



Radboud Universiteit Nijmegen

A Crunchy or Light Caesar Salad? The Effect of Indulgent vs. Health-focused Labeling on Menus on Consumers' Intention to Order

Bachelor Thesis International Business Communication

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A B S T R A C T

Over the last years, obesity has officially become a global epidemic. With at least 2.8 million people dying from being overweight each year, it is vital for the public health sector to help consumers make healthier food choices. This decision is particularly difficult in restaurant settings, where consumers often are unaware of their calorie-intake, causing over-indulging to happen. Previous studies showed that on menus of restaurants, healthy options are frequently described using less excited language compared to unhealthy options. Describing healthy options with similar exciting and indulgent language may change consumers' perception and perceived attractiveness of the meal, since the type of language used in food descriptions could activate a desire within consumers that causes them to activate reward signals in the brain. Therefore, the present study aims to examine how Dutch natives responded to different types of languages in descriptions (indulgent, health-focused and neutral) on menus of restaurants in terms of their intention to order and whether this differs for unhealthy and healthy options on the menu. To research this, a quantitative, within-subject study was performed, asking participants to rate descriptions of five healthy and five unhealthy meals in terms of intention to order. Randomized across participants, each meal was described with either indulgent, health-focused or neutral language. Results found health-focused language to lead to a lower intention to order compared to neutral and indulgent language. This did not differ between healthy and unhealthy meals.

INTRODUCTION

1.1. Healthy vs Unhealthy Foods

Within today's society where healthy and organic foods become more and more expensive and unhealthy, processed foods are excessively cheaper and easier available, obesity has officially reached epidemic amounts globally (World Health Organization, 2021). At least 2.8 million people die each year as a consequence of being obese or overweight. Whereas a small percentage of the people with obesity inherited it genetically or by cause of medical conditions, most people are overweight merely because they do not have knowledge on how to maintain a healthy lifestyle. Over the last decade, there has been a shift in food preferences: consumers are often faced with the decision between health and pleasure (Fenko, Kersten & Bialkova, 2016). Consequently, people tend to prefer the tastiness of products over the actual healthiness (Raghunathan, Naylor & Hoyer, 2006). In their study, Raghunathan et al. (2006) refer to this as the "unhealthy=tasty" intuition, where consumers tend to choose indulgent, unhealthy food because they assume that it is tastier. Subsequently, preliminary research has shown that consumers rate healthy meals as less appealing (Fenko et al., 2016) and as less filling (the "healthy=less filling" intuition) than unhealthy meals (Chandon & Wansink, 2007; Suher, Raghunathan & Hoyer, 2016). Moreover, unhealthy foods appear to activate a desire within consumers, causing them to activate reward signals in the brain (Papies, 2013). As a consequence, purchase intention and motivation of consuming the unhealthy foods could occur.

Taking these findings into account, one can deduce that the Netherlands too is part of the equation. By 2021, half of the entire Dutch population of 18 years and older showed signs of (severe) obesity (Centraal Bureau voor Statistiek, 2022). Considering these troubling rates, it is now more important than ever to help consumers make healthy food choices. Hence, being conscious of the food choices that are being made could encourage consumers to be more aware of their life style and tackles the continuous problem of obesity and being overweight.

1.2. The role of language

In order to make consumers more conscious about their food choices, the role of language could play a part. For instance, Barsalou's theory of grounded cognition (2008) suggests that people's knowledge of the world is represented by unconscious *mental simulations* or partial reenactments of perceptual experiences in the relevant sensory modalities. Here, mental simulations are identified as people's multisensory imagination used to recreate previous experiences. For instance, imagining a favorite food (e.g. pizza) could cause a strong motivational response (e.g. a craving) towards that food. In the article, Barsalou (2008) mentioned the effect of mental simulations in language comprehension. Hereupon, the grounded-cognition theory of desire explains the role of basic cognitive and memory processes in how external cues lead to desire and motivated behavior (Papies, Best, Gelibter and Barsalou, 2017). In essence, rewarding eating simulations are an essential mechanism through which

food labels can increase attractiveness. In other words, simulating foods including appetitive cues such as language could affect motivational processes.

The concept of mental simulations was further investigated in the research by Muñoz-Vilches, van Trijp and Piqueras-Fiszman (2019). In their study, mental simulations were referred to as images or can be embodied, as a complete experience, including body sensations, feelings and images. For instance, the human mind has the tendency to imagine what it will feel like eating a slice of pizza before having consumed it. Muñoz-Vilches et al. (2019) distinguished two types of instructed mental simulations. Process simulation focuses on the moment of consumption and outcome simulation focuses on the post-consumption aspects. Moreover, the study distinguished between “vice” products (foods that are focused on short-term outcomes, particularly emphasizing on the moment of consumption e.g. chocolate) and “virtue” products (foods that are focused on the long-term outcomes such as health rather than the immediate pleasure e.g. apples). Participants were asked to rate the level of wanting a vice or virtue product based on them either imagining the moment of eating the product or the post-consumption aspects. With their research, Muñoz-Vilches et al. (2019) showed that process simulation increased the wanting for the vice product, whereas outcome simulation increased the wanting for the virtue product. Therefore, outcome simulation could be applied in order to shift consumers’ attention from short-term enjoyment to long-term health orientation.

An approach in which mental simulations can be activated is through the medium of tempting food words (Papies, 2013). In the study, participants were asked to list at least five features for both tempting foods (e.g. *chips*), as well as neutral foods (e.g. *rice*). Papies (2013) categorized features as eating simulations if they referred to the texture, taste or temperature of the food (e.g. *salty*), the situations in which you could eat the food (e.g. *to snack at night*) and to the hedonic experience whilst eating the food (e.g. *tasty*). Applying the grounded theory of cognition (Barsalou, 2008) on the perspective of food representation, participants turned out to list more features for tempting foods than neutral foods. In other words, eating simulations are perceived as an inherent part of people’s knowledge about food, which is particularly the case for attractive, unhealthy foods. However, these implications were based on only four food words. It is therefore difficult to broadly generalize Papies’ (2013) findings to the healthy and unhealthy food categories.

A study examining the effect of mental simulations on food attractiveness is Speed, Papies and Majid’s (2021) research on mental simulations across sensory modalities and how they predict food attractiveness. Participants had to rate 217 words for healthiness, attractiveness and familiarity on a scale of 0 (e.g. *very unhealthy, very unattractive*) to 100 (e.g. *very healthy, very attractive*). In agreement with Raghunathan et al. (2006), Speed et al. (2021) concluded that unhealthy foods are perceived as more attractive than healthy foods. Besides this, Speed et al. (2021) added to the “unhealthy = tasty” intuition by examining which sensory modalities are involved whilst rating food concepts. Hence, the

attractiveness of unhealthy foods was explained by the sensory associations these foods have with gustatory (taste-related), olfactory (smell-related) and interoceptive (internal sensations). Congruent with the grounded-cognition theory of desire (Papies et al., 2017), Speed et al. (2021) suggested that language could increase desire for food via mental simulation.

Thus, referring back to counteracting the “unhealthy=tasty” intuition (Raghunathan et al., 2006) and advertising healthy foods in a similar way as to unhealthy foods to increase attractiveness of the healthy foods (Turnwald et al., 2017a), language could play a part. Keeping in mind preliminary research demonstrating that language could be a factor in consumers’ desire and motivation, an additional discussion occurs on which type of language would be most effective in order to influence consumers’ desire, motivation, and order behavior for healthy meals.

1.3. Indulgent vs. health-focused descriptions

Nowadays, restaurants and food labels often use health-focused labels to promote healthy food options (Turnwald et al., 2017b). In their research, Turnwald et al., (2017b) suggested that healthy options on a restaurant menu are described as less attractive compared to the unhealthy options. Analyzing several menus from top-selling American chain restaurants, they made implications on the type of language described for health-focused items (e.g. *chicken, seafood*) compared to standard menu items. American restaurants turned out to describe healthy items less appealing and American regional words and contained more health-related themes than standard food items. However, since this study emphasized its implications on American consumers, it is questionable to what extent they are applicable to a broader context.

Moreover, Papies et al. (2020) carried out three studies all related to the effect of different descriptions of foods on consumer behavior. In their first study, descriptions of meat-based, vegetarian and plant-based ready-meals available in UK supermarkets are analyzed to assess to what extent simulation-words (e.g. *crunchy, tasty*) are utilized in the descriptions. In line with their predictions, meat-based foods were described with more sensory and action features related to the actual eating experience compared to vegetarian and plant based ready-meals. The second and third study will be discussed later on.

Additionally, Drichoutis, Lazaridis and Nayga (2006) proposed that nutritional information on food products affects purchasing behavior since the valuations and perceptions of the product are positively influenced. In their paper, Drichoutis et al. (2006) incorporated results of various preliminary research relating to nutritional label use. Mainly, the use of nutritional labels influences purchasing behavior because of the fact that people want to avoid negative nutrients in food products. Moreover, when a food product contains a health claim, consumers might perceive this as more healthy and are therefore more likely to purchase. However, since this article focused on nutritional information on food packages (e.g. calories, nutrient content), it is questionable whether these implications are generalizable to a context

where additional linguistic information is used. Drichoutis et al. (2006) concluded their article by stating that one must keep in mind that in the process of choosing a food product, a taste-nutrition dilemma will always be present.

Besides health-focused labeling, indulgent labeling has been proposed in preliminary research as a potential tool for making healthy food options more appealing (e.g. Papies, 2013; Turnwald et al., 2017a; Papies, 2020) and more likely to order (e.g. Turnwald & Crum, 2019; Papies, 2020). Turnwald and Crum (2019) investigated the difference between taste- and health focused labelling on the promotion of healthy eating. Taking place in several dining settings in northern California, their study focused on whether their manipulated labels (described with either taste-focused or health-related language) highlighting taste and satisfaction of healthy foods instead of nutritional properties influenced consumers choosing the healthy option. Based on this, Turnwald and Crum (2019) portrayed that Americans were more likely to select the healthy option described with indulgent language compared to the healthy option described with health-focused language. Additionally, taste-focused labeling enhanced the post-consumption ratings of mindset and deliciousness of the healthy foods compared to the health-focused labeling. Therefore, Turnwald and Crum's (2019) study indicates that emphasizing on taste-focused labelling for healthy foods increases healthy food selection compared to the traditional health-focused labelling. However, Turnwald and Crum (2019) did not include a neutral language condition, meaning that the study did not measure the individual effects of indulgent language or health-focused language as opposed to neutral language. This makes it difficult to explain which language caused an effect on food selection in Turnwald and Crum's (2019) study. Similar to Turnwald et al. (2017b) this research limits itself to American consumers and is therefore questionably applicable to a general context.

In order to make consumers more conscious about their food choices, preliminary research has shown that by focusing on the perceived tastiness of a healthy dish instead of on the health-related aspects, consumers cancel out their 'unhealthy = tasty' intuition (Turnwald, Boles & Crum, 2017a; Turnwald & Crum, 2019). In their study, Turnwald et al. (2017a) examined the effects of advertising healthy foods with a similar attractive approach as unhealthy foods. To do so, they manipulated labels of vegetables at a university cafeteria to assess which type of labelling caused students and staff to pick the vegetables. Their results showed that vegetables labeled with indulgent language turned out to increase the number of people choosing vegetables compared to when they were labeled with basic or healthy language, proposing that language could play a part in helping consumers selecting healthier food options. However, since the participants of Turnwald et al. (2017a) consisted solely of university students, one could wonder whether results would differ if people from different age categories participated.

In line with Turnwald and Crum's (2019) findings, are the second and third studies conducted by Papies et al. (2020). Here, Papies et al. (2020) manipulated descriptions of meat-based and plant-based foods to investigate whether the differences in language (sensory words, contextual words and health-positive words) affected consumers eating simulation and perceived attractiveness of the food. Since the second study provided no evidence due to the differences in conditions being too small, the third study emphasized on stronger manipulated simulation-inducing labels. Participants were asked to rate the attractiveness of the meal, as well as the likelihood to order. Three types of descriptions were applied and combined into simulation-based descriptions: sensory words (e.g. *fragrant, spiced*), hedonic words (e.g. *tasty, hedonic*) and neutral words (e.g. *tomato, mushroom*). Simulation-based descriptions appeared to increase the attractiveness of meat-based and plant-based foods as opposed to ingredient-based neutral descriptions, suggesting that, in line with the grounded cognition theory of desire (Papies et al., 2017), descriptions that refer to rewarding eating experiences increase attractiveness and simulations.

In conclusion, describing healthy food options utilizing similar indulgent words as for unhealthy food options could affect the perceived attractiveness of healthy meals. Words that link to the hedonic and sensory part of the brain triggers a more appealing perception (Papies, 2013), causing consumers to be more likely to choose a healthy option compared to neutral words (e.g. Turnwald et al., 2017; Turnwald and Crum, 2019; Papies et al. 2020).

1.4. *The present study*

Restaurant settings have been established to be an important factor to take into account when tackling the public health challenge, since restaurants have been shown to increase over-indulging (Turnwald & Crum, 2019). Consumers often are not aware of their calorie-intake whilst dining out, causing them to unconsciously over-indulge. The descriptions of meals applied on menus in restaurants influences perceived tastiness (Wansink, Painter & Ittersum, 2001). Furthermore, it has been shown by Wansink et al. (2001) that meals described as less appealing are less frequently chosen in restaurants. Descriptive labels consisting of geographic labels (e.g. *Italian pasta*), nostalgic labels (e.g. "*Grandma's zucchini cookies*") and sensory labels (e.g. *tasty fries*) turned out to improve the perceived taste and attractiveness of the food compared to non-descriptive labels. Therefore, the type of language utilized on restaurant menus could influence the meal consumers will eventually order. Whereas Wansink et al. (2001) researched consumers' evaluation of different types of descriptive labels used in restaurant settings, as well as consumers' attitude towards the restaurant, the present study aimed to investigate whether different types of descriptions influence consumers' intention to order in a restaurant setting.

Additionally, it has been shown that Dutch consumers struggled to choose healthy dishes as a consequence of the unhealthy food environment in Dutch restaurants (Van Weerdenburg, Maaskant & Van der Zee, 2018). In order to tackle the world-wide problem of obesity as a result of healthy life styles, restaurants and their menus could be perceived as an important factor. Additionally, restaurant meals

are containing increasingly more calories and have relatively larger portion sizes (Scourboutakos, Semnani-Azad & L'Abbé, 2013). Considering the fact that previous research focused on the use of indulgent versus health-focused language on the perceived attractiveness (e.g. Papies, 2013; Papies et al., 2020; Turnwald & Crum, 2019; Turnwald et al., 2017a) and increased vegetable intake (e.g. Turnwald et al., 2019; Turnwald et al., 2017a Turnwald & Crum, 2019) of healthy food options, the present study investigates the influence of indulgent and health-focused language on consumers' *order intention*.

Moreover, previous studies aiming to research the effect of indulgent language and health-focused language on consumers' perception or decision-making often did not include a neutral language condition (e.g. Turnwald et al., 2017a; Turnwald & Crum, 2019). Whether the effects of indulgent language or health-focused language is positive or negative compared to the neutral language condition remained unclear by not including a neutral language condition and solely comparing indulgent and health-focused language to one another. This is why the present study does include this condition.

This study is the first to assess the meaning of the sensory words used through translating and analyzing previously used sensory words (in e.g. Papies, 2013 and Papies et al., 2020) by using Speed and Brybaert's (2021) sensory norms dataset and using only the words that Dutch consumers rate highly in the taste area as indulgent words. Since Speed and Brybaert (2021) already assessed consumers' positive evaluation of the selected sensory words regarding taste, possible limitations due to the fact that words assumed as indulgent are actually not perceived as 'tasty' are excluded.

The aim of the current study was to examine how Dutch natives responded to different types of languages in descriptions (indulgent, health-focused and neutral) on menus of restaurants in terms of their intention to order and whether this differs for unhealthy and healthy options on the menu. Taking this into account, the following research question has been proposed:

RQ: To what extent does the type of language used on Dutch menus for healthy and unhealthy meals influence Dutch consumers' intention to order?

In order to be able to answer the research question, four hypotheses were formulated. Taking into account the evidence preliminary research has provided on the perceived attractiveness and taste of healthy foods whilst described indulgently instead of health-focused (e.g. Papies, 2013; Turnwald et al., 2017a), the following hypothesis was formulated:

H1. Indulgent language on menus leads to a higher order intention than health-focused language for healthy and unhealthy dishes on menus.

Despite taste being prioritized by the majority of the consumers over healthiness of a product (Raghunathan et al., 2006), healthiness could still be seen as an important aspect to take into account for food choosing. For some people, nutritional aspects of a meal outweighs the perceived tastiness of the

meal, since it positively influences food perception and valuation (Drichoutis et al., 2006). Therefore, it can be expected that health-focused language could lead to a higher order intention compared to neutral language. Hence the second hypothesis:

H2. Health-focused language on menus leads to a higher order intention than neutral language for healthy dishes on menus

On top of this, since taste was overall shown to be the most important food choice influencer and consumers generally perceive healthy meals as less filling and less attractive (e.g. Raghunathan et al., 2006; Chandon & Wansink, 2007; Suher et al., 2016), the third hypothesis was assumed:

H3. Unhealthy dishes on menus lead to a higher order intention than healthy dishes on menus

Additionally, considering the fact that healthy meals are intuitively considered to be less filling (Suher et al., 2016), it could be expected that consumers already gravitate more towards ordering unhealthy meals, since this would make them more satiated. Taking into account this intuition and the fact that a difference between the effects of health-focused and indulgent language on consumers' order intention is assessed in preliminary research (e.g. Papies, 2013; Turnwald et al., 2017a), the following final hypothesis was argued:

H4: The difference between health-focused and indulgent descriptions on order intention is higher for unhealthy meals compared to healthy meals

METHOD

Materials

In this quantitative study, two independent variables were operationalized: type of language (consisting of three levels: indulgent, health-focused and neutral language) and healthiness of the meal (consisting of two levels: healthy and unhealthy). In total, the stimuli consisted of thirty descriptions of ten main course meals usually ordered as dinner, of which five were classified as healthy (under 600 calories) and five were classified as unhealthy (over 600 calories). These findings were based on the research executed by Sun, Behnke, Almanza, Ghiselli and Byrd (2020), where participants were asked to give calorie perception of eating a low-calorie meal at home and at a restaurant. The majority of participants perceived a low-calorie meal at a restaurant as being 400-600 calories. Therefore, meals under 600 calories were considered as healthy meals and meals over 600 calories were considered as unhealthy. The amount of calories were derived from the calorie counting application 'Yazio'.

In total, the healthy meals utilized in this study consisted of a Caesar salad (342 kcal), tomato soup with toast (182 kcal), smoked salmon with grilled vegetables (224 kcal), a turkey tortilla with lettuce and tomato, cucumber and kidney beans (234 kcal), steak with broccoli and cooked carrots (280

kcal). Additionally, the unhealthy meals consisted of a cheeseburger with French fries (745 kcal), chicken sate with peanut sauce and potato bites (654 kcal), pizza margherita (675 kcal), fish and chips (987 kcal), cheese and bacon pancakes with powdered sugar and syrup (620 kcal).

Each meal was described with three different description types. Since the current study included only Dutch natives, all of the descriptions were written in Dutch. In total, the materials of this study consisted of thirty descriptions, of which ten were indulgent, (e.g. *knapperige kalkoen tortilla met smaakvolle kidneybonen getopt met komkommer en tomaten*, meaning *crunchy turkey tortilla with tasteful kidney beans topped with cucumber and tomatoes*) ten were health-focused, (e.g. *magere kalkoen tortilla met kidneybonen getopt met verse komkommer en rijpe tomaten*, meaning *light turkey tortilla with kidney beans topped with fresh cucumber and ripe tomatoes*) and ten descriptions contained neutral words as a control condition (e.g. *klassiek gegrilde kalkoen tortilla getopt met traditionele komkommer en tomaat*, meaning *classic grilled turkey tortilla topped with traditional cucumber and tomatoes*). Descriptions are considered as neutral when they do not evoke emotions or influence potential meal perception. Neutral words referred to situation-independent features such as descriptive aspects (e.g. *topped with*) and ingredients (e.g. *grilled turkey torilla*). Words are classified as indulgent when they relate to positive, taste-related aspects of the meal (e.g. *tasty, delicious*) (Papies, 2013). Additionally, words are defined as health-focused if they referred to the health-related implications of the meal (e.g. *healthy, nutritious*) (Papies, 2013).

The indulgent, health-focused and neutral words utilized in the current study were based on previous studies conducted by Papies (2013) and Papies et al. (2020). However, since the studies by Papies (2013) and Papies et al. (2020) focused on English words, the translated words from Papies et al. (2020) (translated from English to Dutch) were additionally inspected through the Dutch sensory norms of Speed and Brybaert (2021), who created a dataset of approximately 24.000 rated words applicable for future research. Participants were asked to rate words in terms of relation to vision, hearing, touch, taste, olfaction and interoception. Based on these ratings, the translated words based on Speed and Brybaert (2021) were inspected. If a rating was higher than 3 on the taste modality (the participants of Speed and Brybaert (2021) rated expressions on a scale of 0-5), the word was applicable to the indulgent category. Regarding health-focused (e.g. *light, fat-free*) and neutral words (e.g. *traditional, neutral*), rating should not surpass 3 on the taste modality. For instance, the indulgent word “crunchy” (Papies et al., 2020) was translated to “krokant” in Dutch and is suitable for the present study by scoring a 3.50 on the taste modality (Speed & Brybaert, 2021). All twelve descriptions were equally long (around 10-15 words). The total 36 descriptions in both Dutch and English are shown in Appendix A.

Descriptions were randomized and equally distributed across participants, each participant seeing one of three conditions of the type of language for each meal (indulgent, health-focused or neutral). The questionnaire was established in a way in which each participant will be exposed to all six

conditions across all ten meals. Since the type of language has three conditions that will be randomized across participants, a total of three different questionnaires exist.

During the study, three questionnaires were used. Each participants randomly received one questionnaire, consisting of all ten meals being described with one of three languages.

Participants

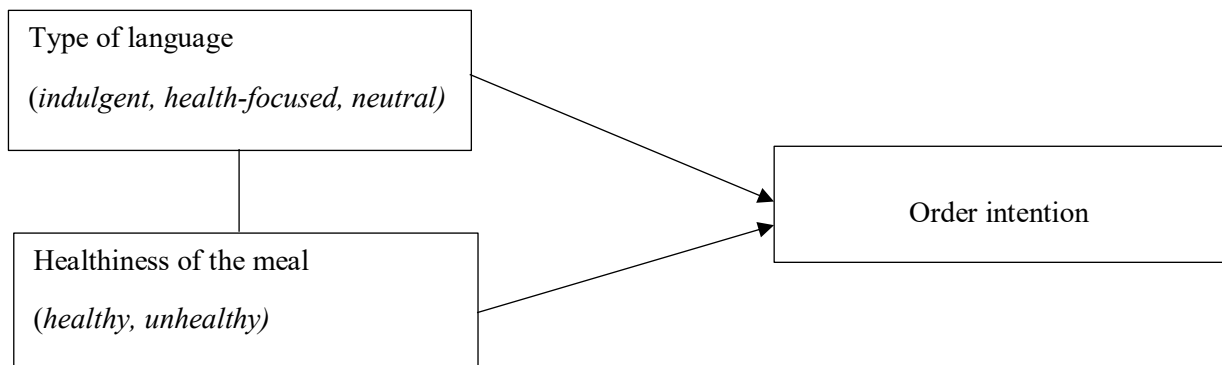
In total, 186 people were reached through network sampling. After the dropout and exclusion rates, a total of $N=143$ participants partook in the present study. This was almost congruent with the second study performed by Papies et al. (2020), where data was collected from $N=146$ participants. To assess similar and sufficient statistical power (80% for $\alpha = 0.05$ for H1) and also taking into account potential exclusion rates, a sample size of 10% larger is recommended. With their 4x2 within participants design, Papies et al. (2020) needed to recruit 156 participants. However, acknowledging the 10% rate, their sample consisted of $N=170$ participants. Since the current study will have six conditions (see design section) compared to the eight conditions of Papies et al. (2020), a total of $(170 / 8 = 21.25$ participants per level, rounding up to $22 \times 6 = 132$ participants, adding 10% dropout and exclusion rates=) $N=146$ participants were necessary to optimally execute the present study.

Participation was voluntary and unrewarded. Participants were Dutch natives between 17 and 89 years old ($M = 29.14$, $SD = 15.16$). Of the 143 participants, 105 were female, 37 were male and 1 person preferred not to say. Participant's hunger level ranged from 0 to 9 ($M = 4.23$, $SD = 2.27$). Regarding participant's highest educational level, 51 participants are currently in or have finished university, 35 participants are currently in or have finished HBO ('Hoger Beroeps Onderwijs'), 22 participants have selected VWO ('Voortgezet Wetenschappelijk Onderwijs'), 17 participants selected MBO ('Middelbaar Beroeps Onderwijs'), 3 participants selected VMBO ('Voorbereidend Middelbaar Beroepsonderwijs') and one participant was or is currently enrolled in a postdoctoral program.

Hunger level was asked for exploratory reasons. Participants were classified as 'hungry' when their rated hunger level was a six or higher (out of ten). Participants that rated their hunger level as lower than five are considered as 'not hungry' and participants with a hunger level of 5 are considered as 'neutral'. In total, $N= 51$ participants were hungry, $N=77$ participants were not hungry and $N=15$ participants had a neutral hunger level and were therefore not included in the further analyses concerning hunger level.

Design

For the current study, a 3x2 factorial, within-subject design was utilized, indicating a total of six conditions. The two independent variables were type of language *and* healthiness of the meal on the dependent variable: order behavior (table 1).



Independent vari: Dependent variable

Table 1. Analytical model

Procedure

Participants were sent a Qualtrics link on their e-mail address containing one of three questionnaires. Additionally, the link was shared directly via the social media platforms LinkedIn, Facebook and Instagram. Firstly, participants had to read a brief introduction containing information on the study as well as the inclusion and consensual statements. Hunger could make people change their mind whilst ordering food and choose something more appealing that is known to have bad long-term effects, such as junk food (Kirby & Herrnstein, 1995). Therefore, participants were asked to rate their hunger level on a Visual Analogue Scale ranging from 0-10 (0 being ‘not hungry at all’ and 10 being ‘very hungry’) before the substantive questions were shown.

Afterwards, the ten descriptions were presented in a random order and shown one by one, followed by the two statements “I am likely to order this” on a 7-point semantic differential scale ranging from 1 (highly unlikely) to 7 (very likely) and “In a restaurant, I would choose this meal as my dinner” on an additional 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly disagree). In total, each participant will have to answer twenty questions.

Statistical treatment

Three two-way repeated measures ANOVA tests will be executed, since there are two independent variables each testing its effect on the one dependent variable. The first two-way ANOVA was executed for the general analyses and to answer the research question and hypotheses. The second and third two-way ANOVAs were carried out for exploratory purposes, one consisting of the participants with low hunger levels and one consisting of the participants with high hunger levels. Lastly, a Cronbach’s Alpha was performed to assess reliability.

RESULTS

To ensure the reliability of the materials utilized in order to measure the intention to order, a Cronbach's Alpha test was executed. The reliability of 'intention to order' was good: $\alpha = .81$. Since a Cronbach's Alpha of .7 or higher is acceptable, the measurement of 'intention to order' is considered as reliable.

Effect of type of language on intention to order

To investigate whether the type of language utilized on menu cards had an effect on consumers' intention to order, a two-way repeated measures ANOVA was executed. This test showed a significant main effect of 'type of language' on 'intention to order' ($F(2,284) = 34.62, p < .001$). To assess whether this effect differed between the three types of language, pairwise comparison tests were ran. Firstly, the paired comparison showed a significant difference between the use of health-focused language and indulgent language ($p < .001$). Health-focused language led to a significantly lower intention to order ($M = 3.63, SE = .096$) compared to indulgent language ($M = 4.33, SE = .095$). Secondly, health-focused language led to a significantly lower intention to order ($M = 3.63, SE = .096$) compared to neutral language ($p < .001, M = 4.48, SE = .090$). However, the final comparison showed no significant difference between indulgent language and neutral language ($p = .159$).

Effect of healthiness of the meal on intention to order

Secondly, to assess whether participant's intention to order differed for the healthiness of the meal, the first two-way repeated measures ANOVA was further analyzed. This ANOVA demonstrated no significant main effect of 'healthiness of the meal' on 'intention to order' ($F(1,142) < 1, p = .544$).

Thirdly, to research whether there is an interaction between the type of language used on menu cards and the healthiness of the meal on participant's intention to order, a second two-way repeated measures ANOVA was performed. This test additionally showed an insignificant interaction effect between 'type of language' and 'healthiness of the meal' ($F(2,284) < 1, p = .628$).

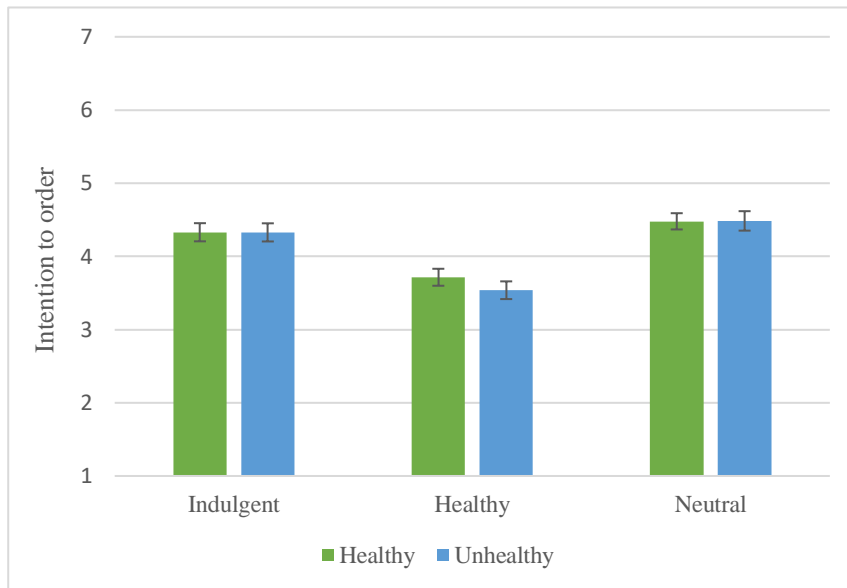


Figure 1. Means and standard deviations of the effect of ‘healthiness of the meal’ and ‘type of language’ on participants’ ($N=143$) ‘intention to order’ (1= very low intention to order, 7= very high intention to order).

Effect of hunger level on intention to order

To investigate whether hunger level is an intervening factor that might alter participants’ intention to order, two additional two-way univariate ANOVA analyses were performed. With regards to the hungry participants (rated hunger level ≥ 6 on a scale of 10) ($N= 51$), the main effect of ‘type of language’ on ‘intention to order’ is significant ($F(2,100) = 22.44, p < .001$). Similar to the first two-way ANOVA, pairwise comparisons solely showed a significant effect of health-focused language on hungry participants’ intention to order ($M = 3.48, SD = .165, p < .001$).

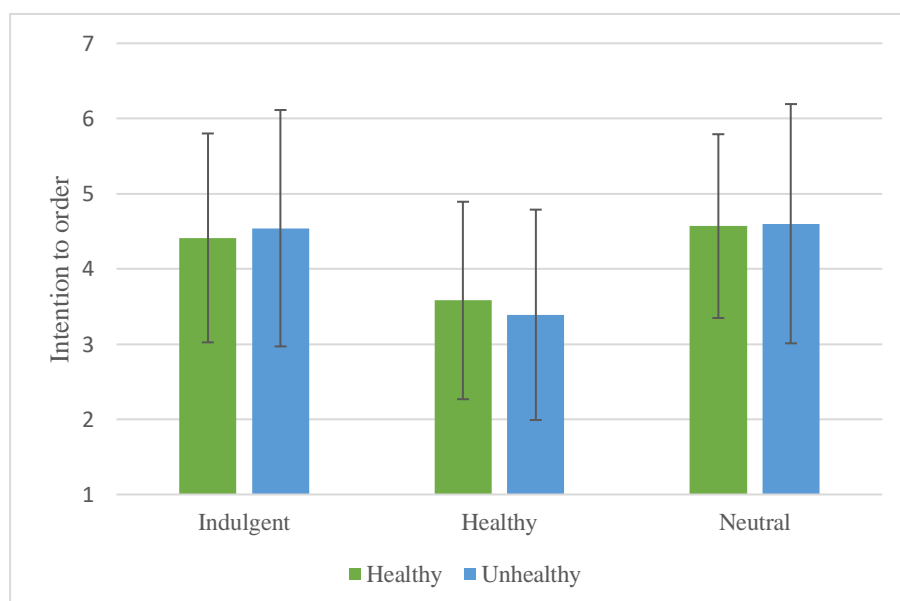


Figure 2. Means and standard deviations of hungry participants' ($N= 51$) 'intention to order' as a function of 'type of language'.

However, the main effect of 'healthiness of the food' on 'intention to order' is not significant for the hungry participants ($F(1,50) < 1, p = .961$), as well as the effect of the interaction between 'type of language' and 'healthiness of the meal' on 'order intention' ($F(2,100) < 1, p = .446$).

Similarly, regarding the non-hungry participants (rated hunger level ≤ 4 on a scale of 10) ($N = 77$), the main effect of 'type of language' on 'intention to order' is significant ($F(2,152) = 12.42, p < .001$). Non-hungry participants had a relatively higher order intention when meals were described with health-focused language ($M = 3.74, SD = .128, p < .001$) compared to indulgent language and neutral language. Nonetheless, the main effect of 'healthiness of the meal' on 'intention to order', as well as the main effect of the interaction of 'type of language' and 'healthiness of the meal' on 'intention to order' for non-hungry participants are not significant (respectively ($F(1,76) = 1.92, p = .170$); ($F(2,152) < 1, p = .811$)).

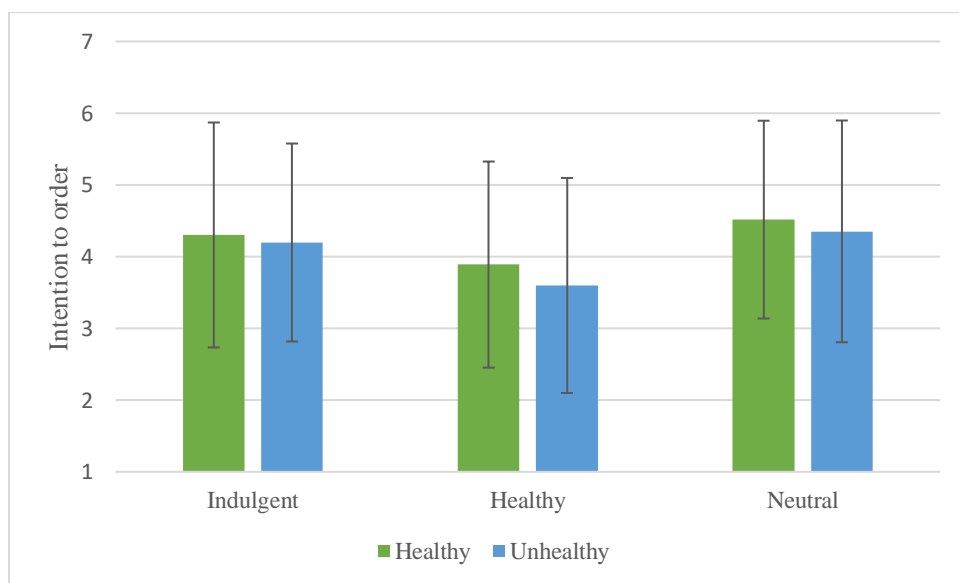


Figure 3. Means and standard deviations of non-hungry participants' ($N= 77$) 'intention to order' as a function of 'type of language'.

DISCUSSION

The present study aimed to research whether indulgent, health-focused or neutral descriptions influenced Dutch consumers' intention to order and whether this differs for healthy and unhealthy meals. More specifically, the current study focused on the effect of these three types of language used for healthy and unhealthy meals on menu cards of restaurants. This study discovered that health-focused language led to a significantly lower intention to order compared to indulgent and neutral language. The first

hypothesis, stating that indulgent language leads to a higher intention to order than health-focused language, is therefore accepted. However, the second hypothesis, assuming that health-focused language leads to a higher intention to order than neutral language for healthy dishes, is rejected. Furthermore, hunger level was not found to be an intervening factor. Hungry people, as well as not hungry people, scored similarly on intention to order regarding the type of language used for the descriptions: health-focused language led to a significantly lower order intention compared to indulgent and neutral language for both groups. Therefore, hunger level is not considered as an intrusive factor in the present study.

However, the healthiness of the meal did not influence Dutch consumers' intention to order, nor did the interaction between the type of language used and the healthiness of the meal. This is in contrast to the third hypothesis, which suggested that unhealthy dishes lead to a higher intention to order compared to healthy dishes. Consequently, *H3* is rejected. Lastly, the assumed interaction stated in the fourth and final hypothesis (healthy and indulgent descriptions differed in their intention to order for unhealthy meals compared to healthy meals) is rejected as well.

The main finding of the present study is that health-focused language on a restaurant menu led to a lower intention to order for Dutch consumers compared to indulgent and neutral language. This is not in line with the study executed by Drichoutis et al. (2006), who concluded that food descriptions containing health claims caused a higher likeliness to purchase for consumers. These contradictory implications could be due to the fact that Drichoutis et al. (2006) focused on the effect of nutritional labels on purchase behavior, whereas the present study focused on the influence of stimuli words and linguistic descriptions on intention to order.

The finding that the healthiness of the meal does not influence Dutch consumers' intention to order is not in line with implications made by Papies (2013), who concluded that since unhealthy foods appear to activate a desire in people, a reward signal is activated in the brain. According to Papies (2013), this could cause consumers to purchase unhealthy foods over healthy foods. The discrepancy between Papies' (2013) results and the present results could be due to the fact that Papies' (2013) participants consisted of $N = 33$ students, whereas the current study had $N = 156$ participants, ranging from age 17 to 89. Future research could delve more into whether age is a factor that could influence susceptibility towards ordering unhealthy over healthy foods, since life style may differ between different age categories.

Moreover, the present study did not find a significant interaction effect of the type of language on the healthiness of the meal. Therefore, no implications could be made on the influence of the type of language on the intention to order for healthy or unhealthy meals. This is not in line with the study by Turnwald and Crum (2019), who concluded that labelling healthy foods with taste-focused language increased healthy food selection more than with health-focused labelling. However, Turnwald and Crum (2019) did not include neutral language as a control condition. Therefore, no implications could be made

on whether health-focused labelling or indulgent labelling individually had a positive or negative effect on consumers' intention to order. Where the current study did include a neutral language condition and found a negative influence of health-focused language on consumers' intention to order as opposed to indulgent and neutral language, the taste-focused language of Turnwald and Crum (2019) had neither a negative, nor a positive influence on consumers' intention to order. Thus, the discrepancy in the results could be explained by the lack of a neutral condition in Turnwald and Crum's (2019) study. Turnwald et al. (2017a) did not include a neutral language condition as well. Similar to Turnwald and Crum (2019), they concluded that indulgent descriptions make healthy meals more attractive compared to health-focused descriptions. Once again, the fact that the present study did include a neutral condition and investigated the effects of health-focused and indulgent language individually on intention to order, could explain the different implications. Additionally, Turnwald and Crum (2019) emphasized solely on students and staff who dined at college campus settings, whereas the present study focused on Dutch native speakers of all ages (ranging from 17-89) in a restaurant setting. This way, a larger group is represented, making the implications of the current study applicable to a broader context.

In short, Turnwald and Crum (2019), who suggested that indulgent language could lead to a higher attractiveness of healthy meals compared to health-focused language, conducted their research solely with participants from the USA. The present study, which focused on native Dutch participants, is not in line with these preliminary implications, since it suggests that indulgent language does not have a significant effect on consumers' intention to order when being compared to neutral language. Besides Turnwald and Crum (2019) not having implemented a neutral language condition, the different findings could additionally be due to cultural differences. According to Hofstede et al. (2010), the Netherlands scores relatively high on long-term orientation (score of 67 out of 100) compared to the USA (26 out of 100). A long-term orientated culture is a positive, dynamic and future-oriented culture (Hofstede, 1991). Moreover, people from a long-term oriented culture have a high level of self-control, whereas people from a short-term oriented culture tend to have a higher compulsive buying tendency (Wang & Zhai, 2022). Therefore, since the Netherlands scored relatively high on this dimension, it could be possible that Dutch consumers think ahead before they decide and are therefore less susceptible towards manipulated language on restaurant menus. This could additionally explain the fact that the present study could not make implications on the difference between neutral and indulgent language in terms of their effect on Dutch consumers' intention to order. Besides the differences in results that could occur between countries that differ in Hofstede's cultural dimensions, linguistic differences between countries could additionally make a difference. Languages with more elaborate taste and smell related words may react differently to the indulgent or health-focused language compared to languages that have fewer taste and smell related words (e.g. the Italian culture may have more words to describe taste and smell compared to the Dutch language). It would be interesting for future research to compare these different

languages and assess whether the amount of taste and smell related words used in a language leads to different results in terms of effect of language on intention to order.

The present study did have a few limitations. Firstly, the questionnaire did not contain questions regarding food-related preferences, allergies or food likes and dislikes. Therefore, it is uncertain whether the participants' intention to order was solely influenced by the type of language utilized or the healthiness of the food. Participants may have scored lower on intention to order because of they simply disliked the meal or have certain allergies. The second and third study conducted by Papies et al. (2020) did include such questions: after having to report their desire for a dish on a 100-point Visual Analogue Scale ranging from “not at all” to “very much”, participants were asked to report any food allergies, what food-related preferences could have influenced their responses, comprehension difficulties regarding language and what they thought the purpose of the study was. In this way, personal taste and preferences as a possible intervening factor are excluded.

A second limitation is the fact that the present study did not actually take place in a restaurant setting. Participants had to imagine they were dining in a restaurant and reading a menu, since the study was online and consisted of phrases in a questionnaire. Considering the fact that restaurant-settings are shown to make consumers unaware of their calorie-intake, over-indulging often happens. It would be interesting for future research to have participants read the manipulated descriptions off menus in actual restaurant settings, in order to investigate whether the environment has an effect on consumers' intention to order.

To answer the research question, the present study adds to the existing theoretical framework proposing that the type of language used on menus of restaurants does influence consumers' intention to order. Health-focused language has a negative effect on consumers' intention to order compared to indulgent and neutral language. However, whether this differs for healthy and unhealthy meals remains unclear. Despite the current findings not being in agreement with all predictions, it may be helpful for restaurant employees to know that the type of language used to describe meals on their menus *does* influence their customers' intention to order. More specifically, using health-focused words in the descriptions on menus makes customers less likely to order the than when this meal is described with neutral or indulgent language.

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A P P E N D I X

Appendix A. The 36 Dutch descriptions and their English translations of the three manipulated menus (derived from Qualtrics)

Menu 1

Q1 (Indulgent): "Krokante Caesar salade met knapperige croutons en lekkere Parmezaanse kaas" – *Crispy caesar salade with crunchy croutons and tasty parmesan cheese.*

Q2 (Neutral): "Amerikaanse cheeseburger met Roma tomaten, belegen kaas en verse frietjes" – *American cheeseburger with roma tomatoes, cheese and fresh fries.*

Q3 (Healthy): "Tomatensoep van rijpe tomaten, natuurlijke basilicum en een mandje koolhydraatarm brood" – *Tomatosoup from ripe tomatoes, natural basil and a basket of low-carb bread.*

Q4 (Neutral): "Hollandse kipsaté getopt met milde pindasaus en boeren aardappelpartjes" – *Dutch chicken 'saté' topped with mild peanut sauce and farmers' potato parts.*

Q5 (Neutral): "Gerookte zalm met traditioneel gegrilde seizoensgroenten" – *Smoked salmon with traditionnally grilled seasons vegetables.*

Q6 (Healthy): "Ovenverse pizza margherita met vetarme kaas" – *Ovenfresh pizza margherita with fat-free cheese.*

Q7 (Indulgent): "Fish en Chips van krokante kabeljauw met ambachtelijke friet" – *Fish and Chips from crispy cod with artisanal fries.*

Q8 (Healthy): "Licht gegrilde kalkoen tortilla met biologische sla en slanke kidneybonen" – *Lightly grilled turkey tortilla with organic lettuce and slender kidney beans.*

Q9 (Indulgent): "Lekkere pannenkoeken met kaas en spek met verrukkelijke poedersuiker en stroop" – *Tasty pancakes with cheese and bacon with delicious powdered sugar and syrup.*

Q10 (Healthy): "Eiwitrijke biefstuk met voedzame broccoli en vitaminerijke wortels" – *Protein-rich steak with nutritious broccoli and vitamin-rich carrots.*

Q11 (Neutral): "Indiase curry met zoete aardappel en kikkererwten" – *Indian curry with sweet potato and chickpeas.*

Q12 (Indulgent): "Heerlijke spareribs met knapperige aardappelpartjes en een smaakvolle salade" – *Delicious spareribs with crispy potato parts and a tasty salade.*

Menu 2

Q1 (Healthy): "Gezonde Caesar Salade met lichte croutons en halfvolle Parmezaanse kaas" – *Healthy caesar salade with light croutons and semi-skimmed cheese.*

Q2 (Healthy): "Magere Cheeseburger met biologische tomaten, slanke kaas en zoutarme frietjes" – *Slender cheeseburger with organic tomatoes, slender cheese and salt-free fries.*

Q3 (Neutral): "Tomatensoep van lokale tomaten en basilicum met een mandje geroosterde sneetjes brood" – *Tomatosoup from local tomatoes and basil with a basket of toasted bread.*

Q4 (Indulgent): "Smaakvolle kipsaté getopt met zalige pindasaus en krokante aardappelpartjes"

Q5 (Indulgent): "Gerookte zalm met heerlijke gegrilde groenten" – *Tasty chicken saté topped with delicious peanut sauce and crunchy potato parts.*

Q6 (Neutral): "Klassieke pizza margherita met gesmolten kaas" – *Classic pizza margherita with melted cheese.*

Q7 (Healthy): "Fish en Chips van vetvrije kabeljauw met licht gebakken friet" – *Fish and chips from fat-free cod with lightly baked fries.*

Q8 (Neutral): "Klassiek gegrilde kalkoen tortilla met gekropte sla en Mexicaanse kidneybonen"

Q9 (Neutral): "Traditionele pannenkoeken met gesmolten kaas, varkensspek met poedersuiker en stroop" – *Traditional pancakes with melted cheese, bacon, powdered sugar and syrup.*

Q10 (Healthy): "Eiwitrijke biefstuk met voedzame broccoli en vitaminerijke wortels" – *Protein-rich steak with nutritious broccoli and vitamin-rich carrots.*

Q11 (Indulgent): "Overheerlijke curry met smakelijke zoete aardappel en kikkererwten" – *Delicious curry with tasty sweet potato and chickpeas.*

Q12 (Healthy): "Slanke spareribs met voedzame aardappelpartjes en een gezonde salade" – *Slender spareribs with nutritious potato parts and a healthy salade.*

Menu 3

Q1 (Neutral): "Traditionele caesar salade met gebakken croutons en Italiaanse Parmezaanse kaas" – *Traditional caesar salade with baked croutons and Italian parmesan cheese.*

Q2 (Indulgent): "Sappige cheeseburger met rijpe tomaten, romige kaas en knapperige frietjes" – *Juicy cheeseburger with ripe tomatoes, creamy cheese and crunchy fries.*

Q3 (Indulgent): "Tomatensoep van romige tomaten en smakelijke basilicum met een mandje knapperig brood" – *Creamy tomatosoup with tasty basil and a basket of crunchy bread.*

Q4 (Healthy): "Eiwitrijke kipsaté getopt met voedzame pindasaus en lichte aardappelpartjes" – *'Protein-rich chicken saté with nutritious peanut sauce and light potato parts.'*

Q5 (Healthy): "Gerookte zalm met gezonde gegrilde groenten" – *'Smoked salmon with healthy grilled vegetables.'*

Q6 (Indulgent): "Heerlijke pizza margherita met smeūige kaas" – *'Delicious pizza margherita with creamy cheese.'*

Q7 (Neutral): "Fish en Chips gemaakt van Noorse Kabeljauw met oudhollandse friet" – *'Fish and chips from Norwegian cod with old-fashioned Dutch fries.'*

Q8 (Indulgent): "Ambachtelijk gegrilde kalkoen tortilla met knapperige sla en overheerlijke kidneybonen" – *'Artisanely grilled turkey tortilla with crunchy lettuce and delicious chickpeas.'*

Q9 (Healthy): "Volkoren pannenkoeken met vetvrije kaas en biologisch spek, poedersuiker en stroop" – *'Wholemeal pancakes with fat-free cheese and organical bacon, powdered sugar and syrop.'*

Q10 (Neutral): "Kwalitatieve biefstuk met gestoomde broccoli en gekookte wortels" – *'Quality steak with steamed broccoli and cooked carrots.'*

Q11 (Healthy): "Voedzame curry met vitaminerijke zoete aardappel en kikkererwten" – *'Nutricious curry with vitamin-rich sweet potato and chickpeas.'*

Q12 (Neutral): "Amerikaanse spareribs met gebakken aardappelpartjes en een frisse salade" – *'American spareribs with baked potato parts and a fresh salade.'*

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Sign this *Statement of own work* form and add it as the last appendix in the final version of the Bachelor's thesis that is submitted as to the first supervisor.

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