

The Differentiation Principle:

Why Consumers Often Neglect Positive Attributes of Novel Food Products

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Abstract

To address the growing health awareness of consumers, the food industry designs novel food alternatives, which are similar but not identical to existing foods (e.g., meat-reduced or plant-based burgers). The idea is that consumers can continue to eat their preferred kind of food and still follow a healthy diet. However, we argue that it is too short-sighted to hope that positive similarities to existing products help to increase purchase intentions, because consumers often focus on distinct attributes of new products and neglect the positive attributes shared by existing and novel food alternatives. We tested our hypotheses in six studies in which participants provided or received attributes for classic food products and novel alternatives with substituted ingredients to make them healthier. We observed that consumers perceive the distinguishing attributes between a classic product and its novel, healthier alternative to be predominantly negative, whereas they perceive most shared attributes to be positive. Moreover, we found the predicted neglect of shared attributes in the formation of taste expectations and purchase intentions. In the conclusion, we put forward that the observed evaluation bias can impede the success of novel food alternatives and discuss possible ways to overcome this disadvantage.

Keywords: Food and Nutrition, Health Psychology, Innovation, Product Design, Social Cognition

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Why Consumers Often Neglect Positive Attributes of Novel Food Products

Sales of healthy food products are rising and healthy food is at the top of the agenda of marketing managers in the food industry (Gagliardi, 2015). However, promoting healthy food is a challenge (Chernev, 2011). Despite the increasing number of consumers who adopt a healthy lifestyle, many consumers stick to their eating habits (Imamura et al., 2015). Also, consumers often have difficulties in implementing their healthy eating goals (Friese, Engeler, & Florack, 2015). To offer those consumers the possibility to eat healthily without forgoing their preferred kind of food, the food industry created food that is similar to existing alternatives, but with slight changes that make the novel alternatives healthier. For example, food experts tried to develop ice-cream with reduced milk fat that meets the quality and taste expectations of consumers (Aime, Arntfield, Malcolmson, & Ryland, 2001). More recently, companies like Beyond Meat and Impossible Foods have developed plant-based meat substitutes and sell meatless burgers (Egan, 2019).

An obvious marketing strategy to promote such novel food products would be to rely on the similarities in appearance and taste to existing products. However, we argue in the present paper that such a strategy might fail and that the original strength of being similar to existing alternatives comes with the risk of missing the necessary positive differentiation. We suppose that consumers mostly use negative information to differentiate a novel product from those already known, influencing evaluations of this new product in a negative way. We illustrate how this evaluative bias is rooted in basic mechanisms of differentiation and amplified by the higher likelihood of positive attributes being shared between products and negative attributes being distinct. We tested our predictions in six experiments. In a first experiment, we tested whether consumers actually perceive the distinguishing attributes between a classic product and its novel, healthier alternative to be mostly negative, whereas they perceive most attributes that the products have in common to be positive. Participants

provided positive and negative attributes for both products and indicated for each attribute whether it applies to just one product or both. In the following five studies, we tested the effects of negative vs. positive differentiation on product evaluations, by providing experimentally varied positive and negative customer reviews about the products to participants. Moreover, we tested whether the differentiation effect would still persist when similarities between products were expressed with synonyms instead of identical words. In the conclusion, we put forward that the observed evaluation bias can impede the success of novel food alternatives and discuss possible ways to overcome this disadvantage.

Theoretical Background

Whereas numerous studies have examined the perception of novel food products (Chen, 2011; Desai & Ratneshwar, 2003; Lähteenmäki, 2013), research on how consumers exactly compare innovative food alternatives with existing ones and form expectations about their tastiness is scarce. The introduction of novel food alternatives is, however, comparable with launching a new brand on a market already dominated by a pioneering brand. In such contexts, researchers have observed a pioneering advantage, meaning that consumers tend to prefer the brand which entered the market first (the pioneering brand) over later entrants, even if those later entrants are superior over the pioneer (Carpenter & Nakamoto, 1989). Kardes and Kalyanaram (1992) demonstrated that the repeated learning of information about the pioneering brand contributes to the pioneering advantage and leads to increased confidence in judgments of the pioneering brand. This research is based on the idea that over time consumers shift their preferences towards attributes of the pioneering brand (Carpenter & Nakamoto, 1989; Kardes & Kalyanaram, 1992). We assume that further processes of differentiation contribute to the pioneering advantage that do not even require a shift of preferences towards specific attributes. Such processes have been identified in research on the *differentiation principle* in attitude formation, which has recently been studied in social psychology to explain the formation of attitudes and biases in evaluation (Alves, Koch, & Unkelbach, 2018).

The differentiation principle states that when comparing two items that were introduced at different points in time, individuals focus on the distinct attributes of the novel item that differentiate this item from existing ones (see also Bruine de Bruin & Keren, 2003; Houston, Sherman, & Baker, 1989; Mantel & Kardes, 1999; Tversky, 1977). Crucially, previous research has shown that negative attributes are statistically overrepresented among distinct attributes (Alves, Koch, & Unkelbach, 2017a; Alves et al., 2018), because negative attributes are more diverse and occur less frequently than positive attributes. In other words, while positive attributes are often redundant among different attitude objects, negative attributes usually differentiate different attitude objects. In this respect, the differentiation principle specifically explains why negative information is proposed to be more informative than positive information (Herr, Kardes, & Kim 1991) and applies the reasoning that attributes are the more informative, the more they help to distinguish between categories (Skowronski & Carlston, 1989).

Consequently, novel attitude objects suffer a fundamental evaluative disadvantage compared to existing objects. This “cognitive-ecological” model of judgment biases combines a basic principle of cognitive information processing (i.e., differentiation) with insights regarding the statistical properties of the information ecology. In essence, because novel attitude objects are evaluated based on distinct attributes that differentiate them from existing ones, and because such distinct attributes are usually negative, novel attitude objects such as products are facing a fundamental challenge. Up until now, this model has only been applied to the perception of individuals and groups (Alves et al., 2017a, 2018). For example, Alves et al. (2018) argued that, when perceivers form attitudes about different groups, they primarily rely on their distinct attributes, not the ones that overlap, because this distinct information is regarded as superior and more informative (Alves et al., 2018; see also Fiske, 1980). Moreover, the authors emphasized that the differentiation principle is sensitive to the temporal order of learning, as any “novel” group will always be compared to previously encountered groups.

According to the prediction and findings by Alves et al. (2018), a novel group is then evaluated primarily based on its distinct attributes, whereas attributes shared with previously encountered groups are “cancelled out” (see also Hodges, 1997; Houston et al., 1989; Kardes & Sanbonmatsu, 1993). This differentiation principle should hold not only for persons and groups, but for any kind of attitude objects. We can expect that any kind of novel object, such as a consumer product or a brand, will be evaluated relative to more prototypical and familiar ones that are encountered frequently (i.e., a standard of comparison; see Hodges, 2005; Houston et al., 1989). Consequently, the differentiation principle is highly relevant for the introduction of new food products to the market, because these will be evaluated compared to the already existing and more familiar ones.

Furthermore, as a general principle, distinct attributes are likely to be negative because negative attributes are inherently more diverse (Alves, Koch, & Unkelbach, 2017b; Alves et al., 2018) and they occur less frequently than positive attributes (Alves et al., 2017b). Consequently, positive attributes are likely to be shared among different attitude objects, while negative attributes are likely to be distinct among attitude objects (Alves et al., 2017a). As a result, a standard of comparison (e.g., existing food alternatives) always has an advantage over new items (e.g., novel food products), which are likely to be evaluated based on their negative attributes, as those are distinct.

In the present research, we applied the differentiation principle to the formation of expectations about food products. We expected that the evaluation of newly introduced food would be primarily influenced by its distinct attributes that do not overlap with those of existing alternatives. This principle of differentiation may explain why consumers often judge new, “healthier” versions of foods as tasting worse (Lähteenmäki, 2013; Naylor, Droms, & Haws, 2009; Tuorila, Cardello, & Leshner, 1994), when objectively there is no difference in taste (Raghunathan, Naylor, & Hoyer, 2006) or when the taste is very similar to the original and difficult to differentiate in blind taste tests (Guinard & Marty, 1997). A possible

explanation of such findings by the cognitive-ecological model would be that positive attributes of healthy products might overlap with the original product (e.g., be equally sweet), but some differentiating attributes might be negative (e.g., the different consistencies), ultimately causing the new healthy version to be seen as more negative overall.

Hypotheses and Overview of the Studies

We examined our hypotheses in six studies in which consumers evaluated a classic burger and a new, healthier burger with reduced caloric density (Studies 1-2 and 4-6) or fictional groups of typical and novel, healthier meals (Study 3). We report the studies in an order that reflects the logic of the studies. Studies 3-5 were conducted as pre-registered studies after Studies 1 and 6, taking into account the very constructive comments of the reviewers. Data and analyses for all studies are available under this link:

<https://phaidra.univie.ac.at/o:1125760>; DOI: [10.25365/phaidra.237](https://doi.org/10.25365/phaidra.237).

In Study 1, we tested whether consumers perceived positive or negative attributes to overlap between the food products. In this study, participants generated positive and negative attributes for a classic burger and a novel, healthier alternative. We expected that consumers would regard more positive attributes than negative attributes to be applicable to both products, which would mean that positive food attributes overlap, while negative ones are distinct. Hence, we hypothesized that:

H1: Perceived positive attributes of a standard food product and a novel, healthier alternative are more likely to be applicable to both products than are perceived negative attributes.

Study 1 is highly relevant for the implications of the present research, because it provides insights into the ecological distribution of positive and negative information which is experimentally varied in the following studies. In other words, it shows which of the manipulated overlap conditions is likely to be apparent when consumers evaluate food products like the ones we used in the present research.

In Study 2, we experimentally varied whether positive or negative attributes of two food products (a classic burger and a novel, healthier burger) were overlapping or distinct, while holding the number of positive and negative attributes constant. In this study as well as in all the following studies, participants read attributes that were ostensibly provided by other consumers. With this manipulation, we could directly test how the overlap of positive or negative attributes affects the taste expectations and purchase intentions of novel food alternatives. Since taste is an essential factor in food purchases (Buhrau & Ozturk, 2018), we expected purchase intentions for novel foods to be influenced in line with tastiness expectations. Based on the differentiation principle, we hypothesized that:

H2a: Consumers will expect a novel, healthier food option to be less tasty when the positive attributes between the novel option and the standard option overlap compared to when the negative attributes overlap.

H2b: Consumers will indicate lower purchase intentions for a novel, healthier food option when the positive attributes between the novel and the existing food option overlap compared to when the negative attributes overlap.

The objective of Study 3 was to demonstrate that the cue overlap effect can be generalized to other product categories than burger products. In this study, we presented participants with groups of fictional meals, first a group of “typical” meals followed by a group of novel, healthier meals. As we believe the differentiation principle to apply in any context where novel products are compared to existing ones, we expected participants to evaluate an entire group of novel, healthier meals worse when it shares positive rather than negative attributes with a group of typical meals (H2a, b).

In Studies 2 and 3, the number of positive and negative attributes was the same for the classic and novel products. This procedure was important for our reasoning that a novel product is often evaluated less positive than a classic one even if consumers receive equally positive information about it. However, it neglects that the replacement of unhealthy contents

may in itself signal diminished taste (Raghunathan et al., 2006). The objective of Study 4 was to examine whether this disadvantage can be eliminated when the difference between the classic and the novel, healthier product is framed as a creative way of improving the product taste. In Study 4, we therefore varied the description of the novel burger as being either a healthier version of the classic burger with similar taste or with an exciting new taste. In both conditions, we expected the typical attribute overlap effect to affect evaluations of the novel burger (H2a, b). However, we expected that consumers prefer a novel product over an existing one when it has distinct positive features and is promoted as a distinct product rather than a healthier copy of the classic one.

The basic implication of the differentiation principle is that novel, healthier food products might have a chance of gaining a higher market share if marketing managers find possibilities to position these products as positively distinct. However, this might be difficult in a marketing context where products share positive attributes. Hence, an interesting question is whether marketing managers could use new formulations to promote the shared attributes. To the best of our knowledge, no previous research before has studied whether the neglect of shared attributes is mitigated when they are not formulated identically, but are only semantically similar (i.e., synonyms). A reduction in the neglect of overlapping attributes with synonymous formulations would not only be an opportunity for product positioning, similarity would also be less detrimental in customer reviews which are often not formulated identically. Hence, we tested the following hypotheses:

H3a: The attribute overlap effect on taste expectations predicted in H2a will be less pronounced when attributes are semantically similar compared to when they are formulated identically.

H3b: The attribute overlap effect on purchase intentions predicted in H2b will be less pronounced when attributes are semantically similar compared to when they are formulated identically.

In Studies 2-5, we presented the attributes of the classic products first and then those of the novel products. We applied this procedure to mimic the usual order of market entry. In menus or on websites with customer reviews, however, products can be presented in many different ways. Therefore, we explored whether the cue overlap effect in the evaluation of classic and novel food products remains robust when the presentation format changes. Whereas we expected the neglect of overlapping attributes in evaluations also for different presentation formats, other research implies that the presentation format affects product judgments. In a study by Kardes and Kalyanaram (1992), for example, consumers preferred a first brand over a following brand if information about brands was presented sequentially but this effect was eliminated when information about both brands was presented simultaneously on the same page. Even with simultaneous presentations, the positioning order of the products could influence choice of healthy products. Recent research found that consumers prefer and consume more of a healthier product when it is displayed left rather than right of a less healthy product (Romero & Biswas, 2016). In Study 6, we therefore investigated whether the predicted neglect of overlapping attributes for novel products also occurs for simultaneous presentations of the products and whether displaying healthier products to the left or right of a classic product moderates the effect.

Study 1

A basic assumption of the present research is that in the perception of consumers, standard products and healthier alternatives often share positive characteristics, but have distinct negative characteristics. As a first test of this assumption, we asked participants to describe two food products, a classic burger and a novel, healthier alternative, and to indicate for the attributes they had used whether they are applicable to only one product or to both. Specifically, we showed participants pictures of two burgers: a classic burger and a novel burger, which was said to be created according to the Volumetrics concept. The Volumetrics concept tries to increase the healthiness of products by reducing the caloric density of food

items (Rolls & Hermann, 2012). In particular, the concept is based on the idea of changing ingredients without impacting taste. For each burger, we asked participants to list two positive and two negative attributes and, subsequently, to indicate whether each attribute applies to just one or both of the burgers.

Methods

Design and participants. A sample of a Western European country was recruited through a market research panel. The sample was recruited to be representative with regard to age and gender for the population of the respective country. The panel set quotas on age and gender, according to the country's central statistical office. Quotas were based on socio-demographic values with a deviation of +/- 5% at maximum, in order to achieve a sample with a distribution that is as comparable as possible with the population. After the quota parameters had been determined, the sample was drawn by the panel's self-developed Panel Management System, which randomly drew people from the corresponding cells with the aim of filling the preset quotas.

Participants were eligible for the study if they ate meat and were not on a diet, otherwise they were screened out before the questionnaire started. Participants earned €3.10 for participating. The questionnaire was completed by 152 of the eligible participants. Six participants were excluded from the analysis because they did not indicate German to be their native language or that they spoke German at a native level. Thus, 146 participants were included in the data analyses. The mean age of the final sample was 49.14 ($SD = 16.00$), with 52.7 % being women and a mean body mass index (BMI) of 26.80 ($SD = 5.82$).

Materials and procedure. In the online questionnaire, participants first saw a short description of classic and Volumetrics burgers, to ensure they understood the Volumetrics concept. They then saw a picture of a burger labeled either as a classic or a Volumetrics burger. On the same page, they were asked to describe the burger with two positive and two negative attributes. Then, participants saw a picture of the respective other burger and again had to

generate two positive and two negative attributes. The order of the burgers varied randomly between participants. The pictures were randomly sampled from a pool of 20 burger pictures, all displayed at approximately the same size, showing only the burger without the plate, any sides, or a background. Afterwards, participants saw all eight attributes they had just named in random order on one page. For each attribute they stated whether the attribute only applied to the burger they had used it for initially, or if it also applied to the other burger. Of interest to us was how many of the positive and negative attributes, respectively, participants indicated to apply to both burgers. Lastly, we asked some general questions about eating behavior and demographics. In particular, we measured the explicitness of participants' belief in the unhealthy = tasty intuition (Raghunathan et al., 2006) by asking participants' agreement on a 9-point scale ($1 = \text{strongly disagree}$, $9 = \text{strongly agree}$) with the following two items: (a) "Things that are good for me rarely taste good", and (b) "There is no way to make food healthier without sacrificing taste" (Cronbach's $\alpha = .78$). Also, we assessed participants' general health interest (Roininen, Lähteenmäki, & Tuorila, 1999) with eight items (e.g., "I am very particular about the healthiness of food I eat; Cronbach's $\alpha = .83$) to which participants indicated their agreement on a 7 - point - scale ($1 = \text{strongly disagree}$, $7 = \text{strongly agree}$).

Results and Discussion

We hypothesized that consumers would perceive more of the reported positive than of the reported negative attributes to be applicable to both foods (H1). To test this hypothesis, we used a repeated-measures analysis of variance (ANOVA) comparing the number of times that the positive attributes were rated as applying to both burgers with the number of times that the negative attributes were rated as applying to both burgers. As expected, the positive attributes were rated as applying to both burgers significantly more often than the negative attributes, $F(1, 145) = 17.89, p < .001, \eta_p^2 = .11$. On average, 2.31 ($SD = 1.45$) of the four positive attributes and only 1.73 ($SD = 1.51$) of the four negative attributes were rated to apply to both

burgers. Hence, our initial study shows that consumers perceive a significantly stronger overlap between the classic and novel, healthier burgers for positive than for negative attributes. This finding is highly important for the present research, because it implies that desirable attributes are likely perceived as shared among existing and novel food products. According to the differentiation principle of attitude formation, we can therefore expect that consumers will likely not rely on these positive attributes when forming an attitude about novel food products but rely on the distinct negative attributes instead. The following studies tested this idea with regard to participants' taste expectations and purchase intentions.

Study 2

Study 1 found evidence for the basic assumption that positive attributes of a standard and a novel, healthier food alternative are more likely than negative attributes perceived to apply to both food products. The objective of Study 2 was to show that an overlap on positive attributes is disadvantageous for the novel, healthier food alternative compared to an overlap on negative attributes. We supposed that consumers neglect the overlapping attributes of the novel and standard foods when evaluating the novel food, and primarily rely on the distinct attributes of the novel food alternative.

To test how this differentiation principle affects consumers' taste expectations and purchase intentions, Study 2 systematically varied the valence of the overlapping and distinct attributes of a classic burger and a novel, healthier burger. The study was designed to mimic the introduction of novel, healthier versions of existing foods. However, no pictures of burgers were used in the study to avoid the confounding influences of the visual appeal. Each burger was described with positive and negative attributes and either the positive or the negative attributes describing the novel burger were identical to those of the classic burger. We predicted reduced taste expectations and purchase intentions when the positive attributes were overlapping compared to when the negative attributes were overlapping (H2a, b). Importantly, the mean attribute favorableness was held constant, that is, the number of positive and negative

attributes was always the same for both burgers, and the assignment of the respective positive and negative attributes was completely random.

Methods

Design and participants. A sample selected to match the distribution of age and gender, according to the distribution in the country's population was recruited using a market research panel. Participants were eligible for the study if they ate meat and were not on a diet. Of the eligible participants, 256 completed the survey. We excluded six participants because of language constraints, like in Study 1. Thus, 250 participants were included in the data analyses. The mean age of the final sample was 35.70 ($SD = 8.97$), with 48.8 % women and a mean BMI of 25.56 ($SD = 5.48$). Participants earned €3.00 for participating. They were randomly assigned to the negative or positive attribute overlap condition of the between-subjects design. Purchase intentions and taste expectations for the two burgers were measured.

Materials and procedure. In the online questionnaire, we presented participants with customers' ratings of two burgers from a restaurant. Over several trials, participants were subsequently presented with six attributes describing a "classic burger." On each trial, participants saw the name of the burger along with one attribute on the screen. For example: "Dish: *Classic Burger* – Customers often describe this burger as: *juicy*." The pool of attributes was selected by the research team. Three attributes were positive (randomly selected from fresh, juicy, crispy, handmade, natural, tender) and three attributes were negative (randomly selected from hard, dry, soggy, chewy, boring, stale). After having seen all six attributes, participants were provided with a summary of the attributes. Subsequently, participants rated their purchase intention using two items on a horizontal scale ranging from 1 to 7: "Could you imagine trying the classic burger?" (1 = *not at all*, 7 = *very well*) and "If you wanted to buy a burger at a restaurant, how likely is it that you would choose the classic burger?" (1 = *not at all likely*, 7 = *very likely*; Cronbach's alpha = .92). Then, participants rated their taste expectations on horizontal scales (from 1 to 10), asking how tasty they perceived the burger to be (1 = *not at*

all tasty, 10 = *very tasty*), how delicate it was (1 = *not at all delicate*, 10 = *very delicate*) and how much they would enjoy eating it (1 = *not at all*, 10 = *very much*; Cronbach's alpha = .96) (Connell & Mayor, 2013; Raghunathan et al., 2006).

Next, we informed participants that recently, the restaurant had started to also offer burgers based on the "Volumetrics" concept, and explained the concept to them. Again, participants then saw six attributes that customers had used to describe a Volumetrics burger in the same manner as before and a summary at the end. Depending on the cue overlap condition, participants saw the same positive attributes as for the classic burger and new negative attributes (positive overlap condition), or the same negative attributes as for the classic burger and new positive attributes (negative overlap condition). But in both conditions, the Volumetrics burger had the same number of positive and negative attributes as the classic burger. Again, participants rated purchase intentions (Cronbach's alpha = .95) and taste expectations (Cronbach's alpha = .97) in that order, with the same items as for the classic burger. For the analyses, the items for taste expectations and purchase intentions were averaged into composite scales. High values indicate positive taste expectations and high purchase intentions.

Finally, we recorded information about demographics, measured the participants' belief in the unhealthy = tasty intuition (Cronbach's alpha = .81) and their general health interest (Cronbach's alpha = .81).

Results

We hypothesized that consumers would expect the novel burger to be less tasty when the positive attributes between the novel and classic burger overlap compared to when the negative attributes overlap (H2a). However, the overlap should not affect the evaluation of the classic burger, because this evaluation was measured before the second burger was presented. To test our hypothesis, we computed a repeated-measures ANOVA with the type of cue overlap as between-subjects factor (overlap of positive attributes vs. overlap of negative attributes) and

the taste expectations for the two different burgers as within-subjects factor (classic burger vs. novel burger). We assessed pairwise comparisons between conditions based on estimated marginal means, using Bonferroni corrections (Table 1 in the Web Appendix). The first analysis included tastiness expectations as the dependent variable.

Most importantly and congruent with our hypothesis, the attribute overlap had different effects on expected tastiness depending on which burger was assessed, $F(1, 248) = 17.98, p < .001, n_p^2 = .07$ (Figure 1 in the Web Appendix). While there was no significant difference between the overlap conditions in the taste expectations for the classic burger, $F(1, 248) = 0.02, p = .90, n_p^2 < .001$, there was a significant difference between conditions in the taste expectations for the novel burger, $F(1, 248) = 15.34, p < .001, n_p^2 = .06$ (H2a). Participants expected a worse taste for the novel burger when the positive attributes overlapped with those of the classic burger ($M = 4.48, SD = 2.44$) than when the negative attributes overlapped ($M = 5.65, SD = 2.30$). Furthermore, we found a main effect of burger type, $F(1, 248) = 38.83, p < .001, n_p^2 = .14$. Across conditions, participants expected a better taste for the classic burger ($M = 5.90, SD = 2.25$) compared to the novel burger ($M = 5.07, SD = 2.44$). When controlling for the belief in the unhealthy = tasty intuition and general health interest as covariates, the interaction effect remained stable, $F(1, 246) = 17.86, p < .001, n_p^2 = .07$, but the main effect of burger type was no longer significant, $F(1, 246) = 0.67, p = .42, n_p^2 = .003$.

Moreover, we expected that consumers would intend to purchase the novel burger less when the positive attributes between the novel and classic burger overlap compared to when the negative attributes overlap (H2b). To test our assumption, we conducted the same repeated-measures ANOVA as before, but replacing tastiness expectations with purchase intentions as the dependent variable. Again, the type of cue overlap had different effects depending on which burger was assessed, $F(1, 248) = 12.14, p = .001, n_p^2 = .05$ (Figure 2 in the Web Appendix). There was no difference in ratings for the classic burger, $F(1, 248) < 0.001, p = .98, n_p^2$

< .001. But importantly, participants showed lower purchase intentions for the novel burger when the positive attributes were overlapping ($M = 3.59$, $SD = 1.78$) compared to when the negative attributes were overlapping ($M = 4.29$, $SD = 1.64$), $F(1, 248) = 10.49$, $p = .001$, $n_p^2 = .04$ (H2b). Also, we again found a main effect of burger type on purchase intentions, $F(1, 248) = 41.65$, $p < .001$, $n_p^2 = .14$. Participants showed higher purchase intentions for the classic burger ($M = 4.59$, $SD = 1.59$) compared to the novel burger ($M = 3.94$, $SD = 1.74$). When including the belief in the unhealthy = tasty intuition and general health interest in the model, the interaction effect remained stable, $F(1, 246) = 11.71$, $p = .001$, $n_p^2 = .05$, whereas the main effect of burger type was no longer significant, $F(1, 246) = 3.12$, $p = .08$, $n_p^2 = .01$.

Discussion

Overall, the results of Study 2 show an effect as predicted by the literature on the pioneering advantage (Carpenter & Nakamoto, 1989). Participants' taste expectations and purchase intentions were more in favor of the classic than of the novel product, although both burgers had the same number of positive and negative attributes. However, in line with the differentiation principle, this effect was moderated by the overlap of positive versus negative attributes between the products. When the positive attributes between the existing and novel burger overlapped, the taste expectations and purchase intentions of the novel burger were more negative than when the negative attributes overlapped. Hence, Study 2 provides first indications of the differentiation principle in judgments of novel, healthy food products.

Study 3

An important question is whether the neglect of overlapping attributes in forming taste expectations and purchase intentions for novel, healthy food products is limited to specific products (e.g., burgers) or whether it can be generalized to other product categories. Study 3 therefore tests this neglect of overlapping attributes with various kinds of meals. To ensure a high generalizability, we used meals with a low familiarity. The names and descriptions of the

used meals were fictional, ostensibly from a foreign country. Moreover, whereas in all previous studies participants evaluated two single products, in Study 3 they evaluated two groups of meals, a group of “typical” meals and a group of novel, healthier meals. Thus, we tested whether the cue overlap effect extends from evaluations of single products to the evaluations of product groups. As product attributes we used items derived from the German technical vocabulary for sensors (DLG, 2015), a guideline to linguistically describe the sensory attributes of food products. Moreover, we communicated the meals’ attributes in phrases, as this is more similar to information one might be presented with in commercials, restaurant reviews, or by another person. We preregistered the experiment and our hypotheses for Study 3; the registration documents can be found under this link:

<https://aspredicted.org/blind.php?x=hh4hx2>. We expected the differentiation principle to be so fundamental that it applies also to groups of fictional meals unknown to participants.

Methods

Design and participants. A sample of German consumers was recruited via a market research panel. They received €0.50 for participating. We included only participants who were not on a diet and passed an attention check item (Abbey & Meloy, 2017) at the start of the questionnaire. Of the eligible participants, 382 completed the survey (41.9 % women), with a mean age of 53.38 ($SD = 12.02$), and a mean BMI of 27.55 ($SD = 5.97$). The participants were randomly assigned to either the positive or negative cue overlap condition of the between-subjects design. They viewed text descriptions of fictional meals ostensibly from a foreign country. First, they learned about a group of typical foods, followed by descriptions of a group of novel, healthier foods. They viewed six food descriptions per group one after another and rated the expected tastiness and purchase intentions for each group as a whole.

Materials and procedure. The basic procedure was similar as in Study 2 with the important difference that multiple fictional meals were used as stimuli. After filling in demographic information, participants should imagine traveling to a foreign country where

they learn about the locals' eating habits. We presented them with six typical meals of the country, subsequently on separate pages. Each meal was presented with its name, an attribute ostensibly provided by other tourists and a short description of the type of meal. The names were compounded of arbitrary syllables and had no meaning in German language. The descriptions were held very general to avoid any resemblance to specific foods familiar to participants. An example for a stimulus item would be: "Name: *Tokomo* – Tourists often describe this meal as follows: *fresh ingredients – It is a meal based on a white, cooked grain, often with vegetables, meat and sauces. It is usually eaten hot.*" The names, descriptions and attributes were randomly combined for each meal. Three meals had positive attributes (randomly selected from fresh ingredients, pleasant consistency, balanced composition, exquisite taste, nice and crispy at the bite, looks appealing) and three meals had negative attributes (randomly selected from looks oily, altogether slushy, rubbery at the bite, looks colorless, boring composition, tastes seasoned one-sidedly). The research team derived the attributes from the German technical vocabulary for sensors (DLG, 2015), a guideline to linguistically describe the sensory attributes of food products. After having seen all six meal descriptions, participants saw a summary of all six attributes and then indicated their purchase intentions (Cronbach's alpha = .93) and taste expectations (Cronbach's alpha = .97) for the group of meals as a whole, using the same scales as in Study 2.

Afterwards, participants were informed that recently, new meals are consumed in that country which are made with a special focus on healthy eating. We used an explanation similar to the Volumetrics concept (Rolls & Hermann, 2012), but without mentioning the name of the concept. The new foods were said to be made healthier without changing the taste by reducing the caloric density. Participants viewed six novel meals in the same manner as before and indicated their purchase intentions (Cronbach's alpha = .96) and taste expectations (Cronbach's alpha = .98) for the meals altogether. In the positive overlap condition, the positive attributes were the same for both groups of typical and novel meals, but not the negative attributes. In the

negative overlap condition, negative attributes were the same for both meal groups, but not the positive attributes. The questionnaire ended with scales assessing participants' general health interest (Cronbach's alpha = .87) and the belief in the unhealthy = tasty intuition (Cronbach's alpha = .82).

Results

We tested our hypotheses with repeated-measures ANOVAs, including type of cue overlap (positive vs. negative) as between-subjects factor and meal type (typical vs. novel) as within-subjects factor. Pairwise comparisons between conditions were assessed based on estimated marginal means, using Bonferroni corrections (Table 2 in the Web Appendix). The first analysis included tastiness expectations as the dependent variable.

In line with our hypothesis, we found a two-way interaction of attribute overlap and meal type, $F(1, 380) = 6.36, p = .01, n_p^2 = .02$ (Figure 3 in the Web Appendix). Taste expectations for the typical meals did not differ between the cue overlap conditions, $F(1, 380) = 0.001, p = .97, n_p^2 < .001$. For the novel meals, there was a non-significant trend towards higher taste expectations when negative attributes were overlapping ($M = 6.20, SD = 2.34$) rather than when positive attributes were overlapping ($M = 5.79, SD = 2.35$), $F(1, 380) = 2.94, p = .09, n_p^2 = .01$. Also, we found a main effect of meal type on taste expectations, $F(1, 380) = 23.64, p < .001, n_p^2 = .06$. Across conditions, participants expected a better taste for the typical meals ($M = 6.40, SD = 2.26$) compared to the novel meals ($M = 5.98, SD = 2.35$). The interaction between type of meal and cue overlap remained stable when controlling for general health interest and the belief in the unhealthy = tasty intuition, $F(1, 378) = 5.86, p = .02, n_p^2 = .02$, whereas the main effect of meal type was marginally significant, $F(1, 378) = 3.25, p = .07, n_p^2 = .01$.

We obtained similar results with purchase intentions of the two meal groups as dependent measures. There was a significant interaction between meal type and type of cue

overlap, $F(1, 380) = 9.27, p = .002, n_p^2 = .02$ (Figure 4 in the Web Appendix). Participants did not differ in their purchase intentions for the classic meals between the two attribute overlap conditions, $F(1, 380) = 0.39, p = .53, n_p^2 = .001$, while purchase intentions for the novel meals were slightly, but not significantly, reduced when positive attributes were overlapping ($M = 4.59, SD = 1.73$) compared to when the negative attributes were overlapping ($M = 4.86, SD = 1.71$), $F(1, 380) = 2.26, p = .13, n_p^2 = .01$. Again, a significant main effect of meal type showed that purchase intentions were overall higher for the typical meals ($M = 5.01, SD = 1.70$) than for the novel meals ($M = 4.72, SD = 1.72$), $F(1, 380) = 21.16, p < .001, n_p^2 = .05$. The interaction between meal type and cue overlap remained stable when controlling for general health interest and the belief in the unhealthy = tasty intuition, $F(1, 378) = 8.56, p = .004, n_p^2 = .02$, as well as the main effect of meal type, $F(1, 378) = 5.41, p = .02, n_p^2 = .01$.

Discussion

The results of Study 3 are consistent with the results of Study 2 and suggest that the differentiation principle affects the evaluation of entire groups of meals and that the effects are not limited to single products. Indeed, the meal descriptions used in Study 3 entailed various kinds of foods. Although ratings of the novel foods did not differ significantly between the cue overlap conditions, results support our main argument that the type of cue overlap affects the evaluation of familiar and novel foods differently. Participants obviously neglected positive attributes in the formation of taste expectations and purchase intentions for a novel group of healthier meals when these attributes applied to an existing group of meals, as well. By contrast, they neglected negative attributes when these attributes applied to an existing group of meals.

Study 4

Although participants of our previous studies rated novel products better when they had unique positive compared to unique negative attributes, they still consistently preferred the

classic or typical products over the new, healthier ones. A possible explanation for this main effect is that the novel products were made healthier by the reduction of the caloric density of the products. Indeed, participants might consider this information as an indication that the product tastes less (Raghunathan et al. 2006), as is also hinted by the reduction of this main effect after controlling for participants' beliefs in the unhealthy = tasty intuition (Raghunathan et al. 2006). Also, it might be that a general pioneering advantage (Carpenter & Nakamoto, 1989) led to the higher preferences for the classic products, independently of the attributes. In Study 4, we therefore tested whether the general preference for the classic product is reduced when we change the framing of a novel food product and whether in this case the taste expectations and purchase intentions can be higher for the novel than the classic product when negative attributes are overlapping between the two products and when positive attributes are distinct.

In Study 4, we tested the cue overlap effect again with burger products, but we additionally varied the description of the novel burger between participants. Concretely, the novel burger was said to be created either according to the Volumetrics or the Rebel meat concept. The Rebel meat concept mainly aims to reduce meat consumption and greenhouse gases by replacing half of the meat with mushrooms, but also promises a unique and excellent taste (Rebel Meat, 2020). The Volumetrics concept includes taking away a positive attribute of the classic burger (less caloric density), whereas the Rebel meat concept adds a positive attribute (mushrooms for a better taste).

We preregistered the experiment and our hypotheses for Study 4; the registration documents can be found under this link: <https://aspredicted.org/blind.php?x=589xf4>. We expected the attribute overlap effect to affect the evaluation of the novel burger, regardless of its conceptualization. Yet, when the novel burger was introduced as a Rebel meat burger, we expected that consumers would not overall prefer the classic over the novel burger and they

would even prefer the Rebel meat burger over a classic one, when the negative attributes between the two burgers overlapped.

Methods

Design and participants. We again recruited a sample of consumers from a Western European country, selected to match the distribution of age and gender of the respective country, using a market research panel. The consumers participated in exchange for €3.00. Again, only participants who ate meat and were not on a diet were eligible for the study and we included only participants who passed an attention check item at the beginning of the study, as suggested by Abbey and Meloy (2017). Our sample consisted of 252 participants (52.0 % women), with a mean age of 51.22 ($SD = 18.29$), and a mean BMI of 26.63 ($SD = 6.60$). The participants were randomly assigned to one of the four conditions of the between-subjects design, determined by the type of attribute overlap (negative or positive) and the concept of the novel burger (Volumetrics burger or Rebel meat burger). We measured taste expectations and purchase intentions for the presented burgers.

Materials and procedure. The basic procedure was the same as in Studies 2 and 3. In the online questionnaire, we subsequently presented participants with three positive and three negative attributes describing a classic and a novel burger. Like in Studies 2 and 3, participants then saw a summary of the attributes and rated each burger on purchase intention and tastiness.

In the *Volumetrics burger condition*, the procedure was the same as in Study 2. Participants saw three positive and three negative attributes, first for a classic and then for a Volumetrics burger. In the *Rebel meat burger condition*, the procedure was the same, but instead of a Volumetrics burger, we presented a Rebel meat burger as the novel burger. Before seeing the attributes of the Rebel meat burger, we informed participants that recently, the restaurant had also started to offer burgers based on the “Rebel meat” concept, and explained the concept to them. Specifically, we emphasized the goal to create a product offering an

exciting and better taste experience while at the same time being healthier and more sustainable compared to a classic burger.

The attributes were the same as in Study 2. In the positive overlap condition, the positive attributes were the same for both burgers, but not the negative attributes. In the negative overlap condition, negative attributes were the same for each burger, but not the positive attributes. Attributes were randomly assigned to the burgers, and the presentation was the same as in Study 2. Like in Studies 2 and 3, participants rated purchase intention and expected tastiness for the classic (Cronbach's alphas were .89 and .97) and the novel burger (Cronbach's alphas were .93 and .98). The questionnaire was concluded with scales assessing participants' general health interest (Cronbach's alpha = .83) and the belief in the unhealthy = tasty intuition (Cronbach's alpha = .73). and demographics.

Results

To test our hypotheses, we conducted repeated-measures ANOVAs. We included type of cue overlap (positive vs. negative) and concept of novel burger (Volumetrics vs. Rebel meat) as between-subjects factors and burger type (classic vs. novel) as within-subjects factor. We also tested two-way interactions between burger type and each between-subjects factor, as well as its three-way interaction with both factors. Pairwise comparisons between conditions were assessed based on estimated marginal means, using Bonferroni corrections (Tables 3 and 4 in the Web Appendix). The first analysis included tastiness expectations as the dependent variable.

Most importantly, we again found a two-way interaction of attribute overlap and burger type, $F(1, 248) = 20.08, p < .001, \eta_p^2 = .08$ (Figure 5 in the Web Appendix). Taste expectations for the classic burger did not differ between the cue overlap conditions, $F(1, 248) = 0.34, p = .56, \eta_p^2 = .001$. Taste expectations for the novel burger were significantly higher ($M = 5.02, SD = 2.49$) when negative attributes were overlapping rather than positive attributes ($M = 4.14, SD = 2.31$), $F(1, 248) = 8.26, p = .004, \eta_p^2 = .03$. Further, we found a main effect of burger

type on taste expectations, $F(1, 248) = 6.43, p = .01, n_p^2 = .03$. Across conditions, participants expected a slightly better taste for the classic burger ($M = 4.87, SD = 2.41$) compared to the novel burger ($M = 4.62, SD = 2.45$). Pairwise comparisons revealed, however, that the overall preference for the classic burger was only present in the *Volumetrics burger condition*, $F(1, 248) = 7.28, p = .01, n_p^2 = .03$, but not in the *Rebel meat condition*, $F(1, 248) = 0.79, p = .38, n_p^2 = .003$. Furthermore, The concept of the novel burger (Volumetrics vs. Rebel meat) did not interact significantly with the burger type, $F(1, 248) = 1.64, p = .20, n_p^2 = .01$, nor with both burger type and attribute overlap, $F(1, 248) = 0.08, p = .78, n_p^2 < .001$. Descriptively, the Rebel meat burger was expected to be tastier ($M = 5.18, SD = 2.68$), than the classic burger ($M = 4.83, SD = 2.43$), when negative attributes overlapped, but this trend was not significant, $F(248) = 2.37, p = .13, n_p^2 = .01$. The interaction between type of burger and cue overlap remained stable when controlling for general health interest and the belief in the unhealthy = tasty intuition, $F(1, 246) = 22.32, p < .001, n_p^2 = .08$, whereas the main effect of burger type was marginally significant, $F(1, 246) = 3.20, p = .08, n_p^2 = .01$.

The results for the purchase intentions for the two burgers as dependent measures were similar. We observed an interaction between burger type and type of cue overlap, $F(1, 248) = 7.51, p = .01, n_p^2 = .03$ (Figure 6 in the Web Appendix). Participants did not differ in their purchase intentions for the classic burger between the two attribute overlap conditions, $F(248) = 0.05, p = .83, n_p^2 < .001$, but indicated a reduced purchase intention for the novel burger when the positive attributes were overlapping ($M = 3.40, SD = 1.81$) compared to when the negative attributes were overlapping ($M = 3.98, SD = 1.79$), $F(248) = 6.38, p = .01, n_p^2 = .03$. Again, a significant main effect of burger type showed that purchase intentions were higher for the classic burger ($M = 3.98, SD = 1.84$) than for the novel burger ($M = 3.71, SD = 1.82$), $F(1, 248) = 9.25, p = .003, n_p^2 = .04$. According to pairwise comparisons, the overall preference for the classic burger was significant both in the Volumetrics burger condition, $F(1, 248) = 5.31, p$

= .02, $n_p^2 = .02$, as well as in the Rebel meat condition, $F(1, 248) = 3.98$, $p = .047$, $n_p^2 = .02$.

The concept of the novel burger (Volumetrics vs. Rebel meat) did not interact significantly with the burger type, $F(1, 248) = .05$, $p = .83$, $n_p^2 < .001$, nor with both, burger type and attribute overlap, $F(1, 248) = .01$, $p = .94$, $n_p^2 < .001$. Neither was there a descriptive trend towards better purchase intentions for any burger in the negative overlap condition. The interaction between type of burger and cue overlap remained stable when controlling for general health interest and the belief in the unhealthy = tasty intuition, $F(1, 246) = 9.00$, $p = .003$, $n_p^2 = .04$, whereas the main effect of burger type was marginally significant, $F(1, 246) = 3.84$, $p = .051$, $n_p^2 = .02$.

Discussion

The results of Study 4 are completely congruent with the results of Studies 2 and 3. Participants indicated reduced taste expectations and purchase intentions for a novel burger when the positive attributes provided for both burgers overlapped compared to when negative attributes overlapped. This effect was present for both framings of the novel burger. However, in the preceding studies we observed that, overall, participants favored the classic products over the novel alternatives. In Study 4, the Volumetrics framing of the novel burger produced the same pattern. By contrast, we did not observe a generalized preference for the classic product with regard to tastiness expectations when using the Rebel meat framing for the novel burger. In the negative overlap condition, taste expectations and purchase intentions for the classic product and the novel alternative were equally positive. Hence, the pioneering advantage for classic products is no destiny and novel, healthier products can catch up on the difference in valuation to classic products. But importantly, the more advantageous framing of the novel products did not mitigate the neglect of positive overlapping attributes in taste expectations and purchase intentions for the novel product. In any case, the results confirm the robustness of the differentiation principle, which also applies when the novel product is

presented not only as a healthier alternative but also as superior in terms of taste and consumption experience.

Study 5

An important remaining question is whether the differentiation principle is limited to identical attributes that are expressed in the same wording, or whether this principle also holds when attributes are not identical but merely semantically similar. To our knowledge, no previous research has tested whether the stronger influence of distinct compared to overlapping attributes in attitude formation extends to the case of semantic similarity. If it turned out that overlapping attributes can be re-phrased as distinct attributes by creative wording, this may constitute a vital strategy to advertise novel products in general, and novel, healthier food products in particular. In Study 5, we therefore investigated whether the attribute overlap effect can be mitigated when synonyms instead of identical words are used to describe food products' overlapping attributes. We preregistered the experiment and our hypotheses for Study 5; the registration documents can be found under this link:

<https://aspredicted.org/blind.php?x=qj93hz>.

Methods

Design and participants. German participants were recruited from a market research panel. The sample was selected to match the population distribution of age and gender. Again, only participants who were not on a diet and ate meat were eligible for the study. Additionally, we included only participants who passed an attention check item at the beginning of the study, as suggested by Abbey and Meloy (2017), to ensure that participants read the instructions carefully. Participants received €2.80 for participation. The study was completed by 502 of the eligible participants. The sample's mean age was 48.72 ($SD = 15.12$), 52.0 % were women and the mean BMI was 26.01 ($SD = 6.13$). Participants were randomly assigned to a condition of the 2 (type of cue overlap: positive vs. negative) \times 2 (lexical similarity: identical words vs. synonyms) design.

Materials and procedure. In the *condition with identical words*, the procedure was the same as in Study 2. Participants saw three positive and three negative attributes for a classic burger and a Volumetrics burger. We adapted the attribute phrases used in Study 3, derived from the German technical vocabulary for sensors (DLG, 2015). In the positive overlap condition, the positive attributes were the same for both burgers, but not the negative attributes. In the negative overlap condition, negative attributes were the same for both burgers, but not the positive attributes. This time, not all attributes were randomly drawn, but we had two different attribute lists, which were randomly assigned to the two burgers. Like in the previous studies, participants then saw a summary of the attributes and rated purchase intention and tastiness expectation for the classic (Cronbach's alphas were .90 and .96) and the novel burger (Cronbach's alphas were .94 and .98). In the *condition with synonyms*, the procedure was the same, but the attribute overlap was realized with synonyms that were selected based on an online pretest ($N = 19$) to ensure that they were perceived as equivalent in meaning and evaluated similarly with regard to valence. We presented participants with each phrase, one after another, and a list of the synonym phrases we contrived for each phrase. Participants chose the phrase from the list that, in their opinion, matched the meaning of the presented phrase most closely. For all phrases presented, at least 68.4 % of the participants chose the phrase we had selected as a synonym. Additionally, they rated for each phrase, how positive or negative they perceived it ($1 = \text{very negative}$; $9 = \text{very positive}$). A paired samples t -test showed that participants clearly rated the positive phrases as more positive ($M = 7.77$, $SD = .49$) than the negative phrases ($M = 2.50$, $SD = .66$), $t(18) = 24.03$, $p < .001$.

For the overlapping attributes, we used six synonym pairs in the study (e.g., looks oily – looks greasy). We had two word-lists for the synonym pairs that were randomly assigned to the classic or Volumetrics burger. The non-overlapping attributes were the same as in the condition in which overlap was created with identical words. Also, the single words from the synonym pairs were used for the identical word condition. Hence, the meaning of the attributes

was the same in both lexical similarity conditions. The questionnaire was concluded with scales measuring general health interest (Cronbach's alpha = .87) and the belief in the unhealthy = tasty intuition (Cronbach's alpha = .73) and demographics.

Results

We again conducted repeated-measures ANOVAs to test our hypotheses. We included type of cue overlap (positive vs. negative) and lexical similarity (identical words vs. synonyms) as between-subjects factors and burger type (classic vs. novel) as within-subjects factor. We also tested two-way interactions between burger type and each between-subjects factor, as well as its three-way interaction with both factors. Pairwise comparisons between conditions were assessed based on estimated marginal means, using Bonferroni corrections (Tables 5 and 6 in the Web Appendix). The first analysis included tastiness expectations as the dependent variable.

Once again, we found an interaction of the attribute overlap and the burger conditions, $F(1, 498) = 77.22, p < .001, n_p^2 = .13$ (Figure 7 in the Web Appendix). The taste expectations for the classic burger did not differ between the cue overlap conditions, $F(1, 498) = 0.001, p = .97, n_p^2 < .001$, while there was a significant difference in the taste expectations of the novel burger (H2a), $F(1, 498) = 67.42, p < .001, n_p^2 = .12$. Participants expected the novel burger to taste worse ($M = 3.78, SD = 2.28$) when the positive attributes of the two burgers were overlapping than when negative attributes were overlapping ($M = 5.51, SD = 2.42$). Again, we also found a main effect of burger type on taste expectations, $F(1, 498) = 23.13, p < .001, n_p^2 = .04$. Participants expected an overall better taste for the classic burger ($M = 5.12, SD = 2.41$) compared to the novel burger ($M = 4.63, SD = 2.50$). In contrast to our expectations (H3a), the attribute overlap effect was not further moderated by the lexical similarity conditions (identical words vs. synonyms), $F(1, 498) = 0.34, p = .56, n_p^2 = .001$. When controlling for the belief in the unhealthy = tasty intuition and general health interest as covariates, the interaction effect

between burger type and attribute overlap remained stable, $F(1, 496) = 74.12, p < .001, n_p^2 = .13$, but the main effect of burger type was no longer significant, $F(1, 496) = 1.37, p = .24, n_p^2 = .003$.

The results for the purchase intentions of the two burgers as dependent measures were similar. We observed an interaction between burger type and type of cue overlap, $F(1, 498) = 50.65, p < .001, n_p^2 = .09$ (Figure 8 in the Web Appendix). Participants did not differ in their purchase intentions for the classic burger between the two cue overlap conditions, $F(1, 498) = 0.44, p = .51, n_p^2 = .001$, but indicated a reduced purchase intention for the novel burger when the positive attributes were overlapping ($M = 3.04, SD = 1.63$) compared to when the negative attributes were overlapping ($M = 4.21, SD = 1.69$), $F(1, 498) = 62.54, p < .001, n_p^2 = .11$. A significant main effect of burger type showed that purchase intentions were overall higher for the classic burger ($M = 3.90, SD = 1.68$) than for the novel burger ($M = 3.62, SD = 1.76$), $F(1, 498) = 13.56, p < .001, n_p^2 = .03$. In contrast to our hypothesis (H3b), the attribute overlap effect on purchase intentions was not further moderated by the lexical similarity, $F(1, 498) = 0.54, p = .46, n_p^2 = .001$. The interaction effect between burger type and attribute overlap on purchase intentions remained stable when controlling for the belief in the unhealthy = tasty intuition and general health interest as covariates, $F(1, 496) = 47.97, p < .001, n_p^2 = .09$, but the main effect of burger type was no longer significant, $F(1, 496) = 1.35, p = .25, n_p^2 = .003$.

Discussion

Study 5 examined for the first time whether participants are less likely to cancel out shared positive attributes of a novel burger when synonyms are used for the attributes instead of identical words. From an applied perspective, using synonyms for shared attributes would be an ideal way to promote a novel product that has many similarities to existing products. However, Study 5 provides no evidence that using synonyms helps to prevent an undesired cancellation of a novel food product's positive attributes that overlap with those of existing

products. Instead, we found the differentiation principle to be robust and to also apply to semantically similar but verbally distinct attributes.

Study 6

In Studies 2-5, we applied a procedure to mimic the order of the market entrance of the products: We first presented the characteristics of the classic products and then those of the novel products. However, products can be presented in many different ways in menus or on websites with customer reviews. Therefore, we investigated in Study 6 whether the differentiation principle also occurs when the information about the classic product and the novel alternative is presented simultaneously on one page and whether the order of the presentation moderates this effect. Whereas we expected the differentiation principle to occur with different presentation formats and orders of presentation, other studies imply that the presentation format may have an effect on product evaluations. For example, in a study by Kardes and Kalyanaram (1992), consumers preferred a first brand over a subsequent brand when brand characteristics of the two brands were presented sequentially, but this effect was not observed when brand characteristics of the two brands were presented simultaneously. Furthermore, recent research has shown that consumers prefer and consume more of a healthier product if it is presented to the left rather than the right of a less healthy product (Romero & Biswas, 2016). Hence, it is important to test whether the differentiation principle affects taste expectations and purchase intentions also when the product attributes are presented simultaneously and whether the order of the presented information (novel product on the left or right) moderates the neglect of overlapping attributes in product judgments.

Methods

Design and participants. We again recruited a sample of consumers from a Western European country selected to match the population distribution of age and gender, using a market research panel. The consumers participated in exchange for €3.00. As in the previous studies, only participants who ate meat and were not on a diet were eligible for the study. Of

the eligible participants, 302 completed the survey. We excluded 13 participants because they did not indicate German to be their native language or that they spoke German at a native level. Thus, 289 participants were included in the data analyses. The mean age of the final sample was 48.77 ($SD = 17.77$), with 51.2 % women and a BMI of 26.01 ($SD = 5.29$). The participants were randomly assigned to one of the four conditions of the between-subjects design, determined by the type of attribute overlap (negative or positive) and the presentation of the two burgers (classic burger on the left and novel burger on the right or vice versa). We measured taste expectations and purchase intentions of the presented burgers.

Materials and procedure. Participants were first informed about the two types of burgers (classic and Volumetrics, explained in the same way as in the previous studies). Then, customers' reviews of the two burgers from a restaurant were presented on one page in a table format. Depending on the presentation order condition, participants saw either the classic burger on the left and the Volumetrics burger on the right or vice versa. Similar to the previous studies, participants received six attribute descriptions from other customers for each burger. Again, we showed three positive and three negative attributes (using the exact same attributes as in Studies 2 and 4), randomly selected for each participant. Depending on the cue overlap condition, either the positive or the negative attributes were the same for both burgers.

We assessed participants' taste expectations and their purchase intentions while the burgers and their respective attributes remained on the screen. The scales and their items were presented in random order. Unlike in the previous studies and due to the simultaneous presentation of both burgers side by side, we used items that reflected a preference for one or the other burger. Taste expectations were measured with three items: "Which burger do you estimate as tastier [more enjoyable; more delicate]?" These three items were subsequently averaged into one variable representing participants' taste expectations (Cronbach's alpha = .89). Purchase intentions were measured with two items: "Which burger would you rather try?" and "If you wanted to buy a burger at a restaurant, which burger would you rather

choose?” The overall purchase intention score was computed by averaging the two items (Cronbach’s alpha = .86). All five items used a horizontal scale with 11 response options, ranging on the left from 1 (*much more the [presented on the left] burger*) to 11 (*much more the [presented on the right] burger*) on the right. Values below 6 represent a preference for the classic burger as regards taste expectations and purchase intentions. Values above 6 represent a preference for the novel burger. Like in the previous studies, we also assessed participants’ general health interest (Cronbach’s alpha = .68) and the belief in the unhealthy = tasty intuition (Cronbach’s alpha = .79).

Results

In contrast to the previous studies, we did not use single assessments for each product, but a direct comparison between the products on the scales. Hence, the analyses differed compared to the previous studies. To test our hypotheses, we first conducted ANOVAs with type of cue overlap (positive vs. negative) and presentation order (classic burger left/novel burger right vs. novel burger left/classic burger right) as between-subjects factors. Taste expectations and purchase intentions were the dependent variables (Table 7 in the Web Appendix). We expected a main effect of the cue overlap illustrating more advantageous taste expectations and purchase intentions toward the novel burger in the negative overlap condition compared to the positive overlap condition.

In our first analysis, we used the taste expectations as dependent measure. In contrast to the expectations, the ANOVA did not yield a significant main effect of the type of cue overlap, $F(1, 285) = 0.05, p = .82, n_p^2 < .001$. However, we obtained a significant interaction effect of type of cue overlap and presentation order, $F(1, 285) = 5.08, p = .03, n_p^2 = .02$. When the classic burger was presented on the left and the novel burger was presented on the right, we observed a tendency toward a cue overlap effect, $F(1, 285) = 3.03, p = .08, n_p^2 = .01$. When the novel burger was presented on the right, participants expected it to taste worse when

positive attributes were overlapping ($M = 4.37, SD = 2.33$) compared to when negative attributes were overlapping ($M = 5.10, SD = 2.72$). When the novel burger was presented on the left, there was no significant difference between the cue overlap conditions, $F(1, 285) = 2.09, p = .15, n_p^2 = .01$. The effect of the position of the novel burger was only present in the positive overlap condition. In this condition, participants expected the novel burger to taste worse when presented on the right ($M = 4.37, SD = 2.33$) compared to when presented on the left ($M = 5.59, SD = 2.41$), $F(1, 285) = 8.08, p = .01, n_p^2 = .03$. In the negative overlap condition, the position of the novel burger did not affect its taste expectations, $F(1, 285) = 0.07, p = .79, n_p^2 < .001$. Furthermore, a comparison against the scale mean (6) of the taste expectation scale showed that consumers again expected an overall better taste for the classic burger compared to the novel burger ($M = 5.00, SD = 2.52$), $t(288) = -6.74, p < .001, d = -.40$.

When controlling for general health interest and the belief in the unhealthy = tasty intuition in the analysis, the interaction between cue overlap and presentation order remained significant, $F(1, 283) = 6.33, p = .01, n_p^2 = .02$, and the cue overlap effect reached significance in the condition with the novel burger presented on the right, $F(1, 283) = 4.14, p = .04, n_p^2 = .01$, but not in the condition with the novel burger on the left, $F(1, 283) = 2.31, p = .13, n_p^2 = .01$.

Similarly, an ANOVA with purchase intentions as dependent measure and the type of cue overlap and presentation order as independent variables did not yield a significant main effect of the type of cue overlap, $F(1, 285) = 0.87, p = .35, n_p^2 = .003$. The interaction between the type of cue overlap and the presentation order was marginally significant, $F(1, 285) = 3.28, p = .07, n_p^2 = .01$. For the presentation of the novel burger on the right, participants showed marginally significantly lower purchase intentions for the novel burger when positive attributes were overlapping ($M = 4.56, SD = 2.71$) compared to when negative attributes were overlapping ($M = 5.50, SD = 2.94$), $F(1, 285) = 3.70, p = .06, n_p^2 = .01$. For the presentation of

the novel burger on the left, there was no difference between the cue overlap conditions, $F(1, 285) = 0.39, p = .53, n_p^2 = .001$. Importantly, in the positive overlap condition, participants indicated higher purchase intentions for the novel burger when presented on the left ($M = 5.80, SD = 2.73$) compared to when presented on the right ($M = 4.56, SD = 2.71$), $F(1, 285) = 6.17, p = .01, n_p^2 = .02$. In the negative overlap condition, purchase intentions for the novel burger did not differ between the presentation orders, $F(1, 285) < 0.001, p = 1.00, n_p^2 < .001$. A test against the scale mean showed that participants indicated overall higher purchase intentions for the classic burger compared to the novel burger ($M = 5.34, SD = 2.91$), $t(288) = -3.85, p < .001, d = -.23$.

When controlling for general health interest and the belief in the unhealthy = tasty intuition in the analysis, the interaction between cue overlap and presentation order remained marginally significant, $F(1, 283) = 3.65, p = .06, n_p^2 = .01$. The cue overlap effect reached significance in the condition with the novel burger presented on the right, $F(1, 283) = 4.28, p = .04, n_p^2 = .02$, but not in the condition with the novel burger on the left, $F(1, 283) = 0.38, p = .54, n_p^2 = .001$.

Discussion

In Study 6, we found the first hint of how the undesired cancellation of positive attributes of a novel food option could be eliminated. While the simultaneous presentation of the burgers did not suffice to produce a complete elimination of the attribute overlap effect in all presentation conditions, the presentation of the novel product on the left side of the classic product eliminated the attribute overlap effect. In this condition, participants did not differ in their taste expectations and purchase intentions for the novel burger when its positive attributes also applied to the classic burger compared to when negative attributes of the novel burger also applied to the classic burger. A possible explanation for these findings is that when the novel burger is presented on the left side of the classic burger, consumers may read the attributes of

the novel burger first and elaborate on these attributes without neglecting overlapping information. Thus, placing the novel product left of the classic product might counteract the disadvantages of a novel product when it shares positive attributes with the classic product. Conversely, Study 6 shows that the classic product benefits most from a positive overlap of attributes when presented on the left side of the novel product.

General Discussion

Consumers increasingly perceive the need to eat more healthily (Nielsen, 2015; Trivedi, 2011), but they often have difficulties in pursuing their healthy eating goals and give up their eating habits (Friese et al., 2015; Imamura et al., 2015). One way to address this challenge in marketing is to develop and sell products that are very similar to existing ones, but made healthier with the help of alterations to the products' content. A natural strategy for advertising such products would be to stress the positive similarities of the newly designed products to the existing ones (e.g., "Original Coke taste – without sugar," Coca-Cola, 2019). However, in the present research, we demonstrated for the case of a novel, healthier burger as well as for groups of fictional meals that consumers do not rely on positive aspects that apply to existing and novel food products when they form their taste expectations and purchase intentions for the novel products. Instead, they evaluate novel food products primarily based on those attributes that differentiate them from existing ones. The relevance of such a neglect of shared attributes is even more strengthened by the ecological distribution of positive and negative attributes that we demonstrated in Study 1: Positive attributes of food products like a burger are more likely to overlap among products, while negative attributes are likely to be distinct.

Our reasoning in the present research is based on the differentiation principle in attitude formation (Alves et al., 2018) which proposes that when people form an attitude about a novel object, they primarily rely on the attitude object's distinct attributes that differentiate it from previously encountered objects, while shared attributes are largely neglected. This principle qualifies ideas from the features of similarity model (Tversky, 1977) which supposes that in

similarity judgments, individuals weigh distinct attributes of a less prominent object more heavily than distinct attributes of a more prominent object. In Studies 2–6, we found that the differentiation principle applies to the formation of attitudes toward novel food products. That is, even though novel food alternatives were described with equal numbers of positive and negative attributes compared to earlier encountered “classic” products, consumers’ evaluations of the novel products selectively reflected the products’ distinct attributes. Specifically, when the existing and novel products were similar regarding their positive attributes, the novel products were rated less positively than when the products were similar regarding their negative attributes.

The differentiation principle shares the idea with the category diagnosticity approach (Skowronski & Carlston, 1989) that individuals rely on cues that support a differentiation when making a judgment. Indeed, one merit of the category diagnosticity approach is to illustrate that the domain of judgment (e.g., ability vs. morality judgments) determines whether positive or negative cues are more diagnostic. For example, Skowronski and Carlston (1989) argued that positive cues are important in ability judgments, because individuals with low abilities are less capable to show excellent performances whereas individuals with high abilities might be likely to perform less optimally in some cases. Similarly, they reasoned that negative cues are more diagnostic in the domain of morality judgments because normative behavior (e.g., not stealing something) is more common in this domain. Similarly, most restaurants and food companies are able to produce tasty food. Hence, in the domain of taste judgments in daily life, negative taste attributes might be on average more diagnostic from the perspective of the category diagnosticity approach. But importantly, the differentiation principle complements the category diagnosticity approach and other related approaches like the accentuation principle (Wedell, 1997) by explicitly highlighting the distribution of positive and negative information also within domains, and by differentiating between existing and novel objects. For example, Study 1 indicates that individuals perceive negative attributes of a classic *and* a novel burger to

be more distinct than positive attributes, but in the subsequent studies we found that, for this configuration of information, individuals weighted the negative attributes of the novel burger more than the negative attributes of the classic one. Moreover, we found that the positive attributes of the novel burger were weighted more strongly when we reversed the distribution of the overlapping and distinct information within the same judgment domain.

In addition, previous research on the pioneering advantage (Carpenter & Nakamoto, 1989) has illustrated that through learning consumers shift their preferences towards the brands that enter the market first and that these pioneering brands then become the prototype and standard of comparison for other products. It is likely that this process is not limited to brands, but also applies to product prototypes like a classic burger. Indeed, participants in our studies showed a strong preference for the classic products across experimental conditions. The differentiation principle and the results of the present study extend this research by showing that the pioneering advantage can be mitigated. Indeed, the differentiation principle implies a more advantageous evaluation of a novel product, when the novel product is distinct in a positive way. Together with the research on the pioneering advantage it also dovetails well with models of consumer satisfaction that reason that satisfaction with a novel item depends on how this item performs in comparison to what is expected from a familiar item, which serves as a reference point (Oliver, 1980). In the present research, we further demonstrated that novel products underperform the familiar ones in the eyes of the consumer if positive attributes are overlapping and the negative attributes are distinct for the products, even if positive and negative attributes of the different products are equal in strength and number for the existing standards and the novel products.

Establishing a positive distinctiveness is without doubt challenging and, as Study 1 demonstrated, made more difficult by the ecological distribution of positive and negative attributes: We found that positive attributes were perceived as more likely to be shared by a classic and a novel, healthier burger than negative attributes; hence, the attributes that

differentiate a classic and a novel, healthier burger were mostly negative. In the present research, we demonstrated for the first time that this distribution pattern of positive and negative attributes which has been observed in other areas (Alves et al., 2017a; 2018) applies to consumer products. Therefore, it is likely that, in addition to the learning process about a product prototype (Carpenter & Nakamoto, 1989), the ecological distribution of positive and negative attributes contributes significantly to the difficulty of establishing new healthy products on the market.

Importantly, shared attributes are not to be confused with alignable attributes (Markman & Loewenstein, 2010; Slovic & MacPhillamy, 1974; Zhang, Kardes, & Cronley, 2002). Shared attributes are identical or semantically similar attributes between products. Alignable attributes refer to differences between products on the same attribute dimensions (such as the quality of the cheese on a burger). In contrast, non-alignable attributes are differences between products on different attribute dimensions (such as that one burger might have cheese and another bacon). Research has shown that people focus more on alignable than nonalignable attributes in choice (Markman & Loewenstein, 2010; Slovic & MacPhillamy, 1974; Zhang et al., 2002). In our studies, we did not manipulate whether the two burgers differ on alignable or nonalignable attributes. Future research might test the differentiation principle systematically between conditions in which products differ on the same or different attribute dimensions.

Theoretically, the negativity of differentiating attributes and the positivity of shared attributes can be traced back to two fundamental asymmetries in the information ecology. First, negative attributes are more diverse than positive attributes, meaning that there are more ways to be bad than there are ways to be good (Alves et al., 2017b, 2018); and second, positive compared to negative attributes occur more frequently (Alves et al., 2017a). Consider the example of desirable burgers that all share some of the basic ingredients, that all require a specific medium roast of the meat, and that all require the right amount of sauce, and so forth. By contrast, undesirable burgers can differ in infinite ways. They might include all kinds of

strange ingredients, the color and consistency of the meat may be off in various ways, and there may be too much or too little sauce on the burger. The insight that positive attributes are usually shared among products whereas negative attributes are distinct reveals the relevance of the differentiation principle in attitude formation in marketing. That is, it reveals a fundamental challenge in introducing novel products and it suggests that marketing strategies that emphasize the similarities between healthier and standard options may be ineffective.

From a marketing perspective, it is important to identify conditions under which the neglect of overlapping attributes between novel and existing alternatives is reduced. In the current research, we examined two possible strategies: the use of synonyms in descriptions of product attributes and the parallel presentation of information with the novel product on the left of the classic product. The use of synonyms or creative wording for the same attributes would be an easy marketing strategy, but it seems to be less effective according to the results of Study 5. We did not find that using synonyms affected the neglect of overlapping information. This finding is completely new in the research on the differentiation principle and suggests that consumers do not focus on the exact wording of information, but rather on their semantic content.

In Study 6, we found that presenting information about a novel healthy burger left of a classic burger reduced the cue overlap effect. In this presentation format, consumers seem to rely on all of the novel product's attributes, which reflects findings of other previous research on comparison effects (Bruine de Bruin & Keren, 2003; Brunner & Wänke, 2006; Houston & Sherman, 1995; Kardes & Kalyanaram, 1992). For marketing applications, this means that managers who want to promote an existing product and a novel alternative could list the customer reviews of both alternatives side by side, with the novel product on the left and the existing product on the right. This might be applicable for restaurants that implement novel, healthier menus, as is the case currently for fast food chains like McDonald's (Klein, 2018; McDonald's, 2019), as well as for brand managers who implement brand extensions.

In the present research, we studied the cue overlap principle of differentiation mainly with burger products. We used this example because the burger industry is currently experiencing a lot of relevant changes due to the introduction of many novel, healthier alternatives such as the Beyond Burger (Beyond Meat, 2019) or Rebel Meat (Rebel Meat, 2020), and, moreover, reducing meat consumption is considered one of the main environmental goals (Popkin, 2009) and constitutes a market with high revenues (Shahbandeh, 2019). Yet, in one study, we demonstrated that the cue overlap principle also applies to groups of fictional meals. This suggests that the present framework and empirical findings should be applicable in any other context in which novel, healthier products are introduced. Eventually, we expect the differentiation principle to apply to any context in which a novel attitude object (even a supposedly better one) is compared to a previously encountered object.

An interesting finding of the present studies is that the novel product or product group was mostly evaluated worse compared to the existing products, even though the presented customer evaluations were equally positive and negative for both products. We mentioned already that this finding could be an indication of a general pioneering advantage for the classic products (Carpenter & Nakamoto, 1989) which is mitigated when negative attributes are shared between the novel and classic products. However, it is likely that a further mechanism contributed to this advantage of the classic products. In Studies 2-5 the main effect in the preferences was no longer significant when we controlled for general health interest and the unhealthy = tasty intuition. Hence, it might be that the preference for the classic burger is a result of lower interest in health and a heuristic that unhealthy food tastes better (Haasova & Florack, 2019a ; Raghunathan et al., 2006). However, recent research has shown that some consumers associate good taste with healthy food (Haasova & Florack, 2019a, 2019b; Kunz, Haasova, & Florack, 2020; Kunz, Haasova, Rieß, & Florack, 2020), meaning that they would not necessarily evaluate a classic product more favorably than a novel, healthy product.

Other research on innovative products might also draw on the present framework and empirical findings. Considering the differentiation principle in attitude formation might be useful, for example, in research on hybrid products made from two separate products that share certain attributes. Recent research in this area found that prompting consumers to think about structural alignment in functions of hybrids increased their success when they were made out of dissimilar products, but decreased their success when they were made out of similar products (Gibbert & Mazursky, 2009). This might be explained by the increased competitiveness of the shared attributes for the same functions (Gibbert & Mazursky, 2009).

Our findings might also help explain the advantages of national brands over store brands. Previous research consistently found that consumers perceive store brands to be of lower quality than national brands (Bellizzi, Kruckeberg, Hamilton, & S, 1981; Cunningham, Hardy, & Imperia, 1982), although they can offer the same or even better quality than national brands (De Wulf, Odekerken-Schröder, Goedertier, & Ossel, 2005). Richardson, Dick, and Jain (1994) proposed that this unfavorable perception of store brands is due to extrinsic cues, such as an unattractive package design or lack of a strong brand-image. The differentiation principle provides a further possible explanation for the observed advantage of national brands. It is conceivable that consumers prefer national brands over store brands because they evaluate store brands according to their distinct negative attributes while ignoring the positive attributes they share with national brands and the distinct negative attributes of the national brands.

An interesting question is whether differentiating attributes have to be important to consumers or whether marketing managers could use trivial attributes for the differentiation. In general, important attributes are of course more suitable for differentiating a product from others. However, in situations in which this is difficult to achieve, less important attributes might be used for differentiation. Indeed, in the choice between two similar alternatives, also a less important, but distinct attribute might be positively valued by consumers, because it facilitates the otherwise difficult decision between the choice alternatives (Brown & Carpenter,

2000). But marketers should be aware that a distinct trivial attribute can become a disadvantage when consumers form a consideration set out of more than two products. In this case, they might value the same trivial attribute negatively, in order to reduce the number of considered products (Brown & Carpenter, 2000).

An important limitation of the present study is that we presented the products along with positive and negative attributes that were said to come from customer reviews. Hence, it remains unclear how general the observed effect is for other settings. We suppose that the current findings apply to new product launches in general, because consumers might have a familiar product and its positive and negative attributes in mind and use it as a standard of comparison for the newly introduced products. Study 1 showed that the self-reported positive attributes were more likely to characterize the two featured products than the negative attributes applied to both products. We assume that consumers apply these attributes when they compare products and not only when the attributes are reported by other customers like in online reviews of products.

Another limitation of the present research is that we did not systematically investigate different proportions of unique vs. shared attributes of products. In all studies, participants viewed altogether more unique (6) than shared (3) attributes. In reality, the proportion of unique vs. shared attributes might vary. Yet, importantly, the number of unique attributes was the same in all conditions and can thus not explain the neglect of shared attributes for the novel burger. But it is of course an open question whether the effect we observed in the present research decreases when the number of shared attributes increases. Although we did not test effects of the proportion of unique vs. shared attributes, we regard it unlikely that the neglect of shared attributes decreases significantly when the proportion of shared attributes increases. Possibly, a low proportion of unique attributes would make these attributes even more salient. Hence, we suppose that the neglect of shared attributes of the novel burger would not decrease but rather increase with a higher proportion of shared attributes. Finally, we regard the

proportion of shared and unique attributes as an important aspect to be considered in future research.

Managerial Implications

Consumers are known to often show resistance toward novel or enhanced products (Heidenreich & Kraemer, 2016; Labrecque, Wood, Neal, & Harrington, 2016; Zhou & Nakamoto, 2007). Emphasizing that a new, potentially “healthier” alternative to an existing product is still equally tasty to its predecessor might occur as a logical strategy to suppress consumers’ resistance towards the new alternative. However, our research findings should make marketers and policy makers aware that such a strategy promoting shared positive attributes of the old and new products is likely to backfire. The present data shows that, in reality, consumers already perceive positive attributes to be shared, but they do not rely on these shared attributes when evaluating a novel product, but focus on distinct attributes, which are usually negative. Our research also suggests that to counter this novelty disadvantage, it is not sufficient to merely rephrase overlapping attributes to make them distinct. More generally, the present work suggests that instead of highlighting the similarities between a novel, healthy product and its established predecessors, marketers should stress the novel product’s distinct positive attributes. Marketers might advertise a product not as an adapted version of an original, but as a distinct product with distinct advantages over previous products. For example, a novel, healthy burger may not be advertised as tasting like meat, but as providing a new taste that is even better than the taste of meat.

References

- Abbey, J. D., & Meloy, M. G. (2017). Attention by design: Using attention checks to detect inattentive respondents and improve data quality. *Journal of Operations Management*, *53*, 63-70.
- Aime, D. B., Arntfield, S. D., Malcolmson, L. J., & Ryland, D. (2001). Textural analysis of fat reduced vanilla ice cream products. *Food Research International*, *34*, 237–246.

- Alves, H., Koch, A., & Unkelbach, C. (2017a). The “common good ” phenomenon: Why similarities are positive and differences are negative. *Journal of Experimental Psychology: General*, *146*, 512-528.
- Alves, H., Koch, A., & Unkelbach, C. (2017b). Why good is more alike than bad: Processing implications. *Trends in Cognitive Sciences*, *21*, 69–79.
- Alves, H., Koch, A., & Unkelbach, C. (2018). A cognitive-ecological explanation of intergroup biases. *Psychological Science*, *29*, 1126–1133.
- Bellizzi, J. A., Kruckeberg, H. F., Hamilton, J. R., & S, M. W. (1981). Consumer perceptions of national, private and generic brands. *Journal of Retailing*, *57*, 56–70.
- Beyond Meat. (2019). Our products. Retrieved April 21, 2020, from <https://www.beyondmeat.com/products/>
- Brown, C. L., & Carpenter, G. S. (2000). Why is the trivial important? A reasons - based account for the effects of trivial attributes on choice. *Journal of Consumer Research*, *26*, 372–385.
- Bruine de Bruin, W., & Keren, G. (2003). Order effects in sequentially judged options due to the direction of comparison. *Organizational Behavior and Human Decision Processes*, *92*, 91–101.
- Brunner, T. A., & Wänke, M. (2006). The reduced and enhanced impact of shared features on individual brand evaluations. *Journal of Consumer Psychology*, *16*, 101–111.
- Buhrau, D., & Ozturk, T. C. (2018). Motivating healthy eating: The role of presentation format and health consciousness. *Food Quality and Preference*, *64*, 167–171.
- Carpenter, G. S., & Nakamoto, K. (1989). Consumer preference formation and pioneering advantage. *Journal of Marketing*, *26*, 285–298.
- Chen, M. F. (2011). The joint moderating effect of health consciousness and healthy lifestyle on consumers’ willingness to use functional foods in Taiwan. *Appetite*, *57*, 253–262.

- Chernev, A. (2011). The dieter's paradox. *Journal of Consumer Psychology, 21*, 178–183.
- Coca-Cola. (2019). Original Coke taste - without sugar. Retrieved April 21, 2020, from <https://www.cocacola.de/de/coke-zero/>
- Connell, P. M., & Mayor, L. F. (2013). Activating health goals reduces (increases) hedonic evaluation of food brands for people who harbor highly positive (negative) affect toward them. *Appetite, 65*, 159–164.
- Cunningham, I. C., Hardy, A. P., & Imperia, G. (1982). Generic brands versus national brands and store brands. *Journal of Advertising Research, 22*(5), 25–32.
- De Wulf, K., Odekerken-Schröder, G., Goedertier, F., & Ossel, G. Van. (2005). Consumer perceptions of store brands versus national brands. *Journal of Consumer Marketing, 22*(4), 223–232.
- Desai, K. K., & Ratneshwar, S. (2003). Consumer perceptions of product variants positioned on atypical attributes. *Journal of the Academy of Marketing Science, 31*, 22-35.
- DLG (Ed.). (2015). *Fachvokabular Sensorik - Praxisleitfaden zur Beschreibung von Lebensmitteln mit allen Sinnen*. Frankfurt am Main: DLG-Verlag.
- Egan, T. (2019). Fake meat will save us. Retrieved April 21, 2020, from <https://www.nytimes.com/2019/06/21/opinion/fake-meat-climate-change.html>
- Fiske, S. T. (1980). Attention and weight in personal perception: The impact of negative and extreme information. *Journal of Personality and Social Psychology, 38*, 889–906.
- Friese, M., Engeler, M., & Florack, A. (2015). Self-perceived successful weight regulators are less affected by self-regulatory depletion in the domain of eating behavior. *Eating Behaviors, 16*, 5–8.
- Gagliardi, N. (2015). Consumers want healthy foods—and will pay more for them. Retrieved April 21, 2020, from <https://www.forbes.com/sites/nancygagliardi/2015/02/18/consumers-want-healthy-foods-and-will-pay-more-for-them/>
- Gibbert, M., & Mazursky, D. (2009). How successful would a phone-pillow be: Using dual

- process theory to predict the success of hybrids involving dissimilar products. *Journal of Consumer Psychology*, *19*, 652-660.
- Guinard, J. X., & Marty, C. (1997). Acceptability of fat-modified foods to children, adolescents and their parents: Effect of sensory properties, nutritional information and price. *Food Quality and Preference*, *8*, 223–231.
- Haasova, S., & Florack, A. (2019a). Practicing the (un)healthy = tasty intuition: Toward an ecological view of the relationship between health and taste in consumer judgments. *Food Quality and Preference*, *75*, 39–53.
- Haasova, S., & Florack, A. (2019b). Sugar labeling: How numerical information of sugar content influences healthiness and tastiness expectations. *PLoS ONE*, *14*(11).
- Heidenreich, S., & Kraemer, T. (2016). Innovations - doomed to fail? Investigating strategies to overcome passive innovation resistance. *Journal of Product Innovation Management*, *33*, 277–297.
- Herr, P. M., Kardes, F. R., & Kim, J. (1991). Effects of word-of-mouth and product-attribute information on persuasion: An accessibility-diagnostics perspective. *Journal of Consumer Research*, *17*, 454.
- Hodges, S. D. (1997). When matching up features messes up decisions: The role of feature matching in successive choices. *Journal of Personality and Social Psychology*, *72*, 1310–1321.
- Hodges, S. D. (2005). A feature-based model of self-other comparisons. In M. D. Alicke, D. A. Dunning, & J. I. Krueger (Eds.), *The self in social judgment* (pp. 133–156). New York: Psychology Press.
- Houston, D. A., & Sherman, S. J. (1995). Cancellation and focus: The role of shared and unique features in the choice process. *Journal of Experimental Social Psychology*, *4*, 357-378.
- Houston, D. A., Sherman, S. J., & Baker, S. M. (1989). The influence of unique features and

- direction of comparison of preferences. *Journal of Experimental Social Psychology*, 25, 121–141.
- Imamura, F., Micha, R., Khatibzadeh, S., Fahimi, S., Shi, P., Powles, J., & Mozaffarian, D. (2015). Dietary quality among men and women in 187 countries in 1990 and 2010: A systematic assessment. *The Lancet Global Health*, 3, 132–142.
- Kardes, F. R., & Kalyanaram, G. (1992). Order-of-entry effects on consumer memory and judgment: An information integration perspective. *Journal of Marketing Research*, 29, 343–357.
- Kardes, F. R., & Sanbonmatsu, D. M. (1993). Direction of comparison, expected feature correlation, setsize effect in preference judgment. *Journal of Consumer Psychology*, 2, 39–54.
- Klein, D. (2018). McDonald's Happy Meals Keep Getting Healthier. Retrieved April 21, 2020, from <https://www.qsr magazine.com/fast-food/mcdonalds-happy-meals-keep-getting-healthier>
- Kunz, S., Haasova, S., & Florack, A. (2020). Fifty shades of food: The influence of package color saturation on health and taste in consumer judgments. *Psychology and Marketing*, 37, 900–912.
- Kunz, S., Haasova, S., Rieß, J., & Florack, A. (2020). Beyond healthiness: The impact of traffic light labels on taste expectations and purchase intentions. *Foods*, 9, 134.
- Labrecque, J. S., Wood, W., Neal, D. T., & Harrington, N. (2016). Habit slips: When consumers unintentionally resist new products. *Journal of the Academy of Marketing Science*, 45, 119–133.
- Lähteenmäki, L. (2013). Claiming health in food products. *Food Quality and Preference*, 27, 196–201.
- Mantel, S. P., & Kardes, F. R. (1999). The role of direction of comparison, attribute - based

- processing, and attitude - based processing in consumer preference. *Journal of Consumer Research*, 25, 335–352.
- Markman, A. B., & Loewenstein, J. (2010). Structural comparison and consumer choice. *Journal of Consumer Psychology*, 20, 126–137.
- McDonald's. (2019). Come and discover meals under 400Kcal or 600Kcal. Retrieved April 21, 2020, from <https://www.mcdonalds.com/gb/en-gb/latest/meals-under.html>
- Naylor, R. W., Droms, C. M., & Haws, K. L. (2009). Eating with a purpose: Consumer response to functional food health claims in conflicting versus complementary information environments. *Journal of Public Policy and Marketing*, 28, 221–233.
- Nielsen. (2015). We are what we eat: Healthy eating trends around the world. Retrieved April 21, 2020, from <https://www.nielsen.com/us/en/insights/report/2015/we-are-what-we-eat/>
- Oliver, R. L. (1980). A cognitive model of the antecedents and consequences of satisfaction decisions. *Journal of Marketing Research*, 17, 460-469.
- Popkin, B. M. (2009). Reducing meat consumption has multiple benefits for the world's health. *Archives of Internal Medicine*, 169, 543–545.
- Raghunathan, R., Naylor, R. W., & Hoyer, W. D. (2006). The unhealthy = tasty intuition and its effects on taste inferences, enjoyment, and choice of food products. *Journal of Marketing*, 70, 170–184.
- Rebel Meat. (2020). Ueber uns. Retrieved April 20, 2020, from <https://www.rebelmeat.com/ueber-uns>
- Richardson, P. S., Dick, A. S., & Jain, A. K. (1994). Extrinsic and Intrinsic Cue Effects on Perceptions of Store Brand Quality. *Journal of Marketing*, 58(4), 28.
- Roininen, K., Lähteenmäki, L., & Tuorila, H. (1999). Quantification of consumer attitudes to health and hedonic characteristics of foods. *Appetite*, 33, 71–88.
- Rolls, B., & Hermann, M. (2012). *The ultimate volumetrics diet: Smart, simple, science-based*

- strategies for losing weight and keeping it off*. New York: Harper Collins.
- Romero, M., & Biswas, D. (2016). Healthy-left, unhealthy-right: Can displaying healthy items to the left (versus right) of unhealthy items nudge healthier choices? *Journal of Consumer Research*, *43*, 103–112.
- Shahbandeh, M. (2019). Global meat industry - statistics & facts. Retrieved April 21, 2020, from <https://www.statista.com/topics/4880/global-meat-industry/>
- Skowronski, J. J., & Carlston, D. E. (1989). Negativity and extremity biases in impression formation: A review of explanations. *Psychological Bulletin*, *105*, 131.
- Slovic, P., & MacPhillamy, D. (1974). Dimensional commensurability and cue utilization in comparative judgment. *Organizational Behavior and Human Performance*, *11*, 172–194.
- Trivedi, M. (2011). Regional and categorical patterns in consumer behavior: Revealing trends. *Journal of Retailing*, *87*, 18–30.
- Tuorila, H., Cardello, A. V., & Leshner, L. L. (1994). Antecedents and consequences of expectations related to fat-free and regular-fat foods. *Appetite*, *23*, 247–263.
- Tversky, A. (1977). Features of similarity. *Psychological Review*, *84*(4), 327–352.
- Wedell, D. H. (1997). Another look at reasons for choosing and rejecting, *Memory & Cognition*, *25*, 873–887.
- Zhang, S., Kardes, F. R., & Cronley, M. L. (2002). Comparative advertising: Effects of structural alignability on target brand evaluations. *Journal of Consumer Psychology*, *12*, 303–311.
- Zhang, S., & Markman, A. B. (2001). Processing product unique features: Alignability and involvement in preference construction. *Journal of Consumer Psychology*, *11*, 13–27.
- Zhou, K. Z., & Nakamoto, K. (2007). How do enhanced and unique features affect new product preference? The moderating role of product familiarity. *Journal of the Academy of Marketing Science*, *35*, 53–62.

Web Appendix: Tables and Figures**Table 1**

Mean tastiness expectations and purchase intentions for the two burgers in the positive and negative cue overlap condition in Study 2.

	Tastiness expectation			Purchase intention			
	<i>M (SD)</i>			<i>M (SD)</i>			
	Overall	Positive overlap	Negative overlap	Overall	Positive overlap	Negative overlap	
Classic Burger	5.90 _a (2.25)	5.88 _{ax} (2.35)	5.92 _{ax} (2.15)	Classic Burger	4.59 _a (1.59)	4.59 _{ax} (1.61)	4.59 _{ax} (1.58)
Novel Burger	5.07 _b (2.44)	4.48 _{bx} (2.44)	5.65 _{ay} (2.30)	Novel Burger	3.94 _b (1.74)	3.59 _{bx} (1.78)	4.29 _{by} (1.64)

Note. *M* = mean; *SD* = standard deviation. Means with different subscripts a, b, c between rows and x, y between columns are significantly different at $p < 0.05$ in paired contrasts.

Table 2

Mean tastiness expectations and purchase intentions for the two meal groups in the positive and negative cue overlap condition in Study 3.

	Tastiness expectation				Purchase intention		
	<i>M(SD)</i>				<i>M(SD)</i>		
	Overall	Positive overlap	Negative overlap		Overall	Positive overlap	Negative overlap
Typical Meals	6.40 _a (2.26)	6.40 _{ax} (2.18)	6.39 _{ax} (2.35)	Typical Meals	5.01 _a (1.70)	5.06 _{ax} (1.67)	4.95 _{ax} (1.74)
Novel Meals	5.98 _b (2.35)	5.79 _{bx} (2.35)	6.20 _{ax} (2.34)	Novel Meals	4.72 _b (1.72)	4.59 _{bx} (1.73)	4.86 _{ax} (1.71)

Note. *M* = mean; *SD* = standard deviation. Means with different subscripts a, b, c between rows and x, y between columns are significantly different at $p < 0.05$ in paired contrasts.

Table 3

Mean tastiness expectations for the two burgers in the positive and negative cue overlap conditions and with different concepts for the novel burger in Study 4.

	Volumetrics concept			Rebel meat concept			
	<i>M(SD)</i>			<i>M(SD)</i>			
	Overall	Positive overlap	Negative overlap	Overall	Positive overlap	Negative overlap	
Classic Burger	4.89 _a (2.34)	5.05 _{ax} (2.57)	4.76 _{ax} (2.15)	Classic Burger	4.86 _a (2.48)	4.90 _{ax} (2.56)	4.83 _{ax} (2.43)
Novel Burger	4.49 _b (2.32)	4.04 _{bx} (2.26)	4.87 _{ax} (2.31)	Novel Burger	4.75 _a (2.57)	4.25 _{bx} (2.37)	5.18 _{ay} (2.68)

Note. *M* = mean; *SD* = standard deviation. Means with different subscripts a, b, c between rows and x, y between columns are significantly different at $p < 0.05$ in paired contrasts.

Table 4

Mean purchase intentions for the two burgers in the positive and negative cue overlap conditions and with different concepts for the novel burger in Study 4.

	Volumetrics concept			Rebel meat concept			
	<i>M(SD)</i>			<i>M(SD)</i>			
	Overall	Positive overlap	Negative overlap	Overall	Positive overlap	Negative overlap	
Classic Burger	4.03 _a (1.88)	4.04 _{ax} (2.00)	4.03 _{ax} (1.79)	Classic Burger	3.94 _a (1.81)	3.88 _{ax} (1.85)	3.99 _{ax} (1.79)
Novel Burger	3.74 _b (1.75)	3.46 _{bx} (1.77)	3.97 _{ax} (1.71)	Novel Burger	3.69 _b (1.90)	3.34 _{bx} (1.87)	3.99 _{ay} (1.88)

Note. *M* = mean; *SD* = standard deviation. Means with different subscripts a, b, c between rows and x, y between columns are significantly different at $p < 0.05$ in paired contrasts.

Table 5

Mean tastiness expectations for the two burgers in the positive and negative cue overlap conditions and lexical similarity conditions in Study 5.

	Identical words			Synonyms			
	<i>M(SD)</i>			<i>M(SD)</i>			
	Overall	Positive overlap	Negative overlap	Overall	Positive overlap	Negative overlap	
Classic Burger	5.17 _a (2.50)	5.32 _{ax} (2.62)	5.03 _{ax} (2.37)	Classic Burger	5.06 _a (2.31)	4.91 _{ax} (2.31)	5.22 _{ax} (2.31)
Novel Burger	4.68 _b (2.52)	3.90 _{bx} (2.37)	5.44 _{by} (2.44)	Novel Burger	4.59 _b (2.48)	3.67 _{bx} (2.19)	5.58 _{ay} (2.40)

Note. *M* = mean; *SD* = standard deviation. Means with different subscripts a, b, c between rows and x, y between columns are significantly different at $p < 0.05$ in paired contrasts.

Table 6

Mean purchase intentions for the two burgers in the positive and negative cue overlap conditions and lexical similarity conditions in Study 5.

	Identical words			Synonyms			
	<i>M(SD)</i>			<i>M(SD)</i>			
	Overall	Positive overlap	Negative overlap	Overall	Positive overlap	Negative overlap	
Classic Burger	3.90 _a (1.74)	3.92 _{ax} (1.80)	3.88 _{ax} (1.69)	Classic Burger	3.90 _a (1.61)	3.79 _{ax} (1.58)	4.03 _{ax} (1.65)
Novel Burger	3.61 _b (1.76)	3.03 _{bx} (1.67)	4.17 _{ay} (1.67)	Novel Burger	3.63 _b (1.76)	3.05 _{bx} (1.60)	4.26 _{ay} (1.72)

Note. *M* = mean; *SD* = standard deviation. Means with different subscripts a, b, c between rows and x, y between columns are significantly different at $p < 0.05$ in paired contrasts.

Table 7

Mean tastiness expectations and purchase intentions in the positive and negative cue overlap condition with different presentation orders in Study 6.

	Tastiness expectation				Purchase intention		
	<i>M(SD)</i>				<i>M(SD)</i>		
	Overall	Positive overlap	Negative overlap		Overall	Positive overlap	Negative overlap
Novel right	4.74 _a (2.55)	4.37 _{ax} (2.33)	5.10 _{ax} (2.72)	Novel right	5.03 _a (2.85)	4.56 _{ax} (2.71)	5.50 _{ax} (2.93)
Novel left	5.25 _a (2.47)	5.59 _{bx} (2.41)	4.99 _{ax} (2.50)	Novel left	5.63 _a (2.94)	5.80 _{bx} (2.73)	5.50 _{ax} (3.10)

Note. *M* = mean; *SD* = standard deviation. Values below 6 represent a preference for the classic burger, whereas values above 6 represent a preference for the novel burger. Means with different subscripts a, b, c between rows and x, y between columns are significantly different at $p < 0.05$ in paired contrasts.

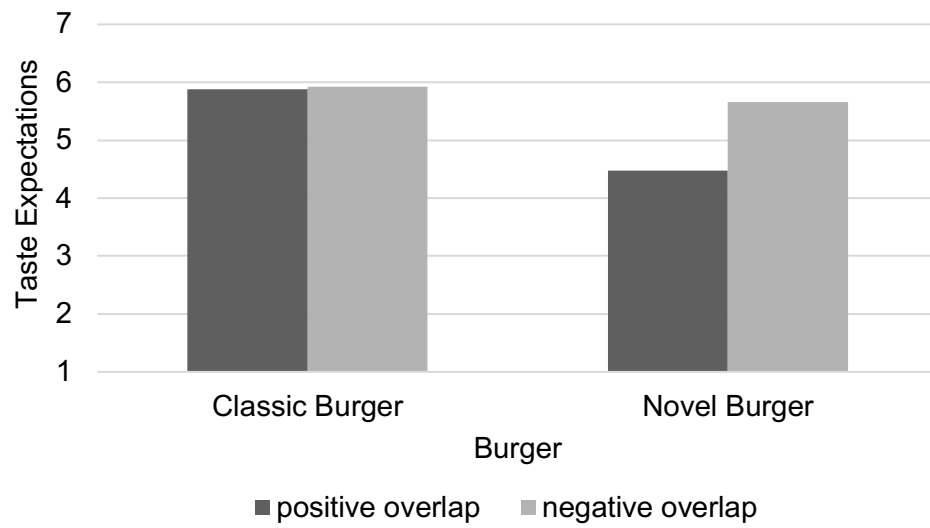


Figure 1. Taste expectations as a function of cue overlap and burger type (Study 2).

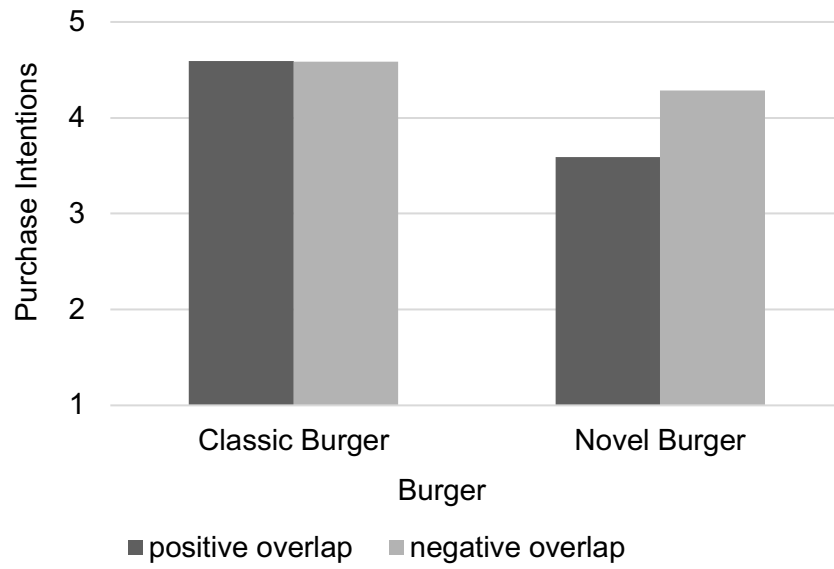


Figure 2. Purchase intentions as a function of cue overlap and burger type (Study 2).

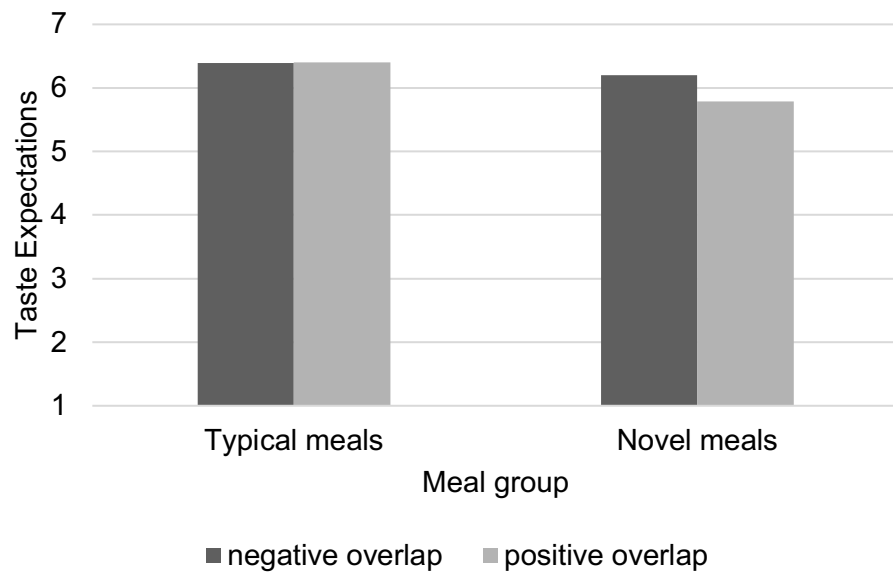


Figure 3. Taste expectations as a function of cue overlap and meal type (Study 3).

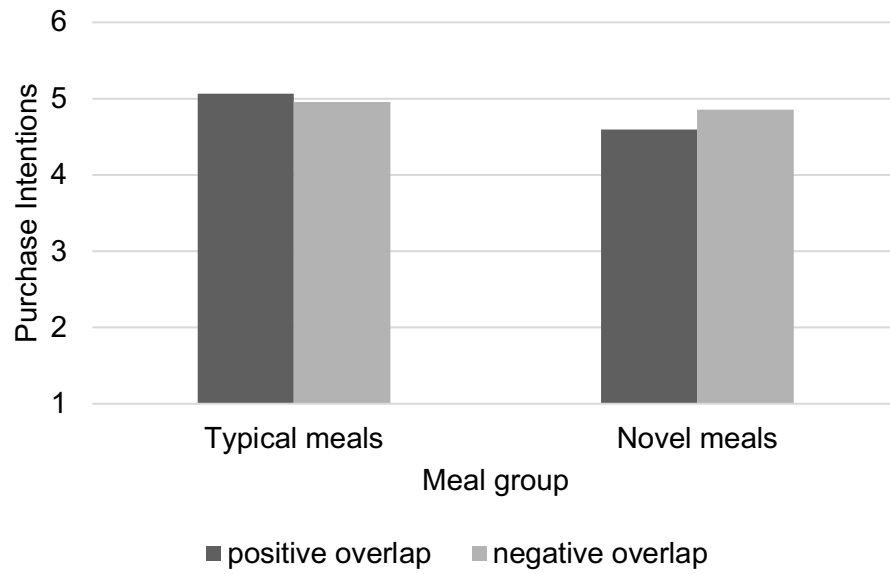


Figure 4. Purchase intentions as a function of cue overlap and meal type (Study 3).

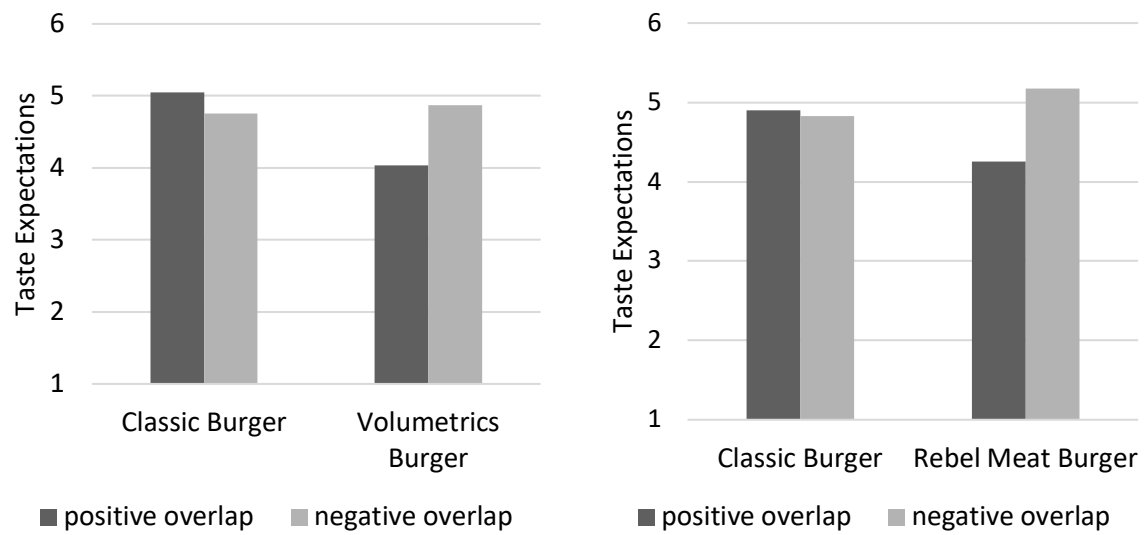


Figure 5. Taste expectations as a function of cue overlap and burger type, when the novel burger is conceptualized as a Volumetrics burger (left diagram) or a Rebel meat burger (right diagram) (Study 4).

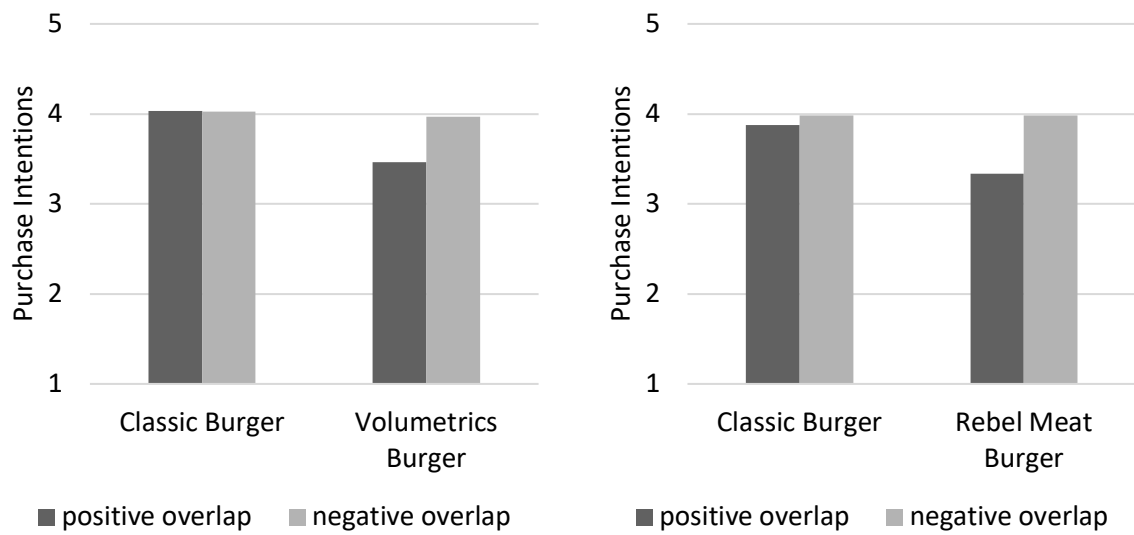


Figure 6. Purchase intentions as a function of cue overlap and burger type, when the novel burger is conceptualized as a Volumetrics burger (left diagram) or a Rebel meat burger (right diagram) (Study 4).

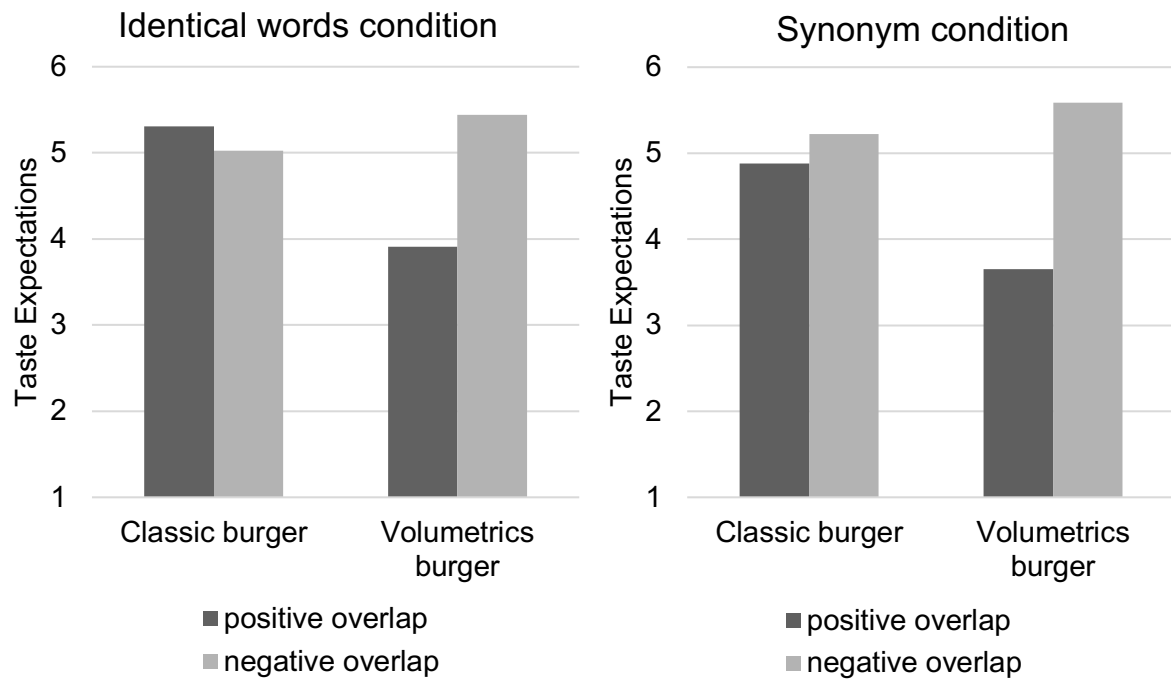


Figure 7. Taste expectations as a function of cue overlap and burger type, when the cue overlap is realized with identical words (left diagram) or synonyms (right diagram) (Study 5).

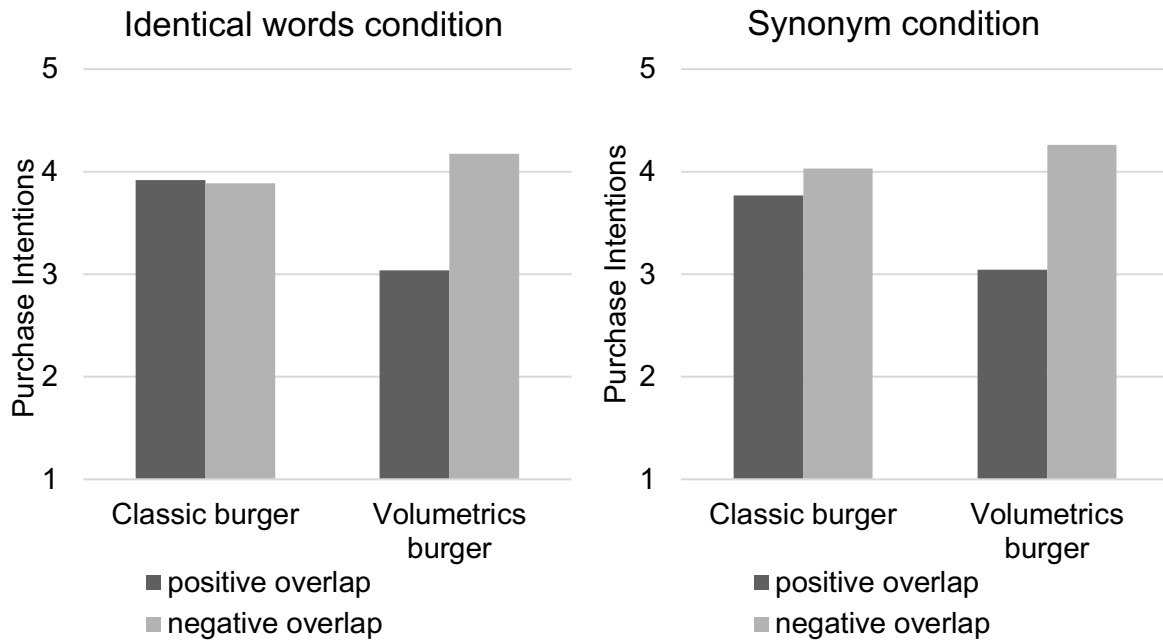


Figure 8. Purchase intentions as a function of cue overlap and burger type, when the cue overlap is realized with identical words (left diagram) or synonyms (right diagram) (Study 5).