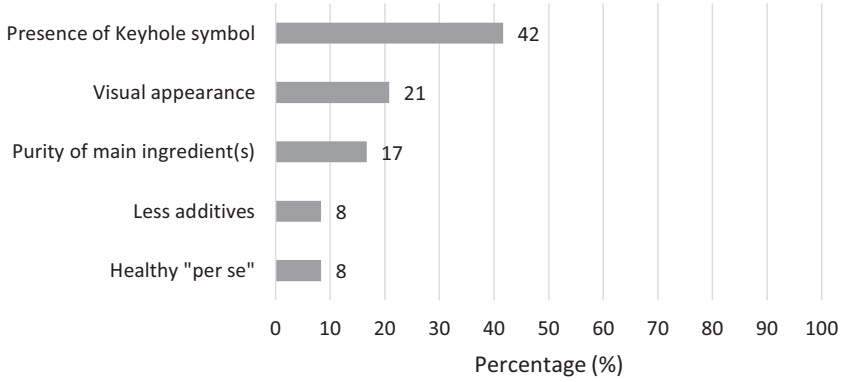


Fig. 6.9 Top five factors mentioned as important to expected healthiness

the fish. However, in the present set-up this is equally true for all three fish products at offer—while not stated explicitly in the product details for any of them. In other words, choosing one in preference to the other would certainly mean a healthy, but not a healthier choice in the present case, Keyhole or not.

Another remarkable observation is that only in one case did a consumer make an explicit comparison of the declared product facts for more than one product. This rigorous consumer wrote: "There was more turkey in this product, and I found no other differences between the three products."[1]

To be just, a response like the present does not in itself indicate that the Keyhole played a role in the choice made in the first place. The consumer may simply have critically examined the facts, just as declared, and made the decision on that basis alone. However, the totality of responses clearly suggests that the presence of the Keyhole was noticed and seen as important by a substantial number of other consumers.

Indeed, the most frequently mentioned reason for expecting the chosen product to be more healthy than the alternatives (42%) was the very

[1] Ironically, this participant was presented with the Keyhole on the B-product, that is, the one *not* carrying one originally while declaring a slightly higher meat content. This means that opting for the Keyhole would not have meant a better choice in terms of meat content in actual market conditions, that is, if confronted with the original (non-manipulated) products.

fact that a Keyhole was present on the front.[2] As one participant explains it: "It is hard to deduce much about relative healthiness, but the Keyhole label is better than no label." On the one hand, this is in line with the overall rationale behind the Keyhole, that is, helping consumers to make a healthy choice, and the products chosen on that background were indeed healthy in essential respects. On the other hand, so were the alternatives in our present cases.

The second most frequently mentioned reason for choosing the Keyhole product was that the product "looked" more healthy, referring to such factors as uneven shape (for the peppers) or more meat-like appearance (for the turkey). Once again, these considerations do not necessarily need to have anything to do with the presence of the Keyhole since liking the visual appearance of (and therefore choosing) a product which happens to carry a Keyhole may be purely accidental. On the other hand, in some of these cases the Keyhole was mentioned as well and is therefore likely to have played a role. Moreover, the effect of pictures and other visuals, including the Keyhole, seems to have merged into a single "positive gist" in the mind of some consumers. Take this statement: "The picture looks credible to me in terms of healthiness, especially the Keyhole label appealed to me." In this case, the Keyhole clearly contributed to the positive expectations.

The third most frequently mentioned reason for choosing the Keyhole product (be it in that capacity or on other grounds) was the expected purity of the basic ingredients. While partially overlapping with the visual judgements just mentioned, this category covers a broader range of responses that span from vague statements about purity not further explained to the direct reference to the declared meat content made by the careful consumer mentioned earlier. If we presume that the Keyhole played a role at least for some of these responses as well, that would however not be justified, given that purity as such is not included as an independent criterion by the Keyhole labelling system. Again, this does not mean that the participants did not make a healthy decision, only that the Keyhole had no genuine role in that. Likewise, expecting to find fewer additives in the product finds no support in the official Keyhole criteria either, while expecting that the product is healthy "per se"—that is, as a *kind* of product—is certainly in accordance with the overall Keyhole agenda, but not a special virtue of the Keyhole product in our present cases.

[2] The tendency to understand the Keyhole in a generic fashion, that is, as an indication of healthiness *per se*, has been observed also in larger-scale survey-based studies (e.g. Laasholdt et al., 2021). What our present study adds to the picture is that such a vague understanding may manifest itself in unsubstantiated choices made by otherwise health-oriented consumers.

To keep things balanced, it should, of course, be acknowledged that the target categories chosen by us for this study are among those for which the Keyhole is not supposed to indicate that the product is better than others within the category (unlike, say, for bakery and convenience meals) but simply that it belongs to a category that is healthy *per se*. Some participants seem to have been quite aware of that, as suggested by this statement: "I don't know this fish, but fish is healthy" (response categorized under healthy "per se"). In that case, the Keyhole may simply have served as a final confirmation and provided a natural incentive to "reward the messenger" by choosing the corresponding product.

While this would definitely result in a fairly healthy choice, it also offers an unsubstantiated competitive advantage to the "messenger"; see Sects. 9.3 and Chap. 10 for further discussion on the commercial and societal implications of this. On the other hand, some consumers appear to have been able to look through that very circumstance, as illustrated by this comment made by a consumer who qualified as particularly health-oriented but *did not* choose a Keyhole product: "I believe that the three products are identical and therefore I went for the price—I ticked 9 because healthiness would have been important to me if there had been a difference."

A final potential pitfall to consider is the risk of overgeneralizations in the shape of so-called halo effects (see Sects. 4.3 and 5.3), which can be triggered by objective product information and commercial claims alike, despite all good intentions invested in the former (see also, e.g., Sörqvist et al., 2015; Sundar & Kardes, 2015). Thus, one participant stated: "The keyhole label shows me that the product is of a standard I can defend to myself when I buy fish." We cannot know exactly which expectations were implied, but if they involve such concerns as overuse of antibiotics in fish farms or a risk of finding parasites in some sorts of imported frozen fish, these worries would definitely apply to the present category. Yet no information declared for any of the concrete products at hand offers any guarantee for a better choice in these respects.

It needs emphasis that what might require some critical (re)consideration in the light of these and comparable findings is not the public-health relevance of the factors prioritized by the Nordic Keyhole labelling system. Rather, it is the degree to which truly informed choices can be underpinned by such a label in all situations and for all food properties and categories. A circumstance that needs to be taken into account is thus the (undesired) similarities observed between regulated health labelling and commercial health claims when it comes to causing consumers to take a transactional decision that they "would not have taken otherwise". The implications of this circumstance will be taken further from Sect. 8.1 on.

To complete the picture, it should finally be mentioned that the degree of care shown by the participants during the present shopping-trip taken as a whole (including fillers/distractors) was comparable to that shown in Studies 1 and 2. On average, the participants spent 9.8 seconds looking at the shelf displays and 19.1 seconds on the entire transaction, including zooms, checking the detailed product information (to the extent available), and operating the buy displays. The participants zoomed the products 1.22 times on average and activated the displays with detailed product information 0.69 times on average. Nevertheless, only in the single instance already mentioned did a health-oriented consumer motivate the choice of a Keyhole product with reference to the declared facts found for more than a single product.

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CHAPTER 7

Study 4: "Local" by Facts or by Atmosphere?

Abstract The chapter reports an original experiment based on a variant of the ShopTrip set-up extended with an eyetracking component. The key research question was whether products carrying vague indications of localness in the shape of brand elements and visual cues on the front would tend to be preferred by consumers over alternative products displaying an equal degree of (un)localness according to the declared product facts when performing the pre-set shopping task "Buy Danish, and as local as possible!" This indeed turned out to be the case. Moreover, the eyetracking data revealed that less than half of the participants attended to the detailed product information panels that might have contradicted the all-local impression created by the packaging fronts (attended to by all participant), and that most of them failed to fixate on the passages in the detailed product information capable of doing so.

Keywords Local food • Domestic food production • Product origin • Place branding • Simulated e-shopping • Eyetracking • Real-time purchasing behaviour • Halo effects • Brand bias • Selective visual attention • Scene-gist perception • Miscommunication

V. Smith et al., *Misleading Marketing Communication*,
https://doi.org/10.1007/978-3-031-11206-5_7

7.1 Fairness Challenges and PMEs

In many industrialized countries, consumers are increasingly interested in domestic food products, especially such that can be linked to a specific location or region. The motives span from interest in local culinary traditions to concerns about domestic employment or shorter transportation distances and CO_2 emissions (Askew, 2018; Naspetti & Bodini, 2008; Pícha et al., 2018). In turn, this renders localness a popular sales argument in the marketing and labelling of many types of foods and drinks (Aichner, 2014; Choe & Kim, 2018; Thakor & Kohli, 1996). This involves at least two fundamental dilemmas.

First, what does "local" mean? Should all manufacturing steps take place in the same country or region, or is it only the final steps? Should all ingredients be local, or just the main ones? Is it essential that the product differs from similar products produced elsewhere? Is localness a matter of place of production, brand ownership, or of brand identity? And so on. In the EU, clear answers to some of these questions are given by the quality schemes known as Protected Designation of Origin (PDO), Protected Geographical Indication (PGI), and Geographical Indication (GI) as stipulated by Regulation (EU) No. 1151/2012 (cf. European Commission, 2021). However, by far most food products sold in the EU are not covered by these schemes but fall under the general rules on potentially misleading food labelling (see Sect. 2.1), which also extend to indications of origin.

This leads us to the second dilemma: What should be seen as indications of a product's origin? As mentioned earlier, current regulatory practices tend to foreground verbalized (language-based) information which means that clear legal limits have been set for the use of such expressions as "made in", "packed in", and "[ingredient name] originates in" (for an overview, see FoodDrinkEurope, 2019). However, the picture becomes more blurred when it comes to purely visual elements and to the subtle syntheses of verbal and visual elements that companies use for creating a particular brand identity and "atmosphere". Take a frozen pizza with pictures of Mediterranean landscapes, an Italian-sounding brand name, a claim such as "Giovanni's favourite",[1] and green, white, and red

[1] Such so-called romance claims (cf. Klimchuk & Krasovec, 2013: 77ff) are widely recognized as creative and playful elements to which consumers will not ascribe an objective truth value, as opposed, for instance, to nutrition and health clams. However, the borderline may sometimes become blurred in practice, as further discussed in Sects. 7.3 and 8.2.

background colours dominating the packaging front and with small print on the back saying "produced in Germany". In current regulatory practices, it is mostly taken for granted the (average) consumer is able to see through this kind of "sales talk" and allow for its semi-fictitious character, although the risk of more literal readings has been acknowledged in some cases, while relying on individualized commonsense judgements rather than empirical evidence.[2]

As a result, a substantial number of real-market products exist in the EU which critical consumers, consumer organizations, and media have criticized for looking more local than they actually are, but which, on the other hand, do not carry any explicit indications of origin qualifying them as misleading according to current regulatory practices. The aim of Study 4 was to supplement the debates on such grey-zone cases with tangible empirical insights on whether or not the presence of labelling elements of the sorts just mentioned is indeed likely to lead some consumers to take a purchasing decision that they "would not have taken otherwise".

The point of departure for the present study was an episode of the Danish consumer watchdog programme Kontant (which means both "cash" and "to the point" in Danish) broadcasted by the main national public-service channel DR-TV 1 on November 3rd 2016 with a follow-up episode on November 15th 2018. The theme of both episodes was an allegedly growing mismatch between the creative verbal and visual presentation of food products through packaging design and documentable product facts, one issue in focus being product origin. A number of real-market products illustrating such allegeable mismatches were singled out by the Danish Consumer Council Tænk and subsequently commented on by individual consumers and consumer panels, food and nutrition experts, and representatives of the food authorities.[3] The FairSpeak Group contributed to both episodes with general insights on consumer decision-making and a small-scale eyetracking test demonstrating the capability of

[2] For example, a well-established Danish brand name containing the element *rigtig* ("real") was at some point banned by the Danish Veterinary and Food Administration because the manufacturer could not substantiate what made the products more "real" than similar products, in this case: fruit juices. However, the decision was overturned by the Court of Appeal on the presumption that the name had been familiar to Danish consumers as a brand name for many years and therefore posed no risk of being taken literally, that is, as indication of particular product properties (Case ID: U2001.2161Ø).

[3] The manufacturers concerned were also heard, but preferred to contribute with written feedback only.

this technology to monitor the progression of such processes in real time. The targets cases were two real-market products pointed out by some key actors as potentially problematic for suggesting a higher degree of localness than was justified by facts: a brand of pickled white cucumbers (known as "asier" in Danish) and a brand of chicken salad. The products were paired with substitutable products from the same categories not suggesting any connection to a particular Danish location apart from the company's postal address.

Subsequently, this test was replicated on a somewhat larger scale to enhance the validity of the results, while focusing on the same target cases. The results of the latter inquiry are presented below.

7.2 Test Design and Procedure

Our aim was to assess whether a product carrying brand-supporting visual and verbal cues on the packaging front which could be associated with a particular geographic (here: Danish) location would be preferred to a product not carrying such elements by consumers specifically instructed to opt for domestic and local products. The alternatives presented had been selected so as to display an otherwise comparable degree of (un)localness according to the totality of declared product facts.

A virtual e-shopping environment was used which differed from the set-ups used in Studies 1–3 in two essential respects. First, instead of priming for an increased level of overall preference consciousness that could subsequently be further qualified via post-shopping questions, we decided to prime for a preference for domestic and local products from the outset. In this way, we could gain valid results relative to the present variable (among several other potential preferences) while keeping the number of participants manageable and maintaining an acceptable degree of realism. Thus, shopping for domestic and local products would hardly be an entirely unfamiliar task for adult urban Danish consumers, whether following their own preferences or the wishes of others.

Second, the decision-making process was monitored using eyetracking equipment to gain more detailed information about the participants' distribution of their visual attention on the packaging fronts—where more than a single element would in this case be of interest as a PME—and on selected passages in the detailed product information essential to the assessment of product origin. In turn, this required a simplification of the

overall test design with two (not three) alternative products being presented for each target category and with the detailed information presented in the same displays as the fronts, as further explained below.

7.2.1 Target Products

Table 7.1 a-b provides an overview of the two target product sets. The products with PMEs are once again labelled A and the alternatives labelled

Table 7.1 a-b. Target product sets for Study 4

	Product A	*Product B*
a. Pickled white cucumbers ("asier")		
Brand	Established brand	Established brand
Origin-related PMEs on packaging front	Stylized map of Danish island • brand name incorporating the name of that island • claim reading "islanders pickle best"	Generic claim reading "a Danish classic"
Origin-related information in detailed product facts	"white cucumbers originating in Europe" • company name and address (referring to the above island)	No indication of origin of ingredients • company name and address (referring to a small Danish provincial town)
Net weight	320 g	310 g
Price	12.95 DKK	15.95 DKK
b. Chicken salad		
Brand	Established brand	Established brand
Origin-related PMEs on packaging front	Stylized drawing of traditional Danish farm • rural-style Danish (sub)brand name • claim reading "chicken salad from [name of small Danish town]"	None
Origin-related information in detailed product facts	"origin: EU" (for main ingredient) • company name and address (large industry group with main address in a suburb of Copenhagen)	No indication of origin of ingredients • company name and address (large food industry group with main address in a suburb of Copenhagen)
Net weight	175 g	175 g
Price	21.95 DKK	19.95 DKK

B (even if the products were presented interchangeably as A and B to the participants; see below).[4]

Like in Study 1, the participants were presented with bitmaps showing the original packaging fronts, while the detailed product information was rendered in an e-store-style format reproduced from the original packages as they appeared at the time of the test. In this case, we did not aim at any harmonization of prices but kept them close to the market average, given that the decisive factor would be that of localness. A minor difference in declared net weight for the two variants of pickled white cucumbers was likewise retained.

For the pickled white cucumbers, the front-of-packaging elements that could suggest a connection to a particular Danish location for the A-product included a stylized drawn map of a well-known Danish island, a brand name incorporating the name of that island and a verbal claim reading "islanders pickle best". The island is renowned for its high-quality agricultural products (potatoes, cucumbers, fruits, etc.) some of which are also processed on the island.

The detailed product facts, in turn, included an ingredients list describing the main ingredient as "sliced white cucumbers originating in Europe" and the name and address (postcode) of the manufacturing company which was indeed located on the aforementioned island. Additional information not specified in the labelling but available from other sources (including the manufacturer's homepage) is that the raw products used mainly stem from Germany and the Netherlands and that the factory is part of a larger industry group that has its main domicile elsewhere.

The alternative B-product, in turn, carried no cues on the front pertaining to a specific location apart from Denmark itself in the shape of a generic claim reading "the original Danish classic". The ingredients list indicated "sliced white cucumbers" as the main ingredient with no specification of origin. The address (postcode) of the manufacturing company referred to

[4] In Danish, the A-product is named *hønsesalat* (lit. "hen salad"), which is the most traditional Danish term for the present sort of salad, while the B-product is named *kyllingesalat* (lit. "chicken salad"). However, this terminological distinction has become increasingly blurred in recent years where *kylling* (lit. "chicken") has been adopted as the generic term regardless of the age, gender, and size of the foul by the poultry branch itself, as is the case also with *chicken* in English (cf. Euro Poultry, 2019). We therefore saw the products as substitutable and render both names as *chicken salad* in the English translation in Table 7.1 a-b. In the present case, both products furthermore indicated *bacon* as an additional characteristic ingredient.

a small Danish provincial town. In sum, while the B-product was vague when it comes to the origin of the main ingredient and carried no specific indicators of localness apart from perhaps the address, the A-product was quite clear about the *non-localness* of the latter, while apparently being processed and packed on a location where that sort of vegetables are in fact also grown.

For the chicken salads, the front of the A-product carried a stylized drawing of a traditional Danish farmhouse, a rural-style Danish (sub) brand name, and a claim reading "chicken salad from" followed by the name of a small Danish town in a coastal area. The ingredients list, in turn, described the main ingredient as "28% chicken meat (origin: EU)", while the manufacturing company was identified as a large food industry group with its main domicile in a suburb of Copenhagen.

The alternative B-product carried no origin-related elements on the front at all, and the ingredients list described the main ingredient as "32% chicken roll" with no indications of origin. The manufacturer was identified as the same industry group as mentioned above. Thus, once again, the B-product was vague when it comes to the origin of the main ingredient and in this case also the exact place of production, whereas the A-product was quite clear about the *non-localness* of the latter while referring both to a small Danish town (on the front) and to the main company address located elsewhere (on the back).

What might be learned from other sources is that both products were (and still are) produced at a large industrial food plant which is indeed located in the small coastal town mentioned where it constitutes one out of few larger enterprises, producing sandwich-spread products of a variety of sub-brands and qualities for both the mother company and a number of business-to-business partners.

It needs emphasis that the labelling solutions described for both the A-products are in full accordance with current authority demands. Nevertheless, the ordinary consumers interviewed in the TV episodes mentioned above expressed strong disappointment with the degree of localness displayed by the A-products in question after having acquainted themselves with all available facts. The generalizability of such isolated responses is, of course, highly limited, but they do stress the need for more solid evidence to qualify the whole debate. A first step was taken in this study.

7.2.2 Fillers/Distracters

The two target product pairs were presented to the participants, preceded by and interchangeably with five other product pairs that included clear examples of local versus nation-wide and global brands, for example, Pepsi Cola versus a widely known Danish cola brand. In this way, the participants could feel confident about at least some of their choices, leaving possible doubts to the cases intended.

7.2.3 Participants

The participants were thirty-two adult urban Danish-speaking consumers (sixteen female, sixteen male; age range twenty to sixty-five years; mean age 27.7 years) randomly recruited among non-academic (managerial, administrative, technical) staff and students at the Dalgas Have campus, Copenhagen Business School. All participants had normal or corrected-to-normal vision. The participants were reimbursed with a cinema ticket with a monetary value of 80 DKK (= approx. 11 EUR) for participating in the present and one preceding test.

7.2.4 Apparatus and Procedure

The test was performed using an iView X RED eyetracker built by Senso-Motoric Instruments (SMI) GmbH, Berlin. The sampling rate was 50 Hertz. The participants were seated in front of an LCD computer monitor. The display size was 15.4 inches (39.1 cm) measured diagonally, the aspect ratio was 5:3, and the resolution was 1280 × 768 pixels. The viewing distance was approximately 60 cm.

As indicated earlier, each product pair was shown to the participants in a single display in the shape of bitmaps of the respective product fronts placed next to each other with a price tag and detailed product information rendered underneath each of them. In this case, no mouse click was therefore needed to activate the latter. This allowed us to maintain a stable visual target frame for the eyetracking and a sufficient stimulus size (ensuring that the detailed product information was readable for participants with normal or corrected-to-normal eyesight), while still maintaining an acceptable degree of realism. A layout like the present could thus plausibly be encountered at least at some stages of real-life e-shopping situations. See Appendix 2.

The participants were given both verbal and written instructions. The latter were repeated before the presentation of each new product pair, rendered in Danish by a phrase which in English reads:

By Danish, and as local as possible!

For each product pair, a fixation cross was presented in the centre of the display for a minimum duration of 1500 ms. Continuation to the shelf display was contingent on the participant fixating the cross for at least 200 ms. In the shelf display, the alternative product were labelled A and B, respectively, and the participants were asked to choose between them by saying either "A" or B" aloud, or to say "pass" if they felt unable to determine which of the products was the best choice in terms of localness. The "pass" option was thus included to legitimize reasonable doubts as regards the target products rather than leaving a random choice as the only option.

For each trial, the test leader would register the response in a separate form and shift to the next product pair, preceded by a repetition of the instruction and then a fixation cross. There were no time constraints. The left–right orientation of the alternative products in each set was shifted between the participants so that sixteen participants saw the A-product in Table 7.1 a-b above as "A" and sixteen participants saw it as "B", and vice versa for the B-products. The participants' eye movements during the visual examination of the stimuli in terms of fixation time, fixation count, and fixation order were recorded automatically by the eyetracking device, as was also the total time spent on each decision.

Given that the participants had been instructed to opt for domestic and local product in advance, there was no need for post-shopping questions to single out which sort of product expectations had been decisive for each choice. After completing the shopping-trip, the participants were nevertheless given an option to comment on any retrospective reflections they might have had. However, few did.

7.3 Results and Discussion

Figures 7.1 and 7.2 summarize the distribution of choices between the A-products carrying the allegeable PMEs, the B-product not carrying such PMEs, and "pass" for the two target sets.

Since the totality of information made available for the target products does not offer any decisive reasons for seeing the A-products as more local

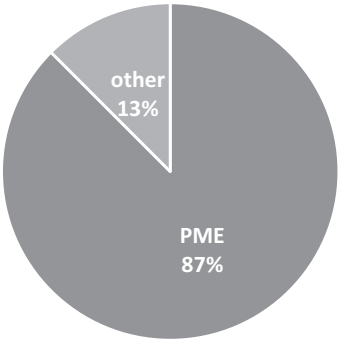

Fig. 7.1 Choices for pickled white cucumbers ("asier")

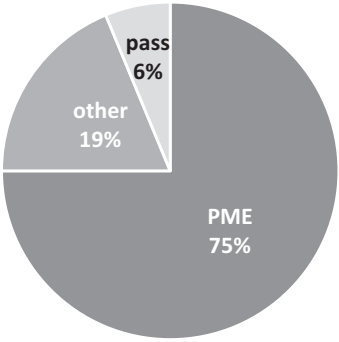

Fig. 7.2 Choices for chicken salad

than the B-products, or vice versa, "pass" would immediately appear to be the most adequate response. However, only two participants (6%) chose that option for the chicken salads and none did for the white cucumbers. A possible explanation may lie in the phenomenon known as social desirability bias (McCambridge, De Bruin, & Witton, 2012; Fisher, 1993; Orne, 1962), that is, participants' desire to "do a good job" when participating in an experiment. This may have been perceived as inconsistent with such an indefinite response. If so, a random distribution of choices between A- and B-products could be expected, assuming that whatever supplementary impulses contributed to the decision, they would outbalance each other. However, the facts are that 87% chose the A-product carrying the PMEs in the case of white cucumbers and 75% (or 80% if we exclude the "pass" responses) in the case of chicken salad. Arguably, these participants thus took a purchasing decision that "they would not have

taken otherwise" with the PMEs found on the A-products as a plausible explanation.

Let us now consider what the eyetracking data can tell us about the participants' distribution of their visual attention while reaching their decisions. The underlying presumption is that fixating on a labelling element suggests that some cognitive processing involving that element is taking place, even if certain moderations to this default presumption may be required, as further discussed below (see also Irwin, 2004).

On average, the participants spend 5.3 seconds (5330 ms) on each decision, that is, a bit less than what was observed in Studies 1–3. This is plausibly explained by the more simple set-up requiring no interactive operations except visual search within a single frame. Figure 7.3 shows the mean fixation times for the three main types of labelling information encountered, defined as Basic Areas of Interest (AOIs) in our data analysis: packaging front, price, and detailed product information. The means are given separately for the A- and the B-products, collapsed for both target product sets.

On average, the participants spent most time on examining the packaging fronts, followed by the detailed product information and price. Furthermore, relatively more time was spent on looking at the fronts of the A-produces carrying PMEs than of the B-products not carrying PMEs, with the same tendency recurring for price and, marginally, for the product details. As for the fronts, this can plausibly be explained by the

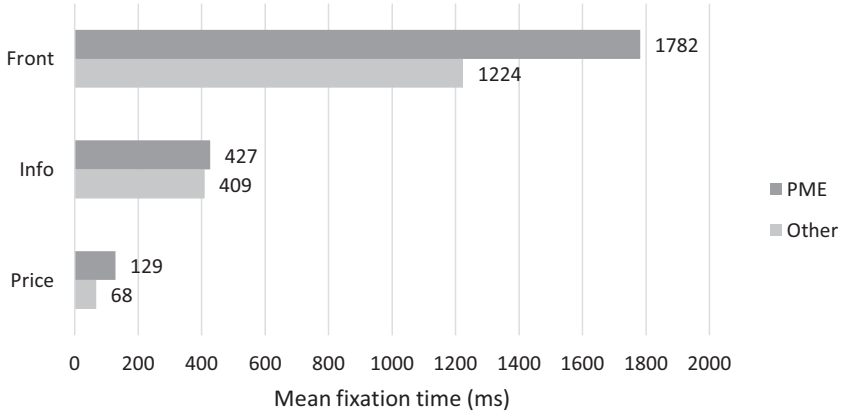

Fig. 7.3 Mean fixation times (ms) for basic AOIs

presence of three PMEs on the front of each A-product (brand name, claim, and picture) all lending themselves to origin-related interpretations and thus directly relevant to the task. In turn, this may have elicited a slightly higher visual interest in the A-products in general, including also other attributes.

The time spent on checking product details, nevertheless, remains moderate considering the high concentration of verbal information found in these panels (991 characters on average). To process this information in full would require more, not less, time than doing the same with the fronts (for further details on default assessment of reading speeds and factors affecting it, see, e.g., Trauzettel-Klosinski, Dietz,, & IReST Study Group, 2012). The moderate time devoted to price, on the other hand, may be plausibly explained by the compact and semantically unambiguous character of these elements which does not create a need for detailed scrutinizing, and perhaps not even for a direct fixation; see below.

Figure 7.4 shows the percentages of participants who fixated at least once on the three categories of basic labelling elements considered so far for the A- and the B-products, respectively, across product sets. In other words, it specifies how many of the participants actually contributed to the mean fixation times given in Figure 7.3.

While 100% fixated on the packaging fronts, only 50% fixated on price and only 42% on product details for the A-products, with even lower figures for the B-products. Like for fixation times, the latter difference may come down to the presence of potentially task-relevant PMEs on the

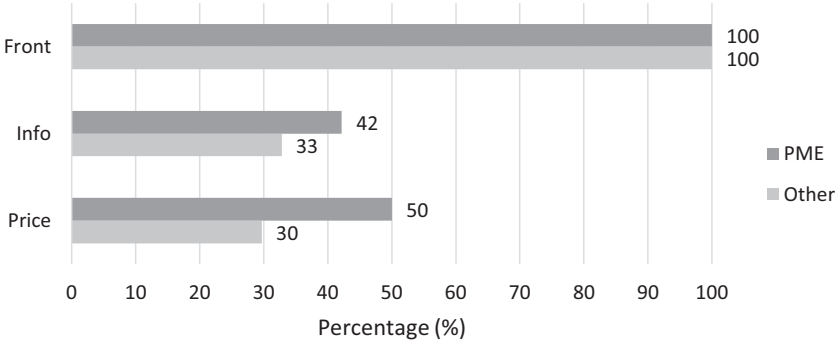

Fig. 7.4 Percentage of participants who fixated on the basic AOIs at least once in the two product sets

A-products leading to a slightly higher visual interest in these products in general. As for the detailed product facts, the circumstance that less than half of the participants fixated on them yields a relatively higher mean fixation time among those who did: 1017 ms for the A-products and 1240 ms for the B-products. However, this remains disproportional with the time spent on the fronts, considering the presence of more information that could potentially be processed. Nevertheless, the results do challenge the mainstream assumption that consumers hardly ever check the "small print" (see also Sects. 4.3 and 5.3). Moreover, in 33% of the total number of trials the detailed facts were attended to for both of the competing products, opening an opportunity for comparison.

On the other hand, the fact that only 50% of the participants fixated on the price of either one or both alternatives for the A-products while only 30% did so for the B-products immediately seems somewhat surprising. After all, checking and comparing prices is a natural part of most shopping behaviour, even if the main concern in the present case was origin. A possible explanation may lie in the phenomenon known as scene-gist perception, that is, the circumstance that some readily recognizable elements of complex visual scenes may be registered and recalled without a direct fixation, relying solely on the less detailed information obtainable via peripheral vision (D'Hondt et al., 2013; Larson & Loschky, 2009; Loschky et al., 2019; Wästlund et al., 2018). A similar explanation may apply to the pictures, as further argued below.

Taking the analysis further, we now consider how the participants distributed their visual attention between the three types of task-relevant PMEs found on the respective A-products, defined as Special Areas of Interest (AOIs) in our data analysis: brand name, verbal claim, and picture. An additional Special AOI is constituted by the indications of the origin of the main ingredients in the detailed product information. We will return to that perspective shortly.

Figures 7.5 shows the mean fixation times for the three types of PMEs just mentioned for the white cucumbers and the chicken salads, respectively. Figure 7.6 shows the percentages of participants who fixated at least once on these PMEs and thus contributed to the mean fixation times.

Most attention was devoted to the respective brand names which were fixated on at least once by 97% of the participants for the white cucumbers and by 94% for the chicken salad and which also account for the longest total fixation durations. This suggests that the brand names played a central role during the participants' deliberations about the products' degree of localness. That makes good sense considering that the brand is often a

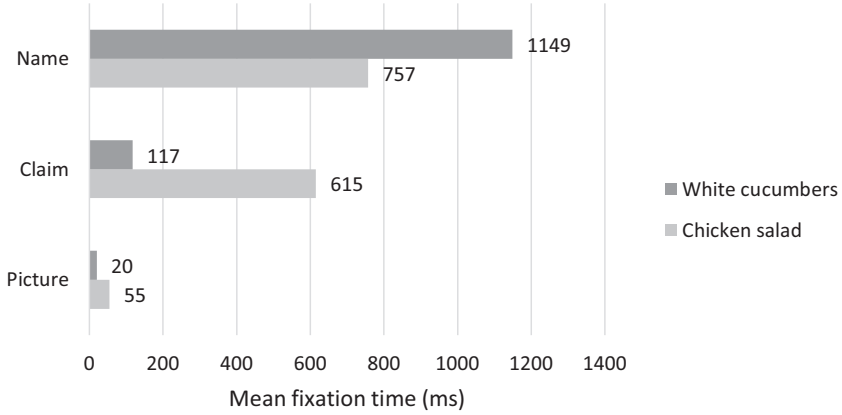

Fig. 7.5 Mean fixation times (ms) for "PM" AOIs

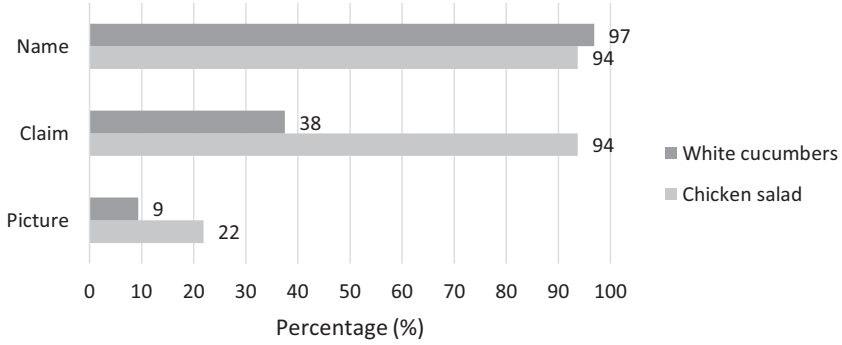

Fig. 7.6 Percentage of participants who fixated on the "PM" AOIs at least once in the two product sets

telling first indicator of overall product identity, including origin. Apart from trying to make sense of these elements' inherent semantics (which is more demanding for composite names like the present than, say, grasping a price in passing; cf. Smith, 2021: 33ff; 45ff) the participants may also simply have used the brand names as a natural place to rest their eyes while considering the matter.

The circumstance that the brand name of the white cucumbers was looked at longer than that of the chicken salad may, in turn, come down to its more direct contribution to such considerations in incorporating the

name of an existing geographic location (island) rather than merely "sounding" rural and Danish. Notably, a direct reference to an existing location was present for the chicken salad as well (name of a small town) while being part of the verbal claim and not the brand name. That, in turn, may explain why the participants spend substantially more time looking at this claim than at the one on the cucumbers product stating that "islanders pickle best", thus continuing the island theme. Arguably, the latter claim nevertheless does add a twist of its own to the localness issue in suggesting that the cucumbers were pickled (and therefore perhaps not grown?) on the island. However, this subtlety is likely to have escaped most of our participants considering that the claim was fixated on only by 38% of them and for only 117 ms on average. A contributing factor here is likely to be the limited visual salience of that claim compared to the one on the chicken salad in terms of both size and luminance/colour contrast to surrounding design elements.[5]

Least attention in both the respects just considered was given to the pictures. We will return to the communicative specifics of pictures and other visuals in more detail in III.1.2 and III.1.5. It should, however, be mentioned here that (figurative) pictures differ from words in creating an immediate sensory experience of whatever is depicted that may trigger spontaneous and fast behavioural and/or emotional responses independently of any conscious information processing (Houwer & Hermans, 1994; Simmons et al., 2005; Vermeulen et al., 2008). Moreover, the gist of a complex visual scene (such as a packaging front) may be grasped in its totality even without fixating on all its elements separately, as already mentioned above. As for our present cases, this means that the pictures may well still have contributed to creating an overall local "atmosphere" without this being reflected in eye movements and hence our eyetracking data. However, any more conscious and goal-driven considerations about localness are likely to have taken place while looking at the brand names and, to some extent, the verbal claims.

A final dimension to consider is the order in which the individual labelling elements were attended to visually. Table 7.2 shows the mean entry

[5] The verbal claim on the pickled cucumbers was thus approximately 50% smaller than the one on the chicken salad and had the same brown colour as the brand name, whereas the claim on the chicken salad was sun yellow and the brand name dark brown. We will return to the subtle interplay between bottom-up and top-down drivers of visual attention on the one hand and the resultant cognitive and behavioural impact on the other in Sect. 8.5.

Table 7.2 Mean entry times (ms) for Basic AOIs

	Pickled white cucumbers		*Chicken salad*	
	Product A (PME)	*Product B*	*Product A (PME)*	*Product B*
Front	553	748	914	732
Price	2861	3575	3133	3685
Info	3556	3729	3539	3799

Table 7.3 Mean entry times (ms) for Special AOIs on the A-products

	White cucumbers	*Chicken salad*
Brand name	995	1160
Verbal claim	2064	2088
Picture	1193	3029

times for the three Basic AOIs, that is, how soon after the beginning of each trial did the participants make their first fixation on the respective categories of labelling information on average.

As can be seen, the same overall pattern recurs throughout, with some variation within and between the product sets. The participants consistently started out by examining the alternative packaging fronts. For the white cucumbers, the front of the A-product (with PMEs) tended to catch attention slightly faster than that of the B-product (without PMEs), and vice versa for the chicken salads. This suggests a difference in the overall visual salience of the respective layouts. In either case, the participants thereafter spent about 2–3 seconds examining the two packaging fronts only, after which some of them (the percentages are given in Fig. 7.4) also fixated on the prices and thereafter on the detailed product information. While some participants then proceeded to the final decision, others made one or more additional fixations, including re-fixations, thus contributing further to the mean fixation times and fixation counts summarized in Fig. 7.3 and Fig. 7.4.

Table 7.3 details the "first trip around" the fronts of the A-products, indicating the time elapsed on average before the participants who fixated on each of the three types of task-relevant PMEs found there—referred to as Special AOIs in our data analysis—did so.

The brand names were fixated first for both A-products. This adds further support to the assumption that the brand names played a central role in the participants' considerations about localness. Being looked at first (and not only by the most participants and for the longest time) is likely to be a combined effect of high visual salience and consumers' pre-expectations of a brand name being approachable somewhere on the packaging while offering a potential shortcut to solving the task. In other words, both bottom-up factors (catching the consumer's attention) and top-down factors (visual search driven by a cognitive interest) are likely to have played a role in the final outcome; see Sect. 8.5 for further details on this basic distinction.

As for the remaining PMEs, the picture was fixated before the verbal claim in the case of the white cucumbers whereas the order was opposite for the chicken salad. Given that there are no obvious reasons to expect any of these elements to be more informative than the others in terms of localness in advance, their relative visual salience is likely to have been the major factor behind the fixation order whereas the perceived informativeness is more likely to be reflected in fixation time (as argued above for the claim on the chicken salad in referring to a concrete geographical location).

However, we will not immerse into any further hypothesizing on the unique confluences of perceptual and cognitive factors that elicited the specific visual search patterns displayed by each individual participant in each target trial since that would lead us into (qualified) guesswork with no direct support in the data at hand. Undoubtedly, random impulses and personal idiosyncrasies contributed to the results as well.

What the eyetracking data did give a clear indication of as it stands is the participants' overall style of attending to the product labelling before making a decision. They consistently started out by checking the fronts, fixating on one or more elements there, whereas less than half of them went on to also checking the remaining labelling details. However, that information can hardly have been decoded in full considering the moderate mean fixation times and the massive amounts of text that would then need to be processed. What the data suggest is rather that a subset of the participants made a quick check beyond the packaging front allowing them to note the presence of more detailed information and perhaps also grasping a few details in passing, but without reading the "small print" in full.

Of special interest in the latter regard is whether these quick checks led some participants to notice any information that could cause reasonable doubt about the A-products' supremacy in terms of localness. The most

clear indication in that regard would be the explicit specification of the European (and hence not necessarily Danish) origin of the main ingredients of the A-products, as opposed to the absence of any such information for the B-products. We therefore decided to treat the corresponding passages in the detailed product information as the ultimate "reveal", defining them as an additional Special Area of Interest (AOI) for the respective A-products.

None of the participants fixated on the passage in question for the white cucumbers while six did for the chicken salad. This renders a total share of 6% of all trials and 19% of the trials for the chicken salads. The difference suggests a slightly higher degree of uncertainty about the origin issue for the salad products than for the seemingly self-explanatory case of the white cucumbers carrying the name of an island known for the farming of precisely that sort of vegetables. However, four of the participants in question nevertheless chose the A-product, which suggests that the sense of localness already created by the packaging front was capable of overruling such a confounding cue (see Sect. 8.5 for further theorizing on potential reasons for this). It is, however, equally noteworthy that the two participants who opted for the "pass" option for the chicken salad were both among those who had fixated on the "reveal."

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PART III

General Discussion

CHAPTER 8

Why Do Consumers Get it Wrong?

Abstract The chapter further discusses and expands on the results gained in the light of empirical insights and theorizing available in a number of complementary lines of research within the overall domains of linguistics, semiotics, cognitive, social, and behavioural psychology, and visual information processing. Taken together, these insights support the view that our test consumers were no less observant and circumspect than could be expected of average consumers. Rather, they opted for maintaining an optimal cost/benefit balance in their information search and decision-making process which would indeed lead to more efficient and successful decisions in a great many instances. However, in the present cases this led to transactional decisions not in line with their declared preferences and expectations.

Keywords Semantic and pragmatic co-creation • Inference-making • Halo effects • Relevance processing • Everyday heuristics • Elaboration Likelihood Model • System 1 vs. System 2 • Cognitive dissonance theory • Visual processing • Top-down vs. bottom-up visual attention

8.1 Allowing for the Human Factor

The results of Studies 1–4 suggest a consistent connection between the presence of a PME on the packaging front and the emergence of consumer expectations and choices that do not find support in the totality of

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product information available if viewed in integration, or in other documentable facts, for that matter.

The PMEs focused at thus indeed do seem to be able to cause consumers to take a purchasing decision that they would "not have taken otherwise." However, the question remains whether this also means that they have been misled, or merely that they have not been as observant and circumspect as could reasonably be expected from an average consumer according to Recital (18) and Article 6 of the UCPD.

An objection to the latter interpretation would be that, overall, our participants were more careful about their decision-making than normally expected during routine shopping, as plausibly explained by our inclusion of situational framings suited for enhancing preference consciousness (see Sect. 3.2.3, Sect. 4.2.4, and Sect. 7.2). In turn, this means that any remaining shortcomings must come down to such trends in human reasoning and decision-making that extend also to average consumers in any practically applicable sense. Otherwise, who would qualify? Or stated more plainly: It appears that getting it wrong under the present circumstances is merely human.

What this means more exactly can be further explained in the light of insights and evidence gained in behavioural, cognitive, and linguistic-semiotic research. While the need to take such insights into account in assessments of potential misleadingness has been stressed by several authors (see Chap. 1), this general awareness has rarely been followed up by more detailed analyses of concrete consumer responses to concrete stimuli in concrete purchasing situations. An attempt to bring some of the pieces together is made below.

Apart from a better understanding of the results gained in the four studies presented in this work, the goal is to introduce some potentially helpful analytical tools and cross-disciplinary perspectives to the current debates on these issues more generally, that is, beyond the particular product properties and sorts of labelling elements addressed in Studies 1–4.

8.2 The Need for Semantic and Pragmatic Co-creation

What tends to be overlooked in legal assessments of potential misleadingness is that information is not a tangible substance in its own right. It must be encoded into one or more suitable carriers—words, sentences,

numbers, symbols, pictures, colours, shapes, etc., and combinations of such—which all have their own specifics as to what sort of information they are capable of conveying and to what degree a recipient will need to seek or infer additional information to reach a meaningful interpretation. In turn, no interpretation can be reached unless the recipient directs his or her visual attention towards the communicative cues of interest. These complexities traditionally fall under several more specialized disciplines and even more specialized sub-disciplines within them as comprised by such overall fields as linguistics, psycholinguistics, semiotics, visual rhetoric, and perceptual and cognitive psychology. However, the interdependencies between them are increasingly being approached also as a research topic in its own right, most prominently under the heading of multimodal communication research (cf. Machin & Ledin, 2020; Jewitt et al., 2016), though so far only scarcely with reference to food labelling (see, however, Jones, 2014; König & Lick, 2014).

In this subsection, we will concentrate on the communicative potential displayed by the PMEs of interest when actually attended to visually. Consumers' selective distribution of their visual attention in the course of ongoing decoding and decision-making and how this affects the interpretations of individual elements and the final purchasing decisions will be further addressed in Sect. 8.5.

A first key distinction must be drawn between language-based (verbal) communication, which offers the formalized means needed to convey explicit statements that can be assessed as true or false, and non-verbal communication which for the most part does not (Smith, 2021: 72ff; Karlsson, 2020; Forceville, 2014; Messaris, 1997). Take a photo of a pile of strawberries on a tub of yoghurt as opposed to the verbal statement *contains 2% strawberry concentrate*.

However, even verbal statements will more often than not require some co-creation of meaning on the part of the recipient (for an overview with special focus on product information, see, e.g., Kardes et al., 2004). Among our present PMEs, claims such as *max. 4.50%* fedt "max. 4.5% fat" and *3 g fedt per 100 g* "3 g fat per 100 g" are quite specific in terms of semantics, that is, what they say literally, but less so when it comes to pragmatics, that is, grasping the sender's communicative intentions (for further discussion on the semantics/pragmatics distinction, see Cummings, 2013; Ariel, 2010). If the consumer takes the intended messages to be that the figures mentioned are lower than for many other types of cold-meat products (and that this is good, because fat is unhealthy), there may

indeed be some truth and relevance to this for some products and consumers. But if the consumer takes the products to be low-fat alternatives to otherwise similar products, that will be wrong, at least for the constellations of products addressed in Studies 1 and 2.

For a comparative claim such as *30% mindre fedt* "30% less", in turn, even a purely literal (semantic) reading will be impossible without some additional inference-making to specify the scope of "less". If the consumer takes the message to be less fat than in an alternative product from the same manufacturer, that may indeed be so. But if (s)he takes it to mean less fat than in similar products on the market not highlighting low fat content, that is not a universal truth, as we saw it in Sects. 4.2.1 and 5.2.1. The same applies to both the literal decoding and pragmatic interpretation of the claim *lavt fedtindhold* "low fat content" addressed in Study 2, where not only the relevant basis of comparison, but also the size of the suggested difference remained unspecified.

At the other extreme, we find purely visual elements such as the stylized map of a Danish island and the drawing of a farmhouse on the packaging fronts targeted in Study 4. A key feature of (figurative) pictorial elements is iconicity, that is, some degree of visual resemblance to what is depicted (Noth, 1990: 121ff; Messaris, 1997: xiii ff). An essential consequence of iconicity is that the decoding of pictures will involve the same neural systems that we use to detect actual objects and events which, in turn, are closely connected to other systems via associative connections (Damasio & Damasio, 1994; Schupp et al., 2003; Vermeulen et al., 2008), including those underlying emotion and reward (Simmons et al., 2005). Moreover, simple images like the present may be recognized as part of the overall gist of a visual scene without even requiring a direct fixation (D'Hondt et al., 2013; Larson & Loschky, 2009; Loschky et al., 2019; Wästlund et al., 2018). All of this means that we may be cognitively and emotionally affected by a picture on the product packaging even without engaging into any conscious reflections about what it is supposed to tell us, that is, letting System 1 do most of the job (see Sect. 8.3). The eyetracking data gained in Study 4 suggest that, at least in our target cases, the pictures were hardly processes beyond that level (see Sect. 8.3).

It needs emphasis, however, that pictures may *also* sometimes become the subject of more conscious, goal-driven reflections, that is, be conceived of as messages that can be accepted or rejected in the same way as verbal statements (Smith, 2021: 72 ff; Karlsson, 2020; Forceville, 2014; Messaris, 1997). For example, a photo of fresh peaches on a carton of

ready-made ice tea can be interpreted as an indication that the product contains real peaches, as opposed to a product only featuring the word *peach* (Smith et al., 2014; for other examples, see Rebollar et al., 2019). However, a major difference that still remains between pictures and verbal statements is what Messaris (1997) terms the syntactic (propositional) indeterminacy of pictures. That is, a picture may refer to something (by resembling it) but lacks the formal means to convey an explicit statement about that something. That part must be inferred by the viewer at his or her own risk. In turn, this leaves the ice-tea manufacturer with a (relatively) good case for insisting that the intended message was "tastes of" and not "contains" and that an experienced consumer should have been able to guess that.

As for our present target examples, the drawing of a farmhouse could, correspondingly, be taken as a statement that "this is (a stylized drawing of) the place where the product is made." But it could also be taken to indicate that "the product is made in this sort of rural surroundings" or merely that "such farmhouses can be found in the Danish countryside where the traditional way of making Danish chicken salad has its roots". Correspondingly, the island depicted on the pickled white cucumbers product could be taken as an indication of where the cucumbers are grown, where the special recipe used for pickling them originates, where the manufacturing company has its domicile, or whatever else could strike the consumer as plausible, including combinations of such readings. Notwithstanding, the moderate attention devoted to the pictures in Study 4 suggests that few participants reached the stage of such more diversified readings and centred whatever critical reflections they might have had on the products' origin around the brand names and verbal claims.

A subtle case is constituted by such verbo-visual hybrids as the green Keyhole label addressed in Study 3 and both the visually vivid and verbally fanciful brand names addressed as PMEs in Study 4. Despite their different purposes, both types of elements have the common feature of being deliberately constructed by a label/brand owner to convey a content that is not immediately deducible from the visual and/or verbal elements carrying it when viewed in isolation. This results in an asymmetric distribution of definitional competence between the label/brand owner and ordinary consumers which has nevertheless become widely accepted in society (see Smith, Clement, Møgelvang-Hansen, Selsøe Sørensen, 2011: 89-91, for further discussion).

Consequently, the full rationale behind the Keyhole must be sought in the totality of public communication surrounding it, including the label's official homepage, ongoing publicity in mass and social media, and, ultimately, the underlying legislation. Likewise, the full array of expectations that consumers may come to connect with a brand must be viewed against that brand owners' total marketing communication involving also advertising, media coverage, consumer information on company homepages, and so on (cf. Smith, 2021: 43 ff; Macnamara et al., 2016; Castello et al., 2013; Riezebos et al., 2003: 80 ff). It therefore becomes harder to maintain that such elements "say" something potentially misleading in themselves. And yet a consumer who has not acquainted himself or herself with all cues available "out there" might just as well reason that the Keyhole probably means "healthier than other raw frozen fish" (which is not true) or that the brand name refers to the place where the white cucumbers in the jar have been grown (which is not true either). As it happens, the latter assumption could easily have been disconfirmed by simply checking the ingredients list (which states that the cucumbers originate in "Europe") whereas the exact Keyhole criteria for fish must indeed be sought beyond the product labelling.

The case becomes even more intricate when such indirect cues are paired with explicit verbal information referring to tangible facts. A clear example is the claim *3 g fedt per 100 g* "3 g fat per 100 g" addressed in Study 1, which was visually integrated in a logo that represents a particular product line with its own sub-brand identity and name. As indicated earlier, the claim as such lends itself to several pragmatic interpretations, both justified and unjustified ones. However, in this case the additional brand-supporting information found on the manufactures' homepage may indeed contribute to disambiguating things: There the consumer could learn that the 3 g fat logo (at the time of the experiment[1]) was recurrent on a number of cold-meat products some of which were fat-reduced versions of otherwise relatively fat products while others, like the smoked pork loin targeted in Study 1 (and again in Study 2), are low-fat products *par excellence*. In other words: Opting for the logo guarantees max. 3 g fat

[1] The products included in the present product line and the criteria used for selecting them have been subject to several modifications during the years of its existence. The same goes for the brand information on the manufacturer's homepage. The present considerations apply to the product addressed in Study 1 and others carrying the same logo at the time of the experiment.

per 100 g no matter what. However, a consumer who has not engaged in such detailed intertextual inquiries in advance may just as well believe that (s)he is buying a special low-fat version of pork loin. Again, this could easily have been disconfirmed by checking the "small print" on the products at hand, but that option remained underexploited in our target cases. We will return to possible explanations for this in the next two sections.

To round off the discussion on possible semantic/pragmatic readings of different types of labelling elements to the extent that they are in fact noticed and taken into consideration by the consumer, two additional points need brief mention.

One is the ontological reach of whatever meaning is deduced or co-created. It is widely accepted that the truth of low-fat claims and other health-related information must be sought in a highly tangible universe of objectively measurable facts (e.g. Bernreuther et al., 2013; Hollman et al., 1993). And it is also widely accepted that the truth of such playful messages as Carlsberg's slogan "Probably the best beer in the world" must stand its test in a semi-fictitious universe of storytelling which the brand owner invites the consumer to join (cf. Giovagnoli, 2011; Rindell, 2008; Woodside et al., 2008).

But how about the manufacturer's claim that "islanders pickle best" on the front of the white cucumbers addressed in Study 4? Innocent and playful as it may sound, the claim entails a potential differentiation between processing and growing that is (also) vital for assessing the degree of localness in a very tangible sense relating, say, to support of local farming and reduction of transportation distances and hence CO_2 emissions. Indeed, from a legal viewpoint the phrasing could arguably serve as a disclaimer that leaves no grounds for expecting anything but the pickling to take place on the island. However, its vague and playful character makes it equally suited for contributing to a more generalized localness halo quite indeterminate in such respects. Be that as it may, the moderate visual

salience of the present claim seems to have kept most of our participants from noticing it in the first place (see Sect. 7.2).[2]

However, the potential of various labelling elements to create such so-called halo effects if actually looked at—that is, to trigger vague additional expectations not sustained by anything said explicitly—is well documented and appears to have played a role for other results gained in our present studies, as discussed at some length from Sect. 4.3 on. This leads us to the final point: Even if some co-creation of meaning is always required, it may well stop at a relatively premature stage but still be accepted as a sufficient basis for a quick decision. That is, the consumer may presume that the product is "somehow" healthier, more local, more natural, etc., but end up having difficulty explaining how and why exactly if subsequently asked. We will return to possible explanations for this circumstance shortly.

In sum: To make any communicative sense of the PMEs considered in Studies 1–4 at all, consumers will always need to infer or actively seek additional information, and this may result in both justified and unjustified expectations. However, most unjustified expectations could be ruled out by simply checking the detailed product information for the products at hand (even if some subtleties do require more deep-going intertextual inquiries). To explain why our participants did not profit more from having that option than was apparently the case—despite spending more time and effort on each decision on average than expected for routine shopping—we will need to broaden the perspective and consider other aspects of human decision-making of which the interpretation of individual PMEs is merely one part.

8.3 System 1 versus System 2

It is widely agreed that what we refer to as "thinking" in everyday speech in fact covers very different sorts of mental processes with different neural bases and different functional specifics (for overviews, see Bayne, 2013;

[2] Arguably, the low visual salience of this claim may indeed be an advantage for the company when it comes to its possible function as a legal disclaimer. That is, it could be seen as a variety of what is popularly known as "small print" (despite being placed on the front), which is not likely to receive much attention in the purchasing situation, but which offers a potential defence against any subsequent complains about misleading labelling if later scrutinized by lawyers and government officials. This by no means implies that a deliberate motivation of this sort necessarily lies behind the concrete design decision at issue here, only that the potential is present.

Barsalou, 2014: 274-339). Several frameworks have approached this complexity by describing the processes as elements of two distinct, but partially overlapping cognitive systems, though with substantial variations in theoretical orientation and treatment of specific functionalities (for overviews, see Ball & De Neys, 2017; Evans, 2008). In continuation of Kahneman (2011) and Stanovich and West (2000), we will here subsume the existing variants of this overall dichotomy under the headings of System 1 and System 2.

System 1 is generally described as fast, unconscious, effortless, associative, probabilistic, and situation-dependent, relying extensively on brain areas that are evolutionarily ancient and shared with many other species. System 2, by contrast, is described as slow, conscious, effortful, sequential, logical, and abstract, relying on brain areas uniquely developed in humans. See Evans (2008: 256-257) for a schematized overview of existing formulations.

An influential framework which applies such a binary approach to persuasive communication (while not using the System 1 vs. System 2 terminology) is the Elaboration Likelihood Model (ELM) developed by Petty and Cacioppo (1986; see Teeny et al., 2017, and O'Keefe, 2015 148-175, for later developments). The basic assumption is that the degree of elaboration that people invest in their attitude formation and subsequent decision-making will vary not only with their cognitive capability, but also the perceived importance of the issue at hand. If the importance is perceived as high—say, if one considers buying a house or undergoing risky surgery—the *central processing route* will be taken where complex information is considered and additional knowledge actively sought and compared. If the importance is perceived as low, however—say, when one grabs a quick meal on the go or chooses whether or not to believe a tabloid news story about some unknown politician—the *peripheral processing route* will be taken. In that case, a decision can be reached by considering a small set of random cues such as an attractive photo, a single convincing argument, or plain trust in the communicator. Transposed to System 1 versus System 2 terminology, the peripheral route thus draws extensively on System 1 with limited or no contributions from System 2, while the central route involves a full activation of System 2 including its capability to filter or inhibit input from System 1.

At first glance, this could be taken as good explanation for our test consumers' suboptimal performances. It might simply be that they did not assign enough importance to their choices to take the central route and

fully activate System 2, which made them liable to all the pitfalls inherent in System 1 thinking. Indeed, the argument could be taken further: Maybe our participants were simply not observant and circumspect enough to earn the protection that EU law offers to the average consumer (leaving it open who would then qualify); see also Sects. 2.1 and 8.1.

There are, however, also strong arguments against such a black-and-white interpretation. In a critical review of existing formulations of the dual-processing paradigm, which is largely still valid today, Evans (2008) points at a number of inconsistencies and contradictions that remain insufficiently addressed. This includes the tacit assumption that "System 2 processing is in some sense superior to that of System 1, in that the former is often associated with normatively correct responding" (Evans, 2008: 267). Such an unconditional linkage between low perceived importance (or: motivation, involvement, engagement) and reliance on System 1 thinking is not only present in the ELM framework but also widely accepted in the general marketing literature (e.g. Ahmed et al., 2004; Roe & Bruwer, 2017; Silayoi & Speece, 2004).

A challenge to that line of reasoning is posed, for instance, by field studies of firefighters and paramedics at work (Klein, 1999; cf. Evans, 2008: 267). It is hardly fair to accuse such professionals of insufficient motivation and involvement when dealing with emergency situations. And yet a successful outcome is normally not achieved through extensive deliberation, but by relying on partially automated cognitive schemas encapsulating earlier experiences, as backed up by a few feasibility checks. In turn, this suggests a more flexible connection between the respective systems than often assumed: "We have habitual and automated behavior patterns that once required conscious type 2 effort but seem to have become type 1 with practice and experience" (Evans, 2008: 171).[3]

In sum, what the human cognitive system seems to be predisposed to prioritize is an optimal balance between cognitive costs and expected

[3] Such simplified and "frozen" decision-making templates summarizing earlier input and experiences have in themselves been subject to extensive investigation and theoretical discussion under such partially overlapping headings as stereotypes, schemas, scripts, mental models, and frames (for overviews, see, e.g., Attardo, 2020; Cienki, 2007; Posavac, & Cronley, 2004). Expanding on Evans' observation, these mechanisms seem to constitute a mediating link between entirely automated emotional and behavioural responses and more careful case-by-case reflection. While generally seen as crucial to our capability to deal with the immense complexity of perceived reality, what seems equally crucial is to know when to apply them and when to stop and think again. The latter aspect is taken further in Sect. 4.4.

situational benefits. In the case of urgent medical assistance and firefighting, relying extensively on fast, semi-automated processing rather than opting for a full activation of System 2 evidently supports that goal best and saves lives. For our present purpose, then, the question to be asked is how consumers seek and achieve such a balance during everyday shopping and whether the presence of PMEs may disturb that balance.

8.4 A Quest for Situational Relevance

A framework that explicitly incorporates such a cost/benefit perspective and at the same time connects the general cognitive mechanisms just addressed to recipients' decoding of particular verbal and nonverbal cues (i.e. to the issues addressed in Sect. 8.2) is the Relevance Theory proposed by Sperber and Wilson (1995); see Forceville, 2014; Cummings, 2013; Taillard, 2000, for later developments). In brief, the theory presupposes that any information that a communicator brings to the communicative scene will be expected by the recipient to be somehow relevant to the situation in which it is presented. Arguably, such an expectation will be further enhanced if the information is visually highlighted as is the case with our PMEs (see also Sect. 8.5). If the relevance is not clear from what is said explicitly, the recipient will start a sequence of subconscious step-by-step relevance processing where the explicit information is matched against information that he or she already has, and new information is tentatively added (inferred) to establish a sensible connection between the two. Stated more plainly, the recipient will try to answer the question "why are you telling me this?" until some plausible explanation comes to mind. The process stops when the cognitive cost of additional relevance processing exceeds the expected benefits in terms of new knowledge that can be used efficiently in the situation. Another factor essential to the final outcome is the sort and amount of knowledge that the recipient has in advance.

On this background, let us now consider if the response patterns displayed by our participants in Studies 1–4 could be explained in relevance-theoretical terms, taking the claim *3 g fedt per 100 g* "3 g fat per 100 g" addressed in Study 1 as a case in point. A participant not particularly concerned with healthiness may still have noticed the visually highlighted claim on the front of one of the products in the shelf display, and this may have resulted in some tentative relevance processing. However, the processing is likely to have stopped at a superficial level—say, at an interpretation that could be rendered verbally as "it probably means it's more

healthy, but I'm not too worried about that" (or even: "I don't go for all that health talk")—leaving the choice to be determined by other factors. This appears to be a plausible scenario for those participants who rated relative healthiness low for the choice in question and opted for a B- or C-product (or for an A-product, for that matter, while out of different considerations such as liking the overall packaging design). There are no good grounds for arguing that anyone has been misled in these cases.

If we now consider a participant who prioritizes relative healthiness higher (the most clear-cut instances being those participants who met the criteria in Sect. 4.2.4 for the choice in question), (s)he is likely to initiate the process in much the same way, but then elaborate more. Here the participant's degree of relevant food and nutrition knowledge becomes a crucial factor. If the participant does care about health, but has no exact knowledge about what nutrition values could be expected from the kind of food in question, the processing may well stop at an interpretation such as "fat is bad, 3 g is a low figure, it's probably a low-fat version". Choosing the A-product on that basis would definitely be factually misguided. This scenario appears to apply to those among the health-oriented participants who chose the A-product and furthermore ticked lower fat content as a reason for preferring the product over the alternatives.

By contrast, a health-oriented participant who knows that the present type of meat product (i.e. smoked pork loin in this case) is quite lean and rarely contains more fat than 3 g per 100 g is likely to bypass such an interpretation and land on one that could be paraphrased as "OK, these are all lean products, but thanks for reminding me". If the choice still falls on the A-product, that would be an instance of "rewarding the messenger" rather than being driven by unsubstantiated beliefs about the product. This scenario appears to apply to those participants who qualified as health-oriented and chose Product A, but did not tick lower fat content as an essential reason for opting out the alternatives at hand. Indeed, that would be quite in line with the manufacturer's own declared intentions with the product line of which the present product is part (see Sects. 4.1 and 8.2). That is, no matter what might be true of competing products, opting for products carrying the claim surrounded by the characteristic logo always means a low-fat choice.

On the face of it, it is hard to interpret this as an instance of miscommunication or to maintain that these participants might have profited from taking their relevance processing even further. After all, they did make a truly healthy choice (insofar as low fat is considered so) and the

PME may just have served as a confirmation of that. On the other hand, it cannot be denied either that the product thereby gained an unsubstantiated competitive advantage over the alternative products at hand which were just as low or lower in fat. Moreover, it is well-known that if a product highlights some positive health-related properties, consumers are likely to assume that the product may be preferable also in other health-related respects without necessarily being certain about which (see the discussion of halos effects in Sects. 4.3, 5.3, 6.3, and 8.2). Indeed, this is hardly inconsistent *per se* with the relevance-theoretical presumption of seeking maximum benefit with the least cognitive effort. It merely provides an extra (even if probabilistic) incentive to buy the product. However, in the present case, no obvious additional benefits were offered compared to Product B and only a single one compared to Product C (which contained a few more additives, but, then again, was lower in fat). Of course, all these pitfalls could have been revealed by checking the detailed product information at hand, but the question is if the cost/benefit mechanism—taken as an overarching principle—would speak in favour of that.

Related lines of analysis could be applied to the other PMEs considered in Studies 1–4 while with some variations. Thus, the open-ended semantics of the claims *30% mindre fedt* "30% less fat" and *lavt fedtindhold* "low fat content" poses even higher demands on consumers' prior knowledge about current levels of and variations in fat content for the product types in question. Even a relatively knowledgeable and health-conscious consumer may fall short of such knowledge and opt for "trusting the messenger" instead of immersing into further inquiries to maintain a (seemingly) reasonable cost/benefit balance. For the liver paste and the chicken salad carrying the former PME in Studies 1 and 2, respectively, this will however still mean a relatively fat choice, at least compared to certain other products available on the market (if not in our virtual supermarket).

Conversely, and somewhat ironically, the circumstance that many Danish consumers indeed do know that the island to which underspecified verbal and visual references are made on the pickled white cucumbers in Study 4 is famous for its high-quality vegetables would seem to enhance the risk of miscommunication. Thus, nothing else on the packaging front speaks directly against stopping the relevance processing at the

straightforward inference "probably grown there".[4] As for the name of a small town and a picture of a rural farmhouse on the front of the chicken salad in the same study, nothing on that packaging front interferes with an all-local interpretation either—unless one happens to know that a large industrial food plant is located in the town mentioned which produces salad-spread products at a variety of price- and quality levels.

Finally, the extensive (in this case: intertextual) inquiries needed to figure out that opting for the Keyhole means a healthy—but *not a healthier*—choice in most constellations presented in Study 3 would hardly pass the cost/benefit benchmark, considering that the choice will be state-guaranteed healthy in any case. And yet this clearly gives an unsubstantiated competitive advantage to manufacturers who opted for getting a formal Keyhole certification (see Sect. 9.3 for further discussion of both societal and commercial implications).

In sum, our findings suggest that the participants were no more or less observant and circumspect than could reasonably be expected from a cost/benefit viewpoint. For paramedics and firefighters, that would mean handling the emergency situation before more harm is done. For adult urban consumers, that would mean getting back from shopping in time to attend to other essential daily activities while believing that the outcome is more or less in line with one's priorities. To some consumers, the latter may well amount to not spending more time and money than necessary and just getting it over with, and a subset of our results are likely to reflect just that. However, some participants demonstrably did display a higher degree of preference consciousness for some choices, with healthiness being one such more specific preference. Likewise, some further scrutinizing of the detailed product information did take place, with 0.73 "turns" per choice in Studies 1–3 on average, and 7.8% of the mean fixation time spent on that sort of information in Study 4. Only, this was clearly not enough to avoid factually misguided and/or groundless choices. Moreover, in precisely those instances where such information could have prevented the most obvious misconceptions, it was attended to less than otherwise. What this ultimately seems to suggest is that the very presence of a PME

[4] As discussed earlier, the playful claim about islanders pickling best might, of course, be taken as a hint about the cucumbers only being pickled (not grown) on the island. However, that subtlety appears to have escaped most of our participants considering the minimal attention paid to the claim according to the eyetracking data, as further argued in Sects. 7.2 and 8.2.

is capable of distracting consumers—even the more preference-conscious among them—from engaging in further inquiries and instead "reward the messenger" on insufficient grounds.

8.5 What We See is All There Is: The X-factor of Visual Attention

In his investigations into everyday heuristics, Kahneman (2011) points at a phenomenon that he terms "what we see is all there is" (abbreviated WYSIATI by Kahneman, cf. 2011: 87-88). That is: If what we already see allows us to put together a coherent story suited for supporting seemingly reasonable action, we tend to stop seeking additional evidence that might interfere with our judgement. Or transposed to our present scenario: Why check the back when the matter seems pretty clear from the front already? Much of the time, this strategy helps us in making more efficient and successful decisions. However, it also entails an obvious risk of overgeneralizations which our present PMEs seem particularly well-suited (perhaps designed?) for supporting.

A contributing factor is likely to lie in the phenomenon known as cognitive dissonance as first described by Festinger (1957; see O'Keefe, 2015: 76-97, for later developments). The term refers to the mental and even physical discomfort that people experience when they need to cope simultaneously with beliefs, values, or attitudes that mutually exclude each other. One out of several automated and largely unconscious strategies used for reducing such tensions is to avoid or ignore information that might interfere with a decision that one is just about to take (see O'Keefe, 2015: 78ff, for further details and evidence on the present and other mechanisms supporting dissonance avoidance that have a bearing on everyday decision-making and ex-post decision evaluations).

The approaches just mentioned thus further qualify the relevance-theoretical line of analysis introduced in Sect. 4.3 while at the same time adding a new dimension: the importance of "what we see". However, they do not offer any basis for predicting what that starting point could naturally be in particular instances. Applied to our case: Why should "all there is" necessarily be the packaging fronts? At least during physical shopping, a product can easily be picked up, turned around, and looked at from any angle one wants. Certainly, in the e-shopping scenarios modelled in Studies 1–3, seeing the product details requires an active click. However,

in Study 4, all labelling attributes of the respective target product were readily accessible within a single visual display. And yet "all there was" to all of our participants for the first 3–4 seconds were the fronts, and more than half of them did not take the examination further than that, as indicated by the eyetracking data (see Sect. 7.2).

To get deeper into this aspect, we need to supplement the linguistic-semiotic and cognitive-psychological theorizing considered so far with empirical insights on how people distribute their visual attention during complex scene perception. Results from this direction of research suggest that we constantly shift between two different but complementary modes of visual attention: top-down (or goal-driven) attention, that is, "looking for something", and bottom-up (or stimulus-driven) attention, that is, "having one's eyes caught by something" (for overviews, cf. Orquin & Loose, 2013; Chun & Wolfe, 2008; Corbetta & Shulman, 2002). While top-down attention is driven by more or less conscious cognitive needs (searching for a particular brand, wanting to check the price, worrying about fat content, and so on), bottom-up attention is activated automatically by inherent properties of the stimulus itself. That includes such physical properties as relative size, orientation, luminance, colour saturation, etc., and immediate recognizability of the stimulus as something that we are evolutionally and/or culturally predisposed to respond to, say, as a potential danger, an attractive sexual partner, a familiar location … or a delicious meal.

It hardly takes further illustration to establish that product-packaging and e-shop designers do their utmost to include elements of the latter sort in the packaging fronts (or whatever is intended to serve as the Principal Display Panel, cf. Klimchuk & Krasovec, 2013), whereas less effort is invested in attracting visual attention to the "small print"—this popular term in itself being a clear indication of the point made here. It is therefore not surprizing that bottom-up attention will mostly determine where consumers start their examination of a pre-packed product, as most unambiguously confirmed by the eyetracking data collected in Study 4 (see Sect. 7.2). In that study, we also saw that the participants subsequently spent 3–4 seconds examining the fronts only, a process which is likely to have involved both top-down factors (looking for task-relevant cues) and bottom-up factors (having their eyes caught by visually prominent elements, including the PMEs). The participants' basic impression of the respective products is therefore likely to have been formed during this phase. In turn, that plausibly explains why only about half of the participants subsequently took a quick glance at the detailed product

information while for the most part overlooking (or ignoring?) the subtle cues that could have challenged the all-local atmosphere already created by the fronts of the A-products. Both from a cost/benefit perspective and as a means of avoiding unnecessary cognitive dissonance, such behaviour could have yielded a quite satisfactory result in a great many cases. Yet, in the present, potentially crucial details were missed.

To conclude: Several communicative, cognitive, and neural mechanisms jointly contribute to explaining why the labelling of our present target products has a potential for leading even reasonably alert consumers astray in non-trivial respects. Apart from the extensive need for semantic and pragmatic co-creation and our inclination to maintain a reasonable cost/benefit balance, while staying clear of cognitive dissonance, this also involves the visual composition and layout of the labelling, which is decisive for the order in which individual labelling elements are likely to be attended to and whether they will be attended to at all.

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CHAPTER 9

Implications for Fair Labelling Practices: How to Get it Right?

Abstract The chapter discusses to what extent and how potential miscommunication through food labelling—and beyond—could be prevented both by socio-political actors promoting widely accepted societal causes such as public health and sustainable consumption and by fairness-oriented actors within the food industry itself. It suggests that some relatively straightforward (but widespread) instances of potential misleadingness could, if so wished, be prevented by relatively simple means and procedures, while substantially more complex fairness challenges also exist that are less easily resolved.

Keywords Collaborative principle • Fairness checkpoints • Organizational silo structures, Pre-testing • Unique Selling Point (USP) • Recommender systems • Information vs. guidance

9.1 Contributing to a Wider Debate

The overarching goal of the present account was to demonstrate that the (EU) legal approach to identifying potentially misleading food labelling can be transposed into empirical terms and that the results gained can be further explained in the light of behavioural, cognitive, and linguistic-semiotic theorizing complementing the strictly legal reasoning. Both appear to be the case.

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The potential contribution of such findings to future political and regulatory developments and to the self-regulation of fairness-oriented companies is, however, a versatile topic in its own right that reaches far beyond the scope of the present text. The FairSpeak Group has contributed to the debates on these issues on various levels, including seminars and workshops with key stakeholders and pilot testing of concrete product labelling solutions in collaboration with interested companies. Insights gained up until 2015 have furthermore been implemented in a first set of guiding principles for fairness-oriented companies and independent labelling bodies which supplement the strictly legal restrictions on food labelling (Smith, Selsøe Sørensen, Clement, & Møgelvang-Hansen, 2015). While a few of these principles will be drawn upon also in the discussion to follow, the primary aim is to provide input for the continued debate among the immediate actors, as a basis for constructive action.

9.2 Commercial Claims

A simple way of subsuming the complementary theoretical explanations given above for why consumers tend to get it wrong is to see this as caused, at least in part, by a breach with the so-called cooperative principle proposed by Grice (1975) in his influential theorizing on the preconditions of mutually informative communication. The principle states:

> Make your conversational contribution such as is required, at the stage at which it occurs, by the accepted purpose or direction of the talk exchange (Grice, 1975: 45).

Though originally aimed at oral conversation, the principle also seems to capture some of the key observations on food labelling already discussed at length in Chap. 8 in the light of more specialized (and mostly later) frameworks. Transposed to our present scenario: The consumer will expect the manufacturer's communicative effort to be in line with the generally accepted purpose of the (one-way) communication in question, in this case: to inform the consumer about the product while also endeavouring to sell it. Moreover, the consumer will expect this information to be contributed "such as is required, at the stage at which it occurs" which arguably presupposes some consistency in the manufacturer's messages from front to back, with no need to abandon key expectations already formed along the way. That is the case no matter if the bits of information

presented in the process are true *per se* or not. Given that the front is likely to be looked at first (due to its higher visual salience, see Sect. 8.5), the consumer is thus entitled to expect no major "game changers" to turn up when proceeding to the back—only additional details. For a great many products, this will indeed be so, but for our target cases the test results suggest otherwise.

The crux of the matter thus seems to be a breach with the collaborative principle rather than (necessarily) with current regulatory practices. However, this situation also seems to be susceptible to legal assessment within the overall framework outlined in Sect. 2.1, even if that would probably require some adjustments in the style of reasoning typically displayed in day-to-day legal decision-making and also in the food industry's own legality checks. (Arguably, the latter thus presently tend to be organizationally detached from the creative side of product- and marketing development, cf. Clement et al., 2010; see also Stank et al., 1999, on organizational silo structures in companies more generally).

For fully understandable practical reasons, such assessments tend to be of a binary nature: Has the required information been provided or not? Is it factually correct or not? Have all *per se* rules been checked and observed in a way that is in line with current authority practices? And so on. However, Article 6.1 of the UCPD leaves a door open to a more probabilistic style of reasoning in that it extends also to what a commercial practice (here: the product labelling) is "likely" to lead the consumer to expect and how the consumer is "likely" to act on that background. As our results demonstrate, that may be a whole different matter. Rather than using the latter formulation only as a "safety valve" for commonsense-based adjustments in isolated cases, it might therefore be worthwhile seeking more systematized and generalizable ways of incorporating existing knowledge on real-life consumer behaviour into future rule-making and, in particular, regulatory practices.

As for commercial actors, the question is slightly different: Should the sales talk be taken all the way to the limits set by current legal rules and regulatory practices (perhaps even pushing the latter a bit) to maximize competitiveness and sales? Or should responsible food companies be the first to encompass fairness checkpoints in their product- and brand-development routines relying on available evidence on real-life consumer behaviour rather than (only) the naked rules? The former position is, of course, rarely voiced in public, at least not in these words, whereas the latter has been explicitly promoted, for instance, by the Danish retail group

Coop and the (commercially based) certification service Varefakta. These and other actors have furthermore contributed to crystallizing the first set of tentative guiding principles for supporting such developments (Smith et al., 2015; see also Smith & Barratt, 2020).

We will not go into details with all of these principles here, in that they cover a much wider range of PMEs and possible conflict scenarios than those addressed in the present text. However, one overarching principle deserves mention (here rendered in a slightly rephrased form[1]) in that it offers a suitable starting point for coping with most food-labelling-fairness challenges, including those identified in Studies 1–4. It reads:

> As a routine fairness check, manufacturers/designers should be able to articulate the intended understanding and communicative impact of any given design element, and combinations of design elements, to themselves, including what the consumer can be expected to infer, deduce, or conclude on that basis. If there is any doubt about the final outcome, it should be put to test. (translated from Danish and slightly rephrased after Smith et al., 2015: 67).

If such a test reveals a need for disambiguation, various forms of mitigation can be considered involving either rephrasing/replacing/skipping the element(s) in question and/or adding other elements within the same visual field to adjust the scope of possible readings.

One real-market example of such a more "fair spoken" variant of an otherwise potentially problematic (while still legal) labelling solution is a chocolate milk carrying the verbal claim "no added sugar" in a distinct orange circle placed at the top right part of the front and the wording "contains sweeteners" in a similar circle placed at the bottom left part of the front. This makes a substantial difference compared to the great many other products found on the Danish market which only have the "no added sugar" statement present on the front, while finding out whether the sweetness stems from a natural sugar content or artificial sweeteners requires a careful reading of the detailed product information (for more details on this and related examples, see Smith et al., 2015: 55ff).

Turning now to the commercial products and PMEs addressed in Studies 1–2, and Study 4, it would seem that certain moderate design

[1] The principle was originally stated with specific reference to verbal claims and then transposed to other types of labelling elements in the subsequent chapters. It is, however, here reworded to cover any conceivable labelling elements and solutions.

adjustments would also have a substantial potential for reducing the risk of miscommunication in these cases.

As for low-fat claims of the type "only X% fat" (and comparable wordings) placed on products that are low on fat per definition, the pitfall lies in the potential reading "contains less fat than in other products of this type". However, if the manufacturer's actual purpose is to highlight the low fat content of the category as a whole (and perhaps be rewarded for that), that would seem to be quite legitimate—and there is a variety of ways in which such a reading could be more unambiguously supported. One simple option (to stay with the smoked-pork-loin example) would be a visually prominent claim stating that "pork loin is lean meat / always a low-fat choice / etc.". That is, to use a categorical statement rather than a (potentially) product-specific one. Even if maintaining the wording "only X % fat" as well, this would impose some constraints on the possible interpretations of the latter, thereby reducing the risk of unjustified readings while still getting the (presumably) intended message through.

Likewise, replacing a claim of the type "30% less fat" with, for instance, "30% less fat than in our good old classic" makes a substantial difference in those (frequent) cases where what is made explicit by the latter formulation is precisely what legitimized the comparative statement in the eyes of the law in the first place (regardless that many competing products are even lower in fat). Still, some risk of unjustified inferences and halos is bound to remain, and fairness-oriented manufacturers might therefore consider taking the full step and skip fat content as a major USP (Unique Selling Point) in such cases altogether and opt for other, more suitable ones (despite the well-documented effect of such selective comparisons on sales, cf. Muthukrishnan et al., 2001; Gotlieb & Sarel, 1991).

Turning now to the issue of localness addressed in Study 4, a justification for the verbal and visual references to a well-known Danish island on the front of the pickled white cucumbers would be that they are indeed processed on the island (while imported from abroad) and that this may still add something to the quality of the end-product. After all, consumers must be free to judge about that for themselves. However, the only labelling elements that support such a reading in the present design version are the vague hint that "islanders pickle best" on the front and a discreet indication of "EU" as the raw product's place of origin in the detailed product information. Both cues escaped the attention of most of our participants as we saw in Sect. 7.3. So why not simply spell out the whole point upfront? One possible option would be a visually prominent verbal

claim stating that "we collect the finest crops in Europe and pickle them the Danish way" or even "grown globally, pickled locally". While not interfering with the (presumably) intended sales argument, this would exclude more far-reaching and unjustified expectations such as supporting local farmers or reducing transportation distances and CO_2 emissions.

As for the chicken salad also addressed in Study 4, the main pitfall seems to lie in highlighting the name of an existing small town given that the salad could not possibly have any special qualities on that account for reasons further discussed in Sects. 7.1 and 8.4. However, if the intended message simply is that special care has been taken to create a traditional domestic-style variant of chicken salad, then things could easily be straightened out. A simple way would be to skip the use of a genuine place name while adding a claim such as, for instance, "made according to good old Danish traditions". Moreover, in such surroundings the rural-sounding, but fictitious, sub-brand name and the stylized drawing of a traditional Danish farmhouse would stand a better chance of being understood as storytelling elements only, not as indications of possible benefits directly connected with the physical origin of the product and its ingredients.

In sum, seemingly manageable adjustments appear to be sufficient to exclude the most obvious communicative pitfalls, though the effect must, of course, be further tested and fine-tuned in the packaging design development process. That by no means guarantees that consumers will always "get it right" and even less that they will always make wise, healthy, and societally favourable decisions. It simply means that a more systematic effort on the part of companies and designers to predict and minimize potential communicative pitfalls (and not just the risk of complaints and lawsuits) can make a tangible difference and contribute to creating a firmer basis for promoting also the latter, more far-reaching agendas.

9.3 Non-Commercial Regulated Labels

A labelling format developed to support one such a more far-reaching societal agenda, namely the promotion of heathier eating habits in general, independently of any particular commercial interest, is the Nordic Keyhole labelling system. What is rather striking, however, is that this format seems to involve some of the same communicative pitfalls as do strictly commercial labelling elements.

Thus, as we saw in Study 3, the Keyhole too is demonstrably capable of leading consumers to take a purchasing decision that they "would not

have taken otherwise" in the sense of choosing a product that may be healthy in some essential respects, but not healthier than other, comparable products not carrying a Keyhole. One thing is the already mentioned unsubstantiated competitive advantage that this gives to those manufacturers who have opted for acquiring a formal Keyhole certification (which, on the positive side, may motivate more companies to do so for more of their products).

However, what is perhaps more disturbing from a health-promotion viewpoint is that the Keyhole seems to shift consumers' preference consciousness to a more generic level, that is, to opt for healthiness as such (as materialized by the Keyhole) rather than looking specifically for low fat, low sugar, more fibres, fewer additives, etc. In turn, this leaves additional room for unsubstantiated inferences and health halos, or stated more plainly: for wishful thinking that goes far beyond what the Keyhole actually promises as we saw in Sect. 9.3. In sum, the Keyhole may well make it easier for the consumer to make a relatively healthy choice—which is, indeed, the intention—but it also makes that choice less critical as to specifics.

None of this gives any reason to question the genuine intentions behind the Keyhole system. Rather, the observations illustrate the challenges that arise when a highly complex (and controversial) topic such as whether or not particular food products are healthy is treated as a product property in its own right and embraced by a single label. In the case of the Keyhole, the complexity must thus ultimately be reduced to a binary format, that is, a yes or a no (or at least a "less so"). An example of a somewhat more differentiated approach is the Traffic Light nutrition labelling system adopted in the UK where green, amber, and red indicate a high, a medium, and a low degree of healthiness, respectively, as specified separately for selected nutrients (FSA, 2020). Yet this system too is bound to involve substantial generalizations and trade-offs to be practically manageable. The pros and cons of these and other nutrition labelling schemes have for several years been subject to extensive debates and their effects questioned and tested from a variety of perspectives (Borgmeier & Westenhoefer, 2009; Croker et al., 2020; Jones et al., 2019; Mørk et al., 2017). However, opinions remain divided.

What the present investigation might contribute to the discussion is highlighting the need to distinguish more clearly between two related but distinct objectives: informing consumers and guiding them. That is: Should the label help consumers to pinpoint specific product properties

that they would also understand the importance of and prioritize for themselves for any other product choice? Or should it rather unburden them from having to deal with these specifics and offer them a choice that has been blueprinted as healthy by people who are more competent to judge in these matters? Both rationales seem to be present in the overall Keyhole agenda while not explicitly separated (see Sect. 4.1).

Arguably, these objectives are not necessarily mutually exclusive. They could also be seen as complementary, that is, as accommodating different levels of consumer knowledge and engagement in different situations. However, both paths of influence seem open to further optimization.

To the extent that supporting consumers' own critical thinking is part of the goal, a major challenge lies in the gap between the Keyhole label as a self-contained visual symbol and the background information that further qualifies it. This divides into two distinct problems. First, the latter information is rarely immediately available in the purchasing situation, but must be sought in the widely distributed public communication surrounding the label. Second, the consumer-oriented part of that communication is at present stated in highly generic catch-all terms, whereas the exact criteria that qualify individual products for the Keyhole can only be found in highly technical labelling manuals and legal acts intended for professional readers (see also Sect. 6.3). Taken together, this offers consumers a poor basis for figuring out what the Keyhole "means" exactly when placed on a concrete product and incorporating the corresponding product properties in their personal decision-making, while ideally also considering other relevant factors. Instead, consumers are compelled to trust the messenger and let themselves be guided instead of informed and/or to resort to qualified guesswork with an inherent risk of misconceptions, as observed in Sect. 6.3.

A possible way of remedying this situation, at least for e-commerce, seems to lie in the still more widespread use of hyperlinks and hypertexts offering "read-more" options (recipes, product reviews, animal welfare policies, etc.). As for the Keyhole label, however, such clickable options are mostly absent or, at best, restricted to the sort of one-size-fits-all information just mentioned. A possible next step would therefore be to tailor concise informative texts for each individual Keyhole product explaining in a consumer-friendly language which properties qualify that particular product carrying the Keyhole, whether this goes for the whole category or the product is a better choice within the category, and possibly also which

other health-related properties might be worth considering even if not covered by the Keyhole (e.g. that all sorts of fresh fish contain healthy fatty acids, but that fat fish contains more than lean fish). Such texts are likely to be consulted mainly by particularly health-oriented consumers, and only in some situations. Yet this is quite in line with the considerations in Sect. 2.2 about consumers needing to display some degree of preference consciousness on their own part to get the most out of (fair) product labelling. Moreover, in the long run such explanations may contribute to a wider dissemination of a more diversified understanding of the health advantages and drawbacks of particular food products in society at large, driven by word of mouth.

None of this alters the fact that, in a great many situations, consumers are more likely to take the Keyhole as a source of guidance, that is, as a friendly push (or a nudge, see Chap. 10), rather than as a source of information. A key limitation to that path of influence is, however, the incapability of the current Keyhole format to accommodate personal and contextual variations in nutrition demands.

What is an ideal diet for one person may be a health hazard to another, depending on such factors as overall health condition, age, gender, genetic predispositions, activity level, and so on. Moreover, the contribution of a single food item to a healthy diet must necessarily also depend on the quantities and combinations in which it is consumed. Once again, unexploited possibilities do seem to exist, in particular in digital supermarkets (while transposable also to physical ones, e.g., via QR codes). Some areas of e-commerce have thus seen a rapid increase in the use of AI-based so-called recommender systems combining large data sets from a variety of sources for generating personalized end-user recommendations (Batmaz et al., 2019; Beheshti et al., 2020; Lawo et al., 2021). While so far mainly implemented in other commercial sectors (books, entertainment), systems intended to support healthier food choices have been developed as well (Rita, 2020; Tran et al., 2018; Verma et al., 2018; Zenun Franco, 2017).

The integration of such functionalities into mainstream food labelling practices is however still in its infancy. Among other factors, this may have to do with the inherent difficulties in balancing between the potentially opposing interests of different stakeholders: nutrition experts, policymakers, authorities, NGOs, food manufacturers and retailers, and ordinary consumers, as further discussed in Chap. 10.

In the best of possible worlds, however, an "interactive Keyhole" could be created that would help consumers choose the products that best match their individual nutritional needs as well as the meal they intend to prepare. Less ideal perspectives of such developments will be considered in Chap. 10.

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CHAPTER 10

Concluding Remarks

Abstract The chapter broadens the perspectives taken throughout the preceding account by also considering other approaches to the notion of miscommunication (and related concepts) than legal and commercial ones and other types of consumer expectation than such relating to factual product properties. The overall conclusion is that while misleading food labelling and marketing is but one part of a wider array of societal challenges, taking it beyond the point of "just obeying the rules" might still become a vital competitive parameter to companies in an increasingly complex, but also increasingly sustainability-conscious business landscape.

Keywords Essentially contested concepts • Social constructivism • Hedonic consumption • Tribal consumption • Nudging • Filter bubbles • Sustainable consumption • Sustainable marketing • Competitive advantages

What we first and foremost set out to demonstrate was that deliberations on the potential misleadingness of concrete food labelling solutions do not need to rely solely on legal reasoning made behind a desk; they can also be supported by empirical testing in realistic shopping settings and the findings explained in the light of research-based insights which, to

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date, have only scarcely been taken into account for such purposes. Moreover, our findings and follow-up analyses suggest that new ways of preventing the most obvious communicative pitfalls could be developed on such a basis. However, the specific cases addressed and the theoretical and practical perspectives taken into consideration by no means exhaust the topic of fairness in product labelling, let alone in general.

First, such terms as fairness, miscommunication, misleadingness, deception, etc., convey what Gallie (1955) terms essentially contested concepts, that is, such that are subject to permanent dispute and (re)negotiation among different interested parties (see also Bovaird, 2004; Garre, 1999; Hobson et al., 2002). While our point of departure here was the understanding of misleading commercial practices adopted in EU law, several alternative approaches to such issues exist, applied to anything from cheating at exams to military operations (for some examples, see Carson, 2016; Rothstein & Whaley, 2013; Hancock, 2007). However, given that the legal perspective is seen as vital by most actors in the food sector (while for different reasons, see, e.g., Clement et al., 2012) and that the basic rationale of Article 6 of the UCPD is mirrored also in the commonsense arguments put forward by non-legal actors (see also Chap. 1), we see the present results as one essential contribution to a (definitely) much wider debate.

Furthermore, focusing primarily on factual product information (fat content, physical origin) makes us liable to critique from such directions in consumer-behaviour and marketing research that stress the role of emotional and socio-psychological factors in everyday shopping. Key foci here include pleasure-oriented (hedonic) consumption as distinguished from use-oriented (utilitarian) consumption (e.g. Li, Abbasi, Cheema, & Abraham, 2020; Audebert et al., 2006; Khan et al., 2005), and also what some authors label tribal consumption, that is, affirming one's belonging to a particular group through product choices (e.g. Gheihman, 2021; Cova & Cova, 2002; Valentine, 1999). It could thus be argued that choosing a product which highlights a lower fat content may (also) be a way of signalling that one belongs to a "tribe" that values a healthy lifestyle, and that choosing a local-looking product may (also) be a way of gaining a pleasant feeling of authenticity and nostalgia—and/or of belonging to a "tribe" that values these things.

Some proponents of social constructivism would probably add that experienced reality is the only kind of reality to which we have any access (for critical discussion, see, e.g., Roberts-Miller, 2002), which could be

taken further to arguing that what consumers are ultimately buying is an experience (Pine & Gilmore, 2011; Sundbo & Darmer, 2008) and that if they get it, they have not been misled.

While these perspectives most certainly deserve additional attention in assessments of potential misleadingness, they cannot stand alone. One way of accommodating them could be to see the corresponding choices as manifestations of a specific type of preference consciousness (see Chap. 3) which is directed towards pleasure and/or group identity rather than more tangible product qualities. It remains an open question whether it would make sense to extend the criteria of the UCPD (or their counterparts in commonsense reasoning) to such choices, as argued in Chap. 3 for the somewhat broader (but overlapping) categories of impulse- and routine-driven choices.

In any case, the important role of habits, emotions, and group identity in food choice (especially for choices driven mainly by System 1: see Sect. 8.3) does not disqualify consumers from *also* considering what they expect to be truthful facts. Without immerging any deeper into the underlying philosophical controversies, it seems fair to argue that if a consumer actually believes that fat consumption has a bearing on the functioning and well-being of the human body or that the place a product is made has a bearing on taste, local employment, transportation distances, etc., then the case remains problematic if the labelling comes to supports unjustified expectations in such regards.

This brings us to the third and final point, or rather, two closely connected ones: (a) the ever-increasing complexity of the societal and personal concerns which consumers try to accommodate via their food choices and (b) the gradual shift in current food labelling practices from informing consumers to guiding them.

While consumers can, to some extent, incorporate such properties as less fat, more fibres, or local production as separate criteria in their personal decision-making, this is less straightforward for the pre-settled combinations of criteria that qualify individual products as healthy according to the Nordic Keyhole labelling system as we saw in Sects. 6.3 and 9.3. More demanding yet it is to figure out how choosing one product in preference to another might contribute to a cleaner environment, fair trade, better animal welfare, reducing carbon emissions and other causes of global warming, and so on. Seeking to incorporate such wider concerns into consumers' in-store decision-making, both non-commercial and commercial actors (with a substantial grey zone in between) resort to

so-called signpost labelling (Borgmeier & Westenhoefer, 2009; Jones et al., 2019) of which the Nordic Keyhole label addressed in Study 3 is but one example. In Denmark alone, by 2019 the retail market counted over sixty such issue-specific labels sanctioned by more or less independent third parties (DCC, 2019) on top of which come the numerous labels created by individual food manufacturers and retailers. Examples of the latter are the Änglamark label of Coop Denmark which unifies selected properties covered also by existing state-regulated labels, including the Nordic Keyhole label and the Nordic Eco and Swan labels, and the CO_2 Friendly label launched by a Danish wine wholesaler.

Two evident fairness challenges emerge from these developments. First, as discussed at some lengths in Sects. 6.3 and 9.3 for the Nordic Keyhole, such labelling schemes seem to lower consumers' overall preference consciousness by reducing it to a generic level, that is, to opting for healthiness "as such" and, correspondingly, for a clean environment, better animal welfare, climate-change neutrality, and so on. The presence of a corresponding label thus allows consumers to make what they experience as an optimal decision on that basis alone, without (necessarily) reflecting on the limitations and trade-offs underlying each label and with no immediate access to such additional information in the purchasing situation. In turn, that leaves more room for filling the blanks with positive expectations not actually sustained by the label (see Chaps. 4, 5, 6, 7 and Sect. 9.3).

Also, considering the vital role of group identity and emotions in food choice (which also applies to ethical and environmental consumption, cf. Gheihman, 2021; Anisimova, 2016; Bergseng & Rudell, 2015), these schemes offer a tempting shortcut to settling the matter on that basis alone. That is: If one can show the world that one cares about whatever good cause is in focus, and if that makes one feel good about one's decision, that may be enough to some. Such a choice may certainly still be in line with the consumer' good intentions, but (s)he will not have any chance of knowing if another choice might have accommodated them even better.

Second, the switch from information to guidance makes it particularly important who gets the opportunity to function as a guide. Healthy living, fair trade, animal welfare, climate chance, and so on, all qualify as essentially contested concepts in Gallie's (1955) sense as argued also above for the concept of fairness as such. Numerous stakeholders insist on having a say in these matters and they will often take conflicting positions on both descriptive issues (how things are), normative issues (how things should

be), and instrumental issues (how that might be achieved); cf. Freeman et al., 2010. Even governments—ideally guided by maximally independent and authoritative experts—need to prioritize and compromise when setting the bar in such matters. In turn, this makes lobbyism from key stakeholders an integral part of the game (Rasmussen, 2015; Schaldemose & Engelbrecht, 2011). However, the role of particular interest becomes even more pronounced—while perhaps also more justifiable—when it comes to labels created by semi- or non-governmental alliances and individual companies.

None of this excludes that the resultant labelling systems can be of genuine help to some consumers in some situations. The simple point is that guidance mostly comes at a cost and that this opens the gates to a qualitatively different sort of fairness challenges, one example being popularly known as greenwashing (Alons, 2017; Delmas & Burbano, 2011).

As already touched upon in Sect. 9.3, a way of remedying some of these pitfalls might lie in an increased use of algorithm-based personalized recommender systems. Thus, such systems not only have a potential for accommodating personalized nutritional demands, but also for aligning each product choice with the consumer's personal values, beliefs, priorities, political orientation, and so on. However, the other side of that coin is what some critics have dubbed filter bubbles (Nguyen et al., 2014; Pariser, 2011; Resnick et al., 2013), that is, a risk that citizens will gradually become trapped in their own closed bubbles or "echo chambers" where they will only receive input that is in line with their expectations and which has been tailored specifically for them. Arguably, this leaves little incentive for considering alternative perspectives or acquiring genuinely new knowledge and ideas.

A related, while less pessimistically pitched, notion is that of nudging (Thaler & Sunstein, 2009), that is, helping people making better decisions by using a variety of techniques capable of activating pre-designed choice architectures that do not require an active cognitive effort on the part of the person targeted. Once again, however, the question arises if "better" means better for the nudgee or for the nudger (Ivanković & Engelen, 2019 ; Wilkinson, 2013).

Needless to say, these final considerations take us far beyond the intended purpose of the present text, and our findings do not offer any fixed-and-ready solutions to the dilemmas pointed at. However, what we *have* shown is that some relatively straightforward (but widespread) instances of potential misleadingness can be predicted, explained, and, if

so wished, prevented relying on empirical test methods and existing insights on real-life human decision-making. If such insights could be fed into everyday regulatory practices and, perhaps more importantly, the best practices of fairness-oriented food companies, it would be a first step towards confronting also the less easily resolved fairness challenges taken up in this final chapter.

In the best of cases, implementing new checkpoints and techniques that demonstrably reduce potential miscommunication could become a new and vital competitive parameter on an increasingly complex, but also increasingly sustainability-conscious food market.

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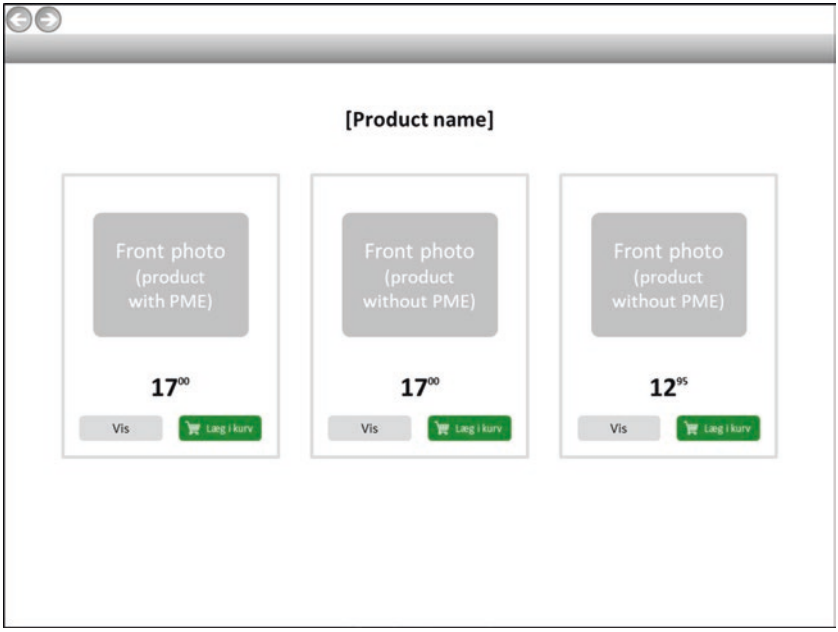
Appendix 1: Example of standard ShopTrip setup



a. Shelf display

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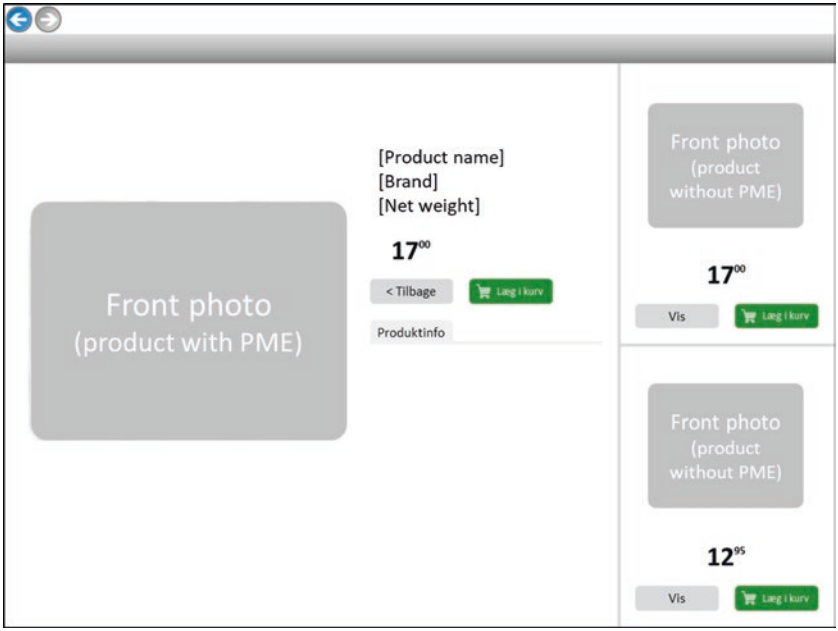
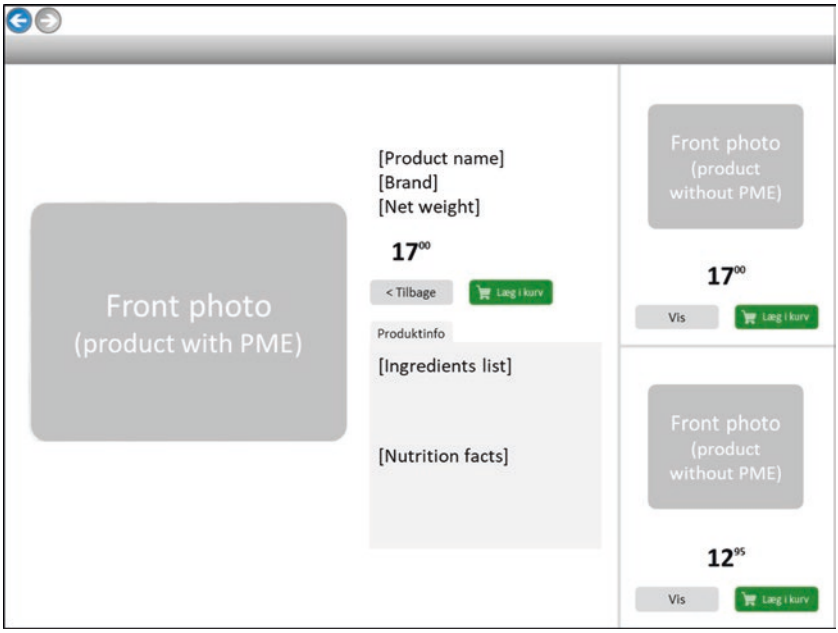
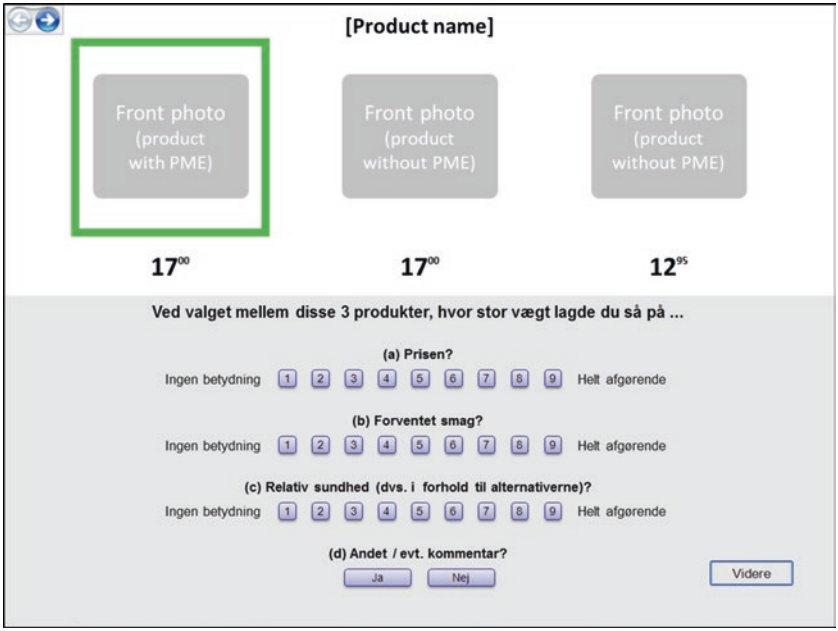


b. Zoom display

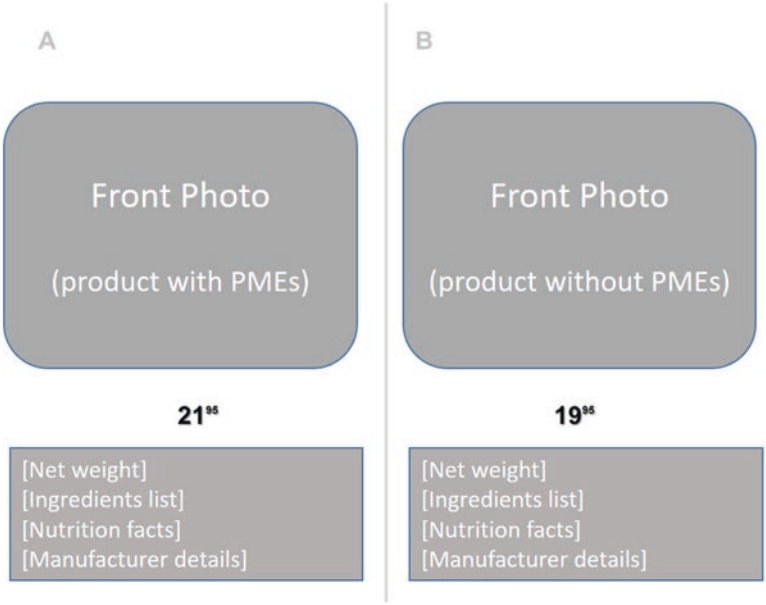


c. Activation of panel with detailed product information



d. Post-shopping questions (initial slide)

Appendix 2: ShopTrip setup in version adopted for eyetracking (Study 4)



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