



# Radboud Universiteit

## **Healthy Left, Unhealthy Right OR Healthy Right, Unhealthy Left?**

*How does the level of construal affect choices of laterally presented food items?*

### **Master Thesis**

Author:	R.L. Nederlof
Student number:	s4647734
Address:	Achter de Oude Gracht 8, 6511 PZ, Nijmegen
Phone:	06 12 09 06 08
Email:	renee.nederlof@student.ru.nl
Supervisor:	Dr. Ms. Nina Belei
2 <sup>nd</sup> Examiner:	Dr. Vera Blazevic
Date:	19-06-2017
Program:	Master Marketing
Educational institution:	Radboud University Nijmegen

## Foreword and Acknowledgement

This thesis is written to finish my Master degree in Marketing at the Radboud University at Nijmegen. The topic of this thesis was proposed by Dr. Ms. Nina Belei, who is specialized in conducting research in human decision making and consumption (Radboud University Nijmegen, 2017). When I found out about the topic “*lateral food positioning*” in November 2016, I got enthusiastic immediately. Since I would like to become a trade marketer in the FMCG market, getting more familiar with how consumers might perceive product presentations and how marketers can influence consumers’ perceptions will be a valuable contribution to my future career.

Now, six months later, I can say that I have become familiar with the lateral food presentation and consumers’ food choice, by conducting this thesis. I am grateful that I got the opportunity to work on this research thanks to my supervisor Dr. Ms. Nina Belei. My special thanks to Dr. Ms. Nina Belei, not only for giving me the opportunity to work on this research topic, but also for supervising me during the entire research process. She encouraged me to stick to deadlines, not to over-think too much and gave me essential feedback where needed. Without her support and proposed topic, this thesis project would not have been possible. Therefore, my special thanks to Dr. Ms. Nina Belei.

I would also like to specially thank my fellow student Anke Tuinstra, who also gained insight into this topic, for our nice cooperation. Together, we collected and analysed the data to increase the power of each study. During this process, we worked hard, had fun, challenged each other to think about certain topics more in-depth and gave each other support when needed.

Moreover, I would like to special thank my second examiner Dr. Ms. Vera Blazevic, for her helpful contributions and feedback.

Last but not least important, my special thanks to my parents, sisters, family and friends, who have always supported me throughout my years of study.

I hope you will enjoy reading my thesis!

Renée Nederlof

## Abstract

**Objective:** This study extends prior work by examining whether the level of construal affects choices of laterally presented food items.

**Method:** 201 Dutch respondents (151 female), with an average of 26.8 years ( $SD = 1.493$ ) participated in the main experiment. This research used a 2 (construal level: low vs. high) x 2 (lateral food presentation: healthy left vs. healthy right) between-subject design. The dependent variable was food choice, consisting of two levels: healthy and unhealthy food items.

**Results:** Results of this study show that food choice can be predicted with an accuracy of 81.6% by attractiveness of food items, lateral food positioning, construal level and the interaction (lateral food positioning x construal level). The level of construal together with lateral food presentation affect food choice, when controlled by attractiveness. Proposition 1 was supported: When people adopt a high level of construal, healthy food items should be positioned right to unhealthy food items, to enhance healthy food consumption. Proposition 2 was not significantly supported: When people adopt a low level of construal, healthy food items should be positioned left to unhealthy food items, to enhance healthy food consumption.

**Conclusion:** To conclude, the high level of construal does affect choice of laterally presented food items, when controlled by attractiveness. In contrast, the low level of construal does not significantly affect choice of laterally presented food items, when controlled by attractiveness. Since the “*unhealthy=tasty intuition*” does not count among Dutch respondents, this study shows that one strategy might be effective in one country to stimulate healthy food consumption, but might not be effective in another.

**Key words:** construal level, lateral food presentation, mental magnitude representation, food choice, and healthy food consumption.

# Table of Contents

<b>1. Introduction</b>	6
<b>2. Literature Review</b>	10
<b>2.1 Mental magnitude representation</b>	12
2.1.1 Value taste	13
2.1.2 Value health	13
2.1.3 Aspects that affect the mental magnitude representation	14
<b>2.2 Construal Level Theory</b>	15
2.2.1 Low level of construal	16
2.2.2 High level of construal	17
<b>3. Methodology</b>	18
<b>3.1 Research strategy</b>	18
<b>3.2 Data collection</b>	18
<b>3.2 Experimental Design</b>	18
<b>3.2.1 Experiment 1</b>	19
3.2.1.1 Participants	19
3.2.1.2 Procedures	19
3.2.1.3 Results Experiment 1	21
3.2.1.4 Discussion	22
<b>3.2.2 Experiment 2</b>	23
3.2.2.1 Participants	24
3.2.2.2 Procedures	24
3.2.2.3 Results Experiment 2	26
3.2.2.4 Discussion	28
<b>3.2.3 Experiment 3</b>	28
3.2.3.1 Participants	29
3.2.3.2 Procedures	29
3.2.3.3 Results Experiment 3	30
3.2.3.4 Discussion	31
<b>3.2.4 Main Experiment</b>	32
3.2.4.1 Participants	33



3.2.4.2 Sample size.....	34
3.2.4.3 Procedures .....	34
3.2.4.4 Measurement Items .....	36
3.2.4.5 Results of Manipulation - Main Test.....	37
<b>3.3 Research Ethics .....</b>	<b>38</b>
<b>4. Results of the main study .....</b>	<b>39</b>
<b>4.1 Data Analysis .....</b>	<b>39</b>
<b>4.2 Testing the assumptions.....</b>	<b>39</b>
<b>4.3 Building the model .....</b>	<b>40</b>
4.3.1 Testing for factors that (might) influence lateral food choice.....	40
4.3.2 Testing for other control variables that (might) influence lateral food choice.....	42
4.3.3 Factor attractiveness on lateral food choice .....	44
<b>4.4 Overall Model Fit .....</b>	<b>45</b>
<b>4.5 Interpretation of the Results .....</b>	<b>46</b>
4.5.1 Attractiveness .....	46
4.5.2 Lateral Food Positioning, Construal Level, and Interaction .....	47
4.5.3 Lateral Food Positioning .....	47
4.5.4 Construal Level .....	48
4.5.5 Lateral Food Positioning x Construal Level interaction .....	48
4.5.6 Low or High Construal – Healthy Right or Healthy Left?.....	49
4.5.6.1 Low Construal, Healthy Right .....	49
4.5.6.2 Low Construal, Healthy Left.....	49
4.5.6.3 High Construal, Healthy Right.....	50
4.5.6.4 High Construal, Healthy Left .....	51
4.5.7 Low- and High-level Construal.....	51
4.5.7.1 Proposition 1 is not supported.....	52
4.5.7.2 Proposition 2 is supported .....	52
<b>5. Conclusion and Discussion .....</b>	<b>53</b>
<b>5.1 Conclusion.....</b>	<b>53</b>
<b>5.2 Implications.....</b>	<b>55</b>
5.2.1 Theoretical implications.....	55
5.2.2 Managerial implications.....	57
5.2.3 Public policy implications.....	58

<b>5.3 Limitations and future research .....</b>	<b>59</b>
<b>6. Reference List .....</b>	<b>62</b>
<b>7. Appendix .....</b>	<b>66</b>
<b>Appendix 1. Experiment 1 .....</b>	<b>66</b>
1.1 Healthy versus unhealthy food items .....	66
1.2 Questionnaire .....	68
1.3 Results .....	73
<b>Appendix 2. Experiment 2 .....</b>	<b>78</b>
2.1 Questionnaire in Dutch.....	78
2.2 Questionnaire translated into English .....	87
2.3 Results .....	95
<b>Appendix 3. Experiment 3 .....</b>	<b>99</b>
3.1 Questionnaire .....	99
3.2 Questionnaire translated into English .....	107
3.3 Results .....	115
<b>Appendix 4. Main experiment.....</b>	<b>118</b>
4.1 Questionnaire .....	118
4.2 Questionnaire translated in English.....	128
4.3 Results .....	139

# 1. Introduction

In the past three decades, obesity has been a growing global health problem (Europe PMC Funders Group, 2014). Worldwide obesity has more than doubled since 1980 and the rise in obesity will not be reduced by 2025 without any concerted actions and / or further research in food consumption and advertisement (Europe PMC Funders Group, 2014). Between 1980 and 2013, there has not been one country that has been successful in reducing obesity rates (Europe PMC Funders Group, 2014). Coherently, there is little evidence of successful population-level intervention strategies to reduce exposure to e.g. unhealthy food advertisement. The authors of the Global Burden of Disease Study (2014) therefore call for urgent global actions to help countries intervene to reduce excessive calorie intake and active promotion of food consumption by industry (Europe PMC Funders Group, 2014). These global actions should help diminishing the current growing global health problem: obesity and overweight.

One way to influence obesity is to stimulate consumers to choose healthy food items instead of unhealthy food items (Romero and Biswas, 2016). Factors that can influence consumers' food choice have been examined throughout the years, including the interplay of *affect and cognition* (Shiv and Fedorikhin, 1999); *self-control* (Baumeister 2002; Kivetz and Simonson 2002), *taste intuition* (Raghunathan et al., 2006), and *lateral food presentation* (Romero and Biswas, 2016). While the first three factors have been known for influencing consumers' food choice for quite of time, the latter factor *lateral food presentation*, has been examined only very recently. To illustrate: Romero and Biswas (2016) found out that displaying healthy food items versus unhealthy food items, for example on a menu in a restaurant, does influence consumers' food choice (Romero and Biswas, 2016). While Raghunathan (2006) has set the stage for this research by demonstrating that consumers perceive unhealthy food to be better tasting than healthy food, no prior study, as far as we know, has considered matching the consumers' mental representation with how healthy versus unhealthy food items should be displayed. In a series of seven experiments, Romero and Biswas (2016) tested whether displaying healthy food left to unhealthy food, enhances the likelihood that consumers choose the healthier option. The researchers grounded this phenomenon on the fact that individuals tend to map stimuli of lower magnitude on the left side and stimuli of higher magnitude on the right side (Kadosh et al. 2008). Herewith, the ease of processing the food items becomes

easier since it is in line with consumers' mental representation and enhances the likelihood that consumers choose healthier food. The outcome of Romero and Biswas (2016) study, that healthy food items displayed left to unhealthy food item enhances the likelihood that consumers choose the healthier option, sheds new light on current consumers, responsible marketers, and policy makers who are searching for ways to fight obesity and control food consumption. This phenomenon of lateral food presentation is unique in its way, since it stimulates consumers to choose selecting healthy food instead of unhealthy food. Menu designers and food marketers are recommended, in case of presenting both types of food items (healthy vs. unhealthy) on their menu or in their folders, to position the healthy items left to the unhealthy items. Since the study of Romero and Biswas (2016) focused primary on the effects of lateral food display position, it is important to further research the underlying process in-depth. Because, would the perception consumers take, about healthy versus unhealthy food items, not moderate the effects of the lateral food display position?

Choosing between healthy and unhealthy food items often involves a trade-off between short-term benefits (taste/enjoyment) and long-term benefits (healthy/well-being) (Romero and Biswas, 2016). Unhealthy food as well as healthy food can be either linked to 'good' or 'bad' depending on the perspective taken. Romero and Biswas (2016) focused only on the short-term benefits (taste/enjoyment) by considering that "*consumers perceive a healthy item as less heavy, less tasty and less filling compared to an unhealthy item*" (Romero and Biswas, 2016, p. 4). However, from a regulatory perspective, consumers can also base their food choice on the long-term benefits, perceiving a healthy food item to be healthier and better than an unhealthy food item. Herewith, the mental representation reverses and thus also the respective outcomes. To translate this into practice this would mean that, for instance consumers who would like to buy food to saturate their hunger, relatively focus more on the short-term benefits of the food items than consumers who would like to do their groceries for the entire week. When consumers would like to saturate their hunger, the healthy food items presented *left* of the unhealthy food items in the food groceries folder would be in line with the consumer mental representation. The consumer perceives the healthy food item namely as *less tasty* (vs. unhealthy food item) as it is focused on the short-term benefits of the food items (to saturate their hunger). Since individuals tend to map stimuli of *lower* magnitude on the *left* side and stimuli of *higher* magnitude on the *right* side, the advertisement is in line with the consumer mental representation. As such, positioning healthy food items left to

unhealthy food items, should enhance healthy food consumption. However, this differs for consumers who are more focused on the long-term benefits, when for instance doing groceries for the entire week. The healthy food items would be perceived as better and healthier (vs. unhealthy food items). Herewith, the consumer mental representation of the healthy versus unhealthy food items reverses. The healthier food item has a higher magnitude (versus the unhealthy items) and is thus mapped on the right side of the mental representation. As such, positioning healthy food items *right* to unhealthy food items, should enhance healthy food consumption. Consequently, to food retailers, marketers and policy makers it does make sense to find out whether the perception taken by consumers – focus on either short-term (unhealthy is ‘good’) or long-term benefits (healthy is ‘good’) – moderates the effect of lateral food presentation. The implications of displaying the healthy food items versus the unhealthy food items, to enhance healthy food consumption, might namely change depending on the perspective taken. Thus, to search for ways to fight obesity and control food consumption, it is critical to gain further insight into this phenomenon.

This thesis will draw on construal level theory (CLT) in order to investigate whether the perspective taken by consumers moderate the effects of lateral food presentation. Construal level theory proposes that psychological distance can affect the way in which an object is pictured in consumers’ mind (Liberman, Trope and Stephan, 2007). Psychological distance is anything that is not perceived directly and can be defined on several dimensions: *temporal*, *spatial*, *social* and *hypothetically* (Liberman, Trope, and Stephan, 2007). When the psychological distance towards an object is large on any dimension, people have less detailed and concrete information about this object and thus think of it in more abstract terms: *high construal thinking* (Liberman, Trope and Stephan, 2007). In contrast, when the psychological distance towards an object is small on any dimension, people have more detailed and concrete information available which triggers the person to think about the object in a more concrete term: *low construal thinking* (Liberman, Trope and Stephan, 2007). Applying CLT to our specific research domain, we propose that consumers under high level of construal mentally conceptualize food items in a more abstract way and thus focus on the long-term benefits (e.g. health and well-being) of food. This means that consumers under high construal level would consider a healthy food item “good” rather than “bad”. The healthy food item would now be placed on the *right side* of the mental continuum and unhealthy food on the *left side*. Likewise, we propose that consumers under low level of construal tend to mentally conceptualize food

items in a more concrete way and thus focus more on the short-term benefits (e.g. food tastiness) of the food items. This means that consumers under low construal level would consider an unhealthy food item “good”, which is in line with the consumer point of view taken by the researchers Romero and Biswas (2016). To put it differently, our central assumption of this thesis is that displaying the healthy items left to the unhealthy items will not always result in enhancing the choice for the healthy option, since opting for the healthy option depends on whether consumers adopt a high or low level of construal.

The objective of this thesis is to gain further insight into how the effect of lateral food presentation of healthy / unhealthy options on choice and healthy consumption, varies between consumers adopting a high level of construal versus a low level of construal. The main research question central in this research is: **How does high versus low level of construal affect choices of laterally presented food items?**

This study aims to answer the main research question. The study is structured as follows: The second chapter provides a literature review on what is known about consumers’ food choice, mental magnitude representation and the construal level theory. The third chapter explains the methodology used for this research, including the research strategy and design as well as data collection, data analysis and research ethics. The fourth chapter presents the main research results, derived from the analysis discussed in chapter three. The fifth chapter offers the discussion of this study including the interpretation of the results, practical or managerial implication, limitation of the research and directions for further research.

## 2. Literature Review

In the existing, academic literature, there are several studies that have examined numerous factors that can influence consumers' food choice. For example, Shiv and Fedorikhin (1999) found out that when the processing resources are limited, people are more likely to choose for a food product that is more associated with intense positive affect and less favourable cognition (e.g. chocolate cake), than products that are more associated with less positive affect but more favourable cognition (e.g. salad) (Shiv and Fedorikhin, 1999). Baumeister (2002) studied the role of self-control on consumers' food choice. Their study revealed that consumers with a low self-control are more seduced by the moment, where consumers with a high self-control are more focused on the long-term value and benefits of the product (Baumeister, 2002). In line with the study of Baumeister, Raghunathan et al. (2006) revealed that consumers enjoy unhealthy products more during actual consumption. Less healthy products are perceived to be better in taste and more chosen in choice tasks when a hedonic goal is more (versus less) salient (Raghunathan, 2006).

Besides, studies show that the position of images in advertisements can influence consumer perceptions (Chae and Hoegg, 2013). Chae and Hoegg (2013) documented that when consumers view advertisements in which product images are positioned congruently (incongruently) with their spatial representation of time, they have more (less) favourable attitudes toward the product (Chae and Hoegg, 2013). Building on this study, the researchers Romero and Biswas (2016) investigated – in a very specific research domain – whether the position of healthy versus unhealthy food items in, e.g. folders or on the menu, affect consumers' choice. In their study, Romero and Biswas (2016) found out that when healthy food items are displayed *left* to the unhealthy food items, the likelihood that people choose for the healthy food items increases. Displaying healthy food items *left* to the unhealthy food items is namely congruently to how consumers mentally represent the healthy versus unhealthy food items in mind (Romero and Biswas, 2016). The researchers based their theoretical reasoning on existing academic literature in neuroscience. In this field, Kadosh et al. (2008) documented that individuals map stimuli of *low* magnitude on the *left* side and *higher* magnitude on the *right* side (Kadosh et al. 2008). Since studies in the food consumption revealed that healthy food items are typically associated as less tasteful and less heavy (versus unhealthy food items), Romero and Biswas (2016) tested and confirmed that

displaying healthy food items left to the unhealthy food items enhances healthy food consumption (Romero and Biswas, 2016; Raghunathan, 2006).

While the researchers Romero and Biswas (2016) specifically focused on the effects of lateral food display position, so far as we know, no further research has been done to study whether the perspective consumers take on food moderates the effects of lateral food presentation on consumers' choice. Of particular relevance to the current research, there is reason to suspect that the trade-off people make between short-term benefits (taste/enjoyment) and long-term benefits (healthy/well-being) when choosing healthy or unhealthy food items, moderates the effects of lateral food presentation. Namely, the study of Romero and Biswas (2016) revealed that when the display of healthy versus unhealthy food items are in line with consumers' mental representation, consumers tend to select the healthy food option. As explained in the previous paragraph, the researchers Romero and Biswas (2016) paid only attention to the dimension taste/enjoyment – *short-term benefit* - when choosing between the healthy or the unhealthy food items. The healthy food item should be displayed left to the unhealthy food item, to position it in line with the mental representation (Romero and Biswas, 2016). Nevertheless, diving deeper into this topic, consumers can also consider the dimension health/well-being – *long-term benefit* - when choosing between the healthy or the unhealthy food items. Taking the dimension health into account, in contrast to the dimension taste, healthy food items become more salient than unhealthy food items. Healthy food is healthier and better for the well-being than unhealthy food. This means that consumers – with this perspective - would typically map healthy food items *right* to the unhealthy food items. Following the argumentation of Romero and Biswas (2016) that the display of healthy versus unhealthy food items should be in line with consumers' mental representation to enhance healthy food choices, the position of healthy versus unhealthy food items reverses when focusing on the long-term benefit. The healthy food items should namely be positioned *right* to the unhealthy food items, instead of *left* like with the dimension taste.

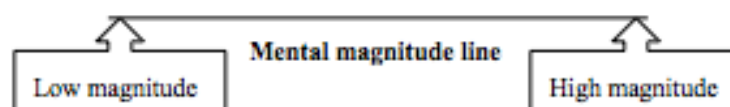
This research will draw on construal level theory in order to find out whether high construal (long-term benefit / dimension: health) or low construal (short-term benefit / dimension: taste) thinking moderates the lateral food presentation on consumers' choice. Before going into detail of the CLT, first attention is given to existing literature in neuroscience about the



mental magnitude representation ([paragraph 2.1](#)) and to existing studies that demonstrates that the effect of lateral food presentation can be affected by other variables including right-and left-handers, culture and time perception in the function of distance ([paragraph 2.2](#)).

## 2.1 Mental magnitude representation

Many studies in neuroscience reviewed the mental representation and agreed upon the fact that in case of more/less relationships, within the mind of people a common format representation is shared (Walsh, 2003). This format representation in mind is also called the *mental magnitude line* (Walsh, 2003; Dehaene et al. 1993). It has been suggested that the dimension of magnitude is represented on a mental line: a continuum of for instance numbers where small digits are located to the left side of space and larger ones towards the right (Dehaene et al. 1993). Magnitude information can consist of different dimensions including space, number and time (Walsh, 2003). The dimensions space, number and time are all *prothetic dimensions* – you can speak of larger/smaller spaces, larger/smaller numbers and more/longer time (Walsh, 2003). Walsh (2003) introduced *A Theory of Magnitude* (ATOM) and explained that time, space, and quantity, are part of a general magnitude system. The three magnitudes can be analysed separately or can be analysed in a generalized magnitude system where the dimensions are mentally organized in increasing magnitude from left-to-right (mental magnitude line) (Walsh, 2003). Underneath, a graphical representation of the mental magnitude line is presented:



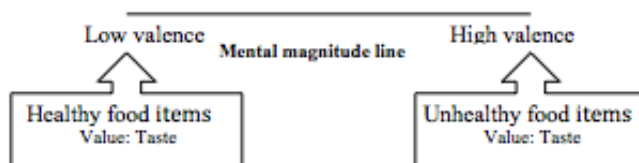
Picture 1: Mental magnitude representation

Framing the mental magnitude line in the context of healthy versus unhealthy food items, the representation of the mental magnitude line can be explained as: a continuum of value valence. When the valence of the value is less, the food item gets placed to the left. When the valence of the value is high, the food item gets placed to the right. Consumers can either judge their decision based on the value taste (short-term benefit), as studied by Romero and Biswas

(2016) or judge their decision based on the value health (long-term benefit), which is of particular relevance for the current research.

### 2.1.1 Value taste

The mental representation line of healthy versus unhealthy food items on the value taste, studied by Romero and Biswas (2016) can be graphically represented as follows:

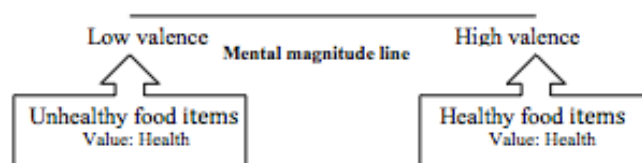


Picture 2: Mental magnitude line – Dimension: taste

On the dimension taste, healthy food items are typically perceived as being less heavy (Deng and Kahn, 2009), lower in calories (Chandon and Wansink, 2007), less filling (Oakes, 2006) and less tasty (Raghunathan et. al 2016) compared to unhealthy food items. The value of healthy food items is less (versus unhealthy food items) and thus gets placed on the left side of the mental magnitude line. The value of unhealthy food items (versus healthy food items) is of more value and thus gets placed on the right side of the magnitude line. The researchers Romero and Biswas (2016) examined the effect of lateral food display on consumers' choice, based on the above-represented continuum. Romero and Biswas (2016) only considered the dimension taste within their study. In this study, we are going more in-depth by considering the fact that consumers might focus also on the dimension health rather than the dimension taste, when choosing healthy food items versus unhealthy food items.

### 2.1.2 Value health

Underneath, a graphical representation of the mental magnitude line of healthy versus unhealthy food items on the value health is represented:



Picture 3: Mental magnitude line – Dimension: health

In the above represented mental magnitude line, the position of the unhealthy food items versus healthy food items has been reversed compared to the mental magnitude line of taste. In contrast to the dimension taste, consumers with long-term benefits focus, value healthy food items as more important than unhealthy food items. When healthy food items have more value, it gets placed on the right side of the magnitude line. When unhealthy food items have less value, it gets placed on the left side of the magnitude line. Based on the fact that consumers tend to map the healthy versus unhealthy food items on the dimension health in another way, it is of high importance to develop the study of Romero and Biswas (2016) further in-depth. In this study, we would like to find out whether the effect of the lateral food position studied by Romero and Biswas (2016) hold, also when the perception (high versus low construal) on food choices is different.

### *2.1.3 Aspects that affect the mental magnitude representation*

So far, there are a few studies that have examined several aspects that do affect consumers' mental magnitude representations (Casasanto, 2009; Maass & Russo, 2003; Walsh, 2003; Halligan and Marshall, 1991). Based on these researches, there is reason to suspect that the effect of lateral food presentation would not always be the same. Researcher Casasanto (2009) revealed that right-handers tended to associate rightward space with positive ideas, and leftward space with negative ideas, however left-handers showed the opposite pattern. Left-handers associated rightward space with negative ideas and leftward with positive ideas (Casasanto, 2009). For this reason, there is clear support that *left-handed* consumers have a directional bias from right to left. Adding to this, there is also clear evidence that the directional bias in spatial images is a function of *culture* (Maass & Russo, 2003). The researchers Maass & Russo (2003) revealed that the mental representation is linked to the dominant writing direction (Maass & Russo, 2003). Western societies (e.g. Europe, America) consist of a left-right writing direction while Eastern societies (e.g. Arabic and Hebrew readers) consist of a right-left writing direction. Based on the outcome that the mental representation is linked to the dominant writing direction, it can be declared that there is clear support for *right-left* directionality bias among Eastern societies (e.g. Arabic and Hebrew readers). Moreover, the researchers Halligan and Marshall (1991) has been the first who found that spatial judgments are affected by stimuli that are in *far* or *near space* (Halligan and Marshall, 1991). *Far* or *near space* can also be conceptualized as being *in* or *outside* of action

space (Halligan and Marshall, 1991). In line with Halligan and Marshall (1991) study, Buetti and Walsh (2009) documented that *time perception* would change, as a function of *distance*, the object or event being judged. The researchers Buetti and Walsh (2009) state that if magnitude systems originate in the need to compute space, time, and size for action, they should behave differently towards stimuli that are *within* or *with* action space (Buetti and Walsh, 2009). In other words, they would behave differently towards *far* or *near* space. For example: Zach and Brugger (2008) documented that people reported time to run faster for the clock that was positioned near people than for the clock that was positioned far from people. The latter mentioned results are of particular relevance to the current study, since it supports the fact that *time perception* – in the function of distance - does have impact on the mental magnitude representation. The current study aims to find out whether the *time perception* of customers - in the function of distance - on healthy food items versus unhealthy food items would moderate consumers' choice. According to the previous studies, we would propose that the (*psychological*) *distance* taken towards healthy versus unhealthy food items influence the effect of lateral food presentation (healthy versus unhealthy food items) on consumers' choice. To find this out, we draw our research on construal level theory (CLT).

## 2.2 Construal Level Theory

Construal level theory (CLT) proposes that psychological distance can affect the way in which an object is pictured in consumers' mind (Stephan, Liberman and Trope, 2011). Psychological distance refers to things that are constructed and is not directly present in reality (Stephan, Liberman and Trope, 2007). Past studies (Stephan et al. 2011; Liberman and Trope, 2010, Wakslak et. al 2007, and Fujita et al., 2006) have found that different dimensions of psychological distance, including time, space, social distance, and probability, affect *mental construal thinking*. In turn these mental construals guide choice. According to CLT, people use two types of mental construals: *high level of construals* and *low level of construals*. High-level construals are applied when the distance on any of the dimensions (time, space, social distance and probability) towards an object is large. People have then less detailed and concrete information about this object and thus think of it in more abstract terms: *high construal thinking* (Stephan, Liberman, and Stephan, 2011). In contrast, low-construals are used when the distance on any of these dimensions towards an object is small. People have then more detailed and concrete information available which triggers the person to think

about the object in more concrete terms: *low construal thinking* (Stephan, Liberman, and Trope, 2011). In sum, CLT suggests that *psychological distance* is an important determinant of whether low level of construal or high level of construal is used as the basis of evaluation (Wakslak, Liberman and Trope, 2007).

In this study, the role of CLT on choices of lateral presented food items will be examined. CLT may play an important role in how the food items (healthy versus unhealthy) should be laterally presented to enhance healthy food choices. Specifically, choosing between healthy versus unhealthy food items is associated with certain levels of psychological distance, which affect the construal level and individuals' mental lateral food representation.

### *2.2.1 Low level of construal*

The researchers Romero and Biswas (2016) assume that focus on *taste* is salient when exposed to food. In general, taste benefits consumers on the short-term. This means that consumers base their food choice on something psychologically close (e.g. to saturate their hunger). According to CLT, the closer the psychological distance, the greater the likelihood that an individual will mentally conceptualize the object in a concrete way: also, called low-level of construal. In other words, taste is a representative of *low construal thinking*. Several studies support this view since there is converging evidence that near future events are represented in a concrete, contextualized manner (Liberman and Trope, 1998; Day and Bartels, 2004). In sum, it can be expected that consumers with a concrete and low-level mental construal, will focus on the dimension taste when choosing between healthy versus unhealthy food items. Referring to the continuum, as explained in [paragraph 2.1.1](#), healthy food items should then be displayed *left* to unhealthy food items, to enhance healthy food choices. Specifically, it is expected that when consumers construal their food choices on a *low level*, healthy food items should be displayed *left* to unhealthy food items to enhance healthy food choices. The effect of lateral food presentation to enhance healthy choice should be consistent to the results of the study of Romero and Biswas (2016).

- **Proposition 1:** Under low level of construal, presenting the healthy food item left to the unhealthy food item enhances the choice of a healthy option.

### 2.2.2 High level of construal

Except from taste, there might be situations in which people focus on the long-term benefits. The focus on *health* is then salient when exposed to food. In general, health benefits consumers on the long-term. This means that consumers base their food choice on something psychologically more distant (e.g. doing groceries for the entire week). According to CLT, the further an object is removed from psychological distant, the less information is available which leads to the formation of a more abstract and schematic representation of the object: also, called high-level of construal (Wakslak, Liberman and Trope, 2007). In other words, health is a representative of *high construal thinking*. Previous studies do support this view since it has been revealed that future events are represented in an abstract, structured manner (high level of construal) (Liberman and Trope, 1998; Day and Bartels, 2004). Hence, it can be expected that consumers with an abstract and high-level mental construal, will focus on the dimension health when choosing between healthy versus unhealthy food items. Referring to the continuum, as explained in paragraph 2.1.2, in contrast to taste, healthy food items should then be displayed right to unhealthy food items, to enhance healthy food choices. As such, it is possible that depending on the construal level one currently uses, what is perceived as more or less valuable (healthy versus unhealthy) differs. Specifically, it is expected that when consumers construe their food choices on high level, healthy food items should be displayed *right* to unhealthy food items to enhance food choices. In this case, the effect of the lateral food presentation of Romero and Biswas (2016) on healthy food choice would not be consistent to the results of the researchers (Romero and Biswas, 2016). Instead it is expected that it would weaken the effect, since the individuals' mental magnitude representation of food reverses: healthy food items should be displayed *right*, instead of left.

- **Proposition 2:** Under high level of construal, presenting the healthy food item right to the unhealthy food item enhances the choice of a healthy option.

### **3. Methodology**

In this chapter, the research strategy, construction of measures and methods for data analyses will be discussed.

#### **3.1 Research strategy**

To examine whether the proposed cause (the level of construal) and the proposed outcomes (choices of laterally presented food items) relate to each other, an online experiment was designed for this study. The reason for using an online experiment is that an experiment is the most appropriate research strategy for investigating a causal relationship (Field, 2013). In experimental research, one or more variables need to be systematically manipulated to see their effect on an outcome variable (Field, 2013). To investigate the effect of the level of construal and lateral food display on healthy food choice, the variables *level of construal* and *lateral food display* were manipulated.

#### **3.2 Data collection**

Data was collected via online questionnaire(s). This data collection was selected because it is a convenient and useful tool to collect data from a large number of individuals. Besides, since our resources and time were limited, collecting data via online questionnaire(s) was the most applicable method to realize (Vennix, 2011).

#### **3.2 Experimental Design**

In total, four experiments were conducted for this study. The first three experiments were pre-tests and consisted of a 2 (low vs. high construal) x 1 experimental design. These pre-tests were conducted to construct an appropriate measurement tool for the fourth experiment: the main study. For the main study a 2 (low vs. high construal level) x 2 (healthy-left vs. healthy right) between-subject design was developed. In the next sub-paragraphs, the three different pre-tests including its results and the main study design will be outlined.

### 3.2.1 Experiment 1

Experiment 1 examined which food items were perceived as relatively healthy and as relatively unhealthy and checked the manipulation of the level of construal. The food pictures in the pre-test were randomly ordered and participants were randomly assigned to the condition: low-level construal or high-level construal. The language used for the online-experiment was English.

#### 3.2.1.1 Participants

Participants were recruited in researchers' own environment and from the Facebook group "Survey sharing 2016-2017", through an online questionnaire. In total, 35 respondents completed the pre-test, whereof 8 males (22.9%) and 27 females (77.1%). The participants were all above 18 years old and were from different nationalities including Dutch (30), Polish (1), Canadian (1), American (1), Czech (1), and German (1).

#### 3.2.1.2 Procedures

Participants were instructed to read the questions carefully and to answer every question if possible. Moreover, participants were informed that the data would be treated in an anonymous and confidential way.

*Food pictures.* In the first assignment of the test, participants got randomly assigned to a total of four healthy and four unhealthy food images. The food pictures were selected based on previous studies (Mollen et al. 2013; Romero and Biswas, 2016). For example: The researchers Mollen et al. (2013) used a salad (item 1, in Appendix 1) to represent a healthy food item and a burger (item 2, in Appendix 1) to represent an unhealthy food item. Even though most of the used food items have been revealed to be healthy or unhealthy in previous studies, it has been decided to still include this task in the experiment, as these studies mainly have been done in the US. For each food image, the participants needed to fill in, on a 7-point semantic-scale, whether the participant perceives the food item unhealthy or healthy and attractive or not attractive. At the first (second) 7-point semantic-scale, the stimuli word *unhealthy* (*unattractive*) was placed at the beginning of the scale and the stimuli word *healthy*



(*attractive*) was placed at the end of the scale. Both scales were represented below the related food image the participant was asked to judge about.

*Construal Level Manipulation.* In the second assignment, participants got randomly assigned to either the low construal manipulation or the high construal manipulation. Based on previous studies (Freitas et al. 2004; Fujita, Henderson, Eng, Trope, & Liberman, 2006; Liberman & Trope, 1998), there is evidence that the distinction between “how” versus “when” is closely linked to the level of construal. According to Vallacher and Wegner (1987) any action can be construed at different kind of levels of abstraction; specifying “how” it is performed (concrete – low level) to specifying “why” it is performed (abstract – high level) (Vallacher & Wegner, 1987). In experiment 1, the “how” and “why” manipulation was adapted from Liberman, Trope, McCrea and Sherman (2007). For the high-construal level condition (HCL), participants were asked to describe for each situation “how” the person is going to perform the described action. For example: Please describe how you think Ron would do that? For the low-construal level condition (LCL), participants were asked to describe for each situation “why” the person is going to perform the action. For example: Please describe why you think Ron would do that? In total, participants needed to describe four situations, including the following situations: (1) *“Ron is considering opening a bank account, (2) Heidi is conserving enrolling in a fitness program, (3) Chris is considering going to a driving school, and (4) Angela is considering subscribing to a newspaper”* (Liberman, Trope, McCrea Sherman, 2007, p. 144). The order of the sentences was the same for each participant.

*Construal mind-set.* Additionally, after having manipulated the construal level of the participants, the state of the construal mind-set of the participants was tested. In previous research, (Vallacher & Wechner, 1987; Slepian et al. 2015) several multiple-item choice scales have been developed to measure the state of the construal mind-set. In this research, six out of the 10-item multiple-choice scale of the researchers Slepian et al. (2015) have been applied, since these items were specifically developed for identifying the level of construal. Each of the six selected items presents a behaviour followed by two alternative expression thoughts: one lower and one higher in level. To illustrate: the item *“picking an apple”* presents behaviour, followed by the options *“getting something to eat”* (higher level) or *“pulling an apple of the branch”* (lower level) (Slepian et al. 2015, p.5). The participants were asked to choose one of the options that best describes the behaviour for them. Based on

their chosen preferences, the state of their construal mind-set could be identified. With these outcomes, the manipulation of the construal level could be checked among the respondents.

*Other questions.* At the end of experiment 1, some general and geographic questions (e.g. age, gender, nationality, degree) were asked. Moreover, there was room for any remarks or recommendations about the questionnaire and / or study.

### 3.2.1.3 Results Experiment 1

*Healthiness.* Table 1 (see [Appendix 1](#)) shows that the broccoli salad is rated as the healthiest food item ( $M=6.57$ ,  $SD=.901$ ) and the dessert as the unhealthiest food item ( $M = 2.03$ ,  $SD = 1.071$ ). The salad is rated as second-most healthy food item ( $M = 6.20$ ,  $SD = .901$ ) and the burger with fries as second-most unhealthy food item ( $M = 2.20$ ,  $SD = 1.052$ ). Given the content of this study, it was important to select a food item that represents a healthy and an unhealthy food item, which were both equal in size. Including these criteria, results show that the salad and the burger with fries would be then the best option to select. The Paired Samples Test (see [Table 2](#), in [Appendix 1](#)) shows that there is a significant difference in the scores for salad ( $M = 6.20$ ,  $SD = .901$ ) and the burger ( $M = 2.20$ ,  $SD = 1.052$ ) conditions;  $t(34) = 19.135$ ,  $p < .05$ .

*Attractiveness.* Table 3 (see [Appendix 1](#)) shows that, in terms of attractiveness, there is no significant difference in the scores for salad ( $M = 4.37$ ,  $SD = 1.516$ ) and the burger with fries ( $M = 4.54$ ,  $SD = 1.837$ ) conditions;  $t(34) = -.432$ ,  $p = .668$ . These results support selecting the food items salad and burger with fries, as the participants rated the salad and the burger with fries equally in attractiveness. The factor attractiveness would herewith not influence the food choice and thus supports that the salad and the burger with fries would be appropriate food items to apply for the main test.

*Manipulation Check.* As a manipulation check, first the answers of the participants to either the four *how*- or the four *why*-questions were analysed based on the abstractedness of their responses. As expected, respondents who answered the *how*- questions generated concrete answers and who answered the *why*- questions generated abstract answers. No specific outliers were found in this part. Next, all participants that got assigned to the *low-construal* condition were coded by 1 and to the *high-construal* condition were coded by 2. To check whether the manipulation of the construal level hold, the expressed thoughts – either

low or high in level – chosen by the respondents, for each of the six behaviours, were analysed whether this would match with the assigned condition. First, all answer categories that were low in level were coded by 1 and high in level were coded by 2. For each participant, the mean of all the scores of the in total six questions was calculated to create an index of the level of construal, with a potential range of 1 to 2. The score closer to 2, indicates a higher level of construal. Then, a one-way ANOVA test was used, to test whether there is significant difference between the means of the two independent groups: *low level of construal* (group 1) and *high level of construal* (group 2). The data met all the assumptions for running a one-way ANOVA test; the groups were independently observed; the data was slightly normally distributed (a little bit positively skewed, see [Figure 1](#) in Appendix 1); and the Levene's Test of Homogeneity of Variances was found to not be statistically significant,  $F(1,33) = 2.358, p = .134$  (see [Table 4](#) in Appendix 1). Expected was that the group that got assigned to the *how*-questions would arrive in a low-construal mind-set and should score lower on the level of construal in contrast to the group that got assigned to the *why*-questions. Nevertheless, results of the one-way ANOVA indicate that there is no significant difference between the groups of low and high level of construal  $F(1,33) = .428, p = >.05$  (see [Table 5](#), in Appendix 1). In other words, the manipulation did not seem to work. Participants that got assigned to the low-level condition did not significantly differ in the level of mind-set compared to participants that got assigned to the high-level condition. Both groups score relatively high on the level of construal ( $M = 1.625$  and  $M = 1.693$ ), with a range of 1 to 2. Even though, the mean-scores do not differ significantly from each other, results prove that the *low-construal* group are relatively in a lower level mind-set compared to participants of the *high-construal* group ( $M = 1.625$  vs.  $M = 1.693$ ). This indicates that, to a very small extent, participants got manipulated in the right direction. Even though, the manipulation ensured for a small difference, the results were by far not significant ( $p = .518$ ), and thus another manipulation for the main test should be considered.

#### 3.2.1.4 Discussion

*The salad and the burger with fries.* Taking a critical view on the food pictures that have been used in experiment 1, the size of *the salad* and *the burger with fries* still varies much. Namely, there is still room to reduce the difference in portion by taking a salad with chicken and selecting a burger without fries for example. Equalizing the size of both food

pictures maximizes the chance that the portion or attractiveness of both food items would not cause the food choice. In sum, for the main experiment, better food pictures of the salad and the burger should be selected to increase the accuracy of the measurement.

*Manipulation did not work.* Results indicate that the ones that got assigned to the low-construal condition do not significantly differ with the ones that got assigned to the high-construal condition. This means that the manipulation of the construal level, adapted in experiment 1, did not work. Results show that both groups of participants were relatively in a high-construal mind-set. Reviewing the design of experiment 1, there were two reasons found that might clarify the high-construal mind-set of the participants. First of all, respondents might have unconsciously adopted, a more abstract-construal mind-set, as the questionnaire was not presented in their own native language, but in English. Second, participants were asked to describe how or why a third person would perform a certain action, and not themselves. Both constructs led to more distance, which might have caused that participants adopted a more high-construal mind-set. Certainly, literature proves that distance is associated with high-construal thinking (Liberman, Trope, and Stephan, 2007). Another reason that could have caused no significant result, is the total items used for manipulating the level of construal among participants. While previous research used seven items to manipulate the level of construal, experiment 1 used four items. The four items adapted in this experiment, might have not been sufficient, for a good manipulation. Moreover, experiment one lacks in power, since each cell did not reach a sample size above 20 (16 participants in cell of LC, and 18 participants in cell of HC).

Overall, the manipulation technique used in experiment 1 was not sufficient to move forward with. For gaining insight into our problem statement, the manipulation of the construal level needs to be sufficient. As such, another manipulation method was designed and tested in experiment 2.

### **3.2.2 Experiment 2**

Experiment 2 examined whether the new pictures of the food items (salad with chicken and burger without fries) would be useful for the main test and tested whether another construal-level manipulation method would be better. The construal-level manipulation of experiment 2

was more personalized, to avoid any distance and the questionnaire was translated into Dutch. The construal-level manipulation was borrowed from Freitas et al. (2004). Likewise experiment 1, participants got randomly assigned to the condition: low-level construal or high-level construal.

### *3.2.2.1 Participants*

In this stage of the research, the data has been collected together with another researcher named Anke Tuinstra. For experiment 2, participants were recruited via the network of Anke, through an online questionnaire. In total, 37 respondents participated in the pre-test, whereof 30 respondents were used for the analysis. Seven respondents were deleted from the data set, as three participants did not complete the manipulation task correctly and four participants needed three times the median (2010 seconds) to fill-in the questionnaire. In researchers' point of view, the response time above the 2010 seconds (33 minutes) were too extreme. The chance that respondents would have been distracted when filling-in the questionnaire with such a high response time would have been high and would have impacted the validity of the results. For this reason, it has been decided to delete these four respondents from the data set. In sum, the final data set consisted of 30 respondents, whereof 15 males (50%) and 15 females (50%). All of the respondents were from the Netherlands and were above 18 years old.

### *3.2.2.2 Procedures*

The questionnaire was translated into Dutch. Participants were given introductory information of the research. Explained was that the survey consisted of three parts: (1) Judging two meals; (2) Responding to specific questions about maintaining good personal relationships; and (3) Giving answers to questions about behaviours. Participants were informed that the survey would take approximately 15 minutes and that the data would be treated in an anonymous and confidential way.

*Picture of salad and burger.* In the first assignment of the test, participants needed to fill in, on a 7-point semantic-scale, whether the participant perceived the burger as unhealthy or healthy, as attractive or not attractive, and as tasteful or not tasteful. At the 7-point semantic-scales, the stimuli word *unhealthy (unattractive; not tasteful)* was placed at the

beginning of the scale and the stimuli word *healthy (attractive; tasteful)* was placed at the end of the scale. The three scales were represented below the food image of the burger. After the burger, the food picture of the salad was represented. Also for the salad, participants needed to fill in, on a 7-point semantic-scale, whether the participant perceived the salad as unhealthy or healthy, as attractive or not attractive, and as tasteful or not tasteful. Likewise, the previous 7-point semantic-scales, the stimuli word *unhealthy (unattractive; not tasteful)* was placed at the beginning of the scale and the stimuli word *healthy (attractive; tasteful)* was placed at the end of the scale. The three scales were represented below the food image of the salad.

*Construal Level Manipulation.* In the second assignment, participants got randomly assigned to either the low-construal condition or to the high-construal condition, adapted from Freitas et al. (2004). Freitas et al. (2004) applied another construal manipulation technique than Liberman et al. (2007), used in experiment 1. In this experiment, a hierarchical diagram was represented to the participants with the following main statement: “*maintaining and improving personal relationships*”. Participants who were assigned to the low-construal condition were asked to consider *how* they maintain and improve personal relationships? → Answer; How would you achieve that → Answer; How would you achieve that? → Answer; How would you achieve that? (Freitas et al. 2004). In this condition, participants were stimulated to link the statement to lower-level activities by filling-in the answers from top to bottom in the hierarchical diagram. Participants who were assigned to the high-construal condition were asked to consider *why* they maintain and improve personal relationships? → Answer; Why would you want to do that? → Answer; Why would you want to do that? → Answer; Why would you want to do that? (Freitas et al., 2004). In this condition, participants were stimulated to link the statement to higher-level activities by filling-in the answers from bottom to top in the hierarchical diagram. Overall, the manipulation of Freitas (2014) ensured that participants were engaged in the ‘activity’ themselves rather than a third person, as in experiment 1. Moreover, the follow-up questions of either “*why?*” or “*how?*” stimulated participants to provide increasingly lower- or higher- level personal behaviours. This would have stimulated participants more to think either in an abstract or concrete way. Considering these strengths of the manipulation, it has been expected that this manipulation might be more effective than experiment 1.

*Construal mind-set.* After the construal-level manipulation, participants were introduced to another task related to behaviour. In this exercise, participants were asked to choose, for each represented behaviour, whether the given behaviour would be best described

by a lower or higher-level of expression of thought. In total, participants needed to complete 25 behaviours, adapted from the Behavioural Identification Format (Vallacher and Wechner, 1987). Instead of reducing the 25 items to six items, as done in experiment 1, it has been decided to use the complete set of the Behavioural Identification Format for the manipulation check. The 25 items adapted from the Behavioural Identification Format can be found in Appendix 2 (see [Questionnaire](#)).

*Other questions.* At the end of experiment 2, some general and geographic questions (e.g. age, gender, nationality, degree) were asked. Moreover, there was room for any remarks or recommendations about the questionnaire and / or the study.

### 3.2.2.3 Results Experiment 2

*Healthiness.* Table 2 (see [Appendix 2](#)) shows that the salad is rated as healthy ( $M = 5.53$ ,  $SD = 1.008$ ) and the burger is rated as unhealthy ( $M = 2.87$ ,  $SD = 1.137$ ). The Paired Samples Test shows that there is a significant difference in the scores for salad ( $M = 5.53$ ,  $SD = 1.008$ ) and the burger ( $M = 2.87$ ,  $SD = 1.137$ ) conditions;  $t(29) = -8.651$ ,  $p < .05$  (see [Table 3](#) in [Appendix 2](#)).

*Attractiveness.* Table 4 (see [Appendix 2](#)) shows that the salad ( $M = 4.77$ ,  $SD = 1.382$ ) and the burger ( $M = 4.70$ ,  $SD = 1.393$ ) are almost rated the same, in terms of attractiveness. The Paired Samples Test show that there is no significant difference in the scores for salad and the burger with the conditions;  $t(29) = .191$ ,  $p = .850$  (see [Table 5](#), [Appendix 2](#)). In other words, these results show that adapting the pictures of the salad with chicken and the burger without fries has improved the ratings on attractiveness, compared to the pictures used in experiment 1. For this reason, the improved pictures of the salad and the burger would be most appropriate to apply for the main test.

*Tastiness.* Table 6 (see [Appendix 2](#)) shows that the salad ( $M = 4.53$ ,  $SD = 1.358$ ) and the burger ( $M = 4.47$ ,  $SD = 1.408$ ) do not differ much in terms of taste. The Paired Samples Test shows that they do not significant differ, conditions;  $t(29) = -.205$ ,  $p = .839$  (see [Table 7](#), [Appendix 2](#)).

*Manipulation Check.* As manipulation check, first the responses to the series of *how-* and *why-* questions of each participant were analysed. Based on the hierarchical level of responses and the completeness of responses, the data was checked. Participants assigned to

the low-condition, should have answered each question by lower activities. Participants assigned to the high-condition, should have answered each question by higher activities. In case, a participant gave the same answers to each question, the manipulation task was not well executed by the participant. Non- or wrong-completed responses were deleted from the data set, as this would affect the validity of the manipulation (Field, 2013). In total, three outliers were identified and deleted from the data set. Next, after having cleaned the data, all participants that got assigned to the *low-construal* condition were coded by 1 and to the *high-construal* condition were coded by 2. To check whether the participants in the low-construal condition (high-construal condition) were in a lower (higher) mind-set, the answers given to the 25 behaviours needed to be analysed per group. Before running any test, the answer categories needed to be recoded. The answer categories lower in level was coded by 1 and higher in level was coded by 2. To indicate in which mind-set the respondents were, the mean of the 25 answer categories were calculated for each participant. The mean score could range between 1 and 2; the higher the score, the higher the level of construal. To check whether the manipulation did work, the one-way ANOVA test could be applied. The data-set met all the assumptions of the one-way ANOVA test: the dependent variable was of ratio level (mean scores); the independent variable was of nominal level (low versus high condition); groups were independently observed; data was normally distributed (see [Figure 1](#) in Appendix 2); and the Levene's Test of Homogeneity of Variances was found to not be statistically significant,  $F(1,28) = .662, p = .423$  (see [Table 10](#) in Appendix 2). Based on our discussion of experiment 1 and the design of this manipulation, it has been expected that this manipulation technique would result into better (significant) results. Expected was that participants assigned to the lower- (higher-) condition, would have focused more on the lower- (higher) level answer categories. Meaning that the group assigned to the low construal (high) would score low (high) on the mean-score. However, results of the one-way ANOVA test, indicates that there is again no significant difference between both groups (high versus low construal):  $F(1,28) = 1.427, p > .05$  (see [Table 11](#), Appendix 2). The mean score of the low construal group ( $M = 1.627, SD = .169$ ) scores even higher on the level of construal compared to the mean score of the higher construal group ( $M = 1.547, SD = .185$ ). This means that participants that got assigned to the low-construal condition, were in a higher-level mind-set and participants that got assigned to the high-construal condition, were in a lower-level mind-set. Completely in contrast to what has been expected. As such, it can be



concluded that the manipulation did not work and was even worse than the manipulation used in experiment 1. This outcome was surprisingly, as actually the opposite was expected.

#### *3.2.2.4 Discussion*

*The salad with chicken and the burger without fries.* The results of experiment 2 indicate that the salad and the burger are appropriate food pictures to use for the main test. The salad represents the healthy food item and the burger represents the unhealthy food item. Moreover, participants rated both food pictures almost equally in terms of attractiveness. As we would like to eliminate the chance that attractiveness would influence the food choice, this score on attractiveness is perfect. As such, these two food pictures have been selected to be used for the main test.

*Attractiveness.* While the study of Romero and Biswas (2016) and Raghunatan et al. (2006) indicates that consumers associate unhealthy food items with taste, show our results that Dutch respondents do not significantly associate taste with either healthy or unhealthy food items.

*Manipulation did not work.* The results of the manipulation check shows that the manipulation of experiment 2 did not work too. No significant difference was found between both conditions: low-level construal versus high-level construal. On top of this, the propositions were not even met. In contrast, participants that got assigned to the low-level condition were in a higher mind-set, than participants that got assigned to the high-level condition. As these results show that the manipulation did not work at all, it has become clear that our research to a good construal-level manipulation had not come to an end yet. In experiment 3, another manipulation technique has been tested.

### **3.2.3 Experiment 3**

Experiment 3 examined whether the construal manipulation, adapted from Fujita et al. (2006), would be sufficient to use for our main test. As both manipulations, used in experiment 1 and experiment 2, were not sufficient, it has been decided to look for another method. In this study, the new manipulation of construal levels, developed by Fujita et al. (2006) has been used. Based on their different approach and declared significant result, it has been decided to go for their new, validated method. Likewise, the previous experiments, in experiment 3,

participants got randomly assigned to the high and low level condition, designed by Fujita et al. (2006).

### *3.2.3.1 Participants*

For experiment 3, data has been collected via researchers' and Anke's own environment, through online questionnaires. Moreover, students from the Radboud University were randomly approached and asked to fill-in the online questionnaire. The researchers made use of the convenience sampling method. In total, 45 respondents participated the questionnaire, whereof 38 respondents were used for analysis. In sum, seven respondents were deleted from the data set. One respondent was deleted, because this participant provided incorrect answers. Instead of providing concrete answers, abstract answers were given by the participant. Another respondent was deleted from the data set, because this person was not concentrated when filling-in the questionnaire. While the respondent filled-in the questionnaire, the researchers saw that this respondent was trying to be funny and discussed answers with people who were passing by. For this reason, this participant has been deleted from the data set too. Moreover, in total there were five respondents who needed 2,5 times the median, 1.585 seconds (26 minutes) to fill-in the questionnaire. In researchers' point of view, the response time above the 1.585 seconds were too extreme. The chance that respondents would have been distracted while filling-in the questionnaire would have been high and thus another five respondents were deleted from the data set. Summarized, the final data set consisted of 38 respondents, whereof 14 males (36.8%) and 24 females (63.2%). All of the respondents were from the Netherlands and were above 18 years old.

### *3.2.3.2 Procedures*

The questionnaire was translated into Dutch. Participants were given introductory information about the research. The questionnaire consisted of two exercises. For each exercise, a short explanation was given in advance. In total, the questionnaire would take about 10 minutes. Participants were informed that the data would be treated in an anonymous and confidential way.

*Construal-level manipulation.* In the first assignment, participants completed the manipulation of the construal-level, adapted from the researchers Fujita et al. (2006).

Participants were presented with a total of 30 words, such as *cola*, *shampoo*, *art*, *pants*, and *telephone*. On each page, five words were presented. Participants who got assigned to the low-level condition were instructed to generate examples that were lower in ranking by answering the questions: “*An example of [word] is what?*” For example, an example of *wine* would be Merlot. Participants who got assigned to the high-level condition were instructed to generate examples that were higher in ranking by answering the questions: “*[Word] is an example of what?*” For example, *wine* is an example of alcoholic drinks. In the introduction, participants were clearly informed that there were no wrong or right answers.

*Construal mind-set.* Next, participants were presented with 25 behaviours. For each behaviour, participants needed to select whether the given behaviour would be best described by a lower or higher-level of expression of thought. For example: “*Reading*”. Would you describe this behaviour as “*extending knowledge*” or “*following lines of paper?*” (Vallacher and Wechner, 1989, p. 664). In total, participants needed to complete 25 behaviours, adapted from the Behavioural Identification Format (Vallacher and Wechner, 1989).

*Other questions.* At the end of experiment three, some general and geographic questions (e.g. age, gender, nationality, degree) were asked. Moreover, there was room for any remarks or recommendations about the questionnaire and / or the study.

### 3.2.3.3 Results Experiment 3

*Manipulation Check:* As manipulation check, first the answers provided to the 30 words have been analysed, based on the abstractness of the answers. The ones that got assigned to the low-construal condition should have answered the questions by providing concrete examples. The ones that got assigned to the high-construal condition should have answered the questions by providing higher ranked words. Out of all these respondents, there was one respondent who gave exactly the opposite response than expected. Instead of providing concrete examples, abstract examples were given. As the respondent have not read the questions carefully, it has been decided to delete respondents’ data from the data set. Next, the group assigned to the low-construal condition were coded by 1 and the group assigned to the high-construal condition were coded by 2. Then, the answer categories of the 25 items, of the second task, were re-coded. The answer categories that were lower in level were coded by 1, and the answer categories that were higher in level were coded by 2. To create an index of the level of construal, it has been decided to calculate the mean scores of only the first eight

items of the 25 questions, for each participant. The decision to use only eight items was adapted from the study of Fujita et al. (2006) who also used only eight items for checking the manipulation. Based on logic reasoning, it would make sense to use less items, as the longer time is past, the less chance people would still be in the same mind-set. As in the main-study, the manipulation needs to work at the moment that the participant needs to choose between healthy versus unhealthy food items, it is not required to test the manipulation for more than eight items. For this reason, the researchers decided to follow the procedure of Fujita et al. (2016) by using only eight items for the manipulation check. Next, the data met all the assumptions of the one-way ANOVA; the Levene's test showed that the variance between the two groups were equal, conditions:  $F(1,36) = .011, p = .915$  (see [Table 4](#), Appendix 3) and the data was normally distributed (see [Figure 1](#), Appendix 3). In contrast to the study of Fujita et al. (2016), the results of the one-way ANOVA test indicate again that the two groups (high versus low construal) did not significantly differ from each other:  $F(1,36) = 1.911, p = >.05$ . [Table 5](#) in Appendix 3 represents the outcome of the one-way ANOVA test. Looking at the mean scores of the two groups ( $M = 1.54$  and  $M = 1.65$ ), both groups tend indeed to be more in a high mind-set (score 2) than in a low mind-set (score 1). Although, participants tend to be more in a high mind-set, the differences between the groups ( $M = 1.54$  vs.  $M = 1.65$ ) do clearly meet the proposition that: the ones with the low-construal condition have a lower mind-set ( $M = 1.54$ ) compared to the ones with the high-construal condition ( $M = 1.65$ ). Experiment 1 and 2 of this study could not indicate such a clear difference compared to the current manipulation check. In addition, the p-value of experiment 1 ( $p = .518$ ) and experiment 2 ( $p = .242$ ) has not been that close to significance as the p-value of experiment 3 ( $p = .175$ ). For this reason, the manipulation adapted in experiment 3 has been considered to be the best and therefore has been chosen for the main test.

#### *3.2.3.4 Discussion*

The convenience sampling technique used in experiment 3 was easily to adapt. Though, the disadvantages of this method should not be neglected within this experiment. As the majority of the participants were students from the Radboud University, the sample might be less representative and outcomes could have been more biased due to the high degree of the respondents. Another discussion point to encounter is related to the manipulation check. Previously, all 25 items adapted from the Behavioural Identification Format (Vallacher and

Wechner, 1987) were used for checking the manipulation. As the researchers Fujita et al. (2006) only included eight items to check their manipulation method, it has been decided to use also only eight items for the manipulation check. Would 25 items be used; the manipulation would have not let to any results as the mean scores for each group would be almost the same ( $M = 1.621$  and  $M = 1.594$ ) (see [Table 9](#) in Appendix 3). For this reason, it can be assumed that the manipulation of the construal level does not hold for a while. As for this study, participants do not need to be in the construal mind-set for a while, this manipulation method could be applied for the main study. However, for other studies this is important to consider. A final remark to encounter is that the power of the current experimental design could have been improved by having included at least 20 participants per cell, instead of 19 per cell (Hair et al. 2010).

### 3.2.4 Main Experiment

The aim of the main study was to find out how construal level does affect the food choice following lateral food presentation. To gain insight into this phenomenon, a 2 (construal level: high vs. low) x 2 (lateral food presentation: healthy left vs. healthy right) between-subject design was developed. Each participant got subjected to a single treatment, to make sure that the results would be independent from each other. Herewith, the carry-over effects between the conditions were reduced (Vennix, 2011). In total, there were four conditions with different stimuli: LC-HL; LC-HR; HC-HL; HC-HR. Underneath, the 2 x 2 between-subject design of this study is displayed:

Lateral food presentation		
Level of Construal	Healthy left (HL)	Healthy right (HR)
Low construal level (LC)	Low construal level combined with displaying healthy food items left to unhealthy food items <i>Sample group 3 (<math>n \geq 20</math>)</i>	Low construal level combined with displaying healthy food items right to the unhealthy food items <i>Sample group 4 (<math>n \geq 20</math>)</i>
High construal level (HC)	High construal level	High construal level

combined with displaying healthy food items left to unhealthy food items	combined with displaying healthy food items right to the unhealthy food items
<i>Sample group 1 (n ≥ 20)</i>	<i>Sample group 2 (n ≥ 20)</i>

With the use of the flow programming of *Qualtrics* one questionnaire was designed with four different conditions. Participants were randomly and equally assigned to one of the four conditions.

#### *3.2.4.1 Participants*

Hair et al. (2010) recommended a minimum cell size of at least 20 participants for each cell to maintain an adequate sample size (Hair et al., 2010). The desired sample size was achieved by using the method: convenience sampling. The sample was selected as random as possible, to keep the unsystematic variation to a minimum (Hair et al. 2010). This minimized the risk that groups would differ on variables other than the one that were going to be manipulated. In total, 218 participants completed the questionnaire, whereof 201 participants were used for the analysis. In sum, 17 respondents were deleted from the data set. Seven were deleted from the data set, because their response time was too extreme. Respondents needed more than three times the median, 1.974 seconds (32.9 minutes), to fill-in the questionnaire. The chance that these respondents were distracted while filling-in the questionnaire was very high; therefore, it has been decided to delete these respondents from the data set. Another participant was deleted from the data set, because no serious answers were given to the questions. With these answers, researchers could not measure what they wanted to measure and thus this person was deleted from the data. Moreover, two respondents responded in an abstract way, while they got assigned to the low construal condition. For sure, the manipulation did not work by these two respondents and thus also these responses were deleted from the data set. Moreover, one person indicated in the comments that he was drunk when filling in the questionnaire. As the alcohol would have influenced the answers given by the person, it has been decided to delete the respondent from the data set. Finally, there were two respondents who were close in predicting the aim and hypothesis of this study. As these respondents could have been biased, it has been decided to exclude them from the data set too. To conclude, 201 respondents were

used for the analysis. 50 respondents were male (24.9%) and 151 respondents were female (75%). All of the participants were from the Netherlands and were above 18 years old.

#### *3.2.4.2 Sample size*

The sample size of this study was sufficient as it met the requirements of at least 80 participants ( $20 \times 40 = 80$ ) (Hair et al. 2014). Per cell, approximately 50 participants filled-in the questionnaire (see [Table 1](#), in Appendix 4). As the sample size per cell is far above the minimum (20 per cell), the power of the study has been sufficient (Hair et. al 2010).

#### *3.2.4.3 Procedures*

The questionnaire was translated into Dutch. First, participants got a short introduction about the researchers and were informed about what to expect from the questionnaire. The survey consisted of four different tasks. Participants were informed that in advance of each task, a short introduction of the task would be given. Noted was that the survey could only be filled-in on a laptop or tablet. Participants were informed that the survey would take approximately 10-15 minutes and that the data would be treated in an anonymous and confidential way.

*Construal manipulation.* The construal manipulation of experiment 3, adapted from the researchers Fuijta et al. (2006), was used for the main test. In experiment 3, the explanation of the construal manipulation can be found (see [sub-paragraph 3.2.3.2](#)).

*Lateral food manipulation.* After the construal manipulation, participants got randomly assigned to either the *healthy-left* (HL) or *healthy-right* (HR) condition. The healthy food picture (salad with chicken) and unhealthy food picture (burger) were copied from experiment 2. In experiment 2, the satisfactory results that supports the use of these two food pictures can be found (see [sub-paragraph 3.2.2.3](#)). Participants were asked to indicate whether they would like to choose either the healthy food item or the unhealthy food item. Noted was that the portion and the price of the meals were equal.

*Manipulation check.* After the participants had given their food choice, the state of the construal mind-set of the participants was tested. Participants were asked to indicate whether the given behaviour would be best described by a lower or higher-level of expression of thought. Eight items of the Behavioural Identification Form, designed by Vallacher and

Wachner (1987), were used to check for the manipulation. The reason for including eight items can be found in experiment 3 (see sub-paragraph 3.2.3.4).

*Lateral food check.* Moreover, an additional assignment was presented to test how the participants would place the healthy and unhealthy food items on the continuum: left or right. In the experiment, two empty boxes were represented and six sets of two word pairs e.g. “grilled chicken” or “fried chicken” were shown (Romero and Biswas, 2016). For this exercise, participants were asked which one of the two words they would place at the left box. Based on these two exercises, it could be double-checked whether the mind-set was in line with the stimuli and whether the magnitude-mind representation was in line with the lateral food presentation. As such, the theoretical background of this study could be checked.

*Food pictures check.* Next, participants were asked to indicate – on a 7-point semantic scale - how healthy, attractive or tasty they found the burger and the salad. Important in this study is that participants perceive the healthy food item as healthy and the unhealthy food item as unhealthy. Also, the attractiveness of the food items should be tested, to control whether this factor would influence the food choice of the lateral presented food items. Moreover, past study claims that consumers associate unhealthy food items as tastier than healthy food items (Raghunatan, Naylor, Hoyer, 2006). To check whether this is in line among Dutch respondents, participants were asked to indicate how they perceived the tastiness of both food items.

*Control variables.* The online questionnaire was rounded off with several questions that included some control variables. Namely, the *handedness of a person* has been proven to influence the mental representation of an individual (Van Strien, 2002; Casasanto, 2009). Since this is out of the control of the researcher, the respondents were asked to fill-in whether they were left-handed, right-handed or both. Moreover, it has been documented that the *level of hunger, affect or mood status, goal to eat healthily and diet behaviour* does influence a persons’ eating behaviour (Salmon et al., 2014; Haws, Davis & Dholakia, 2016). Because these variables are also all out of the control of the researcher, the decision has been made to include also these variables as control variables in the main experiment. On a 7-point scale the level of hunger was measured from 1 (very hungry) to 7 (very full); the affect from 1 (very negative) to 7 (very positive); and the goal to eat healthily was measured from 1 (not at all) to 7 (very much). Moreover, participants could fill-in whether they were on a diet yes or no.



*Demographic questions.* Finally, some demographic questions have been asked to the participants. In [Appendix 4](#) the online-questionnaire of the main experiment is represented.

#### 3.2.4.4 Measurement Items

This section shows specifically which variables were included in the main research and how they were measured.

*Independent variables.* This research consists of the independent variables: the level of construal and the lateral food presentation. The level of construal was manipulated by the manipulation method of the researchers Fujita et al. (2006). In [Appendix 4](#) (see [4.1 Questionnaire](#)) the 30 items that were used to manipulate the construal level among participants can be found. The lateral food presentation was manipulated by presenting either the healthy food item left or right to the unhealthy food item. The position of the healthy food item was measured on nominal scale: positioned left or right.

*Dependent variables.* This research consists of the dependent variable: food choice. The dependent variable of this study consists of two levels: healthy versus unhealthy food choice. The pictures that were used to measure the healthy and the unhealthy food choice can be found in [Appendix 4](#) (see [4.1 Questionnaire](#)). In addition, the perceived healthiness (attractiveness and tastefulness) of the presented food items was tested by one item-scale. Underneath, an overview of the measurement items can be found:

Item	Source
Please use the scales to indicate how healthy/unhealthy you perceive the presented food item ( <i>1=unhealthy and 7=healthy</i> )	Haws, Davis & Dholakia, 2016
Please use the scales to indicate how attractive you perceive the presented food item ( <i>1=unattractive and 7= attractive</i> )	Haws, Davis & Dholakia, 2016
Please use the scales to indicate how tasty you perceive the presented food item ( <i>1=not tasty and 7= very tasty</i> )	Werle, Trendel, Ardito, 2012

*Control variables.* Previous research indicated that other variables have influence on food choice, however these variables are out of control of the researcher. For this reason, the following control variables were included in this research and measured as follows:

<i><b>Item</b></i>	<i><b>Source</b></i>	<i><b>Control Variable</b></i>
<i>To what extent do you have the goal to eat healthily? (1= not at all, 7= very much)</i>	Salmon et al. 2014	Healthy lifestyle
<i>How hungry do you feel at the moment? (1=not at all, 7= very much)</i>	Salmon et al. 2014	Level of Hunger
<i>How do you feel at this moment? (1=very negative, 2= very positive)</i>	Salmon et al. 2014	Mood-status
<i>Could you please indicate your write handedness (1=right, 2=left, 3=both)</i>	Van Strien, 2002; Casasanto, 2009	Handedness
<i>Are you on a diet?</i>	Haws, Davis & Dholakia, 2016	Diet

#### *3.2.4.5 Results of Manipulation - Main Test*

Likewise, any previous experiments, also in the main test, the researchers checked for the manipulation. As the manipulation check, still belongs to the design of the experiment, it has been decided to check for the manipulation of the main test in this section. The results of the main analysis can be found in [chapter 4](#).

For the manipulation check, the same procedure was followed as in experiment 3. First, the data related to the construal level was cleaned, based on the abstractness of the answers. Next, the group assigned to the low-construal condition were coded by 1 and the group assigned to the high-construal condition were coded by 2. Next, the answer categories of the eight items of the Behavioural Identification Format (Vallacher and Wechner, 1987) were re-coded. The

answer categories that were lower in level were coded by 1, and the answer categories that were higher in level were coded by 2. To create an index of the level of construal, the mean scores of the eight items were calculated for each participant, with a range of 1 (low level) to 2 (high in level). Before conducting the ANOVA test, the assumptions of the ANOVA test were checked. Groups were independently observed; The Levene's Test showed that the variance between the two groups were equal, conditions:  $t(1,199) = 1.919, p > .05$  (Table 3 in Appendix 4) and the data was normally distributed (Figure 1, in Appendix 4). Since all assumptions were met, the one-way ANOVA test could be applied. First, the results of the one-way ANOVA test show that the two groups (high versus low construal) did not significantly differ from each other:  $F(1,199) = .038, p = .845$  (Table 4 in Appendix 4). The mean-scores of the two groups ( $M = 1.566$  and  $M = 1.5724$ ) differ less from each other. Both groups tend to be more in a high mind-set (score 2) than in a low mind-set. The people that got assigned to the low-construal condition, were with .0064 difference in a lower level. This difference is very small and indicates that the manipulation of the main test did not significantly work. However, before concluding this, as in experiment 3 has been found, the manipulation of the construal level did not hold for a long period of time. While in the main test, the participants first needed to check for a healthy or an unhealthy food item, there is reason to suspect that the manipulation of the construal level did not hold for very long. Thus, another one-way ANOVA test has been conducted including the answer categories of four items, instead of eight items. As expected, the one-way ANOVA test shows significant difference between the groups when calculating the mean-scores of the four items of the manipulation check, conditions:  $F(1,199) = 5.353, p < .05$  (Table 7 in Appendix 4). Participants that got assigned to the low-level condition (group 1) were in a lower mind-set ( $M = 1.693$ ) than participants that got assigned to the high-level condition (group 2) who were in a higher mind-set ( $M = 1.76$ ) (Table 8 in Appendix 4). The result of this test, shows that the manipulation of the construal level did work, when participants needed to select the healthy or unhealthy food items. Consequently, researchers could draw conclusions whether the level of construal affect choice of laterally presented food items.

### **3.3 Research Ethics**

In this research, the data was collected in an ethical manner. Participants could voluntary decide whether they would like to participate in this research. Moreover, responses to the

questions were completely anonymous and the collected data were treated in a confidential way.

## **4. Results of the main study**

This chapter demonstrates the results of the main study.

### **4.1 Data Analysis**

Binary logistic regression was conducted to find out whether the food choice of healthy (vs. unhealthy) food item, could be predicted by the level of construal and lateral food presentation. The binary logistic regression was a useful analysis for this research, as this type of analysis requires a binary dependent variable (Hair et al. 2010) and helps to predict a categorical variable from a set of predictor variables (Leech et al., 2015).

### **4.2 Testing the assumptions**

Before the binary logistic regression was conducted, the assumptions of the analysis needed to be met. The first assumption of the binary logistic regression is that the dependent variable needs to be of nominal scale (Field, 2013). This assumption is met as food choice consists of healthy versus unhealthy food items. The second assumption is that the dependent variable needs to be coded accordingly, because the logistic regression assumes that  $P(Y=1)$  is the desired outcome (Field, 2013). The desired outcome of this study is healthy food choice. As such, the healthy food choice was coded by 1 and unhealthy food choice was coded by 0. Herewith, the second assumption was met. In addition, there should be no multicollinearity between the independent variables (Field, 2013). Hair et al. (2014) states that a tolerance score of less than .10 or .20 indicates for multi-collinearity. Table 9 (see [Appendix 4](#)) shows that the tolerance statics of the independent variables of this study score all above .99. This means that there is no multi-collinearity available and thus this assumption was guaranteed. The final assumption that should be met was the sample size of the study. For binary logistic regression, Leech et. al (2015) states that *“a minimum of 20 cases per predictor is required, with a minimum of 60 total cases”* (Leech et. al, 2015, p.167). For this study, five predictors were included in the proposed model, so minimums of 100 respondents (20 \* five variables)

were required to meet the assumption. As in total 201 participants were included in the data set, the sample size of this study was satisfied.

## 4.3 Building the model

### 4.3.1 Testing for factors that (might) influence lateral food choice

Based on past work, described in chapter two, eight potential predictors of food choice could be identified. The eight predictors were stepwise entered in the model. The order was based on the importance of the variable, to predict the outcome.

**Model 1.** As mentioned in chapter two, the study of Romero and Biswas (2016) shows that lateral food presentation is an important predictor of food choice. In this study, this main effect has been tested. For this reason, the first model includes the potential predictor: *lateral food presentation*.

**Model 2.** In the second model, the independent variable *construal level* is added to the model. Based on theoretical studies, mentioned in chapter two, there is much interest in finding out whether construal level affects food choice. For this reason, in the second model the potential predictor *construal level* is added. The -2LL likelihood value of the block model indicates whether the variable improves the model. The general rule is that when the -2LL measure becomes smaller, the better the model fit (Hair et al., 2010). In Appendix 4, [Table 10](#) shows that the -2LL value is reduced from the one-variable model of 260.299 to 260.120, a decrease of 179. The block significance indicates that the decrease was unfortunately not statistically significant ( $p = .380$ ). This means that adding the predictor *construal level* would improve the model fit, however, not significantly.

**Model 3.** In model three, the interaction effect (lateral food presentation x construal level) is added to the model. Based on theoretical background, it is expected that the construal level might moderate the main effect of lateral presented food items on food choice, the problem statement of this study. For this reason, in the third model the interaction effect is added to the model. In the three-variable model, the -2LL value is reduced of 260.120 to 256.581, a decrease of 3.539 (see Appendix 4, [Table 10](#), model 3). This increase in model fit was almost significant with a p-value of .060. This means that including the three independent variables together in one model, would so far have the best model-fit, although not significant yet.

**Model 4.** In the fourth model, the potential predictor *attractiveness of the burger* is added to the model. Past studies found that the attractiveness of food items influence the food choice (Haws, Davis & Dholakia, 2016; Van der Laan, 2012). Therefore, the variable *attractiveness of the burger* has been added to the model. By adding attractiveness of the burger in the model, the -2LL value is reduced of 256.581 to 215.008, a decrease of 41.573. This increase in model fit was statistically significant, at the .000 level, from the base model and the three-variable model. The model shows that the four-predictor variables together, can predict food choice with a significant accuracy of 70.1%.

**Model 5.** In model five, the potential predictor *attractiveness of the salad* is added to the model. When adding this potential predictor to the model, the -22L value decreases extremely compared to model four, from 215.088 to 152.229, a decrease of 62.779. The five-variable model ensured for a significant model fit ( $p < .05$ ) from the base model and the four-variable model. The model shows that the five-predictor variables together, can predict food choice with an accuracy of 81.6%. This means that including all the five variables together, the best prediction of the food choice can be made so far.

**Model 6.** The researchers Salmon et al. (2014) documented that the goal to eat healthy is significantly related to making healthy food choices (Salmeon et al. 2014). For this reason, the variable *healthy lifestyle* is also added in the model. Including this variable in the model, the -22L variable slightly reduces from 152.229 to 151.055, a decrease of 1.174. The small decrease of the -2LL value, results in a non-significant increase in model fit with a p-value of .279 from model five. This means that the healthy lifestyle does not influence food choice of lateral food items significantly, which is in contrast to the study of Salmon et al. (2014).

**Model 7.** The past study of Salmon et al. (2014) also reports that the *level of hunger* impacts the food choice. For this reason, the potential predictor *level of hunger* was added to the model. The outcome of model seven shows that the -2LL value is reduced of 151.055 to 149.095, a small decrease as well of 1.960. Also, not as expected, this study shows that adding the variable *level of hunger* results into a non-significant ( $p = .162$ ) increase in model fit, compared to model six. As such, the data shows that the level of hunger does not significantly influence food choice of lateral food items.

**Model 8.** In model eight, the potential predictor *mood status* is added. According to previous research (Salmon et al. 2014, Baumeister 2002), the mood-status of people does influence the food choice. For this reason, also this variable was considered important to

include in the model. Adding this variable to the model, the -2LL value reduces from 149.095 to 147.112, with a decrease of 1.983. For the variable mood-status, there was a non-significant increase in model fit from model 7, with a p-value of .159. The result of this study shows, in contrast to previous studies, that mood-status of people does not significantly influence the food choice of lateral food items.

**Base Model.** Results show that adding the independent variables *healthy lifestyle*, *level of hunger*, and *mood status* does not significantly add anything to the model. Therefore, it has been decided to proceed further with model five, including the predictors: *lateral food positioning*; *construal level*; *lateral food positioning x construal level* interaction; *attractiveness of the burger*; *attractiveness of the salad*.

#### 4.3.2 Testing for other control variables that (might) influence lateral food choice

As mentioned in the previous sub-paragraph, it has been decided to proceed further with model five. Based on past studies, there are still some other control variables that need to be considered as these variables might improve the model fit. In addition to [paragraph 3.2.4.4](#), the control variables *diet* and *handedness* still need to be tested. Besides, due to the surprising result that the level of hunger does not add any value to model six, mentioned in [paragraph 4.3.1](#), it has been decided to test whether *the level of hunger* adds any value to the model, when adding the variable individually to model five. Moreover, the demographic variables: *gender*, *age*, and *education* have been individually added to model five.

**Level of hunger.** In the previous paragraph, the *level of hunger* did not add anything to model six. As this result was remarkable, there was interest to find out whether the *level of hunger* would add anything to model five. Nevertheless, results of this study still show that including the level of hunger does not significantly ( $p = .194$ ) add anything to the model. This outcome is in contrast to existing academic literature, as they do find that level of hunger significantly influence food choice (Salmon et al. 2014).

**Diet.** It is expected that diet would also influence food choice of people. Therefore, the control variable diet has been added to model five. Results show that the variable *diet* does not significantly improve ( $p = .310$ ) the model. As such, results of this study indicate that diet does not significantly influence the food choice of lateral presented food items.

Surprising, as it was expected that people who are on diet, would earlier choose the healthy food option (Haws, Davis & Dholakia, 2016).

**Construal x Lateral Food Position x Handedness.** The researchers Casasanto (2009) documented that the handedness of people affects the mental magnitude presentation (Casasanto, 2009). As explained in chapter two, left (right)-handed people associate right- (left) ward space with negative ideas (Casasanto, 2009). For this reason, it is expected that the interaction of *construal x lateral food position x handedness* would moderate food choice followed by lateral presented food items. Nevertheless, results show that the model does not significantly ( $p = .181$ ) improve when the interaction is included in the model.

**Handedness x Lateral Food Position- interaction.** Past studies show that handedness of people moderates the effect of the mental magnitude representation and thus might moderate the effect of lateral presented food items on food choice too (Casasanto, 2009). For this reason, this interaction effect has been added to the model, to find out whether the (*handedness x lateral food presentation*) interaction does influence the food choice. In [Table 11](#), [Appendix 4](#), results show that the interaction effect does not significantly improve the model fit. In contrast to our expectation, the interaction of handedness and lateral food presentation does also not significant influence food choice followed by lateral presented food items.

**Gender.** To test whether gender does influence the food choice, the control variable *gender* has been added to the model. However, in [Table 11](#) in [Appendix 4](#), results show that the variable gender does not significant improve the model fit, with a p-value of .067. The p-value is close to significant, however, looking at the difference in the prediction percentage, no difference can be found (score both on 81.6%). As such, it has been decided not to include the variable gender in the final model.

**Age.** The variable age does also not significant improve the model fit, with a p-value of .727 (see [Table 11](#) in [Appendix 4](#)). This means, that the age of people does not influence food choice, controlled by the other predictor variables. As such, age is not included in the final model.

**Education.** Results of the study show that also education does not add any significant value to model fit, with p-value of 0.183 (see [Table 11](#) in [Appendix 4](#)). As such, it can be stated that education does also not influence the outcome of food choice, controlled by the other predictor variables. Therefore, education is not included in the final model.



In summary, results show that the other control variables, including: *level of hunger*; *diet*; *handedness*; *gender*; *age*; *education*, do not significantly influence food choice, when controlled by the five predictor variables. Hence, model five remains to be the best model.

#### 4.3.3 Factor attractiveness on lateral food choice

As the general rule is to select the most parsimony model, it is of essence to indicate whether the factor *attractiveness* on its own would not provide the best model fit. In sub-paragraph 4.3, results show that the variables *attractiveness of burger* and *attractiveness of salad* ensured for an extreme significant increase in model-fit, when controlled by the variables *construal level*, *lateral food presentation*, and the interaction (*construal level x lateral food presentation*). Due to the high increase in model-fit by the variable attractiveness, it is of interest to test whether the independent variable on its own would ensure an even better model fit. In case this would be the outcome, this would mean that the construal level, lateral food positioning and the interaction between the variables does not affect food choice of lateral presented food items. Hence, we conducted a new binary regression analysis, adding the two independent variables attractiveness in model one, followed by adding each of the three potential predictors (lateral food positioning, construal level, interaction effect) to the model.

**Model 1.** The variables *attractiveness of burger* and *attractiveness of salad* are included in the model. The -2LL value of model one is 161.525 and predicts 80.6% correct, with a significant model fit ( $p < .05$ ).

**Model 2.** The variable *lateral food positioning* is added in the model. The -2LL value of model two is slightly reduced of 161.525 to 161.066, with a no significant increase of model fit ( $p = .459$ ).

**Model 3.** The variable *construal level* is added in the model. The -2LL value is reduced of 161.066 to 159.982, with also a no significant increase of model fit ( $p = .298$ ).

**Model 4.** The interaction of *lateral food positioning x construal level* is added in the model. The -2LL value is reduced of 159.982 to 152.229 with a significant increase of model fit ( $p = .005$ ). This model predicts 1.0% more correct (significant) than model one. Hence, it can be concluded that the five-predictor variables together, ensures for best model fit, instead of the variables attractiveness on its own. In sum, model five including the variables:

*attractiveness burger, attractiveness salad, lateral food positioning, construal level* and the interaction *positioning x construal* is confirmed to be the best and the proposed model of this study.

#### 4.4 Overall Model Fit

The overall model fit of the proposed model should be sufficient for being able to interpret the results (Field, 2013). Based on statistical and pseudo  $R^2$  measures, the overall model fit of the five-predictor variables together, has been analysed.

*Statistical Measures.* Following Hair et al. (2014), a perfect model fit has a -2LL value of 0.0 (Hair et al., 2014). Comparing the null model with the proposed model, the -2LL value is reduced of 261.069 to 152.229, with a decrease of 108.840. As such, the proposed model has a better model fit, compared to the null model. Looking at the Chi-Square results (see [Table 13.4](#) in Appendix 4) the improved model and block fit are both significant, with the conditions: ( $\chi^2 = 108.840$ ,  $p < .05$ ). In line with these results, the Classification Table (see [Table 13.5](#) and [Table 13.6](#) in Appendix 4) indicates too that the proposed model has a better model fit compared to the base model, since the correct predictions improves from 64.7% to 81.6%. The results of the Hosmer and Lemeshow test ( $\chi^2=10.741$ , 8 degrees of freedom,  $P = .217$ ) indicate that the model fit is satisfactory (see [Table 13.7](#) in Appendix 4). Overall, the model fit of the proposed model is statistically supported.

*Pseudo  $R^2$  Measures.* To assess whether the results reach the level of practical significance, the  $R^2$  measures of the Cox and Snell  $R^2$ , and the Nagelkerke  $R^2$  has been analysed (Hair et al., 2014). The  $R^2$  measure estimates the variation in the dependent variable, which can be predicted by the model (Leech et al. 2015). In the Model Summary (see [Table 13.8](#) in Appendix 4), results show that the  $R^2$  value of the Cox and Snell measurement is .418 and of the Nagelkerke is .575. This means that approximately 50% of the variance of the food choice can be explained by the model. With this result, it can be stated that the model is acceptable in terms of practical significance. In sum, the overall model fit is sufficient and thus the results can be interpreted.

## 4.5 Interpretation of the Results

The overall model fit demonstrates that the proposed model is an acceptable model; it significantly supports statistical and practical model fit (Hair et al., 2010). Next, the Wald test can be analysed to interpret whether and how the five explanatory variables significantly contribute to the model.

### 4.5.1 Attractiveness

The table “*Variables not in the Equation*” shows that the independent variables *attractiveness of burger* and *attractiveness of salad* alone do significantly contribute to the model, with both  $p\text{-value} > .05$  (see Table 13.9 in Appendix 4). In contrast, the three independent variables *position food*, *construal level* and the interaction effect *positioning  $\times$  construal level* do alone not significantly contribute to the model, because all significant values score above the  $p\text{-value} > .05$  (see Table 13.9 in Appendix 4). In other words, this outcome represents that in case the level of construal moderates the main effect of lateral presented food items on food choice, this only holds when controlled by the variables attractiveness of food items.

#### 4.5.1.1 Attractiveness of Burger

The table “*Variables in the Equation*”, also referred to the Wald-test, shows that the independent variable *attractiveness of burger* does significantly contribute to the prediction of food choice ( $p < .05$ ). The negative B value (-1.024), presented in the Wald test, indicates that the more attractive the burger is rated (1), the less salad (1) is chosen, when controlled for the other three predictor variables (see Table 13.10 in Appendix 4). The exp (B), presented in the Wald test, provides the odds ratio of the variable. Field (2013) defines the odd ratio as: “*the ratio of the odds of an event occurring in one group compared to another*” (Field, 2013, p. 880). Within the Wald test analysis, the odd ratio represents the outcome of the group that is coded by one (Field, 2013). The odds ratio (exp B value) for the variable *attractiveness of burger* is .359. This means that the odds of choosing a healthy food item improve by .359 for each unit increase in attractiveness of burger.

#### 4.5.1.2 Attractiveness of Salad

The Wald test shows that the independent variable *attractiveness of the salad* contributes significantly to the prediction of food choice ( $p < .05$ ). The positive B-value (1.468) indicates that the more attractive the salad is rated (1), the more salad (1) is chosen, when controlled for the other three-predictor variables (see [Table 13.10](#) in Appendix 4). The odds ratio (exp B value) for the variable *attractiveness of salad* is 4.341. This means that the odds of choosing a healthy food item improve by 4.341 for each unit increase in attractiveness of salad.

#### 4.5.2 Lateral Food Positioning, Construal Level, and Interaction

In contrast to attractiveness of the food items, table “*Variables not in the Equation*” shows – as previously mentioned – that each of the independent variables *lateral food presentation*, *construal level* and *lateral food presentation x construal level* do independently not contribute to the model. The primary main effect of this study, studied by Romero and Biswas (2016), that lateral food positioning influences food choice independently does not remain, when controlling for the other variables. In line with the problem statement, this would indicate that the level of construal might moderate the effect between lateral foods positioning on food choice. In the following section, attention is paid to each independent variable (lateral food positioning, construal level, interaction) within the model and whether the results have been in line with past studies and our propositions.

#### 4.5.3 Lateral Food Positioning

The table “*Variables in the Equation*”, also referred to the Wald test, shows that *lateral food presentation* does not significantly contribute to the prediction of food choice ( $p = .201$ ), when controlled by the other predictor variables (see [Table 13.10](#) in Appendix 4). The positive B (.693) indicates that the more the healthy food is positioned to the left (1), the more salad (1) would be chosen – but not significantly, after controlling for the other predictors. The odds ratios (exp B value) of the variable *lateral food positioning* have not been interpreted, as the result was not significant.

In contrast to our results, the study of Romero and Biswas (2016) found a significant relationship between *lateral food presentation* and *food choice*. In line with our results, the

study of Romero and Biswas (2016) documented also that when the healthy food item is positioned left to the unhealthy food item, people tend to choose the healthy food item.

#### 4.5.4 Construal Level

The Wald test shows that the *construal level* does significantly contribute to the prediction of food choice ( $p=.008$ ), when controlled by the other predictor variables (see [Table 13.10](#) in Appendix 4). The positive B (1.939) for high construal versus low construal, indicates that in the high-construal condition (1) more participants tend to choose the healthy food item (1), after controlling for the other predictors. The odds ratio ( $\exp B$  value) for the independent variable *construal level* was 6.952. This indicates that the odd of choosing a healthy food item (1) improve by 6.952 for each unit increase in the level of construal.

These results are in line with our expectations that participants who adopt a high-construal level thinking tend to focus more on choosing healthy food items, than people who adopt a low-construal thinking. This result confirms, as explained in chapter two, that people in a high-construal mind-set focus on long-term benefits (trade-off: health and well-being) when choosing food items. Noted should be that this effect is only significant when controlled for the interaction (*lateral food positioning x construal level*) and the *attractiveness of food items*.

#### 4.5.5 Lateral Food Positioning x Construal Level interaction

The Wald test shows that the interaction effect of *lateral food positioning x construal level* does significantly contribute to the prediction of food choice ( $p =.008$ ) (see [Table 13.10](#) in Appendix 4). As the interaction effect includes four conditions (LC-HR; LC-HL; HC-HR; HC-HL;), this significant result means that somewhere among the four different levels of the independent variables significant differences can be found. To explore where the significant difference exactly lies within the four levels (LC-HR; LC-HL; HC-HR; HC-HL) of the independent variables, another binary logistic regression has been conducted.

#### 4.5.6 Low or High Construal – Healthy Right or Healthy Left?

To understand how the four conditions (LC-HR; LC-HL; HC-HR; HC-HL) differ significantly from each other, another binary logistic regression has been conducted. The four conditions have been dummified into four groups: *low construal-healthy right* (LC-HR) was coded by group 1, *low construal-healthy left* (LC-HL) was coded by group 2, *high construal-healthy right* (HC-HR) was coded by group 3, and *high-construal-healthy left* (HC-HL) was coded by group 4. Next, the independent variables *attractiveness burger*, *attractiveness salad*, and the *three dummy variables* except dummy four was included in the binary logistic regression. The fourth dummy (HC-HL) was served as reference. Based on the results of the binary regression analysis (see [Table 14.2](#) in Appendix 4), in the following section attention is paid to whether the results are in line with our proposed propositions.

##### 4.5.6.1 Low Construal, Healthy Right

The Wald test shows that group 1 (LC-HR) does not significantly differ from group 4 (HC-HL), with a p-value of .685, when controlled by the other predictors (see [Table 14.2](#) in Appendix 4). The negative B coefficient (-.228) indicates that when people are in a low-construal level and healthy food items are positioned right (1), people tend to choose less healthy food items (1) – but not significantly, compared to when people are in a high construal level and the healthy food item is positioned left.

In line with our expectations, people that adopt *low construal level* and see the healthy food item *right* to the unhealthy food item, tend to focus more on unhealthy food items. Likewise, people engaged in *high construal level* and see the healthy food item *left* to the unhealthy food item, tend to focus more on unhealthy food items. Therefore, as expected, the difference between the conditions were significant. As such, this result is in line with our expectation.

##### 4.5.6.2 Low Construal, Healthy Left

The Wald test shows that group 2 (LC-HL) does not significantly differ from group 4 (HC-HL) with a p-value of .373, when controlled by the other predictors (see [Table 14.2](#) in Appendix 4). The positive B coefficient (.466) indicates that when people are in a low-

construal level and healthy food items are positioned left (1), people tend to choose more healthy food items (1) – but not significantly, compared to when people are in a high-construal level and the healthy food item is positioned left.

**Not supports proposition 1.** The results of this outcome are not in line with our expectations. As described in chapter two, it has been expected that when people are in low construal level and healthy food items are positioned left, people tend to choose more healthy food items. In contrast, when people are in high construal level and healthy food items are positioned left, people tend to choose less healthy food items. Based on these two propositions, it was expected that the results differ significantly from each other. Nevertheless, results show that there is no significant difference between both groups.

In addition, when group 1 (LC-HR) serves as reference in the binary logistic regression (see Table 14.3 in Appendix 4), the Wald test shows that condition LC-HL does not significantly differ from condition LC-HR, with a p-value of .201. The positive B coefficient (.693) indicates that when people are in a low construal mind-set and healthy is positioned left (1), people tend to choose more healthy food items (1) - but not significantly, when controlled for other predictor variables. Based on our theoretical background it was expected that under low level of construal, presenting the healthy food item *left* to the unhealthy food item, enhances the choice of a *healthy* option. However, results do not indicate a significant difference under the low level of construal and thus proposition 1 has not been significantly supported by our study.

#### 4.5.6.3 High Construal, Healthy Right

Looking at the outcome of the Wald test, results indicate that group 3 (HC-HR) significantly differs from group 4 (HC-HL) with a p-value of .014, when controlled by the other variables (see Table 14.2 in Appendix 4). The positive B coefficient (1.711) indicates that when people are in a high-construal level and the healthy food item is positioned right (1), people tend to choose more healthy food items (1) compared to when people are in a high-construal level and the healthy food item is positioned left.

**Supports proposition 2.** The results are in line with our expectations and support proposition two, as explained in chapter two. As expected, under high level of construal, presenting the healthy food item *right* to the unhealthy food item, enhances the choice of a

healthy food option. Noted here should be that the significant difference only holds when controlled for the other predictor variables.

#### 4.5.6.4 High Construal, Healthy Left

The Wald test shows that group 4 (HC-HL) not significantly differs from group 1 (LC, HR), with a p-value of .685, when controlled by other variables (see [Table 14.3](#) in Appendix 4). The positive B coefficient (.228) indicates that when people are in a *high-construal* level and the healthy food item is positioned *left* (1), people tend to choose more healthy food items (1) – but not significantly, compared to when people are in a *low-construal* level and the healthy food item is positioned *right*.

This outcome is also in line with our theoretical background. As expected, people that adopt a *high-construal level* would choose more healthy food items compared to low-construal level. Nevertheless, when people adopt high-construal level and the healthy food item is positioned *left* to the unhealthy food, the choice of healthy food items should not significantly differ with people that adopt a *low-construal level* and see the healthy food item positioned *right* to the unhealthy food item.

In summary, results show that the significant difference lies in the high construal condition. This means that when people are in a high construal mind-set and healthy food is positioned right (left), people tend to choose more (less) healthy food items. Moreover, results indicate that the condition LC-HL causes the non-significant results.

#### 4.5.7 Low- and High-level Construal

To check once again whether the results are consistent and do (not) support the propositions, it has been decided to conduct two more different binary regression analyses: one includes participants that got assigned to the low-level construal condition and one includes participants that got assigned to the high-level construal condition. In each binary regression analysis, the independent variables *attractiveness of burger*, *attractiveness of salad*, and the *lateral food positioning* has been added in the analysis.



#### 4.5.7.1 Proposition 1 is not supported

In line with the outcome described in [paragraph 4.5.6.2](#), the Wald test of the low level of construal indicates that the independent variable of *lateral food positioning* does not significantly contribute to food choice (.155). The positive B coefficient (.824) indicates that when the healthy food item is presented left, people tend to choose more healthy food items in a low-level construal – but not significantly, after controlling for the other variables (see [Table 15.3](#) in Appendix 4).

To conclude, results of the current study does not significantly support proposition one: Under low level of construal, presenting the healthy food item left to the unhealthy food item *does not significantly* enhances the choice of a healthy option.

#### 4.5.7.2 Proposition 2 is supported

In line with the outcome described in [paragraph 4.5.6.3](#), the Wald test of the high level of construal indicates that the independent variable of “*lateral food positioning*” does significantly contribute to food choice (.032). The negative B coefficient (-1.473) indicates that when the healthy food item is presented left, people tend to choose less healthy food items in a high-level construal – significantly, after controlling for the other variables (see [Table 16.3](#) in Appendix 4).

To summarize, results of the current study does significantly support proposition two: Under high level of construal, presenting the healthy food item right to the unhealthy food item enhances the choice of a healthy option, when controlling for the other variables.

## 5. Conclusion and Discussion

This chapter provides the main conclusion of the problem statement of this research. Based on the main outcomes, the theoretical and managerial implications will be discussed and the limitations and directions of further research will be outlined.

### 5.1 Conclusion

This study gained further insights into the main effect of lateral food presentation to food choice, studied by Romero and Biswas (2016). The overall aim of this study was to indicate whether the level of construal would influence the food choice, followed by laterally presented food items. The main research question of this study was:

*How does high versus low level of construal affect choices of laterally presented food items?*

Based on the construal level theory (CLT) and existing literature in neuroscience, it was expected that when people adopt a low- (high-) level of construal, and the healthy food item is presented left- (right-) to the unhealthy food item, the likelihood that people tend to choose the healthy option increases. This study has found empirical evidence that the high level of construal does affect the choices of laterally presented food items, controlled by the predictor variables *attractiveness of food items*. Results significantly support the hypothesis that, when people adopt a high-construal level and the healthy food item is presented right (left) to the unhealthy food item, people tend to choose the healthy (unhealthy) food item. Noted should here that this effect takes place, only when controlled by the predictor variable *attractiveness of food items*. In practice, this means that people, within the Netherlands, base their food choice of healthy and unhealthy food items mainly on the attractiveness of food items. On top of that, the lateral food position of healthy versus unhealthy food items is of influence, when people are engaged in a high level of construal. As such, our findings suggest that marketers within the Netherlands should mainly focus on the attractiveness of healthy food items, to stimulate healthy food consumption. Moreover, marketers within the food industry should ensure that people (start to) adopt a high-construal mind-set, because then marketers can stimulate people even more to choose the healthy food option, by positioning the healthy food item right to the unhealthy food item. In [paragraph 5.2](#), examples of the managerial implications will be discussed more in detail.

In addition, this study demonstrates that the primary effect of lateral food position on food choice, studied by Romero and Biswas (2016) is not significant among the Dutch respondents. Reflecting on this remarkable outcome, the existing study of Werle et al. (2012) could declare this difference by proving that food perception can vary among different cultures (Werle et al. 2012). Our theoretical background was based on the study of Raghunathan et al. (2006) and Romero and Biswas (2016), who both proved that consumers associate *unhealthy* food items with tastiness. Nevertheless, both studies were conducted among USA Americans. In contrast, the study of Werle et al. (2012) demonstrates that this does not count for consumers from France (Werle et al. 2012). Their study indicates that, in contrast to consumers from USA, consumers from France associate healthy food (vs. unhealthy food) with tastiness. Following our results, consumers from the Netherlands associate neither healthy as the unhealthy food item with tastiness (see [paragraph 3.2.2.4](#)). As such, this might explain the outcome that there is no significant main effect found for lateral food presentation on food choice, because our results show that Dutch people do not clearly associate tastiness with either the healthy or the unhealthy food item. To conclude, the food perception might thus vary across cultures.

Moreover, findings of this study indicate – but, not significantly, that when people adopt a low-level construal and the healthy food item is presented left (right) to the unhealthy food item, people tend to choose the healthy (unhealthy) food item, when controlled by the predictor variable *attractiveness of food items*. While the direction of the effect is in line with the proposition, the results of this study do not significantly support this proposition. A remarkable outcome, as this is in contrast to our expectations and the findings of Romero and Biswas (2016). Namely, the researchers Romero and Biswas (2016) recently proved that lateral food presentation does influence the food choice of healthy versus unhealthy food items based on taste. Taste is very concrete and thus can be associated with the low-level condition. It was therefore expected that the lateral food presentation should affect the food choice, when people adopt a low-level construal. However, findings of this study do not significantly support that people tend to choose healthy food items when the healthy item is positioned left to the unhealthy food items, when adopting a low level of construal. However, results show that attractiveness does affect food choice. In practice, this means that marketers could enhance healthy food consumption – for people that adopt a low-construal mind-set - by making healthy food items more attractive.

All in all, this study shows that attractiveness of the food item is the most important predictor when people need to make a decision between healthy and unhealthy food choice. The higher the score of attractiveness on the healthy (unhealthy) food items, the higher the chance that the healthy (unhealthy) food item would be chosen. With this outcome, this paper is in line with the study of Van der Laan et al. 2012, who documented that “*the attractiveness of the packaging design was the strongest predictor of choice*” among Dutch respondents (Van der Laan et al., 2012, p.10). In paragraph 5.2, examples of theoretical and managerial implications will be presented.

Finally, in contrast to previous studies, the results of this study claim that the control variables, including: *level of hunger, healthy life-style, mood-status, diet, gender, age, education* and *handedness*, does not significantly affect the choice of laterally presented food items. While there is much evidence found that the *level of hunger* and *mood-status* do affect the choice of presented food items, the results of this study prove that this is not the case for lateral presented food items. Also, for handedness there has been much evidence in the literature found that the handedness would affect the choice of lateral presented food items. However, this study did not find any significant results. A clarification for this difference might be that the majority of the respondents were right-handed and thus any difference between these two groups were very small to identify.

## **5.2 Implications**

### *5.2.1 Theoretical implications*

First of all, this study contributes to research in the domain of construal level theory (CLT), because so far there has been no study that has linked CLT to lateral food presentation and food choice. Hence, this study sheds new light on applying CLT to another behaviour decision process, namely: consuming food items. While past studies adopted CLT to contribute to research in social cognitions (Malär, 2011) or in other behaviour-decision processes (e.g. effect of self-construal level on self-control, Fujita & Han, 2009), this study directs researchers to expand CLT to consumers' food consumption. Besides, within this research domain, there are several manipulation techniques available to manipulate the level of construal. This study suggests that the manipulation technique developed by Fujita et al. (2006) is, between the two other well-known methods in literature (Liberman, Trope, McCrea

and Sherman, 2007; Freitas et al., 2004), the best method to manipulate the construal-level among the respondents. While previous studies documented that each of the manipulation technique ensured for significant results, this study could only find significant results for the manipulation technique developed by Fujita et al. (2006).

Second, this study contributes to research in the domain of food perceptions and cross-cultural differences, because this research indicates that neither the *healthy*- (FR) nor the *unhealthy* (USA)- *taste intuition* exists among Dutch respondents. In the current, academic literature, not much empirical evidence could be found that indicates that food perception differs across cultures. The study of Werle et al. (2012) has been the first study that suggests that food perceptions could vary across cultures. While the studies of Raghunathan (2006) and Romero and Biswas (2016), conducted in America, indicate that consumers associate *unhealthy* food items with taste, found the study of Werle et al. (2012), conducted in France, the opposite. Even though, the study of Werle et al. (2012) indicated that food perceptions might differ across cultures, the *unhealthy = taste intuition* still dominates the literature and has therefore also been our theoretical guidance for our research. Nevertheless, the results of this study – conducted in the Netherlands - document that neither the healthy as the unhealthy food items has been associated to taste (see paragraph 3.2.2.4). As such, results show that the food perception among Dutch respondents is different compared to consumers from America and / or France. Hence, this study emphasizes that the theory of Raghunathan (2006) “*unhealthy = taste intuition*” differs across cultures. Therefore, this study suggests that researchers should first consider the cultural background of participants, before applying the food perception theory studied in USA.

Lastly, this research contributes to research in the domain of consumer behaviour, because this study highlights that consumers base their decision of healthy versus unhealthy food items, mainly on attractiveness. Whereas in past studies several factors have been identified to influence food choice (e.g. *level of hunger, diet, healthy lifestyle, attractiveness,*), this study clearly suggests that when people need to choose between lateral presented food items, attractiveness is the main factor that influences consumers’ food choice. Results of this study show that food choices could be predicted with an accuracy of up to 80.6% by attractiveness. This outcome supports the prior study of Van der Laan et al. (2012) who also found empirical evidence that “*attractive packaging increases the general preferences for the alternative*” (Van der Laan et al. 2012, p. 10). Reflecting on this outcome, it surprises us that the researchers Romero and Biswas (2016), did not control for the factor attractiveness within

their study. Following our results, the primary effect studied by Romero and Biswas (2016) becomes herewith questionable, since the attractiveness of the represented food items could have biased their results. As such, this result sheds new light on the theory of lateral presented food items and indicates that attractiveness and level of construal are important factors that influence food choice. In practice, this means that in future studies, the factor attractiveness should not be neglected, which we will discuss in [paragraph 5.3](#) limitations and future research.

### *5.2.2 Managerial implications*

This study contributes to the search of identifying practical solutions for manufactures as well as for restaurants that want to stimulate consumers to choose healthy food items instead of unhealthy food items.

*Manufacturers.* If manufacturers, within the Netherlands, would like to nudge consumers to choose healthy food options, the current research indicates that it is important to make healthy food items more attractive than unhealthy food items. For manufacturers in the Dutch food industry, this means that healthy product items should be presented in attractive packaging, to stimulate consumers to choose healthy food items. While current manufacturers focus on using healthy food labels and / or logos to promote healthy food items, this study points out that presenting healthy food items in a more attractive packaging might be more effective. Following past studies, the colour, size, shape of a package determines the attractiveness of a package (Ruumpol, 2014). As our study did not gain insight into *how* attractiveness of the lateral presented food items can influence food choice and/or can promote healthy food choices, this would be interesting to find out in future research, discussed in [paragraph 5.3](#). In addition to attractiveness, manufacturers can stimulate consumers more to select healthy food items by matching the position of the food items to consumers that are engaged in a high-level mind-set. When consumers read magazines and / or vouchers of the shop, before going to the shop, people tend to select the products based on behaviour that is going to occur in *distant future*. This means that consumers are – most of the time - engaged in a high-level mind-set, when scanning through the products that are presented in the magazine or voucher. For this reason, presenting the healthy food items *right* to the unhealthy food items in magazines or vouchers is therefore likely to be a successful persuasion strategy for manufacturers located in the Netherlands.

*Restaurants:* If restaurants, within the Netherlands, would like to nudge consumers to choose healthy food items, this study suggests that the presentation of the healthy food meals should be more aesthetic than the unhealthy food meals. Instead of focusing on the healthiness of the meals by e.g. promoting number of calories on the menu, this study shows that presenting artistic food presentations of healthy meals on the menu card might be more effective to enhance healthy food choice. Besides, restaurant managers could stimulate group reservations more to choose healthy food items by positioning the healthy food items right to the unhealthy food items on the menu card. Explicitly, in most of the restaurants, guests of group reservations need to pre-order their meal in advance. When these guests receive the menu-card in advance, guests base their food choice on behaviour that is going to occur in *distant future* and thus are more engaged in a mind-set of high-level. Following our results, promoting the healthy food items right to the unhealthy food item on the menu-card, is for restaurant managers the most effective strategy to enhance healthy food choice among group reservations.

*International focused:* This study suggests that the above-mentioned managerial implications might eventually not work for manufacturers or restaurants outside the Netherlands. While the moderator effect of the construal level on lateral presented food items on food choice, has not been studied so far across countries, results of this study – compared to other studies - do indicate that food perceptions among cultures might vary (Romero and Biswas, 2016; Wehl et al., 2012). For this reason, the managerial implications might not be effective for manufacturers or restaurants outside the Netherlands. As this study, did not investigate in-depth whether food perceptions do differ across cultures, this would be interesting to study for future research, discussed in [paragraph 5.3](#).

### *5.2.3 Public policy implications*

Considering the worldwide concerns related to obesity, findings of this study are also essential for public policy makers. Current public policy makers aim to reduce obesity rates worldwide by stimulating healthy food consumption. Results of this study add knowledge to find practical solutions for solving this problem. First of all, thanks to this study, more empirical evidence has been found that food perceptions might vary across cultures. For policy makers, this means that caution should be taken when adopting one effective strategy to another country. Due to culture difference, the chance is high that one strategy can be

effective in one country but would not be in another. For this reason, the following suggested public policy implications might be effective within the Netherlands, but not in other countries, as this study has been conducted within the Netherlands.

We can suggest that Dutch policy makers should regulate the attractiveness of food packaging and of food presentations, to enhance healthy food consumption. Healthy food items should be more promoted in attractive packaging and should be better presented, in contrast to unhealthy food items. While the focus nowadays goes to promoting the healthiness of the product by e.g. healthy labels and logo's, this study indicates that attractiveness of the food items does matter for lateral presented food choice. To stimulate manufacturers and restaurants to focus on attractive packaging and food presentation of healthy food items, policy makers can regulate it by setting standards and giving subsidies. The most important standard that needs to be set by the policy makers is that manufacturers and restaurants should focus on the attractive packaging and food presentation of healthy food items. Another standard that should be encountered is related to the position of the food and the mind-set of consumers / guests. In situations where people adopt a high-level mind-set, as mentioned in previous paragraph, public policy makers should set the standard that the healthy food item should be positioned right to the unhealthy food item, to enhance healthy food items. When manufacturers and restaurants follow these standards, subsidies could be given to stimulate companies to implement those standards. In addition, public policy makers can develop communication campaigns, to make companies more conscious about the high concerns of obesity and to illustrate the new practical solutions that would help to prevent to increase this worldwide problem. As such, the shopping and / or consumption environment would change by instead of informing the healthiness of food items to consumers, highlighting the attractiveness of the healthy food items by packaging and food presentation and focus on the position when people adopt a high-level construal.

### **5.3 Limitations and future research**

This study has been conducted with caution, although there are also some limitations found within this study and interesting concepts found for future research.

First of all, within this study the researchers found it very difficult to find significant results for the construal-level manipulation. After three manipulations, the best manipulation was found to manipulate the level of construal among participants. The manipulation of the



main test did work, but only for a certain moment. The survey-based experiment could be the reason that participants were not that long manipulated, since participants could be easily distracted. For future research, this study shows that the construal-level manipulation technique of Fujita (2006) would be the best method to use for survey-based experiments. Nevertheless, as the manipulation did work for a certain moment, the manipulation is to a certain extent limited. Therefore, for future research, it would be interesting to see what the effect would be when the manipulation of the level of construal would be stronger. To optimize the manipulation of the level of construal, researchers could consider to apply an experiment design where participants need to conduct the experiment in a certain setting, instead of using survey-based experiments.

Second, the data of this study has been collected from researchers' network. The majority of the respondents were female (75%) and 47.8% of the respondents were 18-24 years old. As the proportion of male and female within the Netherlands is almost equally distributed (CBS, 2017), the sample of this study does not represent the entire population. Moreover, the majority of the respondents (63.7%) of this study consisted of an HBO degree or higher. As within the Netherlands approximately 27% consists of an HBO degree or higher (CBS, 2017), the respondents of this study might not be that representative towards the population. As such respondents might be biased and does not represent the entire population. For this reason, the results cannot yet be generalized. Indicating that this study found significant results for the effect of high-construal level, together with the attractiveness of food items, for future research it would be interesting to conduct the study among a larger population.

Another limitation of this research has been the results of the lateral food check of the main test. The results of the lateral food exercise, included in the main test, were not analysed within this study as respondents were biased while doing this exercise. Researchers concluded this on the fact that many respondents indicated that they unconsciously linked this exercise to previous assignments thus were biasing the outcome. As such, the researchers have decided to not include the lateral food check in the study as this would lead to no valid results.

Moreover, within the main experiment, participants first needed to select whether they would choose the healthy or unhealthy food item. After a while, participants were asked to indicate how they perceived the healthy food item and unhealthy food item in terms of *healthiness*, *attractiveness* and *tastiness*. Due to the order of asking, participants could have

been biased, when providing answers to whether they perceived the healthy versus unhealthy food item as healthy / unhealthy, attractive / not attractive or tasty / not tasty. As such, it would be interesting to find out whether the results would be different, asking this beforehand, among a wider population like we did in experiment 2. In experiment 2, participants were not biased, but the sample size was small which can be seen as a limitation.

In addition, this study limits its focus by only gaining insight into the effect of people that read from left to right and not from right to left. For future research, it would be interesting to investigate whether the effect of high-level construal would be the same for people that adopt a right-left reading direction.

Furthermore, this study claims that under the low-level of construal, the effect of positioning the healthy food item left to the unhealthy food item does not show significant results. This is remarkable as the study of Romero and Biswas (2016) claim that healthy food items should be displayed left to unhealthy food items, to enhance healthy food choice. Within this condition, the researchers could not find any outliers that might have declared our no significant result. As first thought, the difference might be declared by the fact that Romero and Biswas (2016) did not check for the level of construal. However, reflecting on prior studies, another reason that might declare the result is that it has to do with culture differences, explained in [paragraph 3.2.2.4](#). For future research, it would therefore be very interesting to find out how it comes that the low-level construal condition does not significantly affects the choice of laterally presented food items, while the high-level construal condition does. It would be interesting to conduct the same study in USA/America, to find out whether the difference lies in the construal level or on culture.

To finish, findings of this study claim that the attractiveness of the food items affect the choice of lateral presented food items. For future research, it would be interesting to study the main effect of attractiveness of food items and lateral presented food items more in-depth. What makes people find healthy food items more attractive than unhealthy food items or the other way around?

## 6. Reference List

- Baumeister, R. (2002). Yielding to Temptation: Self-Control Failure, Impulsive Purchasing, and Consumer Behaviour. *Journal of Consumer Research*, 28, 670-676.
- Bueti, D. & Walsh, V. (2009). The parietal cortex and the representation of time, space, number and other magnitudes. *Philosophical Transactions of The Royal Society B Biological Sciences*, 364 (1525).
- Casasanto, D (2009). Embodiment of Abstract Concepts: Good and Bad in Right and Left-Handers. *Journal of Experimental Psychology*, 138 (3): 351-367.
- CBS (2017). *Bevolkingspiramide*. Retrieved at 8<sup>th</sup> of June 2017 on: <https://www.cbs.nl/nl-nl/visualisaties/bevolkingspiramide>
- CBS (2017). *Bevolking; hoogst behaald onderwijsniveau; geslacht, leeftijd en herkomst*. Retrieved at 8<sup>th</sup> of June 2017 on: <http://statline.cbs.nl/StatWeb/publication/?VW=T&DM=SLNL&PA=82275NED&LA=NL>
- Chae, B. & Hoegg, J. (2013). The Future Looks “Right”: Effects of the Horizontal Location of Advertising Images on Product Attitude. *Journal of Consumer Research*, 40 (2), 223-238.
- Chandon, P., & Wansink, B. (2007). The Biasing Health Halos of Fast-Food Restaurant Health Claims: Lower Calorie Estimates and Higher Side-Dish Consumption Intentions. *Journal of consumer Research*, 301-313.
- Day, S. B., & Bartels, D.M. (2004). Temporal distance, event representation, and similarity. *Proceedings of the Twenty-Sixth Annual Meeting of the Cognitive Science Society*, 274-278.
- Deng, X., & Kahn, B.E. (2009). Is Your Product on the Right Side? The “Location Effect” on Perceived Product Heaviness and Package Evaluation. *Journal of Marketing Research*, XLV1, 725-738.
- Dehaene, S. Bossini, S. & Giraux, P. (1993). The Mental Representation of Parity and Numbers Magnitude. *Journal of Experimental Psychology*, 122 (3), 371-396.
- Europe PMC Funders Group (2014). Global, regional and national prevalence of overweight and obesity in children and adults 1980-2013: Asystematic analysis. *Lancet*, 384 (9945), 766-781.

Field, A. (2013). *Discovering Statistics Using IBM SPSS Statistics* (Fourth edition). London: Sage.

Freitas, A.L., Gollwitzer, P., Trope, Y. (2004). The influence of abstract and concrete mind-sets on anticipating and guiding others' self-regulatory efforts. *Journal of Experimental Social Psychology*, 40: 739-752.

Fujita, K., & Han, H.A. (2009). Moving Beyond Deliberative Control of Impulses. The Effect of Construal Levels on Evaluative Associations in Self-Control Conflicts. *Psychology Science*, 20(7), 799-804.

Fujita, K., Henderson, D.M., Eng, J., Trope, Y., & Liberman, N. (2006). Spatial distance and mental construal of social events. *Psychology Bulletin*, 132, 525-538.

Hair, J.F., Black, W.C., Anderson, R.E., Babin, B.J. (2010). *Multivariate data analysis* (Seventh edition). Pearson New International Edition.

Halligan, P.W., & Marshall, J.C. (1991). Left neglect for near but not far space in man. *NCBI*, 350 (6318), 498-500.

Haws, K.L., Davis, S.W., & Dholakia, M.U. (2016). Control over What? Individual Differences in General and Eating and Spending Self-Control. *Journal of Public Policy and Marketing*, 35 (1), 37-57.

Kadosh R.C., Brodsky, W., Levin M., & Henik. A. (2008). Mental representation: What can pitch tell us about the distance effect? *Elsevier*, (44), 470-477.

Kivetz, R., & Simonson, I. (2002). Self-control for the Righteous: Toward a Theory of Pre-commitment to Indulgence. *Journal of Consumer research*, 29(2), 199-217.

Leech, L.N., Barrett, K.C., Morgan, G.A. (2015). *IBM SPSS for Intermediate Statistics* (Fifth edition). Published by Routledge.

Liberman, N., & Trope, Y. (1998). The role of feasibility and desirability considerations in near and distant future decisions: A test of temporal construal theory. *Journal of Personality and Social Psychology*, 75, 5-18.

Liberman, N., Trope, Y., & Stephan, E. (2007). Psychological distance. In: Kruglanski AW, Higgins ET, editors. *Social psychology: Handbook of basic principles*. New York: Guilford Press.

Liberman, N., & Trope, Y. (2010). Construal-Level Theory of Psychological Distance. *Psychological Review*, 117:440-463.

Liberman, N., Trope, Y., McCrea, S.M., & Sherman, S.J. (2007). The effect of level of construal on the temporal distance of activity enactment. *Journal of Experimental Social Psychology*, 43,143-149.

Malär, L., Krohmer, H., Hoyer, W.D., & Nyffenegger, B. (2011). Emotional Brand Attachment and Brand Personality: The Relative Importance of the Actual and the Ideal Self. *American Marketing Association*, 75, 35-52.

Maass, A., & Russo, A. (2003). Directional bias in the mental representation of spatial events: Nature or Culture? *Psychological Science*, 14 (4), 296-301.

Mollen, S., Rimal, R.N., R.A.C. & Kok, G. (2013). Healthy and unhealthy social norms and food selection: findings from a field-experiment. *Appetite*, 65, 83-89.

Oakes, M.E. (2006). Filling yet Fattening: Stereotypical Beliefs About the Weight Gain Potential and Satiation of Foods. *Appetite*, 46, 224-233.

Radboud University Nijmegen (2017). *Dr. N.V.T. Belei*. Retrieved at 17<sup>th</sup> of June 2017, from: <http://www.ru.nl/personen/belei-n/>.

Raghunathan, R. (2006). The Unhealthy = Tasty Intuition and Its Effects on Taste Inferences, Enjoyment, and Choice of Food Products. *Journal of Marketing*, 70 (4), 170-184.

Romero, M., & Biswas, D. (2016). Healthy-Left, Unhealthy Right: Can Displaying Healthy Items to the Left (versus Right) of Unhealthy Items Nudge Healthier? *Journal of Consumer Research*.

Salmon, J. S., Fennis, B.M., de Ridder, D.T.D., Adriaanse, M.A., & de Vet, E. (2014). Health on Impulse: When Low Self-Control Promotes Healthy Food Choices. *Healthy Psychology* 2014, 33 (2), 103-109.

Shiv, B. and Fedorikhin, A. (1999). Heart and Mind in Conflict: The Interplay of Affect and Cognition in Consumer Decision Making. *Journal of Consumer Research*, 26, 278-292.

Slepian, M.L., Ambady, N., Masicampo, E.J. (2015). Cognition From on High and Down Low: Verticality and Construal Level. *Journal of Personality and Social Psychology*, 108 (1), 1-17.

Stephan, E., Liberman, N. and Trope, Y. (2011). The effects of time perspective and level of construal on social distance. *Journal of Experimental Social Psychology*, 47, 387-402.

Vallacher, R.R. (n.d.). *Robin R. Vallacher*. Retrieved on 18<sup>th</sup> of June 2017 on:  
[http://psy2.fau.edu/~vallacher/insights\\_BIF.html](http://psy2.fau.edu/~vallacher/insights_BIF.html)

Vallacher, R.R. & Wegner, D.M. (1987). What do people think they are doing? Action identification and human behaviour. *Psychological Review*, 94(1), 3-15.

Vallacher, R.R. & Wegner, D.M. (1989). Levels of Personal Agency: Individual Variation in Action Identification. *Journal of Personality and Social Psychology*, 57(4), 660-671.

Van Strien, J.W. (2002). Vragenlijst voor Handvoorkeur. *FSW, Instituut voor Psychologie. Erasmus Universiteit Rotterdam*. Retrieved at the 20th of February 2017, from  
[https://www.researchgate.net/publication/254804606\\_Vragenlijst\\_voor\\_Handvoorkeur](https://www.researchgate.net/publication/254804606_Vragenlijst_voor_Handvoorkeur)

Van der Laan, L.N., De Ridder D.T.D., Viergever, M.A., and Smeets, P.A.M. (2012). Appearance Matters: Neural Correlates of Food Choice and Packaging Aesthetics. *PLoS ONE*; 7(7): e41738.

Vennix, J. A. M. (2011). *Theorie en praktijk van empirisch onderzoek: fifth edition*. Harlow: Pearson Education.

Wakslak, C., Liberman, N., & Trope, Y. (2007). Construal Levels and Psychological Distance: Effects on Representation, Prediction, Evaluation, and Behaviour. *Journal of Personality Assessment*, 45 (5), 549-55).

Walsh, V. (2003). A theory of magnitude: common cortical metrics of time, space and quantity. *Trends in Cognitive Sciences* 7 (11), 483-8.


Werle, C.O.C., Trendel, O., Ardito, G. (2012). Unhealthy food is not tastier for everybody: The “healthy=tasty” French intuition. *Food Quality and Preference* 28(2013), 116-121).

Zach, P. & Brugger, P. (2008). Subjective time in near and far representational space. *Cognitive and Behavioural Neurology* 21(1), 8-13.

## 7. Appendix

### Appendix 1. Experiment 1

#### 1.1 Healthy versus unhealthy food items

Healthy food item	Unhealthy food item
<p data-bbox="177 636 359 674"><b>Item 1: Salad</b></p>  <p data-bbox="549 1003 746 1032">Mollen et. al 2013</p>	<p data-bbox="801 636 997 674"><b>Item 2: Burger</b></p>  <p data-bbox="1077 1003 1275 1032">Mollen et. al 2013</p>
<p data-bbox="177 1149 464 1187"><b>Item 3: Broccoli salad</b></p>  <p data-bbox="445 1529 770 1559">Romero and Biswas (2016)</p>	<p data-bbox="801 1149 1208 1187"><b>Item 4: Grilled cheese sandwich</b></p>  <p data-bbox="1061 1552 1386 1581">Romero and Biswas (2016)</p>
<p data-bbox="177 1966 678 2004"><b>Item 5: Strawberry-Banana-Acai Bowl</b></p> 	<p data-bbox="801 1966 1310 2004"><b>Item 6: Strawberry-Banana Cheesecake</b></p> 

---

**Healthy food items****Unhealthy food items****Item 7: Raisins**

Romero and Biswas (2016)

**Item 8: Chocolate chip cookies**

Romero and Biswas (2016)

---



## 1.2 Questionnaire

Dear respondent,

Thank you very much for taking your time to fill in this questionnaire.

For my Master thesis, I am doing research into the field of Marketing. For this research, your input is needed. I am interested in your opinion, so please note that there are no wrong answers. The questionnaire will take approximately 10 minutes of your time. It would be very appreciated if you would read the questions carefully and would answer every question if possible. The answers will be treated in a confidential and anonymous way. You can indicate below in which language (in English or in Dutch) you would like to fill in the questionnaire.

Thank you very much for your time & cooperation!

Warm regards,

Renée Nederlof

Student Master Marketing

Radboud University Nijmegen

-Page break-

Please indicate how healthy and attractive you find the following food item:



The healthy food items represented in Appendix A will be used in the pre-test. The pictures will be random ordered.

Unhealthy	0	0	0	0	0	0	0	Healthy
Unattractive	0	0	0	0	0	0	0	Attractive

-Page break-

Please indicate how healthy and attractive you find the following food item:



The unhealthy food items represented in Appendix A will be used in the pre-test. The pictures will be random ordered.

Unhealthy	0	0	0	0	0	0	0	Healthy
Attractive	0	0	0	0	0	0	0	Unattractive

-Page break-

For my research, I am studying how well people can express their thoughts when given specific scenario-based instructions. The following four questions of this questionnaire are related to this subject. I would like to ask you to read the situation very carefully and to take your time to express your thoughts. To give you an idea of what is expected from you, please read the following example:

**Example:** Bas is considering doing some groceries.

*Low construal condition:* Please describe how you think Ron would do that?

Ron will get his car, drive to the supermarket, get a basket and fill his basket full with products he needs for the upcoming week. When he has collected all his products, he will go to the cashier, pay its products and go back home.

*High construal condition:* Please describe why you think Ron would do that?

Ron needs to do some groceries because he is out of some products. To make sure he has enough food and drinks at home, he needs to do some groceries.

-Page break-

**Situation 1:** Ron is considering opening a bank account.

<i>Low construal condition:</i>	Please describe how you think Ron would do that?
<i>High construal condition:</i>	Please describe why you think Ron would do that?

--

-Page break-

**Situation 2:** Heidi is conserving enrolling in a fitness program.

<i>Low construal condition:</i>	Please describe how you think Heidi would do that?
<i>High construal condition:</i>	Please describe why you think Heidi would do that?

--

-Page break-

**Situation 3:** Chris is considering going to a driving school.

<i>Low construal condition:</i>	Please describe how you think Chris would do that?
<i>High construal condition:</i>	Please describe why you think Chris would do that?

--

-Page break-

**Situation 4:** Angela is considering subscribing to a newspaper.

<i>Low construal condition:</i>	Please describe how you think Angela would do that?
<i>High construal condition:</i>	Please describe why you think Angela would do that?

--

-Page break-

In the following section, I am interested in your personal preferences for how a number of different behaviours should be described. Each person can namely describe any behaviour in a different way. For example, one person might describe taking a test as “*showing one’s knowledge*” or “*answering questions*”. I would like to ask you to select the best description that you believe is the most appropriate description of the described behaviour. Please note that there are no wrong answers and that have to select one option.

Tick off the description you believe explains the behaviour best.

**1. Picking an apple**

- ☐ Getting something to eat
- ☐ Pulling an apple of a branch

**2. Painting in a room**

- ☐ Applying brush strokes
- ☐ Making the room look fresh

**3. Locking a door**

- ☐ Putting a key in the lock
- ☐ Securing the house

**4. Voting**

- ☐ Influencing the election
- ☐ Marking a ballot

**5. Filling out a personality test**

- ☐ Answering questions
- ☐ Revealing what you are like

**6. Greeting someone**

- ☐ Saying hello
- ☐ Showing friendliness

-Page break-

In the following section, some general questions will be asked.

With which hand do you write? (Control variable)

- ☐ Left
- ☐ Right
- ☐ Both

Are you currently on a diet? (Control variable)

- ☐ Yes
- ☐ No

How hungry do you feel at the moment: (Control variable)

Not at all    0       0       0       0       0       0       0    Very much

To what extent do you have the goal to eat healthily? (Control variable)

Not at all    0       0       0       0       0       0       0    Very much

How do you feel at this moment? (Control variable)

Very negative 0       0       0       0       0       0       0    Very positive

- Page break -

To round off the questionnaire, please fill in the next final questions:

What is your gender?

- ☐ Male
- ☐ Female

What is your age?

What is your nationality?

- ☐ Dutch
- ☐ Different, namely

What is your highest degree?

- ☐ TL
- ☐ HAVO
- ☐ MBO
- ☐ HBO bachelor
- ☐ WO bachelor
- ☐ HBO master
- ☐ WO master

Current occupation

- ☐ Student (or just graduated)
- ☐ Looking for a job
- ☐ Employed
- ☐ Unemployed
- ☐ Other

- Page break -

Thank you very much for your participation!

Underneath, there is some space left for any feedback (where some questions unclear to you; did it take too long?) or to clarify your answers given to the questions.

Warm regards,

Renée Nederlof

### 1.3 Results

**Table 1. Healthiness Food Item(s)**

	N	Minimum	Maximum	Mean	Std. Deviation
Salad	35	4	7	6,20	,901
Burger with fries	35	1	5	2,20	1,052
Broccoli salad	35	5	7	6,57	,739
Grilled Cheese Sandwich	35	1	5	2,40	1,035
Acai Bowl	35	4	7	5,57	,979
Dessert	35	1	5	2,03	1,071
Raisins	35	1	7	4,63	1,395
Cookies	35	1	5	2,31	1,078

**Table 2. Paired Samples Test - Healthiness**

	Paired Difference					t	df	Sign. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Interval of the Difference				
				Lower	Upper			
Pair 1 Salad-Burger with fries	4,000	1,237	,209	3,575	4,425	19,135	34	,000

**Table 3. Attractiveness Food Item(s)**

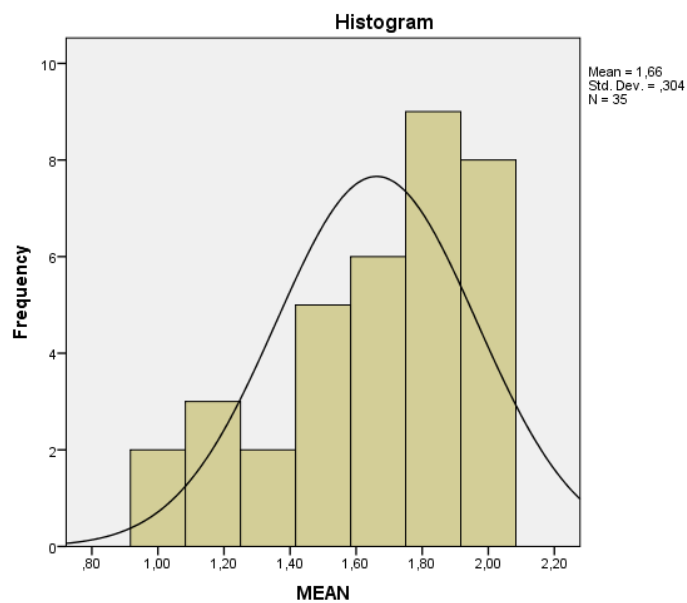
	N	Minimum	Maximum	Mean	Std. Deviation
Salad	35	1	7	4,37	1,516
Burger with fries	35	1	7	4,54	1,837
Broccoli salad	35	1	7	4,26	1,738
Grilled Cheese	35	1	7	4,29	1,582
Acai Bowl	35	3	7	6,09	1,095
Dessert	35	1	7	4,23	1,664
Raisins	35	1	6	3,14	1,648
Cookies	35	2	7	4,91	1,560

**Table 4. Paired Samples Test – Attractiveness**

	Paired Difference					t	df	Sign. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Interval of the Difference				
				Lower	Upper			
Pair 1 Salad-Burger with fries	-,171	2,345	,396	-,977	,634	-,432	34	,668



**Figure 1. Histogram of normal distribution**



**Table 5. Levene's Test of Homogeneity**

Levene Statistic	df1	df2	Sig.
2,358	1	33	,134

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	,040	1	,040	,428	,518
Within Groups	3,098	33	,094		
Total	3,138	34			

**Table 6.  
One-Way  
ANOVA  
Test**

**Table 7. Descriptives**

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
LC	16	1,6250	,33610	,08402	1,4459	1,8041	1,00	2,00
HC	19	1,6930	,27924	,06406	1,5584	1,8276	1,00	2,00
Total	35	1,6619	,30380	,05135	1,5575	1,7663	1,00	2,00

## Appendix 2. Experiment 2

### 2.1 Questionnaire in Dutch

Beste respondent, welkom bij het onderzoek.

Wij zullen ons eerst even voorstellen. Wij zijn Renée en Anke, studenten aan de Radboud Universiteit. Op dit moment zijn wij bezig met onze masterthesis en hiervoor zullen wij een onderzoek gaan uitvoeren. Voordat wij beginnen aan het daadwerkelijke onderzoek, willen wij graag enkele dingen testen. Om deze reden hebben wij het onderzoek opgezet dat je zo gaat invullen.

Het onderzoek bestaat uit drie verschillende hoofddelen. Het eerste onderdeel bestaat uit het beoordelen van twee gerechten. Vervolgens komt een vraag over het onderhouden en verbeteren van persoonlijke relaties. *Neem alsjeblieft de tijd voor dit gedeelte, denk goed na over je antwoorden en geef zo uitgebreid mogelijk antwoord.* Het derde gedeelte is een vragenlijst over gedragingen. Voor elk gedeelte krijg je nog een korte uitleg. Het geheel duurt ongeveer vijftien minuten. De antwoorden zullen anoniem verwerkt worden.

Alvast bedankt voor je deelname!

- Page break -

Je gaat nu beginnen met het eerste onderdeel. Voor dit onderdeel zijn wij geïnteresseerd in hoe mensen verschillende gerechten beoordelen op basis van gezondheid, aantrekkelijkheid en smaakvolheid. Je krijgt zo twee afbeeldingen te zien. Bij elke afbeelding horen drie vragen. Deze vragen hebben betrekking op jouw mening over het gerecht.

- Page break -



Geef alsjeblieft aan hoe **gezond** je het gerecht vindt op een schaal van 1 tot 7:

Zeer ongezond

Zeer gezond

1	2	3	4	5	6	7
o	o	o	o	o	o	o

Geef alsjeblieft aan hoe **aantrekkelijk** je het gerecht vindt op een schaal van 1 tot 7:

Zeer aantrekkelijk

Niet aantrekkelijk

1	2	3	4	5	6	7
0	0	0	0	0	0	0

Geef alsjeblieft aan hoe **smaakvol** je het gerecht vindt op een schaal van 1 tot 7:

Zeer smaakvol

Niet smaakvol

1	2	3	4	5	6	7
0	0	0	0	0	0	0

- Page break -



Geef alsjeblieft aan hoe **gezond** je het gerecht vindt op een schaal van 1 tot 7:

Zeer ongezond

Zeer gezond

1	2	3	4	5	6	7
0	0	0	0	0	0	0

Geef alsjeblieft aan hoe **aantrekkelijk** je het gerecht vindt op een schaal van 1 tot 7:

Zeer aantrekkelijk

Niet aantrekkelijk

1	2	3	4	5	6	7
0	0	0	0	0	0	0

Geef alsjeblieft aan hoe **smaakvol** je het gerecht vindt op een schaal van 1 tot 7:

Zeer smaakvol

Niet smaakvol

1	2	3	4	5	6	7
0	0	0	0	0	0	0

- Page break -

Low construal manipulation:

Het volgende gedeelte betreft vragen over het onderhouden en verbeteren van persoonlijke relaties. Allereerst, krijg je een statement te zien. Vervolgens worden vier vragen gesteld. De eerste vraag gaat over een statement. Na het beantwoorden van deze vraag, wordt er een vervolgvraag gesteld over het door jouw gegeven antwoord. Dit herhaalt zich nog twee keer. Beantwoord de vragen één voor één. Neem de tijd, denk goed na over de antwoorden en antwoord zo uitgebreid mogelijk.

**Statement:** *Ik wil mijn persoonlijke relaties onderhouden en verbeteren.*

1. Hoe?

2. Hoe?

3. Hoe?

4. Hoe?

- Page break -

High construal manipulation:

Het volgende gedeelte betreft vragen over het onderhouden en verbeteren van persoonlijke relaties. **Let op, werk van onder naar boven.** Allereerst, krijg je onder aan de pagina een statement te zien. Vervolgens worden van onder naar boven vier vragen gesteld. De eerste vraag gaat over de statement. Na het beantwoorden van deze vraag, wordt er een vervolgvraag gesteld over het door jouw gegeven antwoord. Dit herhaalt zich nog twee keer. Beantwoord de vragen één voor één van onder naar boven. Neem de tijd, denk goed na over de antwoorden en antwoord zo uitgebreid mogelijk.

1. Waarom?

2. Waarom?

3. Waarom?

4. Waarom?

**Statement:** *Ik wil mijn persoonlijke relaties onderhouden en verbeteren.*

- Page break -

Dit is het laatste onderdeel.

Gedrag kan op vele manieren opgevat worden. Bijvoorbeeld het schrijven van een brief kan worden opgevat als “het indrukken van toetsen” of “het uiten van gedachten”. Wij zijn geïnteresseerd in jouw persoonlijke voorkeur voor het beschrijven van verschillende gedragingen. Er volgt een lijst met verschillende gedragingen. Bij elke gedraging staan twee keuzes met verschillende wijzen van interpretatie. Kies de wijze van interpretatie die jouw persoonlijke voorkeur heeft.

Een voorbeeld:

*Het bijwonen van een Betreft:*

- a. Op een stoel zitten;*
- b. Kijken naar een PowerPoint.*

Jouw taak is te kiezen welke opvatting het gedrag het beste omschrijft. Er zijn geen onjuiste antwoorden. Mensen verschillen simpelweg in deze opvattingen en ik wil graag jouw voorkeur weten. Dus kies de opvatting waarvan jij denkt dat die het gedrag het beste omschrijft. Denk niet te lang na over je antwoord, ga af op je gevoel.

- Page break -

- 1. Het maken van een lijst
  - a. Georganiseerd zijn
  - b. Dingen opschrijven

2. Lezen
  - a. Het volgen van geprinte regels
  - b. Kennis vergaren
3. Bij het leger gaan
  - a. Helpen aan de nationale defensie
  - b. Inschrijven
4. Kleding wassen
  - a. Het verwijderen van geurtjes
  - b. Kleding in de wasmachine stoppen
5. Een appel plukken
  - a. Iets te eten pakken
  - b. Een appel uit de boom pakken
6. Een boom omhakken
  - a. Zwaaien met een bijl
  - b. Het verkrijgen van brandhout
7. Een kamer opmeten voor tapijt
  - a. Verbouwing voorbereiden
  - b. Een meetlint gebruiken
8. Het huis schoonmaken
  - a. Het tonen van netheid
  - b. De vloer stofzuigen
9. Een kamer verven
  - a. Met een kwast over de muur gaan
  - b. De kamer opfrissen
10. De huur betalen
  - a. Het behouden van een woonplaats
  - b. Geld overmaken
11. De planten verzorgen
  - a. Planten water geven
  - b. De kamer er leuk uit laten zien
12. De deur vergrendelen
  - a. De sleutel in het slot doen

- b. Het huis afsluiten
- 13. Stemmen
  - a. De verkiezing beïnvloeden
  - b. Een rondje markeren
- 14. In een boom klimmen
  - a. Een goed uitzicht krijgen
  - b. Vasthouden aan takken
- 15. Een persoonlijkheidstest invullen
  - a. Vragen beantwoorden
  - b. Ontdekken wat je leuk vindt
- 16. Tanden poetsen
  - a. Tandbederf tegengaan
  - b. Een borstel in je mond verplaatsen
- 17. Een tast maken
  - a. Vragen beantwoorden
  - b. Het tonen van kennis
- 18. Iemand begroeten
  - a. Hallo zeggen
  - b. Vriendelijk zijn
- 19. Verleiding weerstaan
  - a. Nee zeggen
  - b. Moed tonen
- 20. Eten
  - a. Voeding binnenkrijgen
  - b. Kauwen en slikken
- 21. Een groentetuin kweken
  - a. Zaadjjes planten
  - b. Verse groentes krijgen
- 22. Met de auto reizen
  - a. Een kaart volgen
  - b. Het zien van de streek



23. Een gaatje laten vullen
- a. Het beschermen van de tanden
  - b. Naar de tandarts gaan
24. Tegen een kind praten
- a. Het kind iets leren
  - b. Simpele woorden gebruiken
25. Op een deurbel drukken
- a. Een vinger bewegen
  - b. Kijken of iemand thuis is

-Page break -

Tot slot, nog enkele algemene vragen.

Wat is je leeftijd?

- ☐ Onder de 18
- ☐ 18 – 24
- ☐ 25 – 34
- ☐ 35 – 44
- ☐ 45 – 54
- ☐ 55 – 64
- ☐ 65 – 74
- ☐ 75 – 84
- ☐ 85 of ouder

Wat is je geslacht?

- ☐ Man
- ☐ Vrouw

Wat is je nationaliteit?

- ☐ Nederlands
- ☐ Anders, namelijk...

Wat is je hoogst behaalde opleiding?

- ☐ VMBO
- ☐ HAVO
- ☐ VWO
- ☐ MBO
- ☐ HBO
- ☐ WO Bachelor
- ☐ WO Master

Wat is je huidige werksituatie? Er is slechts 1 antwoord mogelijk, dus kies je voornaamste bezigheid?

- ☐ Fulltime
- ☐ Parttime
- ☐ Werkzoekende
- ☐ Werkloos, niet werkzoekende
- ☐ Gepensioneerd
- ☐ Student (e)
- ☐ Anders, namelijk...

Volg je op dit moment een dieet? (Bijv. gewichtsverlies, vegetarisch, glutenvrij)

- ☐ Ja
- ☐ Nee

-Page break-

Hoeveel honger heb je op dit moment?

Helemaal geen honger						Zeer veel honger
1	2	3	4	5	6	7
0	0	0	0	0	0	0

In hoeverre ben je bezig met gezond eten?

Helemaal niet						Heel erg
1	2	3	4	5	6	7
0	0	0	0	0	0	0

Hoe voel je je op dit moment?

Heel negatief						Heel positief
1	2	3	4	5	6	7
0	0	0	0	0	0	0

-Page break-

Dit waren alle vragen.

Heb je nog vragen of opmerkingen, voel je vrij ze hieronder te plaatsen.

Verstuur je antwoorden door op de “volgende” –knop te drukken.

Bedankt voor het meedoen!

Met vriendelijke groet,

Renée Nederlof en Anke Tuinstra

## 2.2 Questionnaire translated into English

Dear respondent, welcome to our research!

First, we would like to introduce us to you. We are Renée and Anke, students from the Radboud University. At this moment, we are working on our master thesis and therefore we need to do a research. Before conducting our main research, we first need to test some items. For this reason, we designed this pre-test.

In total, the research consists of three different assignments: The first assignment consists of judging two meals. The second assignment is related to improving and maintaining relationships. *We would like to ask you if you could please take your time here and to provide a complete answer as possible.* The third assignment is related to behaviours. Before each different assignment, introductory information is given. The questionnaire will approximately take about 15 minutes. Please note that your data will be treated in an anonymous and confidential way.

Thank you for your participation!

-Page break-

You will start with the first assignment. For this assignment, we are interested in how people judge meals based on healthiness, attractiveness, and tastiness. You will get to see two pictures. You will be asked to answer three questions for each picture. These questions are about your opinion about the meal. There are no right or wrong answers.

-Page break-



Please indicate how **healthy** you find the following food item on a scale of 1 to 7:

Healthy						Unhealthy
1	2	3	4	5	6	7
0	0	0	0	0	0	0

Please indicate how **attractive** you find the following food item on a scale of 1 to 7:

Attractive					Not attractive	
1	2	3	4	5	6	7
0	0	0	0	0	0	0

Please indicate how **tasty** you find the following food item on a scale of 1 to 7:

Tasty					Not tasty	
1	2	3	4	5	6	7
0	0	0	0	0	0	0

-Page break -



Please indicate how **healthy** you find the following food item on a scale of 1 to 7:

Healthy					Unhealthy	
1	2	3	4	5	6	7
0	0	0	0	0	0	0

Please indicate how **attractive** you find the following food item on a scale of 1 to 7:

Attractive					Not attractive	
1	2	3	4	5	6	7
0	0	0	0	0	0	0

Please indicate how **tasty** you find the following food item on a scale of 1 to 7:

Tasty					Not tasty	
1	2	3	4	5	6	7
0	0	0	0	0	0	0

-Page break -

Low construal manipulation:

In the next assignment we will ask you some questions about maintaining and improving personal relationships. First of all, you will get to see a statement. Next, four questions will be asked. The first question is about the statement. After you have given answer to this question, we will ask you a follow-up question of your given answer. This will be replicated two times. Answer the question one by one. Take your time, think about your answer, and answer the question as complete as possible.

**Statement:** *I would like to maintain and improve my personal relationships.*

1. How?

2. How?

3. How?

4. How?

-Page break -

High construal manipulation:

In the next assignment, we will ask you some questions about maintaining and improving personal relationships. **Please take care, work from bottom to top.** To clarify, under the page you will get to see a statement. Above the statement, four questions will be asked. The first question is about the statement. After you have given answer to this question, we will ask you a follow-up question of your given answer. This will be replicated two times. Answer the question one by one, from bottom to top. Take your time, think about your answer, and answer the question as complete as possible.

-Page break -

1. Why?

2. Why?

3. Why?

4. Why?

**Statement:** *I would like to maintain and improve my personal relationships.*

-Page break –

This is the third and last assignment.

Behaviour can be interpreted in many ways. For example, writing a letter can be interpreted as “pushing keys on the key board” or “expressing thoughts”. We are interested in your personal preference for identifying behaviour. In the assignment, you will get a list with different types of behaviours. For each behaviour, you can choose between two different kind of interpretations. Choose the option you would interpret the described behaviour.

For example:

*Attending a curcus*

- a. *Sitting in a chair*
- b. *Looking at a PowerPoint*

Your task is to choose the conception that describe the behaviour best. There are no right or wrong answers. We would like to know your preference. So, please choose the conception you believe that best describes the behaviour. Do not think too long, just follow your intuition.

-Page break –

1. Making a list

- a. Getting organized
- b. Writing things down

2. Reading
  - a. Following lines of print
  - b. Gaining knowledge
3. Joining the Army
  - a. Helping the Nation's defence
  - b. Signing up
4. Washing clothes
  - a. Removing doors from clothes
  - b. Putting clothes into the machine
5. Picking an apple
  - a. Getting something to eat
  - b. Pulling an apple off a branch
6. Chopping down a tree
  - a. Wielding an axe
  - b. Getting firewood
7. Measuring a room for carpeting
  - a. Getting ready to remodel
  - b. Using a yard stick
8. Cleaning the house
  - a. Showing one's cleanliness
  - b. Vacuuming the floor
9. Painting a room
  - a. Applying brush strokes
  - b. Making the room look fresh
10. Paying the rent
  - a. Maintaining a place to live
  - b. Writing a check
11. Caring the houseplants
  - a. Watering plants
  - b. Making the room look nice
12. Locking a door
  - a. Putting a key in the lock
  - b. Securing the house
13. Voting
  - a. Influencing the election
  - b. Marking a ballot
14. Climbing a tree
  - a. Getting a good view
  - b. Holding on to branches



15. Filling out a personality test
  - a. Answering questions
  - b. Revealing what you are like
16. Tooth brushing
  - a. Preventing tooth decay
  - b. Moving a brush around in one's mouth
17. Taking a test
  - a. Answering questions
  - b. Showing one's knowledge
18. Greeting someone
  - a. Saying hello
  - b. Showing friendliness
19. Resisting temptation
  - a. Saying no
  - b. Showing moral courage
20. Eating
  - a. Getting nutrition
  - b. Chewing and swallowing
21. Growing a garden
  - a. Planting seeds
  - b. Getting fresh vegetables
22. Travelling by car
  - a. Following a map
  - b. Seeing countryside
23. Having a cavity filled
  - a. Protecting your teeth
  - b. Going to the dentist
24. Talking to a child
  - a. Teaching a child something
  - b. Using simple words
25. Pushing a door bell
  - a. Moving a finger
  - b. Seeing if someone's home

-Page break-

Finally, some demographic questions will be asked.

What is your age?

- ☐ Under the 18
- ☐ 18 – 24
- ☐ 25 – 34
- ☐ 35 – 44
- ☐ 45 – 54
- ☐ 55 – 64
- ☐ 65 – 74
- ☐ 75 – 84
- ☐ 85 or older

What is your gender?

- ☐ Male
- ☐ Female

What is your nationality?

- ☐ Dutch
- ☐ Different, namely...

What is your highest degree?

- ☐ VMBO
- ☐ HAVO
- ☐ VWO
- ☐ MBO
- ☐ HBO
- ☐ WO Bachelor
- ☐ WO Master

What is your current occupation? There is only one answer possible, so choose your main occupation.

- ☐ Fulltime
- ☐ Part-time
- ☐ Looking for a job
- ☐ Unemployed, not looking for a job
- ☐ Retired
- ☐ Student (e)
- ☐ Different, namely...
- ☐ Other

Are you currently on a diet?

(Control variable)

- ☐ Yes
- ☐ No

- Page break -

How hungry do you feel at the moment: (Control variable)

Not at all      0      0      0      0      0      0      0      Very much

To what extent do you have the goal to eat healthily? (Control variable)

Not at all      0      0      0      0      0      0      0      Very much

How do you feel at this moment? (Control variable)

Very negative 0      0      0      0      0      0      0      Very positive

- Page break -

Thank you very much for your participation!

Underneath, there is some space left for any feedback (where some questions unclear to you;

did it take too long?) or to clarify your answers given to the questions.

Warm regards,

Renée Nederlof and Anke Tuinstra

## 2.3 Results

**Table 1. Scores of the food pictures**

	N	Minimum	Maximum	Mean	Std. Deviation
Healthiness burger	30	1	6	2,87	1,137
Attractiveness burger	30	2	7	4,77	1,382
Tastiness burger	30	2	7	4,47	1,408
Healthiness salad	30	2	7	5,53	1,008
Attractiveness salad	30	1	7	4,70	1,393
Tastiness salad	30	1	7	4,53	1,358
Valid N (listwise)	30				

**Table 2. Mean Scores of variable Healthiness**

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
	Health Burger	2,87	30	1,137	,208
	HealthSalad	5,53	30	1,008	,184

**Table 3. Paired Samples Test of variable Healthiness**

	Paired Difference					t	df	Sign. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Interval of the Difference				
				Lower	Upper			
Pair 1 HealthBurger- Health Salad	-2,667	1,688	,308	-3,297	-2,036	-8,651	29	,000

**Table 4. Mean Scores of variable Attractiveness**

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
	AttractivenessBurger	4,77	30	1,382	,252
	AttractivenessSalad	4,70	30	1,393	,254

**Table 5. Paired Samples Test of variable Attractiveness**

	Paired Difference					t	df	Sign. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Interval of the Difference				
				Lower	Upper			
Pair 1 AttractivenessBurger- AttractivenessSalad	,067	1,911	,349	-,647	,780	,191	29	,850

**Table 6. Mean Scores of variable Tastiness**

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
	TastinessBurger	4,47	30	1,408	,257
	Tastiness Salad	4,53	30	1,358	,248

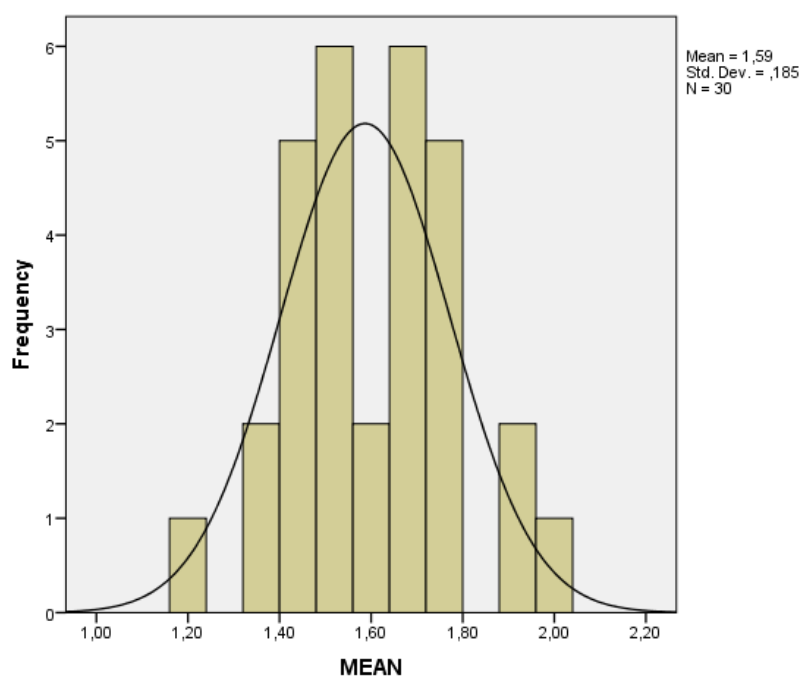
**Table 7. Paired Samples Test of variable Tastiness**

	Paired Difference					t	df	Sign. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Interval of the Difference				
				Lower	Upper			
Pair 1 TastinessBurger- Tastiness Salad	-,067	1,780	,325	-,731	,598	-,205	29	,839

**Table 8. Statistics of duration (in seconds)**

Statistics		
Duration (in seconds)		
N	Valid	34
	Missing	0
Mean		1196,0588
Median		670,5000
Std. Deviation		1444,32098
Range		7743,00
Minimum		351,00
Maximum		8094,00

**Figure 1. Histogram**



**Table 10. Levene's Test of Homogeneity of Variances**

Levene Statistic	df1	df2	Sig.
,662	1	28	,423

**Table 11. One-Way ANOVA test**

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	0,048	1	,048	1,427	0,242
Within Groups	,942	28	,034		
Total	,990	29			

**Table 12. Mean Scores of Manipulation Check**

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
1,00	15	1,6267	,16881	,04359	1,5332	1,7201	1,40	2,00
2,00	15	1,5467	,19693	,05085	1,4376	1,6557	1,20	1,92
Total	30	1,5867	,18475	,03373	1,5177	1,6557	1,20	2,00

## Appendix 3. Experiment 3

### 3.1 Questionnaire

Beste respondent, welkom bij het onderzoek.

Wij zullen ons eerst even voorstellen. Wij zijn Renée en Anke, studenten aan de Radboud Universiteit. Op dit moment zijn wij bezig met onze masterthesis en hiervoor zullen wij een onderzoek gaan uitvoeren. Voordat wij beginnen aan het daadwerkelijke onderzoek, willen wij graag enkele dingen testen. Om deze reden hebben wij het onderzoek opgezet dat je zo gaat invullen.

Het onderzoek bestaat uit twee verschillende taken. Voor elke taak, krijg je een korte uitleg te zien. De enquête wordt afgesloten met enkele algemene vragen. Het geheel duurt ongeveer 10 minuten. De antwoorden zullen anoniem verwerkt worden.

Alvast bedankt voor je deelname!

-Page break-

#### Low construal:

In deze taak krijg je in totaal 30 verschillende woorden te zien. Het is jouw taak om van elk woord een concreet voorbeeld te geven. Bijvoorbeeld: “Een voorbeeld van wijn is...?”. Het gegeven woord is hier “wijn”. Een concreet voorbeeld van wijn zou kunnen zijn “merlot”. Schrijf in het lege vak jouw antwoord, in dit voorbeeld dus “merlot”.

Dit ziet er als volgt uit:

Een voorbeeld van wijn is...

Merlot

Neem je tijd, er zijn geen goede of foute antwoorden.

-Page break-

1. Een voorbeeld van **cola** is...

2. Een voorbeeld van **shampoo** is...



3. Een voorbeeld van een **kunstenaar** is...
4. Een voorbeeld van een **broek** is...
5. Een voorbeeld van een **telefoon** is...

-Page break-

6. Een voorbeeld van een **stripboek** is...
7. Een voorbeeld van een **ring** is...
8. Een voorbeeld van een **appel** is...
9. Een voorbeeld van een **opleiding** is...
10. Een voorbeeld van een **presentatrice** is...

-Page break-

11. Een voorbeeld van een **restaurant** is...
12. Een voorbeeld van een **fiets** is...
13. Een voorbeeld van een **bier** is...
14. Een voorbeeld van een **tafel** is...
15. Een voorbeeld van een **jas** is...

-Page break-

16. Een voorbeeld van **vis** is...
17. Een voorbeeld van een **hotel** is...
18. Een voorbeeld van een **munt** is...
19. Een voorbeeld van **pasta** is...
20. Een voorbeeld van **glas** is...

-Page break-

21. Een voorbeeld van een **auto** is...
22. Een voorbeeld van een **haarkleur** is...
23. Een voorbeeld van een **supermarkt** is...
24. Een voorbeeld van een **tijdschrift** is...
25. Een voorbeeld van een **sport** is...

-Page break-

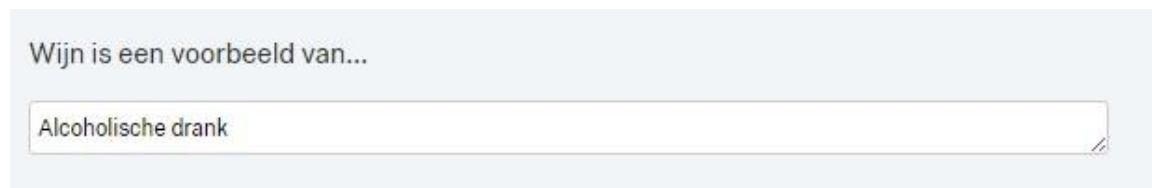
26. Een voorbeeld van een **lunch** is...
27. Een voorbeeld van een **schilderij** is...
28. Een voorbeeld van een **snoep** is...
29. Een voorbeeld van een **hond** is...
30. Een voorbeeld van een **brood** is...

-Page break-

### High construal:

In deze taak krijg je in totaal 30 verschillende woorden te zien. Het is jouw taak om een woord in te vullen waar jij denkt dat het gegeven woord een voorbeeld van is. Dus als het woord bijvoorbeeld “wijn” is, dan is de vraag “Wijn is een voorbeeld van...?”. Een voorbeeld van een antwoord is dan “alcoholische drank”. Schrijf in het lege vak jouw antwoord, in dit voorbeeld dus “alcoholische drank”.

Dit ziet er als volgt uit:



Wijn is een voorbeeld van...

Alcoholische drank

Neem je tijd, er zijn geen goede of foute antwoorden.

-Page break-

1. **Cola** is een voorbeeld van...
2. **Shampoo** is een voorbeeld van...
3. **Kunstenaar** is een voorbeeld van...
4. **Broek** is een voorbeeld van...
5. **Telefoon** is een voorbeeld van....

-Page break-

6. **Stripboek** is een voorbeeld van...
7. **Ring** is een voorbeeld van...
8. **Appel** is een voorbeeld van...
9. **Opleiding** is een voorbeeld van...
10. **Presentatrice** is een voorbeeld van...

-Page break-

11. **Restaurant** is een voorbeeld van...
12. **Fiets** is een voorbeeld van...
13. **Bier** is een voorbeeld van...
14. **Tafel** is een voorbeeld van...
15. **Jas** is een voorbeeld van...

-Page break-

16. **Vis** is een voorbeeld van...
17. **Hotel** is een voorbeeld van...
18. **Munt** is een voorbeeld van...
19. **Pasta** is een voorbeeld van...
20. **Glas** is een voorbeeld van...

-Page break-

21. **Auto** is een voorbeeld van...
22. **Haarkleur** is een voorbeeld van...
23. **Supermarkt** is een voorbeeld van...
24. **Tijdschrift** is een voorbeeld van...
25. **Sport** is een voorbeeld van...

-Page break-

26. **Lunch** is een voorbeeld van...
27. **Schilderij** is een voorbeeld van...
28. **Snoep** is een voorbeeld van...
29. **Hond** is een voorbeeld van...
30. **Brood** is een voorbeeld van...

-Page break-

Dit is het tweede gedeelte van het onderzoek.

Gedrag kan op vele manieren opgevat worden. Bijvoorbeeld het schrijven van een brief kan worden opgevat als “het indrukken van toetsen” of “het uiten van gedachtes”. Wij zijn geïnteresseerd in jouw persoonlijke voorkeur voor het beschrijven van verschillende gedragingen. Er volgt een lijst met 25 verschillende gedragingen. Bij elke gedraging staan twee keuzes met verschillende wijzen van interpretatie. Kies de wijze van interpretatie die jouw persoonlijke voorkeur heeft.

Een voorbeeld:

*Het bijwonen van een cursus:*

- a. *Op een stoel zitten;*
- b. *Kijken naar een PowerPoint.*

Jouw taak is te kiezen welke opvatting het gedrag het beste omschrijft. Er zijn geen onjuiste antwoorden. Mensen verschillen simpelweg in deze opvattingen en ik wil graag jouw voorkeur weten. Dus kies de opvatting waarvan jij denkt dat die het gedrag het beste omschrijft. Denk niet te lang na over jouw antwoord, ga af op je gevoel.

- Page break -

1. Het maken van een lijst
  - a. Georganiseerd zijn
  - b. Dingen opschrijven
2. Lezen
  - a. Het volgen van geprinte regels
  - b. Kennis vergaren
3. Bij het leger gaan
  - a. Helpen aan de nationale defensie

- b. Inschrijven
- 4. Kleding wassen
  - a. Het verwijderen van geurtjes
  - b. Kleding in de wasmachine stoppen
- 5. Een appel plukken
  - a. Iets te eten pakken
  - b. Een appel uit de boom pakken
- 6. Een boom omhakken
  - a. Zwaaien met een bijl
  - b. Het verkrijgen van brandhout
- 7. Een kamer opmeten voor tapijt
  - a. Verbouwing voorbereiden
  - b. Een meetlint gebruiken
- 8. Het huis schoonmaken
  - a. Het tonen van netheid
  - b. De vloer stofzuigen
- 9. Een kamer verven
  - a. Met een kwast over de muur gaan
  - b. De kamer opfrissen
- 10. De huur betalen
  - a. Het behouden van een woonplaats
  - b. Geld overmaken
- 11. De planten verzorgen
  - a. Planten water geven
  - b. De kamer er leuk uit laten zien
- 12. De deur vergrendelen
  - a. De sleutel in het slot doen
  - b. Het huis afsluiten
- 13. Stemmen
  - a. De verkiezing beïnvloeden
  - b. Een rondje markeren
- 14. In een boom klimmen
  - a. Een goed uitzicht krijgen
  - b. Vasthouden aan taken

15. Een persoonlijkheidstest invullen
  - a. Vragen beantwoorden
  - b. Ontdekken wat je leuk vindt
16. Tandenvoetsen
  - a. Tandbederf tegengaan
  - b. Een borstel in je mond verplaatsen
17. Een tast maken
  - a. Vragen beantwoorden
  - b. Het tonen van kennis
18. Iemand begroeten
  - a. Hallo zeggen
  - b. Vriendelijk zijn
19. Verleiding weerstaan
  - a. Nee zeggen
  - b. Moed tonen
20. Eten
  - a. Voeding binnenkrijgen
  - b. Kauwen en slikken
21. Een groentetuin kweken
  - a. Zaadjjes planten
  - b. Verse groentes krijgen
22. Met de auto reizen
  - a. Een kaart volgen
  - b. Het zien van de streek
23. Een gaatje laten vullen
  - a. Het beschermen van de tanden
  - b. Naar de tandarts gaan
24. Tegen een kind praten
  - a. Het kind iets leren
  - b. Simpele woorden gebruiken
25. Op een deurbel drukken
  - a. Een vinger bewegen
  - b. Kijken of iemand thuis is

-Page break -

Tot slot, nog enkele algemene vragen.

Wat is je leeftijd?

- ☐ Onder de 18
- ☐ 18 – 24
- ☐ 25 – 34
- ☐ 35 – 44
- ☐ 45 – 54
- ☐ 55 – 64
- ☐ 65 – 74
- ☐ 75 – 84
- ☐ 85 of ouder

Wat is je geslacht?

- ☐ Man
- ☐ Vrouw

Wat is je nationaliteit?

- ☐ Nederlands
- ☐ Anders, namelijk...

Wat is je hoogst behaalde opleiding?

- ☐ VMBO
- ☐ HAVO
- ☐ VWO
- ☐ MBO
- ☐ HBO
- ☐ WO Bachelor
- ☐ WO Master

Wat is je huidige werksituatie? Er is slechts 1 antwoord mogelijk, dus kies je voornaamste bezigheid?

- ☐ Fulltime
- ☐ Parttime
- ☐ Werkzoekende
- ☐ Werkloos, niet werkzoekende
- ☐ Gepensioneerd
- ☐ Student (e)
- ☐ Anders, namelijk...

Volg je op dit moment een dieet? (*Bijv. gewichtsverlies, vegetarisch, glutenvrij*)

- ☐ Ja
- ☐ Nee

-Page Break-

Hoeveel honger heb je op dit moment?

Helemaal

Zeer veel

geen honger

honger

1	2	3	4	5	6	7
0	0	0	0	0	0	0

In hoeverre ben je bezig met gezond eten?

Helemaal niet

Heel erg

1	2	3	4	5	6	7
0	0	0	0	0	0	0

Hoe voel je je op dit moment?

Heel negatief

Heel positief

1	2	3	4	5	6	7
0	0	0	0	0	0	0

-Page Break-

Dit waren alle vragen.

Heb je nog vragen of opmerkingen, voel je vrij ze hieronder te plaatsen.

**Verstuur je antwoorden door op de “volgende” –knop te drukken.**

Bedankt voor het meedoen!

Met vriendelijke groet,

Renée Nederlof en Anke Tuinstra

### 3.2 Questionnaire translated into English

Dear respondent, welcome to our research!

First, we would like to introduce us to you. We are Renée and Anke, students from the Radboud University. At this moment, we are working on our master thesis and therefore we need to do a research. Before conducting our main research, we first need to test some items. For this reason, we designed this pre-test.

The research consists of two different assignments. For each assignment, you will get introductory information. The questionnaire will approximately take about 10 minutes. Please note that your data will be treated in an anonymous and confidential way.

Thank you for your participation!

-Page break-

#### Low construal:

In this assignment, you will get to see in total 30 different words. We would like to ask you to provide for each word a concrete example. For example: “An example of wine is...?” The given word is here “wine”. A concrete example of wine could be “merlot”. Write in each empty box your answer, in this example thus “merlot”.

This looks as follows:

#### **An example of wine is?**

Merlot

-Page break-

Take your time, there are no right or wrong answers.

1. An example of **coke** is...

2. An example of **shampoo** is...



3. An example of **artist** is...

4. An example of **trouser** is...

5. An example of **phone** is...

-Page break-

6. An example of **comic books** is...

7. An example of **ring** is...

8. An example of **apple** is...

9. An example of **education** is...

10. An example of **tv hostess** is...

-Page break-

11. An example of **restaurant** is...

12. An example of **bike** is...

13. An example of **beer** is...

14. An example of **table** is...

15. An example of **jacket** is...

-Page break-

16. An example of **fish** is...

17. An example of **hotel** is...

18. An example of **coin** is...

19. An example of **pasta** is...

20. An example of **glass** is...

-Page break-

21. An example of **car** is...

22. An example of **hair colour** is...

23. An example of **supermarket** is...

24. An example of **magazine** is...

25. An example of **sport** is...

-Page break-

26. An example of **lunch** is...

27. An example of **painting** is...

28. An example of **candy** is...

29. An example of **dog** is...

30. An example of **bread** is...

-Page break-

### High construal:

In this assignment, you will get to see in total 30 different words. We would like to ask you to provide an example of the given word. For instance, when the word is “wine”, then is the question “wine is an example of...”? An example of an answer would be then “alcoholic drinks”. Write in each empty box your answer, in this example thus “alcoholic drinks”.

This looks as follows

**Wine is an example of...**

Alcoholische drank

Take your time, there are no right or wrong answers.

-Page break-

1. **Coke** is an example of...
2. **Shampoo** is an example of...
3. **Artist** is an example of...
4. **Trouser** is an example of...
5. **Telephone** is an example of...

-Page break-

6. **Comic book** is an example of...
7. **Ring** is an example of...
8. **Apple** is an example of...
9. **Education** is an example of...
10. **Tv hostess** is an example of...

-Page break-

11. **Restaurant** is an example of...
12. **Bike** is an example of...
13. **Beer** is an example of...
14. **Table** is an example of...
15. **Jacket** is an example of...

-Page break-

16. **Fish** is an example of...
17. **Hotel** is an example of...
18. **Coin** is an example of...
19. **Pasta** is an example of...
20. **Glass** is an example of...

-Page break-

21. **Car** is an example of...
22. **Hair colour** is an example of...
23. **Supermarket** is an example of...
24. **Magazine** is an example of...

25. **Sport** is an example of...

-Page break-

26. **Lunch** is an example of...

27. **Painting** is an example of...

28. **Candy** is an example of...

29. **Dog** is an example of...

30. **Bread** is an example of...

-Page break –

This is the third and last assignment.

Behaviour can be interpreted in many ways. For example, writing a letter can be interpreted as “pushing keys on the key board” or “expressing thoughts”. We are interested in your personal preference for identifying behaviour. In the assignment, you will get a list with different types of behaviours. For each behaviour, you can choose between two different kind of interpretations. Choose the option you would interpret the described behaviour.

For example:

*Attending a course*

*a. Sitting in a chair*

*b. Looking at a PowerPoint*

Your task is to choose the conception that describe the behaviour best. There are no right or wrong answers. We would like to know your preference. So, please choose the conception you believe that best describes the behaviour. Do not think too long, just follow your intuition.

-Page break –

1. Making a list

a. Getting organized

b. Writing things down

2. Reading

a. Following lines of print

b. Gaining knowledge

3. Joining the Army

a. Helping the Nation's defence

b. Signing up

4. Washing clothes

c. Removing doors from clothes

d. Putting clothes into the machine

5. Picking an apple

a. Getting something to eat

b. Pulling an apple off a branch

6. Chopping down a tree

a. Wielding an axe

b. Getting firewood

7. Measuring a room for carpeting
  - a. Getting ready to remodel
  - b. Using a yard stick
8. Cleaning the house
  - a. Showing one's cleanliness
  - b. Vacuuming the floor
9. Painting a room
  - a. Applying brush strokes
  - b. Making the room look fresh
10. Paying the rent
  - a. Maintaining a place to live
  - b. Writing a check
11. Caring the houseplants
  - a. Watering plants
  - b. Making the room look nice
12. Locking a door
  - a. Putting a key in the lock
  - b. Securing the house
13. Voting
  - a. Influencing the election
  - b. Marking a ballot
14. Climbing a tree
  - a. Getting a good view
  - b. Holding on to branches
15. Filling out a personality test
  - a. Answering questions
  - b. Revealing what you are like
16. Tooth brushing
  - a. Preventing tooth decay
  - b. Moving a brush around in one's mouth
17. Taking a test
  - a. Answering questions
  - b. Showing one's knowledge
18. Greeting someone
  - a. Saying hello
  - b. Showing friendliness
19. Resisting temptation

- a. Saying no
  - b. Showing moral courage
20. Eating
- a. Getting nutrition
  - b. Chewing and swallowing
21. Growing a garden
- a. Planting seeds
  - b. Getting fresh vegetables
22. Travelling by car
- a. Following a map
  - b. Seeing countryside
23. Having a cavity filled
- a. Protecting your teeth
  - b. Going to the dentist
24. Talking to a child
- a. Teaching a child something
  - b. Using simple words
25. Pushing a door bell
- a. Moving a finger
  - b. Seeing if someone's home

-Page break-

Finally, some demographic questions will be asked.

What is your age?

- ☐ Under the 18
- ☐ 18 – 24
- ☐ 25 – 34
- ☐ 35 – 44
- ☐ 45 – 54
- ☐ 55 – 64
- ☐ 65 – 74
- ☐ 75 – 84
- ☐ 85 or older

What is your gender?

- ☐ Male
- ☐ Female

What is your nationality?

- Dutch
- Different, namely...

What is your highest degree?

- VMBO
- HAVO
- VWO
- MBO
- HBO
- WO Bachelor
- WO Master

What is your current occupation? There is only one answer possible, so choose your main occupation.

- Fulltime
- Part-time
- Looking for a job
- Unemployed, not looking for a job
- Retired
- Student (e)
- Different, namely...
- Other

Are you currently on a diet?

(Control variable)

- Yes
- No

- Page break -

How hungry do you feel at the moment:

(Control variable)

Not at all    0       0       0       0       0       0       0    Very much

To what extent do you have the goal to eat healthily?

(Control variable)

Not at all    0       0       0       0       0       0       0    Very much

How do you feel at this moment?

(Control variable)

Very negative 0       0       0       0       0       0       0    Very positive

- Page break -

Thank you very much for your participation!

Underneath, there is some space left for any feedback (where some questions unclear to you;

did it take too long?) or to clarify your answers given to the questions.

Warm regards,

Renée Nederlof and Anke Tuinstra

### 3.3 Results

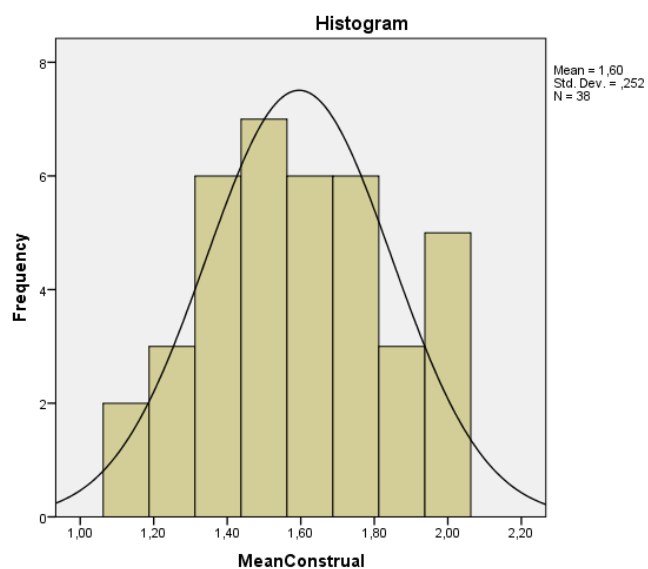
**Table 1. Gender**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	14	36,8	36,8	36,8
	Female	24	63,2	63,2	100,0
	Total	38	100,0	100,0	

**Table 2. Statistics: Duration (in seconds)**

Statistics Duration (in seconds)		
N	Valid	45
	Missing	1
Mean		1010,1333
Median		634,0000
Std. Deviation		1390,43645
Range		8798,00
Minimum		306,00
Maximum		9104,00

**Figure 1. Histogram**





**Table 4. Levene's Test of Homogeneity of Variances - 8 items**

Levene Statistic	df1	df2	Sig.
,011	1	36	,915

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	,119	1	,119	1,911	,175
Within Groups	2,238	36	,062		
Total	2,357	37			

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
1,00	19	1,5395	,25703	,05897	1,4156	1,6634	1,13	2,00
2,00	19	1,6513	,24145	,05539	1,5349	1,7677	1,25	2,00
Total	38	1,5954	,25241	,04095	1,5124	1,6784	1,13	2,00

**Table 5. One-way ANOVA Test – 8 items****Table 6. Mean-Score – 8 items****Table 7. Levene's Test of Homogeneity of Variances – 25 items**

Levene Statistic	df1	df2	Sig.
,285	1	36	,597

**Table 8. One-way ANOVA Test – 25 items**

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	,007	1	,007	,188	,667
Within Groups	1,362	36	,038		
Total	1,369	37			

**Table 9. Mean-Score – 25 items**

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Min.	Max.
					Lower Bound	Upper Bound		
Low Construal	19	1,6211	,18684	,04286	1,5310	1,7111	1,20	1,96
High Construal	19	1,5937	,20189	,04632	1,4964	1,6910	1,24	2,00
Total	38	1,6074	,19236	,03121	1,5441	1,6706	1,20	2,00

## Appendix 4. Main experiment

### 4.1 Questionnaire

Beste deelnemers, welkom bij dit onderzoek.

Wij waarderen het zeer dat je ons wilt helpen. Dit onderzoek is deel van onze opleiding. Wij, Renée en Anke, zijn studenten aan de Radboud Universiteit te Nijmegen. Op dit moment zijn wij bezig met onze masterthesis en dit is ook de reden voor dit onderzoek.

Het onderzoek bestaat uit verschillende taken. Voor elke taak, krijg je een korte uitleg te zien. De enquête wordt afgesloten met enkele algemene vragen. Het geheel duurt ongeveer 10-15 minuten. Enige concentratie is nodig. We vragen je daarom om tussentijds niet te stoppen. De antwoorden zullen anoniem verwerkt worden.

Alvast bedankt voor je deelname!

-Page Break-

#### Low construal:

In deze taak krijg je in totaal 30 verschillende woorden te zien. Het is jouw taak om van elk woord een concreet voorbeeld te geven. Bijvoorbeeld: “Een voorbeeld van wijn is...?”. Het gegeven woord is hier “wijn”. Een concreet voorbeeld van wijn zou kunnen zijn “merlot”. Schrijf in het lege vak jouw antwoord, in dit voorbeeld dus “merlot”.

Dit ziet er als volgt uit:

Een voorbeeld van wijn is...

Merlot

Neem je tijd, er zijn geen goede of foute antwoorden.

-Page break-

1. Een voorbeeld van **cola** is...

2. Een voorbeeld van **shampoo** is...

3. Een voorbeeld van een **kunstenaar** is...

4. Een voorbeeld van een **broek** is...

5. Een voorbeeld van een **telefoon** is...

-Page break-

6. Een voorbeeld van een **stripboek** is...

7. Een voorbeeld van een **ring** is...

8. Een voorbeeld van een **appel** is...

9. Een voorbeeld van een **opleiding** is...

10. Een voorbeeld van een **presentatrice** is...

-Page break-

11. Een voorbeeld van een **restaurant** is...

12. Een voorbeeld van een **fiets** is...

13. Een voorbeeld van een **bier** is...

14. Een voorbeeld van een **tafel** is...

15. Een voorbeeld van een **jas** is...

-Page break-

16. Een voorbeeld van **vis** is...

17. Een voorbeeld van een **hotel** is...

18. Een voorbeeld van een **munt** is...

19. Een voorbeeld van **pasta** is...

20. Een voorbeeld van **glas** is...

-Page break-

21. Een voorbeeld van een **auto** is...

22. Een voorbeeld van een **haarkleur** is...

23. Een voorbeeld van een **supermarkt** is...

24. Een voorbeeld van een **tijdschrift** is...

25. Een voorbeeld van een **sport** is...

-Page break-

26. Een voorbeeld van een **lunch** is...

27. Een voorbeeld van een **schilderij** is...

28. Een voorbeeld van een **snoep** is...

29. Een voorbeeld van een **hond** is...

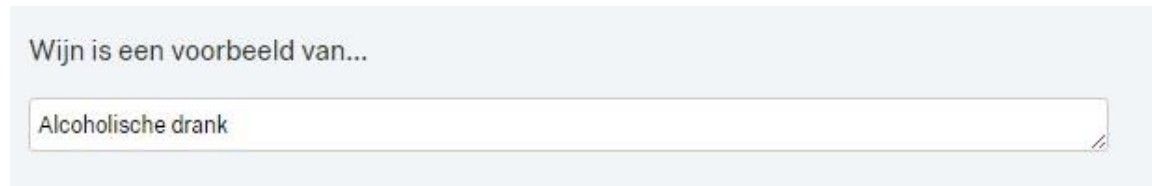
30. Een voorbeeld van een **brood** is...

-Page break-

High construal:

In deze taak krijg je in totaal 30 verschillende woorden te zien. Het is jouw taak om een woord in te vullen waar jij denkt dat het gegeven woord een voorbeeld van is. Dus als het woord bijvoorbeeld “wijn” is, dan is de vraag “Wijn is een voorbeeld van...?”. Een voorbeeld van een antwoord is dan “alcoholische drank”. Schrijf in het lege vak jouw antwoord, in dit voorbeeld dus “alcoholische drank”.

Dit ziet er als volgt uit:



The screenshot shows a light blue rectangular area. At the top, the text 'Wijn is een voorbeeld van...' is displayed in a grey font. Below this text is a white rectangular input field with a thin grey border. Inside the input field, the text 'Alcoholische drank' is written in a black font. A small red eraser icon is visible at the bottom right corner of the input field.

Neem je tijd, er zijn geen goede of foute antwoorden.

-Page break-

1. **Cola** is een voorbeeld van...
2. **Shampoo** is een voorbeeld van...
3. **Kunstenaar** is een voorbeeld van...
4. **Broek** is een voorbeeld van...
5. **Telefoon** is een voorbeeld van...

-Page break-

6. **Stripboek** is een voorbeeld van...
7. **Ring** is een voorbeeld van...
8. **Appel** is een voorbeeld van...
9. **Opleiding** is een voorbeeld van...
10. **Presentatrice** is een voorbeeld van...

-Page break-

11. **Restaurant** is een voorbeeld van...
12. **Fiets** is een voorbeeld van...
13. **Bier** is een voorbeeld van...
14. **Tafel** is een voorbeeld van...
15. **Jas** is een voorbeeld van...

-Page break-

16. **Vis** is een voorbeeld van...
17. **Hotel** is een voorbeeld van...
18. **Munt** is een voorbeeld van...
19. **Pasta** is een voorbeeld van...
20. **Glas** is een voorbeeld van...

-Page break-

- 21. **Auto** is een voorbeeld van...
- 22. **Haarkleur** is een voorbeeld van...
- 23. **Supermarkt** is een voorbeeld van...
- 24. **Tijdschrift** is een voorbeeld van...
- 25. **Sport** is een voorbeeld van...

-Page break-

- 26. **Lunch** is een voorbeeld van...
- 27. **Schilderij** is een voorbeeld van...
- 28. **Snoep** is een voorbeeld van...
- 29. **Hond** is een voorbeeld van...
- 30. **Brood** is een voorbeeld van...

-Page break-

Unhealthy-left condition

De tweede taak is als volgt. Stel dat je op dit moment een keuze mag maken tussen twee gerechten. De prijs en portie van beide gerechten zijn gelijk.

Naar welk gerecht gaat jouw voorkeur op dit moment uit?



☐



☐

- Page break -

Unhealthy-right condition



☐



☐

-Page break -

Gedrag kan op vele manieren opgevat worden. Bijvoorbeeld het schrijven van een brief kan worden opgevat als “het indrukken van toetsen” of “het uiten van gedachten”. Wij zijn geïnteresseerd in jouw persoonlijke voorkeur voor het beschrijven van verschillende gedragingen. Er volgt een lijst met 25 verschillende gedragingen. Bij elke gedraging staan twee keuzes met verschillende wijzen van interpretatie. Kies de wijze van interpretatie die jouw persoonlijke voorkeur heeft.

Een voorbeeld:

*Het bijwonen van een cursus:*

- a. Op een stoel zitten;*
- b. Kijken naar een PowerPoint.*

Jouw taak is te kiezen welke opvatting het gedrag het beste omschrijft. Er zijn geen onjuiste antwoorden. Mensen verschillen simpelweg in deze opvattingen en ik wil graag jouw voorkeur weten. Dus kies de opvatting waarvan jij denkt dat die het gedrag het beste omschrijft. Denk niet te lang na over jouw antwoord, ga af op je gevoel.

- Page break -

1. Het maken van een lijst
  - a. Georganiseerd zijn
  - b. Dingen opschrijven
2. Lezen
  - a. Het volgen van geprinte regels
  - b. Kennis vergaren
3. Bij het leger gaan
  - a. Helpen aan de nationale defensie
  - b. Inschrijven
4. Kleding wassen
  - a. Het verwijderen van geurtjes
  - b. Kleding in de wasmachine stoppen

- Page break -

5. Een appel plukken
  - a. Iets te eten pakken
  - b. Een appel uit de boom pakken
6. Een boom omhakken
  - a. Zwaaien met een bijl
  - b. Het verkrijgen van brandhout
7. Een kamer opmeten voor tapijt
  - a. Verbouwing voorbereiden

- b. Een meetlint gebruiken
8. Het huis schoonmaken
- a. Het tonen van netheid
  - b. De vloer stofzuigen

- Page break -

In de volgende taak, krijg je telkens twee woorden te zien. De vraag aan jou is, welk woord zou jij in de linker box plaatsen? Denk niet te lang na over je antwoord, ga af op je gevoel.

<div style="border: 1px solid #ccc; height: 150px; margin: 0 auto; width: 90%;"></div> <p style="text-align: center; color: #808080;">Left box</p>	<div style="border: 1px solid #ccc; height: 150px; margin: 0 auto; width: 90%;"></div> <p style="text-align: center; color: #808080;">Right box</p>
--	---

1. Kies het woord dat jij in de linker box wilt plaatsen.
  - a. E-mail
  - b. Telefoongesprek
2. Kies het woord dat jij in de linker box wilt plaatsen.
  - a. Aardbeien
  - b. Cheesecake
3. Kies het woord dat jij in de linker box wilt plaatsen.
  - a. Genot
  - b. Voedzaamheid
4. Kies het woord dat jij in de linker box wilt plaatsen.
  - a. Gefrituurde kip
  - b. Gerookte kip
5. Kies het woord dat jij in de linker box wilt plaatsen.
  - a. Werk
  - b. Plezier
6. Kies het woord dat jij in de linker box wilt plaatsen.
  - a. Gezond eten
  - b. Ongezond eten



- Page break -

Wij zijn nog geïnteresseerd in hoe mensen verschillende gerechten beoordelen op basis van *gezondheid*, *aantrekkelijkheid* en *smaakvolheid*. Je krijgt zo opnieuw de twee afbeeldingen, één voor één te zien. Wacht alsjeblieft tot de afbeeldingen geladen zijn. Beoordeel de gerechten op een schaal van 1 tot 7.

- Page break -



Geef alsjeblieft aan hoe **gezond** je het gerecht vindt op een schaal van 1 tot 7:

Zeer ongezond

Zeer gezond

1	2	3	4	5	6	7
0	0	0	0	0	0	0

Geef alsjeblieft aan hoe **aantrekkelijk** je het gerecht vindt op een schaal van 1 tot 7:

1	2	3	4	5	6	7
0	0	0	0	0	0	0

Geef alsjeblieft aan hoe **smaakvol** je het gerecht vindt op een schaal van 1 tot 7:

1	2	3	4	5	6	7
0	0	0	0	0	0	0

- Page break -



Geef alsjeblieft aan hoe **gezond** je het gerecht vindt op een schaal van 1 tot 7:

Zeer ongezond						Zeer gezond
1	2	3	4	5	6	7
0	0	0	0	0	0	0

Geef alsjeblieft aan hoe **aantrekkelijk** je het gerecht vindt op een schaal van 1 tot 7:

1	2	3	4	5	6	7
0	0	0	0	0	0	0

Geef alsjeblieft aan hoe **smaakvol** je het gerecht vindt op een schaal van 1 tot 7:

1	2	3	4	5	6	7
0	0	0	0	0	0	0

- Page break -

Tot slot, nog enkele algemene vragen.

In hoeverre ben je bezig met gezond eten?

Helemaal niet						Heel erg
1	2	3	4	5	6	7
0	0	0	0	0	0	0

Hoeveel honger heb je op dit moment?

Helemaal geen honger						Zeer veel honger
1	2	3	4	5	6	7
0	0	0	0	0	0	0

Hoe voel je je op dit moment?

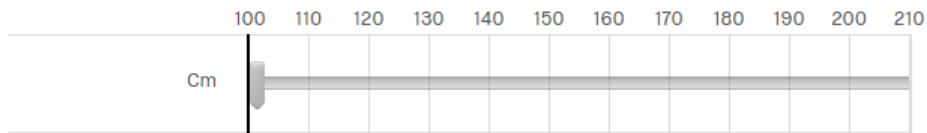
Heel negatief						Heel positief
1	2	3	4	5	6	7
0	0	0	0	0	0	0

- Page break -

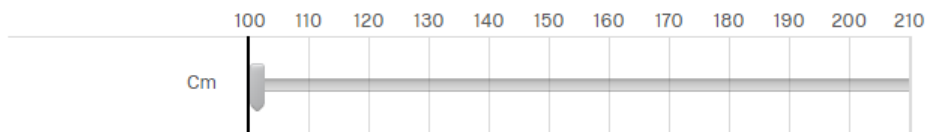
Ben je links-of rechtshandig?

- ☐ Links
- ☐ Rechts

Wat is ongeveer jouw lichaamslengte in centimeters?



Wat is ongeveer jouw gewicht in kilogram?



Volg je op dit moment een dieet? (Bijv. gewichtsverlies, vegetarisch, glutenvrij)

- ☐ Ja
- ☐ Nee

- Page break -

Wat is je leeftijd?

- ☐ Onder de 18
- ☐ 18 - 24
- ☐ 25 - 34
- ☐ 34 - 44
- ☐ 45 – 54
- ☐ 55 – 64
- ☐ 65 – 74
- ☐ 75 – 84
- ☐ 85 of ouder

Wat is je geslacht?

- ☐ Man
- ☐ Vrouw

Wat is je nationaliteit

- ☐ Nederlands
- ☐ Anders, namelijk...

Wat is je hoogst behaalde opleiding?

- ☐ VMBO
- ☐ HAVO

- VWO
- MBO
- HBO
- WO Bachelor
- WO Master

Wat is je huidige werksituatie? Er is slechts 1 antwoord mogelijk, dus kies je voornaamste bezigheid.

- Fulltime
- Parttime
- Werkzoekende
- Werkloos, niet zoekende
- Gepensioneerd
- Student(e)
- Anders, namelijk...

-Page break -

Ter afsluiting, wij zijn erg benieuwd of je enige vermoedens had over het doel van het onderzoek. De laatste vragen gaan dan ook over het doel van het onderzoek.

Wat denk je dat het doel van het onderzoek was?

Waren er verschillende taken naar jouw mening aan elkaar gerelateerd? *(Zo ja, hoe?)*

Hebben delen van dit onderzoek jouw uitvoering van de verschillende taken beïnvloed? *(Zo ja, hoe?)*


Dit waren alle vragen.

Heb je nog vragen of opmerkingen, voel je vrij ze hieronder te plaatsen. Mocht je geïnteresseerd zijn in het doel van dit onderzoek of de resultaten willen ontvangen, stuur dan een e-mail naar [r.nederlof@student.ru.nl](mailto:r.nederlof@student.ru.nl) of [a.tuinstra@student.ru.nl](mailto:a.tuinstra@student.ru.nl).

**Verstuur je antwoorden door op de “volgende”- knop te drukken.**

Bedankt voor het meedoen!

Met vriendelijke groet,

Renée Nederlof en Anke Tuinstra.

## 4.2 Questionnaire translated in English

Dear respondents, welcome to our research!

We really appreciate it that you would like to help us! This research is part of our Master degree. We are Renée and Anke, students from the Radboud University in Nijmegen. At this moment, we are working on our master thesis where this research is designed for.

The research consists of several assignments. For each task, you will get introductory information. The questionnaire will be rounded off with some general questions. In total, the survey will take about approximately 10-15 minutes. When filling-in this questionnaire you do need to be concentrated. We would like to ask you therefore to complete the survey until the end. Please note that your data will be treated in an anonymous and confidential way.

Thank you for your participation!

- Page break –

-Page break-

### Low construal:

In this assignment, you will get to see in total 30 different words. We would like to ask you to provide for each word a concrete example. For example: “An example of wine is...?” The given word is here “wine”. A concrete example of wine could be “merlot”. Write in each empty box your answer, in this example thus “merlot”.

This looks as follows:

**An example of wine is?**

Merlot

-Page break-

Take your time, there are no right or wrong answers.

1. An example of **coke** is...

2. An example of **shampoo** is...

3. An example of **artist** is...
4. An example of **trouser** is...
5. An example of **phone** is...

-Page break-

6. An example of **comic books** is...
7. An example of **ring** is...
8. An example of **apple** is...
9. An example of **education** is...
10. An example of **tv hostess** is...

-Page break-

11. An example of **restaurant** is...
12. An example of **bike** is...
13. An example of **beer** is...
14. An example of **table** is...
15. An example of **jacket** is...

-Page break-

16. An example of **fish** is...
17. An example of **hotel** is...
18. An example of **coin** is...
19. An example of **pasta** is...
20. An example of **glass** is...

-Page break-

21. An example of **car** is...
22. An example of **hair colour** is...
23. An example of **supermarket** is...
24. An example of **magazine** is...
25. An example of **sport** is...

-Page break-

26. An example of **lunch** is...
27. An example of **painting** is...
28. An example of **candy** is...
29. An example of **dog** is...
30. An example of **bread** is...

-Page break-

#### High construal:

In this assignment, you will get to see in total 30 different words. We would like to ask you to provide an example of the given word. For instance, when the word is “wine”, then is the

question “wine is an example of...”? An example of an answer would be then “alcoholic drinks”. Write in each empty box your answer, in this example thus “alcoholic drinks”.

This looks as follows

**Wine is an example of...**

Alcoholische drank

Take your time, there are no right or wrong answers.

-Page break-

1. **Coke** is an example of...
2. **Shampoo** is an example of...
3. **Artist** is an example of...
4. **Trouser** is an example of...
5. **Telephone** is an example of...

-Page break-

6. **Comic book** is an example of...
7. **Ring** is an example of...
8. **Apple** is an example of...
9. **Education** is an example of...
10. **Tv hostess** is an example of...

-Page break-

11. **Restaurant** is an example of...
12. **Bike** is an example of...
13. **Beer** is an example of...
14. **Table** is an example of...
15. **Jacket** is an example of...

-Page break-

16. **Fish** is an example of...
17. **Hotel** is an example of...
18. **Coin** is an example of...
19. **Pasta** is an example of...
20. **Glass** is an example of...

-Page break-

21. **Car** is an example of...
22. **Hair colour** is an example of...
23. **Supermarket** is an example of...
24. **Magazine** is an example of...
25. **Sport** is an example of...

-Page break-

26. **Lunch** is an example of...
27. **Painting** is an example of...
28. **Candy** is an example of...
29. **Dog** is an example of...
30. **Bread** is an example of...

-Page break-

### Unhealthy-left condition

The second assignment is as follows. Imagine you would need to choose between two meals at this moment. The price and the size of the meals are equal. Which meal would you prefer at this moment?



O



O

- Page break -

### Unhealthy-right condition



O



O

-Page break –

Behaviour can be interpreted in many ways. For example, writing a letter can be interpreted as “pushing keys on the key board” or “expressing thoughts”. We are interested in your personal preference for identifying behaviour. In the assignment you will get a list with different types of behaviours. For each behaviour, you can choose between two different kind of interpretations. Choose the option you would interpret the described behaviour.

For example:

*Attending a course*

- a. *Sitting in a chair*
- b. *Looking at a PowerPoint*



Your task is to choose the conception that describe the behaviour best. There are no right or wrong answers. We would like to know your preference. So, please choose the conception you believe that best describes the behaviour. Do not think too long, just follow your intuition.

-Page break –

1. Making a list
  - a. Getting organized
  - b. Writing things down
2. Reading
  - a. Following lines of print
  - b. Gaining knowledge
3. Joining the Army
  - a. Helping the Nation's defence
  - b. Signing up
4. Washing clothes
  - a. Removing doors from clothes
  - b. Putting clothes into the machine

- Page break –

5. Picking an apple
  - a. Getting something to eat
  - b. Pulling an apple off a branch
6. Chopping down a tree
  - a. Wielding an axe
  - b. Getting firewood
7. Measuring a room for carpeting
  - a. Getting ready to remodel
  - b. Using a yard stick
8. Cleaning the house
  - a. Showing one's cleanliness
  - b. Vacuuming the floor

- Page break –

In the next assignment, you will see each time two pair words. We would like to ask you, which word you would place in the left box? Do not think too long about your answer, follow your intuition.

Left box	Right box

1. Select the word you would place in the left box.
  - a. E-mail
  - b. Call
2. Select the word you would place in the left box.
  - a. Strawberries
  - b. Cheesecake
3. Select the word you would place in the left box.
  - a. Pleasure
  - b. Nutrition
4. Select the word you would place in the left box.
  - a. Fried chicken
  - b. Grilled chicken
5. Select the word you would place in the left box.
  - a. Work
  - b. Enjoyment
6. Select the word you would place in the left box.
  - a. Healthy food
  - b. Unhealthy food

- Page break -

Furthermore, we are interested in how people judge meals based on healthiness, attractiveness, and tastiness. You will get to see two pictures. You will be asked to answer three questions for each picture. These questions are about your opinion about the meal. There are no right or wrong answers.

-Page break-



Please indicate how **healthy** you find the following food item on a scale of 1 to 7:

Healthy						Unhealthy
1	2	3	4	5	6	7
0	0	0	0	0	0	0

Please indicate how **attractive** you find the following food item on a scale of 1 to 7:

Attractive						Not attractive
1	2	3	4	5	6	7
0	0	0	0	0	0	0

Please indicate how **tasty** you find the following food item on a scale of 1 to 7:

Tasty						Not tasty
1	2	3	4	5	6	7
0	0	0	0	0	0	0

-Page break -



Please indicate how **healthy** you find the following food item on a scale of 1 to 7:

Healthy						Unhealthy
1	2	3	4	5	6	7
0	0	0	0	0	0	0

Please indicate how **attractive** you find the following food item on a scale of 1 to 7:

Attractive					Not attractive	
1	2	3	4	5	6	7
0	0	0	0	0	0	0

Please indicate how **tasty** you find the following food item on a scale of 1 to 7:

Tasty					Not tasty	
1	2	3	4	5	6	7
0	0	0	0	0	0	0

-Page break -

Finally, we do have some general questions.

To what extent do you have the goal to eat healthily? (Control variable)

Not at all	0	0	0	0	0	0	0	Very much
------------	---	---	---	---	---	---	---	-----------

How hungry do you feel at the moment: (Control variable)

Not at all	0	0	0	0	0	0	0	Very much
------------	---	---	---	---	---	---	---	-----------

How do you feel at this moment? (Control variable)

Very negative	0	0	0	0	0	0	0	Very positive
---------------	---	---	---	---	---	---	---	---------------

-Page break -

Are you left-or righthanded?

- ☐ Left
- ☐ Right

What is your body length in centimeters?

100	110	120	130	140	150	160	170	180	190	200	210
Cm											

What is your weight in kilogram?

100	110	120	130	140	150	160	170	180	190	200	210
Cm											

Are you on a diet at this moment? (E.g. Losing weight, vegetarian, gluten free)

- ☐ Yes
- ☐ No

-Page break -

What is your age?

- ☐ Under the 18
- ☐ 18 – 24
- ☐ 25 – 34
- ☐ 35 – 44
- ☐ 45 – 54
- ☐ 55 – 64
- ☐ 65 – 74
- ☐ 75 – 84
- ☐ 85 or older

What is your gender?

- ☐ Male
- ☐ Female

What is your nationality?

- ☐ Dutch
- ☐ Different, namely...

What is your highest degree?

- ☐ VMBO
- ☐ HAVO
- ☐ VWO
- ☐ MBO
- ☐ HBO
- ☐ WO Bachelor
- ☐ WO Master

What is your current occupation? There is only one answer possible, so choose your main occupation.

- ☐ Fulltime
- ☐ Part-time
- ☐ Looking for a job
- ☐ Unemployed, not looking for a job
- ☐ Retired

- Student (e)
- Different, namely...
- Other

-Page break -

To round off, we are very curious whether you had any ideas about the aim of this research. Therefore, the last questions are about the aim of this research.

What do you think the aim of this research is?

Do you think that some questions were related with each other? *(If yes, how?)*

Did some of the assignments influences your answers given to other questions? *(If yes, how?)*

All questions have been asked.

Do you still have some questions or recommendations? Feel free to post them underneath. Would you be interested in the aim of this research or to receive the results of our research, please send an email to [r.nederlof@student.ru.nl](mailto:r.nederlof@student.ru.nl) of [a.tuinstra@student.ru.nl](mailto:a.tuinstra@student.ru.nl).

**Please send your answers of this survey by pressing on - “next”-.**

Thank you very much for your participation!

Warm regards,

Renée Nederlof en Anke Tuinstra.



### 4.3 Results

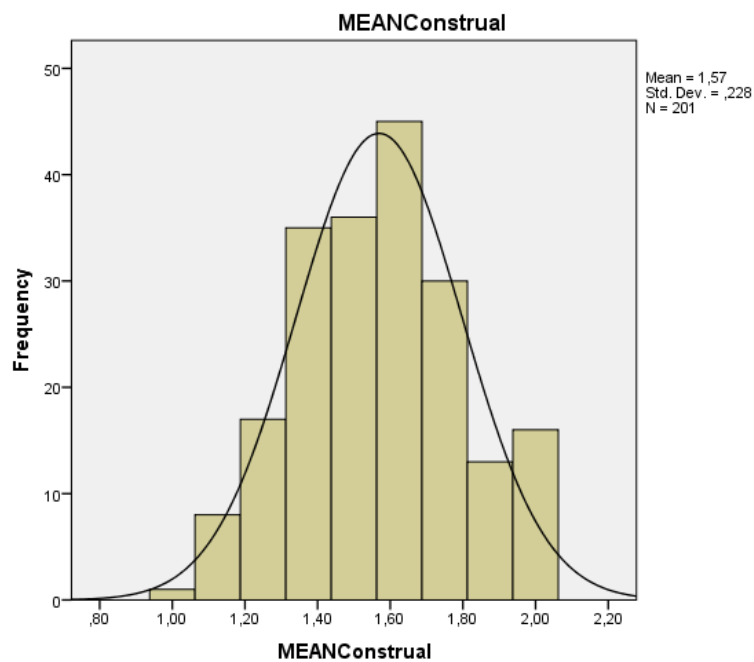
**Table 1. Sample size per condition**

LEVEL OF CONSTRUAL	LATERAL FOOD PRESENTATION	
	HL	HR
HC	46 participants	49 participants
LC	56 participants	50 participants

**Table 2. Descriptives of Gender**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	50	24,9	24,9	24,9
	Female	151	75,1	75,1	100,0
	Total	201	100,0	100,0	

**Figure 1. Histogram**





**Table 3. Levene's Test – Mean of 8 items**

Mean of 8 items			
Levene Statistic	df1	df2	Sig.
1,919	1	199	,168

**Table 4. ANOVA – Mean of 8 items**

ANOVA					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	,002	1	,002	,038	,845
Within Groups	10,431	199	,052		
Total	10,433	200			

**Table 5. Descriptives – Mean of 8 items**

Descriptives								
					95% Confidence Interval for Mean			
	N	Mean	Std. Deviation	Std. Error	Lower Bound	Upper Bound	Minimum	Maximum
LC	106	1,5660	,24042	,02335	1,5197	1,6123	1,00	2,00
HC	95	1,5724	,21541	,02210	1,5285	1,6163	1,13	2,00
Total	201	1,5690	,22839	,01611	1,5373	1,6008	1,00	2,00

**Table 6. Levene's Test of Homogeneity of Variances - Mean of 4 items**

Test of Homogeneity of Variances			
Levene Statistic	df1	df2	Sig.
1,140	1	199	,287

**Table 7. One-Way ANOVA – Mean of 4 items**

ANOVA					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	,263	1	,263	5,353	,022
Within Groups	9,762	199	,049		
Total	10,024	200			

**Table 8. Mean of 4 items**

Descriptives								
					95% Confidence Interval for Mean			
	N	Mean	Std. Deviation	Std. Error	Lower Bound	Upper Bound	Minimum	Maximum
LC	106	1,6934	0,22960	,02230	1,6492	1,7376	1,00	2,00
HC	95	1,7658	,21204	,02175	1,7226	1,8090	1,25	200
Total	201	1,7276	,22388	,01579	1,6965	1,7588	1,00	2,00

**Table 9. Multicollinearity**

Model		95,0% Confidence Interval for B		Collinearity Statistics	
		Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	,114	,659		
	Attractiveness burger	-,156	-,090	,995	1,005
	Attractiveness salad	,127	,210	,998	1,002
	ConstrualLevel	-,084	,128	,998	1,002
	PositionFood	-,156	,056	,993	1,007
a. Dependent Variable: Keuze					

**Table 10. Building the model**

	<b>Base</b>	Model	Model	Model	Model	<b>Model</b>	Model	Model	Model
--	-------------	-------	-------	-------	-------	--------------	-------	-------	-------

	<b>model</b>	1	2	3	4	<b>5</b>	6	7	8
Percentage correct	64.7	64.7	64.7	64.7	70.1	81.6	81.1	83.6	81.6
Model Chi-square		.770	.949	4.488	46.061	108.840	110.014	111.974	113.957
Model significance		.380	.622	.213	.000	.000	.000	.000	.000
Block Chi-square		.770	.179	3.539	41.573	62.779	1.174	1.960	1.983
Block significance		.380	.672	.060	.000	.000	.279	.162	.159
Nagelkerke R Square		.005	.006	.030	.282	.575	.580	.587	.595
Cox & Snell R Square		.004	.005	.022	.205	.418	.422	.427	.433
-2 Log likelihood	261.069	260,299	260,120	256,581	215.008	152.229	151.055	149.095	147.112
Hosmer and Lemeshow Test		-	.171	1.000	.146	.217	.494	.821	.139

**Model 1:** *lateral food positioning*

**Model 2:** *lateral food positioning; construal level*

**Model 3:** *lateral food positioning; construal level; positioning \* construal*

**Model 4:** *lateral food positioning; construal level; positioning \* construal; attractiveness burger*

**Model 5:** *lateral food positioning; construal level; positioning \* construal; attractiveness burger; attractiveness salad*

**Model 6:** *lateral food positioning; construal level; positioning \* construal; attractiveness burger; attractiveness salad ; healthy lifestyle*

**Model 7:** *lateral food positioning; construal level; positioning \* construal; attractiveness burger; attractiveness salad ; healthy lifestyle; level of hunger*

**Model 8:** *lateral food positioning; construal level; positioning \* construal; attractiveness burger; attractiveness salad ; healthy lifestyle; level of hunger; mood-status*

**Table 11. Base model with control variables**

	<b>Model 5</b>	Hunger	Diet	Gender	Age	Educa tion	Construal x position x handednes s	Handedne ss x position
Percentage correct	81.6	82.6	82.6	81.6	81.6	83.1	81.8	82.3
Model Chi-square	108.840	110.528	109.872	112.205	108.962	117.674	108.816	107.426
Model significance	.000	.000	.000	.000	.000	.000	.000	.000
Block Chi-square	62.779	1.688	1.032	3.365	.122	8.834	1.786	.397
Block significance	.000	.194	.310	.067	.727	.183	.181	.529
Nagelkerke R Square	.575	.582	.579	.588	.575	.609	.581	.576
Cox & Snell R Square	.418	.423	.421	.428	.418	.443	.423	.419
-2 Log likelihood	152.229	150.541	151.197	148.864	152.107	143.395	148.429	149.818
Hosmer and Lemshow Test	.217	.273	.141	.279	.278	.908	.048	.030

**Table 12. Attractiveness versus base model**

	<b>Model 1</b>	Model 2	Model 3	<b>Model 4</b>
Percentage correct	80.6	80.1	81.6	81.6
Model Chi-Square	99.544	100.004	101.087	108.840
Model	.000	.000	.000	.000

significance				
Block Chi-square	99.544	.459	1.084	7.753
Block significance	.000	.498	.298	.005
Nagelkerke R Square	.537	.539	.544	.575
Cox & Snell R Square	.391	.392	.395	.418
-2 Log likelihood	161.525	161.066	159.982	152.229
Hosmer and Lemshow Test	.904	.830	.601	.217

**Model 1:** *attractiveness burger; attractiveness salad*

**Model 2:** *attractiveness burger; attractiveness salad; lateral food positioning*

**Model 3:** *attractiveness burger; attractiveness salad; lateral food positioning; construal level*

**Model 4:** *attractiveness burger; attractiveness salad; lateral food positioning; construal level; (positioning \* construal level) > same construction as model 5 in Table 10 Building Model.*

**Table 13. Outcome of base model**

**Table 13.1** *Variables in Equation*

Variables not in the Equation					
			Score	df	Sig.
Step 0	Variabl es	PositionFood(1)	,769	1	,381
		ConstrualLevel(1)	,212	1	,645
		ConstrualLevel(1) by PositionFood(1)	1,736	1	,188
		Attractiveness burger	36,941	1	,000
		Attractiveness salad	41,815	1	,000
	Overall Statistics		81,529	5	,000

**Table 13.2** *Block 0, base model*

Iteration History <sup>a,b,c</sup>			
Iteration		-2 Log likelihood	Coefficients
			Constant
Step 0	1	261,084	-,587
	2	261,069	-,605
	3	261,069	-,605
a. Constant is included in the model.			
b. Initial -2 Log Likelihood: 261,069			
c. Estimation terminated at iteration number 3 because parameter estimates changed by less than ,001.			

**Table 13.3** *Block 1, used model*

Model Summary			
Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	152,229 <sup>a</sup>	,418	,575
a. Estimation terminated at iteration number 6 because parameter estimates changed by less than ,001.			

**Table 13.4** *Omnibus Tests*

Omnibus Tests of Model Coefficients				
		Chi-square	df	Sig.
Step 1	Step	108,840	5	,000
	Block	108,840	5	,000
	Model	108,840	5	,000

**Table 13.5** *Base model*

Classification Table <sup>a,b</sup>					
	Observed		Predicted		
			Choice		Percentage Correct
			Burger	Salad	
Step 0	Choice	Burger	0	71	,0
		Salad	0	130	100,0
	Overall Percentage				64,7
a. Constant is included in the model.					
b. The cut value is ,500					

**Table 13.6** *Block 1, used model*

Classification Table <sup>a</sup>					
	Observed		Predicted		
			Choice		Percentage Correct
			Burger	Salad	
Step 1	Choice	Burger	50	21	70,4
		Salad	16	114	87,7
	Overall Percentage				81,6
a. The cut value is ,500					

**Table 13.7** *Hosmer and Lemeshow Test*

Hosmer and Lemeshow Test			
Step	Chi-square	df	Sig.
1	10,741	8	,217

**Table 13.8** *Model Summary*

<b>Model Summary</b>			
Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	152,229 <sup>a</sup>	,418	,575
a. Estimation terminated at iteration number 6 because parameter estimates changed by less than ,001.			

**Table 13.9** *Variables not in the Equation*

<b>Variables not in the Equation</b>					
			Score	df	Sig.
Step 0	Variables	PositionFood(1)	,769	1	,381
		ConstrualLevel(1)	,212	1	,645
		ConstrualLevel(1) by PositionFood(1)	1,736	1	,188
		Attractiveness burger	36,941	1	,000
		Attractiveness salad	41,815	1	,000
	Overall Statistics		81,529	5	,000

**Table 13.10** *Variables in the Equation*

Variables in the Equation									
		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
								Lower	Upper
Step 1 <sup>a</sup>	Position Food (1)	,693	,542	1,635	1	,201	2,001	,691	5,793
	Construal Level(1)	1,939	,733	6,997	1	,008	6,952	1,653	29,245
	ConstrualLevel(1) by Position Food (1)	-2,405	,904	7,080	1	,008	,090	,015	,531



	Attractiveness burger	-1,024	,182	31,476	1	,000	,359	,251	,514
	Attractiveness salad	1,468	,247	35,347	1	,000	4,341	2,675	7,043
	Constant	-2,181	1,243	3,079	1	,079	,113		
a. Variable(s) entered on step 1: Position Food, Construal Level, ConstrualLevel *PositionFood, Attractiveness burger, Attractiveness salad.									

**Table 14. Outcome of base model – specified into 4 conditions**

**Table 14.1** *Classification Table*

Classification Table <sup>a</sup>					
	Observed		Predicted		
			Choice		Percentage Correct
			Burger	Salad	
Step 1	Keuze	Burger	50	21	70,4
		Salad	16	114	87,7
	Overall Percentage				81,6
	a. The cut value is ,500				

**Table 14.2** *Group 4 (HC-HL) serves as reference*

Variables in the Equation									
		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 1 <sup>a</sup>	Attractiveness burger	-1,024	,182	31,476	1	,000	,359	,251	,514
	Attractiveness salad	1,468	,247	35,347	1	,000	4,341	2,675	7,043
	Group    HC-HL			7,962	3	,047			
	Group(1) LC-HR	-,228	,563	,164	1	,685	,796	,264	2,398
	Group(2) LC-HL	,466	,522	,795	1	,373	1,593	,573	4,432
	Group(3) HC-HR	1,711	,696	6,036	1	,014	5,535	1,413	21,675
	Constant	-1,953	1,228	2,527	1	,112	,142		
	a. Variable(s) entered on step 1: Group.								

**Table 14.3** *Group 1 (LC-HR) serves as reference*

Variables in the Equation									
		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
								Lower	Upper
Step 1 <sup>a</sup>	Attractiveness burger	-1,024	,182	31,476	1	,000	,359	,251	,514
	Attractiveness salad	1,468	,247	35,347	1	,000	4,341	2,675	7,043
	Group    LC-HR			7,962	3	,047			
	Group(1)   LC-HL	,693	,542	1,635	1	,201	2,001	,691	5,793
	Group(2)   HC-HR	1,939	,733	6,997	1	,008	6,952	1,653	29,245
	Group(3)   HC-HL	,228	,563	,164	1	,685	1,256	,417	3,784
	Constant	-2,181	1,243	3,079	1	,079	,113		

a. Variable(s) entered on step 1: Group.

**Table 15. Outcome of base model – Low Construal**

**Low Construal**

**Table 15.1** *Building Model*

	Base	Model 1	<b>Model 2</b>	Model 3
Percentage correct	63.2	63.2	81.1	83.0
Model Chi-Square		.419	56.215	58.100
Model significance		.518	.000	.000
Block Chi-square		.419	55.796	1.885
Block significance		.518	.000	.170
Nagelkerke R Square		.005	.563	.422
Cox & Snell R Square		.004	.412	.577
-2 Log likelihood	139.462	139.044	83.248	81.363
Hosmer and Lemeshow Test		.	.063	.913

**Model 1:** *lateral food position (healthy right = 0; healthy left = 1)*

**Model 2:** *lateral food position; attractiveness burger; attractiveness salad*

**Model 3:** *lateral food position; attractiveness burger; attractiveness salad; gender*

**Table 15.2 Model 2 – Classification Table**

Classification Table <sup>a</sup>					
	Observed		Predicted		
			Keuze		Percentage Correct
			Burger	Salad	
Step 1	Keuze	Burger	27	12	69,2
		Salad	8	59	88,1
	Overall Percentage				81,1
	a. The cut value is ,500				

**Table 15.3 Model 2 - Variables in the Equation**

Variables in the Equation									
		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
								Lower	Upper
Step 1 <sup>a</sup>	PositionFood(1)	,786	,572	1,888	1	,169	2,195	,715	6,737
	Attractiveness burger	-1,021	,249	16,752	1	,000	,360	,221	,587
	Attractiveness salad	1,737	,386	20,260	1	,000	5,680	2,666	12,101
	Constant	-3,577	1,663	4,625	1	,032	,028		
a. Variable(s) entered on step 1: Attractiveness burger , Attractiveness salad									

**Table 15.4 Model 3 – Classification Table**

Classification Table <sup>a</sup>					
	Observed		Keuze		Percentage Correct
			Burger	Salad	
Step 1	Choice	Burger	26	13	66,7
		Salad	5	62	92,5
	Overall Percentage				83,0
a. The cut value is ,500					

**Table 15.5 Model 3 – Variables in the Equation**

Variables in the Equation									
		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 1 <sup>a</sup>	PositionFood(1)	,824	,579	2,021	1	,155	2,278	,732	7,091
	Attractiveness burger	-1,001	,249	16,222	1	,000	,367	,226	,598
	Attractiveness salad	1,784	,393	20,566	1	,000	5,953	2,754	12,870
	Gender (1)	,878	,644	1,860	1	,173	2,407	,681	8,504
	Constant	-4,583	1,848	6,149	1	,013	,010		
a. Variable(s) entered on step 1: Gender.									

**Table 16. Outcome of base model – High Construal****High Construal****Table 16.1** *Building Model*

	Base	Model 1	<b>Model 2</b>	Model 3
Percentage correct	66.3	66.3	82.1	83.2
Model Chi-Square		3.857	54.497	56.150
Model significance		.050	.000	.000
Block Chi-square		3.857	50.640	1.654
Block significance		.050	.000	.198
Nagelkerke R Square		.055	.605	.619
Cox & Snell R Square		.040	.437	.446
-2 Log likelihood	121.395	117.537	66.898	65.244
Hosmer and Lemeshow Test		.	.571	.693

**Model 1:** *lateral food position (healthy right = 0; healthy left = 1)*

**Model 2:** *lateral food position; attractiveness burger; attractiveness salad*

**Model 3:** *lateral food position; attractiveness burger; attractiveness salad; gender*

**Table 16.2** *Model 2 – Classification Table*

Classification Table <sup>a</sup>					
	Observed		Predicted		
			Choice		Percentage Correct
			Burger	Salad	
Step 1	Choice	Burger	23	9	71,9
		Salad	8	55	87,3
	Overall Percentage				82,1
a. The cut value is ,500					

**Table 16.3** *Model 2 – Variables in the Equation*

Variables in the Equation									
		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 1 <sup>a</sup>	PositionFood(1)	-1,473	,686	4,611	1	,032	,229	,060	,879
	Aantrekkelijkheid burger	-1,161	,300	14,986	1	,000	,313	,174	,564
	Aantrekkelijk salade	1,186	,319	13,844	1	,000	3,275	1,753	6,117
	Constant	1,647	1,814	,825	1	,364	5,194		
a. Variable(s) entered on step 1: Aantrekkelijkheid burger , Aantrekkelijk salade .									

**Table 16.3** *Model 3 – Classification Table*

Classification Table <sup>a</sup>					
	Observed		Predicted		
			Choice		Percentage Correct
			Burger	Salad	
Step 1	Keuze	Burger	25	7	78,1
		Salad	9	54	85,7
	Overall Percentage				83,2
	a. The cut value is ,500				

**Table 16.4** *Model 4 – Variables in the Equation*

Variables in the Equation									
		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 1 <sup>a</sup>	PositionFood(1)	-1,521	,700	4,724	1	,030	,218	,055	,861
	Attractiveness burger	-1,147	,305	14,185	1	,000	,318	,175	,577
	Attractiveness salad	1,210	,329	13,562	1	,000	3,354	1,761	6,385
	Gender (1)	,895	,707	1,604	1	,205	2,447	,613	9,773
	Constant	,843	1,940	,189	1	,664	2,324		
a. Variable(s) entered on step 1: Gender.									