# Construal Level Theory
# &
# Product Packaging Design



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# Abstract

This thesis set out to study *"How are consumers affected by the design of product packaging? And how can construal level theory (CLT) be applied to product packaging and what implications would this give in the design process of the product packaging?"*. In order to answer the research question quantitative and qualitative methods were used. Quantitative in the form of eye-tracking and qualitative in the form of questionnaires, an in-depth interview and a thorough review of secondary literature. Furthermore, to shed light on the effect of product packaging and CLT several theories concerning CLT, decision-making, consumer behavior and product packaging was used for this purpose.

The study found that consumers are affected by the design of the product packaging in its use as brand identification and package comprehension. It also affects their behavior and decision-making in terms of valuation of the product. Further, CLT was applied to product packaging design through the visual imagery depicted on the product packaging. The findings showed that abstract illustrations are associated with a high construal and perceived as more luxurious than the concrete photographs. Whereas the concrete photographs were found to be associated with lower level construal and perceived as less luxurious than the abstract illustrations. Both the illustrations and photographs were perceived as holding the same quality.

Furthermore, the thesis showed the implications that CLT applied to product packaging design would give in the design process offering an easy applicable scale of the level of abstractness of a visual imagery. The different levels of abstractness of the visual imagery was shown on an abstractness to concreteness dimension scale created for this thesis.

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# Introduction

Packaging is far more than a convenient way to get a product to the store without damaging it (Spence, 2016). Through the past years it has been well-researched that product packaging constitutes a powerful marketing tool and therefore is an important consideration for marketing the product. The packaging design is an important communication vehicle in the supermarket and it is through this that consumers become aware of products and it influences how the product is perceived. The packaging is an important aspect in the decision to purchase a product for the consumer and the right knowledge of what catches the consumer's eye and what is important in their evaluation of a product can enhance point of purchase communication and sales. The supermarkets are filled with vast choices of what to buy and the way that different brands and labels differentiate their products from others are through product packaging design. Indeed, it is estimated that *"over three-quarters of food/drink purchase decisions are made at the point of sale, 90% of consumers make a purchase after only examining the front of a pack; and 85% of consumers make a purchase without having picked up an alternative product"* (Simmonds & Spence, 2017, p. 340). The supermarket is filled with different options making the purchase decision a difficult task. As consumers do not have the option of going around sampling all the products in the store they must make their evaluation of the products based on the packaging. One way that the packaging can enable consumers to see the product contained within is by putting a visual imagery of the product on the packaging. On-pack product imagery has through several research shown to be *"an important way for consumers to gain an understanding of a product from its packaging, and a potential way in which to give clarity to product and brand positioning"* (Simmonds & Spence, 2017, p. 343). The marketers can use two types of visuals, illustrations and photographs when promoting their product in-store or in advertising (Septiano et al., 2019).

## Motivation and purpose

The motivation behind this thesis was the learning of the construal level theory (CLT). This theory states that the psychological distance perceived by the consumer between themselves and an object affects how consumers evaluate things. Findings combining CLT with the purchase of goods has found that construal level affects how consumers perceive the value of a product. The construal

levels effect has been investigated in relation to text and visual imagery. These are two elements often found on product packaging. It has however not been investigated how the application of CLT to product packaging affects consumers. It would be highly interesting to see if a manipulation of the construal level would have an effect on consumers' evaluation of a product. The strong effect of the visual imagery on product packaging being used to evaluate the product, motivated the authors of this thesis to investigate if CLT is applicable to product packaging, focusing on the visual imagery. The purpose of this thesis is therefore to investigate the effect of product packaging and if construal level is a factor that can influence consumers perception of a product.

**Problem formulation**

Using neuromarketing through the use of eye-tracking (ET), the thesis will look at product packaging design and how this affects consumers in their perception of different products. The examination will be combined with CLT investigating how different visual imagery on the product packaging is associated with different construal levels. This thesis will investigate this through the research question:

***"How are consumers affected by the design of product packaging? And how can construal level theory be applied to product packaging and what implications would this give in the design process of the product packaging?"***

The research question is limited to focus on one product category in order to limit the scope of the thesis. Food products were chosen as the product category because these are seen as ordinary products and it would therefore be interesting to investigate if CLT can be used to lead consumers to perceive food products as luxurious.

# Theory

In order to gain an understanding of the existing theory and be able to answer the research question it is necessary to shed light on different aspects. Before being able to apply construal level theory (CLT) to product packaging, there is a need for a thorough understanding of the theory, of how it

started and how it has developed considering the different aspects it has been applied to. This will help in answering the research question by knowing what construal level is and how it affects consumers. Another aspect that is important is an understanding of consumer behavior which explains why consumers choose to consume what they do and what consumers perceive as value.

Further, it is necessary to understand what has already been found to affect consumers in terms of product packaging design, thereby being able to take this into consideration when investigating a new aspect that could influence product packaging design. The decision-making process is important for the problem formulation to understand the implications of changing the product packaging design in terms of what impacts a consumer's decision-making and how neuromarketing can help in shedding light on this.

## Construal Level Theory

CLT is a psychological theory that states how people understand stimuli in the environment based on the perceived self and the object to be evaluated as it *"examines the relationship between psychological distance and mental construal"* (Lee, 2018, p. 319) where *"the farther removed an object is from me on any distance dimension, the higher (more abstract) the level of mental construal of that object"* (Van Lange et al., 2012, p. 131). According to CLT, objects that are perceived as psychologically distant are evaluated more in terms of abstractness and a high construal. Conversely, objects which are seen as closer are evaluated more concretely and on a low construal. The constructivist approach is at the core of CLT as the psychological distance is not a direct measurement of a specific distance but rather dependent on the consumer's own feeling and perception of the distance between themselves and the product or event (Trope et al., 2007). However, many studies have tried to put construal level into measurable definitions through experiments, leading it to be treated within a more positivist perspective.

Furthermore, *"research has shown that different dimensions of psychological distance (time, space, social distance, and hypotheticality) affect mental construal and these construals in turn, guide prediction, evaluation, and behavior"* (Trope et al., 2007, p. 83) and *"each of these dimensions are highly relevant to the consumer psychology of decision-making"* (Trope et al., 2007, p. 94). Temporal distances affect decisions about buying things for future use, savings and investing in durable

goods and self-control in terms of taking action for future goals. Hypotheticality is influencing decisions related to gambling and uncertain outcomes. Decision-makers are influenced by social distance in terms of how people decide for others, buy presents and advise others. Lastly, spatial distance can influence decisions related to shopping online (Trope et al., 2007).

The importance of construal level for this thesis is knowing what factors influence the manipulation of the construal level and how this affect consumers decision-making. Previous literature has shown how *"people mentally construe objects that are psychologically near in terms of low-level, detailed and contextualized features, whereas at a distance they construe the same objects or events in terms of high-level, abstract, and stable characteristics"* (Trope et al., 2007, p. 83). The contextualized features relates to the consideration of the feasibility aspect in the low-level construal of asking "How?" a certain object can be used or how a certain action can be performed, whereas the stable characteristics connected with high level construal relate to the desirability and the "why?" aspect of an object or action e.g. why one should use an object or perform an action (Lee, 2018).

## CLT and the associated Luxury

A category that has been found to be affected by CLT is luxury goods. Hansen and Wänke argues that *"the purchase of luxury goods is relatively exclusive, limited, and often merely hypothetical. Thus, luxury goods may be perceived as more psychologically distant than ordinary goods"* (Hansen & Wänke, 2011, p. 789). They found the link between psychological distance and abstract mental representations (Trope et al., 2007) to affect people both in terms of them using more abstract words to describe luxury goods as well as the converse relationship of them perceiving abstract product descriptions as more luxurious compared to concrete product descriptions. The definition of luxury in the dictionary is *"something inessential but conductive to pleasure and comfort"* or *"something hard to obtain"* (Hansen & Wänke, 2011, p. 790). The definition relates luxury to pleasure, desirability and exclusivity which links to the argument that Trope and Liberman puts forth of how desirability is related to high construal. Hansen and Wänke further argues for luxury goods as holding abstract mental representations as it entails all four dimensions of psychological distance. It is associated with social distance as it is often reserved for the higher upper-class society as it is only affordable to a few people. Furthermore, due to the exclusiveness of luxury most consumers do not have a lot of experience with it and it is therefore only hypothetical to be able to

purchase luxury goods. In terms of temporal and spatial distances *"purchasing luxury products is often characterized by long delays or requires calling on remote providers and international dealers"* (Hansen & Wänke, 2011, p. 790). Another distance cue that may cause an abstract representation of luxury is how the average consumer is not as familiar with luxury products as with ordinary products and therefore the lack of knowledge around luxury goods lead the consumer to mentally see luxury products as more psychologically distant.

**Fit between advertisement language and level of luxury**

Hansen and Wänke used language to manipulate construal level and found that *"An abstract product presentation leads consumers to perceive the product as more exclusive, more luxurious, but also as more expensive. The abstractness of language can be used to actuate luxury perceptions where necessary: When product descriptions are written in an abstract language, the product is perceived as more valuable and exclusive"* (Hansen & Wänke, 2011, p. 795). This notion of how the abstract product presentation will also lead consumers to perceive the product as more expensive shows how it could be suboptimal if consumers perceive a lack of fit between the product and the way it is presented as it can decrease the consumer's evaluation and influence choice e.g. *"when a product is clearly luxurious (e.g., a yacht) but its description is concrete and thus perceived as not very exclusive, or when the product is mundane (e.g. detergents) but its description is abstract and thus perceived as too expensive, this could decrease evaluation and influence choice"* (Hansen & Wänke, 2011, p. 795). A lack of fit between the level of luxury and advertisement language could be disadvantageous to certain product categories as consumers regularly use price as a criterion for e.g. choosing necessity goods where it would not be optimal to advertise this as a luxury product as necessity good does not fit into the definition of what a luxury good is. Therefore, it is important that the product's presentation both in terms of description and packaging mirrors a fit between level of luxury and level of abstractness.

**The factor of brand prominence**

Further research has looked into the factors that influence the relative effectiveness of abstract versus concrete language in a brand's communication. One factor that has been looked into is brand

prominence which is defined as *"the extent to which a product has visible markings that help ensure observers recognize the brand"* (Amatulli et al., 2020, p. 93). Brand prominence can either be low or high. Low brand prominence is products where the brand is not visible to others whereas a high brand prominence is brands where the logo is highly visible. It has been found that *"the differential effectiveness of abstract versus concrete language is crucially affected by luxury goods brand prominence. Indeed, we found that abstract language is more effective at increasing consumers' attitudes and WTB (willingness to buy) when luxury products are characterized by low rather than high brand prominence"* (Amatulli et al., 2020, p. 104). This means that there are factors that work as boundary conditions for the influence that the level of abstractness has on the consumer's perception of the product as the bigger effect of higher construal being perceived as indicating more luxuriousness is affected by the level of brand prominence. This can be explained by how brands work as heuristic cues (Delvecchio, 2001), and if the brand is there to use as a clear cue of the luxuriousness/quality of the product, the attention to other stimuli tied to the product is not necessary to evaluate. Vice versa, a low brand prominence means no brand to evaluate the product from and the other stimuli on the package must be used to evaluate the product. Even though this research only looked at luxury goods it is expected that the trend they found can be related to ordinary goods as well as it is a given for all brands that they differ in how visible and well-known they are. In regard to this it makes it relevant for this thesis to test the effect of CLT on products without brands on.

**Manipulation of the construal level in relation to text**

The construal level of a marketing text can be manipulated using the noun-to-adjective ratio from the Linguistic Category Model. According to this, the different group of words have different construal levels and can be distinguished into several classes and located on the concreteness-abstractness dimension. Verbs and nouns are seen as concrete as there is almost no element of interpretation of these words as they refer to specific behavior in specific situations and describe an objective physical reality. Adjectives are perceived as the most abstract words as they refrain from illustrating behavior and instead describe stable characteristics which according to Trope and Liberman are seen as working on a higher construal (Hansen & Wänke, 2011) (Massara et al, 2019).

**Construal level of shape and color**

Another study using construal level, looked at its effect in connection to visual features. It concluded that color construed a low construal level vs. shape that construed a high construal level as *"people treat shape as a high-level visual feature and color as a low-level visual feature of objects and events"* (Lee et al., 2017, p. 721). The reasoning behind this being that drawing from CLT and visual perception two principles from visual perception theories, that of the principle of invariance and the principle of essentiality can be related to findings related to CLT. Firstly, the principle of variance one can argue that *"shape is more resistant to contextual variation relative to color. The perception of color changes as a function of viewing angle and surrounding brightness of the environment. Shape, by contrast is less affected by such situational variation and thus represent more invariant information relative to color"* (Lee et al., 2017, p. 708). Secondly, the higher invariance of shape is also seen in how research has shown that people do rely more on shape than color to identify objects as this has a greater degree of discrimination (ibid).

The other principle from visual perception which is consistent with CLT is the principle of essentiality. As mentioned previously, one way that low-level and high-level construal differ is how high-level construal focus more on stable and central characteristics whereas low-level construal provokes detailed and contextualized features. Another factor tied to the centrality of high-level features is that low-level features are subordinate as they depend on high-level features more than vice-versa (Trope et al., 2007). Concerning centrality, shape is more central to the identification of an object as a difference in shape can make it into a completely different object whereas a difference in color will not affect the identification to the same degree as a change in shape. An example could be how the color of a banana does have an influence on judgement whether the banana is ripe enough to eat, but it would not be as important in the identification of the object as the shape which helps identify the fruit as a banana. Generally, *"the meaning of the color (as a low-level feature) will depend on shape (as a high-level feature) more than vice versa. This analysis shows that color relative to shape is generally less effective in conveying the essential nature of objects and is thus treated as redundant or unnecessary information in object identification"* (Lee et al., 2017, p. 709).

## Construal level of color

Color in itself has also been studied in regard to whether the presence or absence of color affects consumer information processing. The finding that shape is high level and color is low-level extends into how black and white visual imagery will be seen as more abstract as these rely more on the interpretation of the shape to identify what the object is than when it is a color visual imagery. Findings support black and white visual imagery to be seen as more abstract and color visual imagery as more concrete and has been studied in both causal directions. Both in how color affects mental construal where Lee et al., found that exposure to black and white pictures evoked high level construal while exposure to color pictures evoked low-level construal. Suggesting that *"black and white (BW) versus color imagery is cognitively associated with high-level versus low-level construal respectively"* (Lee et al., 2014, p. 1015). But the reverse causal direction has also been found as *"temporal distance (and corresponding high-level construal) facilitates BW (black and white) mental imagery, whereas temporal proximity (and corresponding low-level construal) promotes color mental imagery"* (Lee et al., 2017, p. 722).

## CLT as a combination of all elements on the packaging design

CLT is useful in how it connects the whole of the packaging design. It does not only refer to one specific stimuli on the package as is evident throughout this thesis which means that "*Construal level theory can guide a more holistic view of messages by offering insight into how a multitude of seemingly distinct message components may have underlying consistencies. This principle can motivate further research on how multiple message components can be manipulated together to communicate topics more effectively and bring about intention and behavior change"* (Lee, 2018, p. 320). The implications of finding out how all the different components on the packaging design interacts is how certain visual imagery, text and background can align with different construal levels and if it is possible to match the construal level across all components on the product packaging it will lead to more persuasive effects as all components for example working on a higher construal level leads to *"a consistent high construal representation in one's mind and entail easier processing and effective persuasion"* (Lee, 2018, p. 323).

## Construal Level effects on the Price-Quality Relationship

The construal level of psychological distance has also been researched in regard to the price-quality relationship where it was found that *"Consumers rely more on heuristics for psychologically distant choices. Products high in quality often carry hefty price tags, and consumers overgeneralizing this association in their reliance on the price-quality heuristic infer that a high price should predict high quality. The extent to which people rely on this heuristic, however, varies with psychological distance. When considering a purchase for the (temporally distant) future or for another (socially distant) person, people more readily infer expensive products to be of higher quality"* (Maglio, 2020, p. 111). Furthermore, Yan & Sengupta, found that *"consumers reliance on price (vs. feature - specific product attributes) for making quality inferences will be enhanced when the judgment is psychologically distant (vs. close). For example, the impact of price (attributes) on quality inferences should increase (decrease) when these inferences are made with regard to another person rather than oneself"* (Yan & Sengupta, 2011, p. 376). Their argument of price as an abstract cue is that price is often a more general cue based on consumer's observation and experience and therefore a more central indicator of a product's quality whereas product attributes which are seen as concrete are often related to a specific product and works in the context of this product alone. Another argument for price being an abstract cue is how it covers the overall evaluation of a product in terms of how desirable it is, whereas different product attributes only relate to one part of the overall product and answers the feasibility question of how the product works.

## CLT consequences and antecedents

As evident in the literature on CLT, psychological distance has an effect on consumer judgement and decision-making and the outcomes of these decisions will sometimes benefit from being seen as near and other times as far. The consequences leading people to see things as psychologically distant are affecting them in terms of their choices. Consumers' choices are affected by how psychological distance impacts the quality of what the consumers choose through its effect on how the consumers choose meaning that using either a high or low construal affects what consumers focus on e.g. the reliance on the price-quality heuristic the higher the construal.

The consequential effects of psychological distance depend on the particular situation and the antecedents leading people to see things as either psychologically close or psychologically distant and can both be natural boundaries of distance in terms of their immediate physical surroundings versus any other location, time in terms of the present moment versus any previous or future point in time, social in terms of the self vs. a stranger and absolute certainty versus any degree of uncertainty. The antecedent however can also be psychological distances imposed by the individual themselves as different individuals differ in the degree to which they divide the present and the future where some see it as a stark contrast and others see it as a more gradual transition. Further, individuals also differ in when they believe the present ends and the future begins where some will see a week from the current moment as the future whereas others will see it as still being the present (Maglio, 2020).

**CLT implications for consumer judgement and decisions**

Previous research has established many ways of how psychological distance and mental representation can affect consumer decisions and judgements. One example is *"when a decision is framed as psychologically distant and represented more abstractly, consumers tend to rely more on aggregated information about a product (such as an average evaluation of the product) than on specific information (such as an individual recommendation). Thus, in turn affects evaluation, willingness to pay, and choice"* (Hansen & Wänke, 2011). The same can be the case when comparing luxury and mundane products with each other as consumers may place greater weight on aggregate information than specific information when evaluating luxury products, whereas they will focus more on individual information as the important thing in the evaluation of ordinary products. Furthermore, for abstract representations consumers perceive primary features of the product (e.g. the sound quality of a radio) as more central to their decision than secondary features (such as a radio being equipped with a clock). Conversely, consumers will deem secondary features as more important for ordinary products than primary features (Ibid).

## Part Conclusion

CLT has through several studies been proven to affect consumers perception. A perceived psychological distance leads the consumer to form a high mental construal whereas perceived

psychological closeness leads the consumer to form a low mental construal. Abstractness lead to high construal while concreteness lead to lower construal. CLT have been found to affect consumer judgement and decision-making thereby affecting the choices they make. Further, one study found how the price-perceived quality relationship was affected by the construal level used, indicating that consumers rely more on this heuristic the more abstract the visual is.

Construal level has mostly been studied in regard to text where tools such as the adjective to noun ratio is used to manipulate the level of construal of the text. Text, has been found to affect the perception of luxury as this is perceived as psychologically distant by most consumers. However, boundary conditions have been found for this effect such as willingness to pay and brand prominence. All finding related to CLT in relation to text and its effect on implications for marketing practice is assumed to have the same effect when manipulating the construal level of the visual imagery. Thereby being useful theory for this thesis.

Researchers have noted how construal level offers a tool that connects all elements on the packaging design and looked into how a fit between the different element on the product packaging to have the same level of construal would lead to an easier processing for the consumer and thereby a more effective persuasiveness. However, not all elements that could be present on a product package have been investigated in relation to construal level and the first step is therefore to analyze the different elements separately before being able to combine them.

Recently, researchers have started to look into how visual features such as shape and color affect the construal level. Shape has been found to construe a higher construal while colors construe a lower construal. Furthermore, going in-depth with color this affect the mental construal as well where black and white visuals construe a higher construal than color visuals. These finding are highly relevant for this thesis as a starting point in its formulation of CLT applied to product packaging design.

## Consumer Behavior

Consumer behavior and how consumers act are important for this thesis to gain an understanding of why product packaging affects consumers the way it does, what lies behind consumers decisions to

consume and how consumers act. Furthermore, this knowledge can be used to understand why CLT applied to product packaging design would affect the consumer's perception of the product.

## Socio-cultural perspectives

In the socio-cultural perspective the consumer is seen as a culturally embedded interpreter seeking both tribal belonging and uniqueness through the symbolic world of goods. The perspective looks at how consumers are influenced by their reference groups and the attached meanings to consumer goods taken from the culturally constituted world. According to Belk *"our possessions are a major contributor to and reflection of our identities"* meaning that we are what we have (Belk, 1988, p. 139). On the basis of this the consumer can be seen both as an identity-seeker and communicator.

### Consumer as an identity seeker

The consumer as an identity-seeker stems from the attached meanings to consumer goods taken from the culturally constituted world. The construction of identity has become an important quest in today's society as prior times established social categories of class, occupation etc. have been eroded and there are now endless possibilities for the consumer in choosing who they want to be (Gabriel & Lang, 2015). As a help to answer the question "Who am I?" people turn to consumption. Consumption offers much inspiration of who we can be, and the shopping malls become arenas for exploration of different identities (Gabriel & Lang, 2015). In line with Belk's argument of how the consumer's possession is a contributor and reflection of their identity, products today have become carriers of meaning which serves as a signaling value both to the consumers themselves and to their peers. In this way *"shopping is not merely the acquisition of things: it is the buying of identity"* (Gabriel & Lang, 2015, p. 84).

The consumers quest for identity is an ongoing process evident in all parts of life and according to Davidson *"ours is a world in which it is our products that tell our stories for us"* (Gabriel & Lang, 2015, p. 84). The products we choose to consume and purchase therefore works as a live communication system from the food we purchase, the car we drive, how we decorate our homes to the clothes we choose to wear (Gabriel & Lang, 2015). As products work as a live communication

system for our identity, many of the products we choose can be a form of conspicuous consumption to designate higher social standing as the product serves as an indicator of social status implying that the consumer is a person that can afford this type of product. Through these products it is communicated who we are to those around us and who we are as individuals (ibid).

**Consumer as communicator**

The core of the image of the consumer as a communicator is how *"material objects embody a system of meanings, through which we express ourselves and communicate with each other. We buy and want things not because of what they can do for us, but because of what things mean to us and what they say about us"* (Gabriel & Lang, 2015, p. 47). This image of the consumer as a communicator also links to the consumer as an identity seeker as e.g. purchasing goods that communicate how they aspire to be is more important for the sake of communicating one's success to those around them. The need to communicate one's success is due to the human need to belong to a tribe and being accepted by these. As tribe-animals, consumers mirror themselves in others and are heavily influenced by reference groups (Wattanasuwan, 2005). The influence from reference groups are seen in how consumers can change their purchasing patterns depending on whether they are shopping alone or with others. Wanting to fit into the tribe consumers are more aware of what the people they are shopping with think and their purchases will be influenced by this (Gabriel and Lang, 2015).

One of the interesting live communication systems is the food that the consumer chooses to purchase and serve for peers. Indeed, research published by Douglas highlights the significance of meanings and codes that are attached to food and the social component of this particular type of consumption. The significance of meaning and codes attached to food and its social component can be seen in an everyday shopping trip through the picture of *"the housewife with her shopping basket arrives home: some things in it she reserves for her household, some for her father, some for the children: others are destined for special delectation of guests. Whom she invites into her house, what part of the house she makes available to outsiders, how often, what she offers them for music, food, drink, and conversation, these choices express and generate culture in its general sense"* (Gabriel & Lang 2015). In this quote it is evident the range of meanings that food have in terms of who they are served for, what is served and when they are served. This will all communicate different

things regarding the social status and the intimacy of the relation. Thus, having different signaling value. Seen in the perspective of how food is an important live communication system it makes it relevant for this thesis to look deeper into the effect of applying CLT to the product packaging within this category.

### Conspicuous consumption and Costly signaling

The different roles that consumption plays in the consumer's life shows the symbolic meaning of products as a way to construct and express ourselves and who we are as well as to identify our relation to others. Consumption symbolism is not a constant but rather socially constructed and thereby influenced by several different actors such as designers, producers, advertisers, consumers etc. Communicating the symbolic meaning of products is therefore done through signaling which is *"how one party may undertake actions to signal its underlying quality to other parties"* (Connelly et al., 2011). Consumers can through their consumption of goods signal their quality, hence their status. Conspicuous consumption is a form of consumption which communicates a higher social standing by showing that the consumer is able to afford more than the regular consumer through e.g. purchasing goods that are known to be expensive and using brands that are known to be high quality and luxurious (Vigneron & Johnson, 2004).

Conspicuous consumption can also be seen as costly signaling. Costly signaling is how *"organisms often engage in behaviors that are costly to themselves to signal honest information about themselves"* (Hardy & Vugt, 2006). It stems from observations in the animal world where an example is the peacock's tale which is costly as it limits its movement but at the same time its signaling value is a benefit as it communicates the peacock's quality as a mate or ally. The same way the examples of conspicuous consumption of investing in expensive and luxury brands can be financially costly but oppositely be beneficial as it communicates wealth and status.

## Value Perception

This thesis seeks to investigate how CLT can be applied to product packaging design and what implications this has for the perceived value of a product. To be able to comment on what consumers

perceive as value, insights must be gained into what value is. The perception of value differs from consumer to consumer and depends on what the individual consumer deems important as *"value perception is defined as a trade-off between sacrifices and utilities derived from product and store attributes"* (Zielke, 2014, p. 328). The products that are in focus are food products sold in grocery retailing and thus, the value perception within this is the interesting theory to look into. Further, CLT has shown to affect the perception of luxury, which makes it useful to understand the theory of what is valued in terms of luxury.

## Consumers' values in grocery retailing

Consumers behave differently depending on what they value as the most important in their decision-making and *"In grocery retailing the retailing formats are most often grouped (...) customers loyal to one format (e.g. high quality customers) might show slightly different behaviors than those loyal to other formats (e.g. price sensitivity, time used in the store, fill-in versus stock-up etc.)"* (Sigurdsson et al., 2016, p. 49). The retail format is defined as *"a specific configuration of the retail marketing mix (e.g. nature of merchandise and service offered, pricing policy, advertising and promotion programme, approach to store design and visual merchandising, typical location etc.) which is maintained consistently over time"* (Willems et al., 2016, p. 596). Where the different formats of retail design are divided into non-discounters, hard discounters and soft discounter. Discounters have a higher proportion of private labels, lower prices and smaller shopping areas, whereas non-discounters focus more on valuable benefits such as bigger shopping areas, a higher personal service and a wider assortment. The difference between hard and soft discount is that hard discounts offer a limited assortment which mainly consists of their own brands and has limited services as well as the store format being rid of all inessential features in order to offer lower prices. The soft discounters offer nearly all product categories in their assortment consisting of both their own private labels and national brands (Willems et al., 2016). Willems et al. developed a typology of customer value in a retail context inspired by Holbrook's 1999 framework consisting of seven value types which was efficiency, product excellence, service excellence, social value, play, aesthetic value and altruistic value. They found that the three retail formats of hard discounters, soft discounters and non-discounters differ in terms of what consumers shopping in the different formats value. Hard discounters were found to score low on the seven mentioned values while soft and non-

discounters scored approximately the same on the values with the exception of aesthetic value and fun which non-discount scored higher on (Willems et al., 2016).

Different consumers are attracted to different store formats and consumers choosing to shop in hard discount value lower prices, whereas consumers who shop in non-discount value aesthetics, and can see the shopping experience as a form of recreation and enjoyment. As a silver lining, consumers shopping in soft discount value the same wide assortment as consumers in non-discount stores, but is a bit price conscious in terms of not valuing the aesthetics part as much as the non-discounters (Zielke, 2014) (Willems et al., 2016). In this way, consumers choosing to shop in hard discounters are more price conscious than consumers choosing non-discounters. In turn, the consumers going for non-discount stores are not as focused on keeping the prices low, and therefore values the aesthetics of the store format more than the price conscious consumers do. Further, social value does have an effect on grocery shopping especially in the non-discount supermarkets and soft discounters. Meaning that consumers do consider what it communicates about them the place they shop for groceries and also what they buy (Zielke, 2014) (Willems et al., 2016).

## The Value of Luxury

Luxury is a wide construct and *"the perception of what is and is not a luxury brand, as well as the amount of luxury contained in a brand, may be dependent on the context and the people concerned"* (Vigneron & Johnson, 2004, p. 485). However, one thing that distinguish luxury products from non-luxury product are how they satisfy both consumers' psychological needs and functional needs whereas the non-luxurious products only satisfy functional needs. Other common dimensions that are mentioned in previous literature related to luxury products are high quality, rarity, premium pricing and a high level of aesthetic (Ko et al., 2019).

Vigneron and Johnson developed the Brand Luxury Index which is a scale that measures the degree of luxuriousness of a brand. It has five key dimensions which establish the sense of luxury. The dimensions are perceived conspicuousness, perceived uniqueness, perceived extended self, perceived hedonism and perceived quality. These dimensions are divided into personal and interpersonal aspects thereby relating to the consumer as both an identity-seeker and communicator. The dimensions with a personal aspect are perceived extended self and perceived hedonism while the

dimensions with an interpersonal aspect are perceived conspicuousness, perceived uniqueness and perceived quality. The level of these that a product represents distinguish whether a brand is associated with lower range of luxury or upper range (Vigneron & Johnson, 2004).

**Perceived extended self and hedonism**

The perceived extended self refers to the notion described earlier in this thesis of Belk's concept of how consumers view their possessions as an extension of their identity. In this way consumers *"use the perceived extended-self dimension transferred from luxury brands to enhance their self-concept and replicate stereotypes of affluence by consuming similar luxury items"* (Vigneron & Johnson, 2004, p. 490).

The perceived hedonism relates to how *"Luxury seekers are considered hedonic consumers when they are looking for personal rewards and fulfillment acquired through the purchase and consumption of products evaluated for their subjective emotional benefits and intrinsically pleasing properties, rather than functional benefits"* (Vigneron & Johnson, 2004, p. 491). Furthermore, luxury products are seen as less ordinary and not items that are necessary as *"to some extent the mere essence of luxury is that it is a special treat that is out of the ordinary. Moreover, the majority of consumers cannot afford in indulging in luxury every day. Thus, for the majority of people, luxury goods usually appear to be more psychologically distant than necessity goods"* (Hansen & Wänke, 2011, p. 769). In this way luxury products have a more hedonic value and is purchased due to the hedonic value while more ordinary products are bought out of necessity.

**Perceived quality, uniqueness and conspicuousness**

Luxury goods are multifaceted. All its dimensions are found to be seen as psychologically distant from most consumers as *"For instance, luxury is often described as being of excellent quality, which means that the ingredients or components in luxury products are exceptional and superior to items individuals commonly find. A very high price of luxury goods is usually perceived as a barrier that renders luxury goods and services as inaccessible. And in accordance with the dictionary definition, consumers perceive luxury as scarce and unique. Some consumers even indicated that they*

*feel ''foreign to the world of luxury''* (Hansen & Wänke, 2011, p. 870). The rarity is also a factor that makes luxury goods seem more exclusive, as it is for the exclusive few that have the means to afford it thereby also being seen as unique. Furthermore, as previously mentioned the perceived conspicuousness relates to consumers considering the influences of reference groups when consuming goods in public where the consumption of luxury goods is a signal of one's position where *"the measure of conspicuousness includes items such as 'extremely expensive' or 'for wealthy' which taps into perceptions of price and social status associated with the brand"* (Vigneron & Johnson, 2004, p. 489).

## The 5 p's of Marketing

Five areas which have shown to highly affect consumers behaviour and following decisions are the 5 p's of marketing consisting of price, product, placement, promotion and people. These 5 areas have been investigated using neuromarketing which is the application of neuroscience to marketing issues. Price in the findings related to the price-quality relationship, placement in terms of how both external and internal factors influence consumers attention to products when shopping, promotion in terms of how different information have a variety of effects on consumer attention, emotion, and motivation. Lastly, people can give insights as to how consumers decide whether they like or dislike a product.

### Price

Neuromarketing has been used to gain insights into the nonconscious perception and interpretation of price information where price has proven to affect the perceived quality of a product. Several studies both within consumer research and neuromarketing (Kardes et al., 2004) (Fortunato et al., 2014) have found that consumers perceive a high price for a product as an indicator that a product is high quality and thereby improves the value of the product. This was found in a study concerning wine where participants were exposed to different wine samples with different prices while their brain activity was measured using fMRI. The study found that *"The brain areas linked to the reward system showed higher activity when individuals believed to be drinking the most expensive wines"* (Fortunato et al., 2014, p. 214). From this, the study showed that the expected utility of the

product increased as prices increased due to the higher price leading the consumer to perceive it as higher quality and thereby more valuable. As economists term the experienced pleasantness an important component of experienced utility the research on the product-quality relationship bears the implication that *"marketing manipulations might affect subjective perceptions of well-being"* (Plassmann et al., 2008, p. 1052). This study further found that contrary to the standard economic belief that the experienced pleasantness from consuming a good only stems from its intrinsic properties such as the molecular composition of the food product, it also stems from non-intrinsic properties of the product such as the price. That price as a non-intrinsic cue can affect the perception of the value of the product means that the price will also be used as a guide to future behavior where products with a high price will be perceived as higher quality as the experienced pleasantness is a teaching signal that the consumer will adopt to future decisions. *"Our results suggest that the brain might compute experienced pleasantness (EP) in a much more sophisticated manner (than the economic view stating that EP depends only on intrinsic values) that involves integrating the actual sensory properties of the substance being consumed with the expectations about how good it should be"* (Plassmann et al., 2008, p. 1052). Hence, the brain saves this knowledge of how high price has indicated high quality in previous experiences and will use this as valuable information when having to make a decision of what product is good quality in the future. This information is helpful in the future and can serve as a heuristic for the rationally bounded consumer when having to make a quick decision of what product is the highest quality. It is relevant for this thesis, that previous findings have found that marketing manipulations can affect consumers subjective well-being as it indicates that other manipulations as well could influence how consumers perceive the value of a product.

**Placement**

Neuromarketing has been used to gain insight into how consumers navigate and select products. This has been done in a number of studies using ET. Placement is important as visual attention affects decision-making as if the consumers *"do not discover the product on the shelf, the decision process cannot even start. It underlines the importance in getting visual attention and addresses the question why particular design elements capture the shopper's attention"* (Clement et al., 2013, p. 235). It gives insights in terms of reaction time, emotions in terms of liking and wanting, atmosphere etc. Placement is important as it is an external factor that influences the consumers choice in-

store. External factors that has to do with placement are the supermarkets environment e.g. visual prominence and shelf layout as *"in our environment, there are certain elements that attract our visual attention more than others. This attraction effect depends on low-level visual features such as color, intensity, contrast and edge orientation"* (Gidlöf et al., 2017, p. 30). Apart from visual saliency, other external factors that have been found to affect consumer's in-store decision-making is the number of facings the product has on the shelf and the placement on the shelf. The number of facings has an effect as a larger number of facings covers a larger area of the consumer's visual field making it more likely that consumer will look at it, while the placement on the shelf has been found to influence how consumers tend to look more on products in the center of the display as well as consumers holding beliefs that the most popular products are placed in the middle, the expensive ones at the top and promoted products will be on the extremes of a display. Further it has also been studied how the relative placement and use of signage between products affect visual attention as *"consumers have a tendency to use stimuli and cues provided by the immediate context of the choice situation. Therefore, the composition and framing in the choice context can affect how consumers process information about relevant attributes and thereby their final choice"* (Clement et al., 2015, p. 188).

While external factors have a part to play in consumers decision it works in combination with the consumers internal factors meaning that *"consumers enter the supermarket with expectations, experiences, goals and preferences: for certain brands, for certain price segments, and for certain qualities"* (Gidlöf et al., 2017, p. 30). These factors which are goal-oriented also influences consumers' visual attention. Further, it has also been found that visual saliency has a greater effect than the consumers' preferences when under time pressure. Time pressure also affect the scanning strategy that people use, where it has been found that the more time pressure, the more people filter text elements and pictorials less (Gidlöf et al., 2017).

**Promotion**

Promotion is about how different information have a variety of effects on consumer attention, emotion, and motivation. Most of the information that is processed in the environment reaches the consumer under the conscious awareness. Neuromarketing can add value by a better understanding on

how people react to stimuli such as advertising and campaigns and whether they are perceived the way they were planned.

Two determinants of attention to advertising which has been found is bottom-up and top-down attention (Pieters & Wedel, 2004). Where *"bottom-up factors are features of advertisements that determine their perceptual salience, such as size and shape. These features capture attention to ad elements rapidly and almost automatically, even when the consumer is not actively searching for them (...) Top-down factors reside in the person and in his or her attentional process"* (Pieters & Wedel, 2004, p. 38). These forms of attention to advertisements were tested using ET focusing on the three key ad elements of brand, pictorial and text and how these were affected by stimulus such as the salience of the stimulus and a change in size also considering the goals that the consumer had in mind *"The pictorial is superior in capturing attention, independent of its size. The text element best captures attention in direct proposition to its surface size. The brand element most effectively transfer attention to the other elements"* (Pieters & Wedel, 2004, p. 36).

A further study on attention to advertising also used ET to investigate what consumers look at when looking at an ad where it was found that consumers look at ads with a certain goal in mind. Therefore, the consumer pays attention to the stimulus they are exposed to in the ad and the information contained in the stimulus to be able to infer an answer for the goal they have in mind. These findings *"support Yarbus's thesis that the informativeness of objects in scenes is goal contingent and that "eye movements reflect the human thought processes; so the observer's thought may be followed to some extent from records of eye movements" even during the brief moments that consumers choose to attend to ads"* (Pieters & Wedel, 2007, p. 231).

## People

People is about how consumers react to different things and decide whether or not they like the physical elements in a visual stimulus. People make snap judgement about object in their environment. Neuromarketing has been used to investigate how people decide if they like or dislike things where *"Liking of visual objects has been shown to be affected by factors such as symmetry, prototypicality, contrast, complexity, and perceptual fluency"* (Bar & Neta, 2006, p. 645).

One thing that has been investigated is the beauty and aesthetics of things. However, this is difficult to fully explain as it is very individual what people find aesthetically pleasing considering that *"beauty is grounded in the processing experience of the perceiver, which are in part a function of stimulus properties"* (Reber et al., 2004, p. 364). Therefore, specific stimulus properties can be investigated in terms of their influence on liking or disliking a visual stimulus, but it only partly explains the liking of an object. A major factor that has shown to affect the perception of liking a visual stimulus is processing fluency meaning the ease with which people can interpret the visual stimulus they are looking at. The liking of symmetry is due to the amount of information needed to be processed to perceive what it is. People judge objects better the less information they have to extract to perceive what the object is. Hence, with symmetry there is only a need to extract half and then create the other part. This preference for stimuli with less information to perceive relates to the ease of processing a stimulus as well (Reber et al., 2004, p. 370).

Several studies have looked into how contour affects aesthetic preference. One study found that people like curved objects and dislike sharp angled objects. Their argument for this being that sharp objects convey a sense of threat while emotionally neutral curved objects are pleasant (Bar & Neta, 2006). Although the preference to shape could be contextually related. Another study looking into the impact of contour on aesthetic judgments extended to architecture. Using fMRI they found that *"when contemplating beauty, curvilinear contour activated the anterior cingulate cortex exclusively, a region strongly responsive to the reward properties and emotional salience of objects"* (Vartanian et al., 2013, p. 10446). Further, the anterior cingulate cortex was found to correlate for nearly 60% of beauty ratings. These two studies found that curved objects or curvilinear objects are perceived as pleasanter than sharp objects and rectilinear lines.

## Part Conclusion

Consumer behavior is important knowledge to answer the research question as it helps in understanding why consumers consume. Consumer's behavior and how they act can be analyzed from a socio-cultural perspective. Consumer's behavior is culturally embedded and is influenced by their need for tribal belonging and uniqueness which they find through the symbolic world of goods. As consumption has become a playfield for the consumer to find an identity and communicate this to their peers what they buy and what they are seen consuming has become important. What

consumers value is different depending on how they wish to express their identity and what they wish to communicate to others. Practitioners when working with the 5 p's of marketing therefore has to keep in mind what the consumers deem as valuable, where especially product packaging design works as an important live communication system for the consumer both in terms of how they see themselves and want to be perceived by peers. The importance of the product packaging design calls for a more thorough investigation of the P for product and how consumers are affected by this.

## Product Packaging Design

The product packaging design has a large influence on consumers choice of products. According to the multisensory packaging design theory, the following elements influence the product choice made by the consumer. These elements are divided into color, shape, texture, sound, and smell. According to the theory and supporting findings, then consumers are affected by the package design and evaluate the product based on these *"...what one sees, at least in the setting of the laboratory, is that people's feelings about the packaging tend to carry over and influence what they say about the contents (that is, the product itself) when they come to taste/evaluate them."* (Spence, 2016 p. 2). Furthermore, by changing an element or multiple elements, can have a large effect upon the consumers evaluation of that product (ibid).

The following section will elaborate each multisensory element and describe the influence each element plays when it comes to consumers evaluation of a product.

### Multisensory packaging design: Color, shape, texture, sound and smell

#### Color

Colors have been used for many years to convey a message to the customers about the type of flavor the product contains. The color is also important for "the first moment of truth" meaning that the color of the package is used to attract the customer's attention. This is especially important since customers are exposed to hundreds of products during a walk through an average supermarket. The use of colors for certain products can vary depending on the country and culture. When producing a

product package one need to align the color with the expectation or the "norm" in that country and culture. It is argued that no matter the culture, the more saturated the color, the more it conveys a message of a stronger and intense flavor compared to a mellow color (Spence, 2016).

## Shape

Consumers evaluate most products visually and only pick up a few of the ones they are visually attracted by. Consumers do not only evaluate the product by the color but the shape is argued to also have a large influence *"...we normally see the color and shape of the packaging long before we feel it, and hence those visual cues anchor and dominate the subsequent experience"* (Spence, 2016, p. 6). A product category tends to have an overall product shape. For some products consumers can tell which product it is, only based on the silhouette (Ibid). This is described as the "image mode". One of the strongest image modes are the original Coca-Cola bottle. Even though the bottle have changed over time Coca-Cola still keep a silhouette of the original bottle on the product because this is a positive attribute in the mind of the consumer and they are not in doubt about what brand it is. Companies can create value by using an image mode from an already existing product or from another product category and hopefully gain a positive association with that image mode (Ibid). If a company does not want to copy an image mode from another brand, it is argued that round/angular including the logo and typeface shapes convey a message about the taste and texture to the customer, which is that round shapes are perceived to be smooth and creamier compared to angular shapes.

It is argued that the shape and color of a product has a higher influence on the customer's expectations of the product because customers see these elements long before they touch the product. If the shape or color of a product packaging does not capture their visual attention, it is not likely that they will pick up the product and feel the texture of it (Ibid).

## Texture

The texture of a product also have a strong effect on the consumers evaluation of it. It is argued that the roughness or smoothness affect how consumers perceive the product to be and evaluate the

product accordingly. This theory is backed up with a study which showed that by applying sandpaper onto the packaging of biscuits made the consumer perceive them to be of a much rougher feel (Spence, 2016). Adding an interesting texture element to the packaging can function as an intelligent marketing tool, since it encourages the customers to pick up the product.

**Sound, smell, and taste**

Consumers often relate a certain sound to a specific product e.g. the sound of opening a coca-cola can. The multisensory model argues that the sound of a product can affect the evaluation of that product. A study that supports this theory found that the sound of a rattling chips bag made the customer evaluate the chips as being 5% more crunchier than when the sound was not present (Spencer, 2016). It is also possible to engage the senses such as smell and taste, but this have not been explored by companies, to the same extent as the other senses. Some products such as ice cream can be difficult to smell since the product is frozen, but some companies have experimented with smell by adding a smell which is supposed to reflect the taste of the ice cream to the glue which holds the packaging together. The taste element might be the least explored one, but it has been explored if it is possible to create an edible package, but one might argue that it is not very appealing and/or healthy to eat a packaging which have been in the hands of other people e.g. supermarket employees and other shoppers etc. (Ibid).

**Individual/cultural differences in multisensory packaging design**

Ideally for the theory to work for each sense it is perceived that one is able to find a homogenous group. However, this is difficult because consumers have different preferences when it comes to products. But this does not necessarily have to be a negative thing. One can draw advantages from this e.g. when it comes to female and male preferences, one can tailor the product packaging according to whom that is making the purchase decision, this also counts for cross-cultural differences. When it comes to cross-cultural differences, a company cannot expect that a product will be successful in another country when there have been no alterations to the product packaging design. In some countries where the culture is similar, this might be possible but other countries might have a whole other view and evaluation of colors, shapes, imagery etc. An example of this is Cadbury's

failure to break into the Japanese market. The color purple which was used for their dairy milk bar is perceived as a mourning color in Japan, which might explain the failure (Spence, 2016).

## The role of package color in consumer purchase consideration and choice

Consumers use the color on the package and the physical color if available due to a clear package to convey information about the product, such as the flavor.

The risk for marketers of choosing another color than what the consumers are used to, can potentially have the effect of consumers rejecting the product. This was for example the case when the Pepsi company launched a new crystal Pepsi with cola taste. The drink was produced in a clear color, which did not fit the expectations of the consumers and they therefore rejected the product since they are used to drinking cola which have a dark color. Some consumers found that the taste was too different (Garber et. al. 2000). Companies need to understand the relative nature of the colors in relation to product packaging and its effect.

Due to the importance of product packaging design and especially the color Garber et al., presents a theoretical framework with focus on the color of food package design. This framework seeks to help marketers answer the following questions *"... what is an effective package? How can a package be designed or modified to ignite the interest of new customers while continuing to leverage the brand´s existing equity?"* (Garber et. al. 2000, p. 3). In order to do so the framework focuses on three factors which are *"(1) brand identification, (2) Package comprehension, and (3) package novelty and contrast."* (Ibid p. 6).

## Brand identification

When consumers are searching for a specific product in the store they look for cues in order to decide which product to choose. These cues come in the form of logo, shape, brand name, package color etc. This is in the framework referred to as brand identification. Some use these cues to find a specific brand which they have prior experience with and others use it to find a product which can fulfil a certain need. If a company changes a product too much it may be too difficult for the consumer to recognize it and therefore decrease sales as the consumer may choose a competing

product. In order to avoid this the framework suggests that the changes should be done gradually in order for the consumers to adjust to the changes and the new brand identification cues (Ibid).

**Package comprehension**

Not only does the brand cues convey a brand identification but it also communicates implicit and explicit claims about the products and illustrates benefits, attributes, ingredients and promotional offers to the consumer, which is presented as "package comprehension" within the framework. Over the years a certain category specific product packaging design norm has developed. This means that consumers developed a type of category map or cues for each category which includes the norms of how a product in that category should look like and what the different colors of the product imply. For example when it comes to soap the color green communicates a deodorizing effect, pink communicates cosmetic benefits and orange communicate antibacterial benefits and so on. This should be in the mind of the marketers and product developers in order to convey the correct message to the consumers (Ibid).

**Package novelty and contrast**

The package novelty and contrast of the framework refers to a product's visual ability to stand out from the other competing products on the shelfs. If a product does not differentiate itself visually from the other products it can decrease the likelihood of it getting noticed by the consumer. In order to stand out from the competitors' companies can use flashing colors to get attention. However, one need to keep the brand identification and package comprehension in mind in order to not confuse the customers either by them not being able to recognize the brand or convey a wrong message about the product e.g. taste, function etc. (Ibid).

**Sensory aspects of package design**

Krishna et. al. builds upon the layered-packaging taxonomy, to discuss how this influences the multisensory customer-product interaction. The taxonomy contains two dimensions, which are the

physicality dimension and the functionality dimension. The physicality dimension consists of the outer-intermediate-inner packaging layer of a product, which is focused on how the product package appears to the consumers and the functionality dimension consists of the purchase-consumption packaging layers of a product, which relates to the purpose of that product packaging. The authors use the taxonomy to discuss how the package design and the various elements within a package design convey a message to the consumers about the products and how the different cues influence the consumers evaluation of a product and influence their purchase decision (Krishna et. al, 2017).

The multi-sensory customer experience is divided into four stages. These stages are as followed 1. Attracting attention and initiating the customer experience, 2. Providing information and setting expectations, 3. Generating customer engagement, and 4. consumption (Ibid). For each stage there are several elements which influences the consumer. Stage 3 and 4 will not be included, as it is found not to be relevant for this thesis.

**Attracting attention and initiating the customer experience**

The first stage refers to the outer physical package and the purchase functionality packaging layer. For these packaging layers it is important that they attract the consumer's attention. According to the theory, then the more visual salient the product packaging layer is, the longer the consumers will fixate on the product and the higher chance there is that they will purchase the product. Furthermore, if consumers have a limited time to decide between different products, the visual saliency tend to have a higher impact on the choice rather than consumer preference. To create visual saliency the product package need to stand out from the other products on the shelf. Therefore, anything that is considerably different from the background can be considered as a detail that is salient (Ibid). When it comes to colors, it is found that contrasts create the most visual saliency, especially the red-green axis. Thus, one needs to take the surroundings into considerations in order to create the correct contrast. The shape and size of a product packaging can also create visual saliency.

Not only does visual saliency create attention it is also more likely that consumers will touch visual salient products, which also according to the theory, increases the likelihood of them purchasing the product. In order to get the consumer to touch the product practitioners could encourage them by slogans or signs such as "feel the freshness" (Ibid).

## Providing information and setting expectations

After the product packaging has captured the attention of the consumer, it needs to provide the customer with all the information that he/she is searching for. This can be done by implementing different visual and verbal cues applied to the product packaging, which communicate such information. According to the framework, this is mainly relevant for the outer and intermediate physical packaging and the purchase functionality packaging layer (Ibid).

The author's claims that when consumers have not tried a product before, they rely on verbal cues such as packaging-based marketing claims. These claims can be in the form of benefits or characteristics such as healtiness, sensory perceptions etc. Appealing to several senses at once will have a higher effect on the customers than only appealing to one sense.

Customers do not always notice the verbal cues but rely much more on visual cues such as photographs and illustrations on the product package design. These visual cues can *"boost the self-evaluations and may increase the likelihood that consumers will use the image as an extrinsic cue and a product-quality indicator"* (Krishna et. al, 2017, p. 47). The visual cues can help the consumer to better imagine the product´s smell, look, sound, feel and taste and therefore influences the consumer's expectations to the product.

Another visual cue which influences the consumers perception of a product is as mentioned the shape. The authors argue that the shape of a product packaging, when it comes to taste can influence whether the consumer perceive the product to be sweet or sour, this also applies to the name, typeface and high vs. low pitched sounds. This means that a rounded product shape, typeface and low-pitched sound are perceived to be sweeter that an angular shape, typeface and high-pitched sounded product which is perceived to be of sour taste (Ibid). Furthermore, the shape and color combination need to be congruent with the consumers' expectations of taste, texture etc. in order to generate a positive experience.

## The effects of packaging imagery on consumer perception and response

The research conducted by Gil-Pérez et al., discuss findings within product imagery and how this can affect consumers, and how the imagery can be manipulated to convey the message to the

consumer, that the product is the best one to fulfil their needs. Furthermore, it sets out to conduct a series of practical tips on when to use imagery on a package design and when it is recommended not to.

One may argue that if textual information is available on a product packaging, then a visual cue is not necessary, but research show that visual imagery can shape expectations of a product even when textual information is present. The reason for this can be that imagery often attract the attention of customers faster compared to textual information. Furthermore, imagery is set to generate expectations quicker since they are more vivid and require less cognitive effort to interpret. Due to the quick interpretations of imagery it is extremely important for the brands to understand how the consumers interpret the message which the imagery conveys and how they can manipulate the imagery to convey the desired message. This is important since one image can be interpreted in many ways. The authors present the example of a yoghurt which has a picture of a strawberry and argues that this can generate different interpretations in the mind of the consumer namely that the yoghurt has strawberry flavor, has strawberries on it, taste well served with strawberries etc. This property of the image is called *"propositional (syntactic) indeterminacy and is responsible for the communication through images to be considered `weak´- since the receptor can never be sure what the sender had in mind or the way, in which the stimulus should be interpreted"* (Gil-Pérez et al, 2020, p. 70). It is therefore the job of the designers to understand how the consumers interpret the image used for a product in order not to convey a wrongful message about the product and thereby set erroneous expectations.

As this thesis has limited its focus to the product category of food products it was deemed most important to understand the effect of the different visual imagery that can occur on food product packaging.

## Food images

When it comes to food products it has become important for consumers to see the product before buying it. This is possible either by opening the product packaging, showing the content of it by having a see-through packaging or by having an image of the product. These images often contain images of the flavor, ingredients or in the form of serving suggestions. These images have a large

influence on how consumers think of the product. Indeed, one research found that *"consumers expect the soft cheese depicted with a salad to be saltier and healthier than the soft cheese depicted with some quince"* (Gil-Pérez et al, 2020, p. 71) and that *"depicting an angular fire icon on a bag of nuts makes consumers interpret that the nuts are spicy, whereas a rounded fire icon makes them rather interpret that the nuts have been roasted"* (Gil-Pérez et al, 2020, p. 71).

The images used for a product can also affect the consumers' perception and response towards a product. In some cases a product can benefit from promoting the product in an unprocessed form for instance with juice. If the package depict a visual imagery with the unprocessed fruits used for the juice, consumers perceive the juice to be healthier and fresh compared to only portraying the processed product. However, this does not count for all food products, some products e.g. potato chips it can have the opposite effect to showcase a raw inedible potato on the package (Gil-Pérez et al, 2020).

**Non-food imagery**

For food products, non-food imagery can also be used on the product packaging. These types of pictures such as showing a landscape or a family eating the food conveys a message to the consumers. It is found that using a picture of a landscape or a farm to show the production process side can create a perception of quality and authenticity whereas, a picture of a family eating the product have a higher influence on the perception of when to consume the product for instance in social relations and to enhance a desire for the product (Ibid). A company can also benefit from using a non-food non-related imagery on their products. These pictures have nothing to do with the actual product but can be used as a metaphor and is meant to have a symbolic meaning e.g. having a lion depicted on a cereal (Gil-Pérez et al, 2020, p. 72).

**Legal practices of the pictorial element on food packaging**

The use of pictorial elements on the product packaging in terms of when it is allowed to use an illustration or a photograph is decided by legal practices. Laws have been formulated stating when and when not it is allowed to put a photograph of what the product packaging contains on the

product where *"In the European Union (EU), the general legal provisions against misleading labelling of food products are stipulated by Article 16 of the EU Food Regulation (2002/178), the Food Information for Consumers Regulation (1169/2011), and the Unfair Commercial Practices Directive (2005/29). Many of these provisions are stated in highly general terms and require further interpretation"* (Smith et al., 2015, p. 57). The legislations are general as they only state the prohibition of misleading food labelling without indicating what misleading food labelling exactly is except some guidelines in terms of it being misleading if containing untruthful information and factually correct information which is formulated in a way as it can be deceiving for the average consumer. The fact that the formulation is so general means that it is up to the relevant national bodies and courts around Europe to fill the gaps with their interpretation of the different laws and what lies in the meaning of misleading food labelling. Based on a review of 821 Danish cases on misleading food labelling Smith et al. addressed the Danish authorities and courts' interpretation of misleading food labelling and concluded that *"certain rules of thumb have been developed. One such rule-of thumb is that if the food packaging depicts a potentially taste-giving ingredient then the taste in question should originate primarily from that ingredient and not from artificial flavoring (even if artificial flavoring was used to "adjust" the taste)"* (Smith et al., 2015, p. 58). Therefore, the Danish authorities sees pictures as propositionally determinant of what is in the product packaging and if the product packaging has a photograph depicting a specific ingredient, this ingredient must be in the content of the product. One aspect that has been argued is the propositionally determinacy of illustrations were courts have ruled that illustrations due to being so stylized and sketchy hardly can be taken as an indication of being the natural taste giver of the product (Smith et al., 2015). Therefore, illustrations can be used as a visual imagery on products even though the taste stems from artificial flavoring.

## Part Conclusion

Based on the theory it is determined that multiple elements on a product packaging design affects consumers perception of the product. A product needs to be visually salient in order to attract the attention of the customer. This can be in the form of colors, shapes, images or anything that differentiate the product from the competing products.

Furthermore, consumers notice colors and shapes long before they touch it and if these elements do not attract their visual attention, the likelihood of it ever being picked up by the consumer is limited. Not only does color and shape attract the visual attention of customers, but imagery attracts the attention of the customers faster that textual information. Pictures require less cognitive effort to interpret and thereby generates the information faster. Thus, it can be difficult to create an imagery which convey the correct message, because imagery can be interpreted in many ways by consumers. Furthermore, the placement and size of a product image on the package affect consumers perception of the product.

Gender differences also play and important role. Companies can benefit from tailoring package design towards the specific customer who is making the purchase decision such as a male or a female, since not all groups are homogeneous.

The product packaging design conveys a lot of messages about the product and the brand to the consumer. Companies need to take the brand identification into account if a change is needed. Too radical changes to a product design may result in the consumers not being able to recognize the product and may turn to a competing product.

Lastly, what kind of pictorial elements can be used on the product packaging are bound by laws which prohibits misleading food labelling. This entails that a product packaging can only depict a photograph of an ingredient if it is an ingredient which is the natural taste-giver of the product.

## Decision-making

Decision-making has been widely researched as it gives insight into what affects people when deciding what to consume and what to purchase. In relation to this thesis this knowledge is interesting as it helps in explaining what it means to take a decision, what we base it on, how cognition can be split into two ways of processing a decision and how decision making is seen in the brain and through eye movements.

## System 1 and 2

There are two generic modes of cognitive function, that is system 1 which is intuitive where judgements and decisions are made automatically and rapidly and system 2 which is a more controlled mode that is deliberate and slower in making judgements and decisions. System 1 refers to the non-conscious whereas system 2 is the conscious processing in decision-making as *"The operations of system 1 are fast, automatic, effortless, associative and difficult to control or modify. The operations of System 2 are slower, serial, effortful, and deliberately controlled; they are also relatively flexible and potentially rule-governed"* (Kahneman, 2002, p. 450). Meaning that System 1's properties has to do with generating first-hand impressions of the attributes of objects and how these are perceived. Oppositely, System 2 is about judgement and the reasoning of why different attributes of an object is perceived in a specific way. System 2 will always be explicit and intentional (Kahneman, 2002).

## Accessibility

An important aspect in decision-making is the accessibility dimension where system 1 and 2 are placed in each end of the accessibility continuum. Accessibility is about how easy different mental contents come to mind. System 1 holds the characteristics of perception and intuition and its operations are rapid, automatic and effortless. In the other end of the continuum is system 2 which is slow, serial and effortful operations which people only undertake when there is a special reasoning for doing so. The two-view system is not a dichotomy and a question of either being system 1 or 2 but rather a continuum with different degrees of how much effort should be put into a certain operation to be able to make a decision. A way to increase accessibility is gaining knowledge or skills within a specific subject e.g. the consumer purposely going for the products that over an accumulated amount of time have proven to be indicators of good quality. As there are ways to increase accessibility there are also specific determinants of accessibility as *"the concept of accessibility subsumes the notions of stimulus salience, selective attention, and response activation or priming. The different aspects and elements of a situation, the different objects in a scene, and the different attributes of an object -all can be more or less accessible"* (Kahneman, 2002, p. 453). Considering how attention is selective, only the specific visual stimuli one pays attention to in the environment will be accessible for processing and in the end available for the decision-maker. What is accessible

is also influenced by prior experience. When the decision maker has to make a choice the response options that is activated and will be accessible in the decision process will e.g. be what the consumer has of accumulated knowledge of the stimuli in question. Kahneman also describes how accessibility can be provoked in the decisionmaker through priming effects as which visuals, words, sound, taste and smell you are exposed to right before having to make a decision will influence one's choice.

**Framing effects**

Another way that a decision-maker can be influenced is through the framing effect. Tversky and Kahneman found that different descriptions of the same problem led people to decide for different outcomes depending on what different aspects of the outcomes the description highlighted. This made them raise doubts about the idea that people are rational as *"highly accessible features will influence decisions, while features of low accessibility will be largely ignored. Unfortunately, there is no reason to believe that the most accessible features are also the most relevant to a good decision"* (Kahneman, 2002, p. 459). The decision that a decisionmaker makes is therefore highly influenced by the information that is given to them, as humans are not able to process all available information because they are bounded rationally and at the same time strategies are also used to lessen the level of involvement the consumer needs to use in a purchase decisions and will therefore use heuristics to make the decision easier to make.

**Risk analysis**

Consumers take on a risk when purchasing a product. This risk is related to uncertainty as the consumer will not know exactly what they are getting in exchange to their investment. A way to mitigate this risk is using heuristics. Taking time to rationally go through all the pros and cons of buying a specific product would be too time consuming and not possible either due to bounded rationality. Therefore, consumers rely on specific heuristics to be able to quickly estimate if a product is worth buying. One study focusing on the evaluation of food product found consumers to strongly rely on heuristics when making food choices and reasoned this with *"because they (consumers) are faced with myriads of food decisions every day, people quickly accumulate expertise in this domain.*

*This expertise includes knowledge of what kind of attributes they value most"* (Schulte-Mecklenbeck, 2013, p. 249). Using these heuristics is a way of preventing a potential loss. In purchasing and consuming a product, there are several different types of risks that the consumer exposes themselves to. These are functional, financial and social. Functional risks entail the potential for loss due to lacks in the physical performance of the product. Whereas financial risks are *"construed as the potential for a loss of monetary resources due to substandard performances and subsequent product repair/replacement. Given this definition of financial risk, the replacement cost of the product represents the potential financial loss"* (Delvecchio, 2001, p. 242). Lastly, social risks are about the symbolic aspects of product consumption and the social risk connected with this, if choosing brands that are not accepted by one's' peers or brands standing for values and beliefs going against what the consumer wish to communicate about themselves. The social risk being judged by peers or missing out on being part of the group.

The risks are weighted in connection to the likelihood and magnitude of negative consequences e.g. if the product is expensive or the consumer is highly involved in the product the magnitude of the negative consequences are bigger. Another factor that also affects the magnitude is the product category e.g. whether it is a fast moving consumer good (FMCG) or slow-moving, since buying a relatively cheap chocolate bar that turned out to taste bad will not have a huge negative effect whereas buying a computer that breaks down after a month will have a higher magnitude of negative consequences. The likelihood of negative consequences is also an issue of the trust and perceived quality of the product *"as consumers choose between national and store brands, they must make trade-offs between the types and levels of risk to which they are exposed"* (Delvecchio, 2001, p. 241). On one hand a trade-off could be how a lower price allows consumers to limit the financial risk to which they are exposed while trading this lower financial risk with the acceptance of a higher level of functional and social risk. On the other hand, is how the consumer would be willing to pay a higher price thereby exposing themselves to higher financial risk in return for a lower risk for negative functional and social consequences (Delvecchio, 2001).

## Heuristics

Decision-makers adopt certain judgmental heuristics to ease the process of taking a decision. This means that *"people rely on a limited number of heuristic principles which reduce the complex tasks*

*of assessing probabilities and predicting values to simpler judgmental operations. In general, these heuristics are quite useful, but sometimes they lead to severe and systematic errors"* (Kahneman, 2002, p. 465). A heuristic means that one attribute is substituted with another to make the decision easier for the decision-maker. The definition of a heuristic process of attribute substitution is *"A judgement is said to be mediated by a heuristic when the individual assess a specified target attribute of a judgment object by substituting a related heuristic attribute that comes more readily to mind"* (Kahneman, 2002, p. 466). This definition of an attribute that comes readily to mind relates to the workings of system 1. An aspect of attribute substitution that is needed in relation to this thesis is the understanding that decision-maker's judgement of an attribute reflects their understanding of what they were asked e.g. asking them to rank how luxurious/non-luxurious the product is, the question has the implicit question of which stimuli gives cues as to what is luxurious. This has been researched and *"several studies in social psychology have shown that exposure to the name of a familiar social category increases the accessibility of the traits that are closely associated with its stereotype"* (Kahneman, 2002, p. 475). This is an example of an availability heuristic which *"is based on an assessment of accessibility, in which frequencies or probabilities are judged by the ease of which instances come to mind"* (Kahneman, 2002, p. 454) while other heuristic judgement are representativeness heuristics, anchoring heuristics and affective heuristics which also influence the decision-maker.

**Anchoring heuristic**

Anchoring is when a decisionmaker starts with an initial value, a so-called anchor, when having to make estimates. This anchor is often based on a number the decisionmaker has previously been exposed to or relates to the same category as the number now needed to decide for. For example, estimating different daily commodities could differ in whether the decision-maker feels that a cup of baking powder can be seen as luxurious. The bias that can occur from an anchoring bias is how the intuitive impression first appearing from system 1 is likely to serve as an anchor when system 2 kicks in trying to reason for why a certain decision is made and therefore corrective judgements made by system 2 is often insufficient.

## Affect heuristic

A more recently discovered heuristic is the affect heuristic which argues how every stimulus evoke an affective valuation either consciously or unconsciously. This means that decision-makers are affected by their emotions when making a decision as *"an automatic affective valuation – the emotional core of an attitude – is the main determinant of many judgements and behaviors"* (Kahneman, 2002, p. 470). That many of these emotional reactions happen unconsciously is where neuromarketing becomes interesting as this makes it possible to uncover some of these emotional responses that consumers are not aware of having an effect on their decision to consume or purchase (Ariely & Berns, 2010).

## Special heuristics connected to quality perception

Quality can be construed in both functional and social terms. As previously mentioned, the risks encountered when purchasing or consuming a product can be functional, financial or social. In order to reduce these risks consumers use certain product category characteristics to lower the risk and rely on specific cues that indicate quality. Product category characteristics that is deemed when consumers want to decrease functional risks are category complexity, category quality variance and the average interpurchase time of the category. The category complexity relates to the difficulty in manufacturing a product in the category. Perceptions of good functional quality can stem from *"a variety of factors including the number of attributes, nature of manufacturing process, and/or the delicacy of components required in manufacturing the product"* (Delvecchio, 2001). An important heuristic for quality can be a strong brand which consumers know have the unique production skills needed for the complexity of this product category as well as a long history with a proven track record to support their ability to make these complex products with a good functional quality. The perception of the functional quality will be affected more the higher the variance among the brands within a category. The bigger variance leaves bigger room for consumers perceiving the different brands within the category as different quality.

Another heuristic consumers use for evaluation of functional quality is the interpurchase time. Firstly, a short interpurchase time lowers the functional risk as *"shorter interpurchase times may lead to lower functional risk as a mistake in purchase is more quickly rectified through the next*

*purchase in the category than if interpurchase time is long"* (Delvecchio, 2001, p. 241). This would be the case in e.g. FMCG where the consumer will consume the product relatively fast and switch to another product within that category if not satisfied with the first. This short interpurchase time also lowers the functional risk indirectly as the consumer is able to gain knowledge relatively fast about the functional quality of a product and thereby lower the uncertainty of the purchase as they are more familiar with the brands in a category (Delvecchio, 2001).

Quality construed in social terms relates to the symbolic aspects of product consumption as a symbol of the consumer's personality, beliefs, and status. With this to affect the perception of quality is the corresponding social risk related to consumption. An important heuristic for good symbolic quality is again the brand name. A strong brand name will have built up brand equity and have a certain status and certain values associated with it. However, the social risk is only as big as the importance that the consumers attach to the belief that his or her peers may evaluate them negatively due to the purchase. Also, the risk will depend on how publicly exposed the product that the consumer is buying is. A higher risk is attached to the purchase within a product category if it is *"consumed in such a manner that others are in a position to evaluate the consumer based on his or her brand choice"* (Delvecchio, 2001, p. 242). With the purchase within such product categories the consumer knows that they will be evaluated based on their consumption behavior and the product therefore must have a certain signaling value. Here the well-known brand names can assure against the risk of negative consequences such as negative peer-evaluations.

The approximation for the financial risk is the price level of the category. The risk lies in an expensive purchase where the product turns out to be of bad functional quality and has to be replaced within a short amount of time. Consumers see price and quality as equal to each other so an increase in price will mean an increase in quality. Therefore, a lower price is seen as a consequence of lower quality and therefore *"one way in which consumers may mitigate risk is through the purchase of higher priced brands (...) consumers are more likely to rely on a higher price as a signal of quality"* (Delvecchio, 2001, p. 242).

Having gained insight on how consumers make a decision and what they base it on, it is interesting to understand it in terms of what happens in the brain when a decision is made and what people's' eye-movements are revealing in terms of what decision is made.

## Decision-making in the brain: Valuation, reward processing and preference

The neural basis for subjective value is traced to the human striatum of the brain, where *"specifically, ventral striatal regions (i.e., NAcc (Nucleus accumbens) ventral caudate, and medial putamen) reciprocally target ventromedial cortical and subcortical regions implicated in emotion and motivation, while more dorsolateral striatal components (i.e., dorsolateral caudate and putamen) target dorsolateral cortical and subcortical regions implicated in movement and memory. (...) This connectivity also implies that the striatum is ideally situated to coordinate valuation and subsequent action"* (Glimcher & Fehr, 2014, p. 393). Neuroimaging can be used to scan the brain through e.g. functional magnetic resonance imaging (fMRI). The striatum in the brain has been found to be where the decision takes place. Further, fMRI studies have shown that the mere anticipation for food can be rewarding in how *"observation of food prior to eating elicits dopamine release in the NAcc (and MPFC), prior to dopamine release elicited by eating" (...) "experiments designed to distinguish appetitive (or anticipatory) from consummatory (or out- come) phases of reward processing indicate increased NAcc dopamine release during reward anticipation*" (Glimcher & Fehr, 2014, p. 395). This indicates how the pictorial element of what food the product packaging contains could be of great importance to the customer's decision of what product to buy as a photograph of actual food can be rewarding in itself and in this way influence the decision positively.

There is evidence that what underlies a decision to approach a product is due to *"incentive processing in which the ventral striatum assess expected gain and the dorsal striatum use that estimate to inform future actions and cognitions"* and in this way *"neuroscience findings suggest that valuation is a dynamic, componential, and ultimately subjective process"* (Glimcher & Fehr, 2014, p. 402). This knowledge is useful for this thesis in answering the research question in knowing how consumers evaluate things and how reward can be given just by looking at e.g. food. Furthermore, knowing that the first step of making a decision in the brain is the assessment of what will be gained and how taking a decision is connected to certain risk as there is a risk that the consumer could lose instead of gain something shows how taking a decision is an evaluation between the gains and losses of making that decision.

## The role of attention during decision-making

Attention processes plays an active role in constructing decisions as attention limits the decision to stimuli that is being fixated on and enhancing the influence of fixated information. In relation to this thesis' problem formulation it is relevant to understand what happens during a fixation, what determines where we fixate and how attention and working memory interact to be able to interpret why people choose to fixate on certain things over others and what it means for the construction of a decision if certain stimuli are being fixated on for a longer time.

### What happens during a fixation

A fixation is directing overt attention to a specific stimulus where *"Overt visual attention brings the stimulus into the fovea, which has a higher density of sensory neurons and, thereby, enhanced visual processing*" (Orquin & Loose, 2013, p. 191). As visual attention enhances perception it will result in an enhanced perceptual representation when the decision-maker is fixating on a stimulus. Contrarily, non-fixated stimuli will not be identified, and will be unavailable for the decision-maker as an option. This lack of identification of a stimulus makes it impossible to create a perception of it when the decision-maker is not even aware of its existence. Hence, it is important for a product packaging in the first place to stand out in order for the consumer to see it and furthermore the different stimuli on the product packaging design will help in shaping the consumer's perception of the product which in the end will form the decision that the consumer makes.

### What determines where we fixate

Eye-movement and attention can both be stimulus-driven and goal-driven and *"the total salience that guides eye movements during search is the sum of bottom-up salience due to the brand's perceptual features, and top-down salience due to the goal-based selective enhancement and suppression of these features"* (Van Der Lans et al., 2008, p. 923). Stimulus driven attention is a bottom up control of attention. It relates to the role of visual saliency consisting of different aspects of visual conspicuity, such as contrast, color, edge orientation, and movement. This means that certain stimuli will capture the attention of the decisionmaker due to it standing out from the rest of the

packaging design. From visual saliency computational models of gaze patterns has been made which *"assume that a visual scene is encoded in parallel at the first glance, and that a topographic saliency map is computed, which guides attention selection"* (Van Der Lans et al., 2008 p.191). However, the effect of saliency on attention capture end encoding of it to visual stimuli is smaller than top-down control. It has therefore been proposed that saliency has little or no role in capturing and allocation in the human gaze allocation outside the laboratory (Orquin & Loose, 2013, p. 191). Arguing how the effect of saliency on attention capture is smaller than top-down control stems from how *"Several factors have been identified that override attention capture by visual saliency, such as semantic or contextual cues about a visual scene, feature based attention, object representations, task demands, and rewards for task performance"* (Orquin & Loose, 2013, p. 191). Therefore, stimuli that helps the decision-maker in identifying the necessary information to reach their goal is likely to override salient features on the product packaging design.

Goal-driven attention is a top-down control of attention. It is goal driven in how the decision-makers eye movements will be driven based on a specific goal they have in mind. Based on this decision-makers will attend to stimuli that has a higher task relevance while ignoring the stimuli that has little or no task relevance. Decision-makers know which stimuli is relevant through practice which could be driven by feedback about the reward value of attending to a specific stimulus. Studies have shown how participants have shorter fixation durations, more fixations to relevant areas and shorter time to first fixate relevant areas the more experienced they become with a task (ibid). This implies how learning affects attention, and in regard to decision-making these learning effects should *"increase decision efficiency through more fixations to task-relevant stimuli, fewer fixations to task-irrelevant stimuli, and faster stimulus processing* (Orquin & Loose, 2013, p. 192). Even though many top-down processes override bottom-up processes it has been shown that the interaction between these amplify attention capture (Ibid). This due to how the effect of saliency could interact with task demands. If these interacted *"decision-makers are more likely to attend to salient stimuli that share features with goal-related objects"* (Orquin & Loose, 2013, p. 192).

**How attention and working memory interact**

A theory that has had significant influence on eye-tracking based decision research is the eye-mind assumption. This states that there is a strong causal relationship between what is being fixated on

and what is being processed meaning that attention and working memory are connected as *"The eye-mind assumption posits that there is no appreciable lag between what is being fixated and what is being processed"* (Orquin & Loose, 2013, p. 192). This assumption has been exemplified in studies showing how an increase in task difficulty leads to an increase in the number of fixations or in fixation duration (Orquin & Loose, 2013). Even though the eye-mind assumption is validated, recent studies have shown that there is not always a linear relationship between attention and working memory. Instead it is a question of a trade-off between fixations and working memory depending on whether it is deemed most efficient to retrieve information from the environment or from memory. Fixations are seen as an external memory space and will therefore in tasks with a high working memory load reduce the demands on working memory to remember the stimuli. In doing this participant use a just-in time strategy meaning that they only choose to fixate on a specific stimulus when it becomes relevant for the task at hand thereby minimizing the working memory load through exploiting the availability of external information (Ibid). An example is deciding between what product to buy and first attending to the look of the product packaging and then afterwards fixating on the price on the shelf as the consumer knows where to find it and only need the price information after deciding if it is something they would consider buying. Several studies have shown that depending on the task participants will rely more on either attention or working memory load which both suggest that the just-in-time fixation strategy is an essential operating technique of the visual system but also that there is another operating mechanism which strives to minimize the processing demands in general.

Furthermore, another way that attention and working memory relates is in terms of what information is extracted and encoded during fixations. Studies have shown that *"participants only encode a limited amount of object features during fixations. The particular feature, which is encoded during a given fixation, depends on the current goal of the participant. For instance, information can be encoded concerning object color in one fixation and object shape in the next"* (Orquin & Loose, 2013, p. 192). Through these studies working memory encoding has shown to be highly selective and visual objects are not encoded as complete object representations but instead that the visual binding in working memory is highly selective and only specific stimuli of what you see will be processed and encoded most likely only the visual stimuli that helps in solving the task at hand.

In sum, previous findings on attention and working memory show that fixations can lower the demand on working memory by serving as an external memory space, as instead of having to use

energy on memorizing specific visual stimuli the stimulus location is encoded and *"decision makers are able to strategically re-fixate the stimulus the moment its features are needed in the decision task"* ( Orquin & Loose, 2013, p. 192). The alternative of having to encode all information concerning one alternative before proceeding to the next and then having to compare the options and make a decision based on the memorized information is far more inconvenient than simply being able to revisit the stimulus with the needed information. Another finding is how what is encoded from attention to working memory is highly selective and most likely the features that will be encoded to the working memory are the ones related to the decision task.

This knowledge is necessary for answering this thesis' problem formulation in knowing what exactly happens when a certain visual stimulus is fixated on, how it is decided what to fixate on and how a fixation connects to what happens in the brain and how this relates to decision-making. It is helpful knowing that eye-movements during decisions can be controlled by either top-down or bottom-up processes, how learning influence the duration and number of fixations, how decision makers trade-off between fixations and working memory and how it is only fixated information that can influence a decision as the non-fixated information is not available.

## Part Conclusion

Existing theory on decision-making was deemed important for this thesis problem formulation to be able to understand how people make a decision. It was found that there are two generic modes of cognitive function, that is the intuitive system 1 where judgements and decisions are made automatically and rapidly and the more controlled system 2 that is deliberate and slower in making judgements and decisions. Several different aspects stem from system 1 and 2 such as accessibility, heuristics, risk analysis etc. Further, the theory on decision-making helped in gaining insights into how decision-making works in the brain showing how the first step of making a decision in the brain is valuation of what will be gained followed by subsequent action. This shows that the decision is made based on a trade-off of the gains and losses the consumer. Another aspect of decision-making which is important is how attention plays a big part of making a decision, leading this thesis to the decision to use ET in their investigation and to be able to answer its research question.

# Methodology

This thesis seeks to analyze and test how CLT can be applied to product packaging design. The strategy is to use both qualitative and quantitative methods.

## Research approach

The research question *"How are consumers affected by the design of product packaging? And how can construal level theory be applied to product packaging and what implications would this give in the design process of the product packaging?"* entails different aspects to be investigated separately. The different aspects of the research questions are investigated using different approaches. The deductive approach is used in answering how CLT can be applied to product packaging, as we begin with theory, in this case CLT, and test if data supports this theory, thereby moving from general to specific by gaining knowledge through logical reasoning that starts from stated assumptions formulated as hypothesis. Several hypotheses are set up to be tested in order to either be confirmed or rejected through using statistical analysis to analyze the obtained data (Veal, 2014). The thesis at the same time works with an inductive approach to answer the question of how consumers are affected by the design of product packaging as the answer to this is induced from data gathered through qualitative approaches such as using secondary literature and in-depth interview. *"The qualitative approach lends itself to a more inductive approach, especially when conducted on a small scale"* (Veal, 2014, p. 358). In-depth interview was chosen as it allows the authors of this thesis to collect complex data of one or few individuals that are considered to have valuable knowledge about the design process of the product packaging of different products. The method is characterized by its depth, length and structure where depth is achieved due to being able to pose supplementary questions and the opportunity to ask the interviewee for further explanation (Veal, 2014, p. 222). This also led to the decision that the interview should be semi-structured to assure that the most important aspects are covered to support the research as well as leaving opportunity to ask further question coming to mind during the interview that is deemed relevant. To reach this a check-list with pre-described questions was made (p. 84-85).

## Philosophy

This thesis is written with a positivist perspective as it sees the world as something that is rather than something that becomes, which is evident in the phrasing of the research question asking "How?" which indicates that it is something that is and can be analyzed objectively. This is also in line with the use of the deductive approach which is associated with the positivist perspective. Furthermore, both the field of neuromarketing as well as the field of social psychology subscribes itself to the positivist perspective. Neuromarketing in how it measures consumer responses to marketing using biometrics and neurometrics (Ariely & Berns, 2010). Social psychology in how it relies on science to gain insight through the use of experimental intervention and control of extraneous variables (Tuffin, 2005).

## Research strategy

The thesis starts by proposing the research question and continues to investigate the answer for the given question through a theory part going through the relevant theory needed to help in answering the research question. After having gained the necessary knowledge on the relevant subjects, the methodology will explain how CLT will be applied to the product packaging design and how eye-tracking results can help in answering the research question. Thereafter, a literature review is made to understand what has previously been studied in terms of the same problem as the one that this thesis is studying and at the same time know which results have already been found in relation to this subject. Having collected the secondary literature that has given an understanding of what is already known on the subject and having clearly defined how construal level is applied to product packaging several hypotheses is developed. Having formulated the hypotheses, the research strategy and design will be explained building on the hypothesis set up to be tested. After this, the analysis will begin through collection, description and evaluation of data to fully understand the results. After a thorough analysis of the results, the limitations of the study as well as what could be further researched is commented on. Following this section there will be a discussion of the results. The thesis will end with a conclusion followed by the academic contributions as well as the managerial implications of the findings.

## Methodological choices

The mixed methods of both quantitative and qualitative methods were chosen due to the phrasing of the research question, as the answer to how consumers are affected by the design of the product packaging and what implications the effect of CLT in the design of the product packaging calls for a thorough examination of secondary literature to gain insight into what has already been found. Oppositely, answering how CLT can be applied to product packaging calls for an experiment where quantitative data needs to be analyzed to be able to measure if there is an effect. The use of these mixed methods leads to triangulation as looking at the specific research study from different sides by using multiple methods sheds light on the subject from different angles. Triangulation helps securing the quality and aims to increase credibility. Furthermore, the fact that there are two people on the same thesis is also triangulation, since the different approaches is discussed by means of their strengths and weaknesses. Methodologically, thought has been given into how using mixed methods increase the quality of the research as it enlightens the research area in different ways. Another form of triangulation is mixing three different research fields. That of social psychology where the CLT originates from and using the field of semiotics to reach a definition of how CLT can be applied to product packaging and then mixing this with neuromarketing using the biometrics ET to investigate if this theory can have an effect on how the design of the product packaging is perceived. Further, both social psychology, semiotics and neuromarketing is used to reason how and why this theory affects consumers.

A methodological choice has been made to use ET as a tool for data collection. This is due to how it was deemed to give valid results in terms of testing the value of CLT used in relation to product packaging. Furthermore, ET is a biometric that directly measures people's eye-movements and bias will therefore be avoided as it is people's actual behavior that is measured (Ariely & Berns, 2010).

This thesis is aiming at investigating if CLT can be applied to product packaging. Before this can be done there is a need to gain knowledge about what it is and what results have already been found. Furthermore, as construal level mostly have been studied in relation to text there is a need for a definition of construal level when it is applied to product packaging. The following sections will do this.

## Applying CLT to the visual imagery on the product packaging

As mentioned, to investigate one aspect of the research question "*How can construal level theory be applied to product packaging and how would this be done?"* and be able to set up hypotheses to investigate this, the definition of what the construal level of product packaging entails needs to be defined. This holistic view of the whole product packaging, with a definition of what the construal level of all the different components entail, is however not possible as of yet, as all components have not been studied in relation to construal level and how it affects the components. The present thesis therefore sets out to further investigate one of the components on the product packaging. That being the visual imagery on the product packaging. Another consideration when using ET is that only one component can be measured at a time to assure that the results from the study is indeed due to this one specific stimulus. This thesis will investigate the effect of the visual imagery and how this can be manipulated to construe different construal levels. The visual imagery is also one component that has started to gain interest among researchers as to how this can affect construal level (Gil-Pérez et al, 2020).

The definition of the construal level of visual imagery used in this thesis builds upon the trichotomy of communicative signs suggested by Peirce, his semiotic framework states how signs can either work on an iconic, indexical or symbolic level. The symbols refer to text while iconicity and indexicality applies to visual imagery. Iconic signs are characterized by *"some form of similarity or analogy between the sign and its object"* while indexicality is *"a sign is indexical if it is actually caused by its object and serves as a physical trace pointing to the object's existence"* (Messaris, 1997, p. viii). Using iconicity and indexicality to explain the visual imagery on the product packaging as a signifier it is expected that an illustration signifies a more high and abstract construal as these only *"bear some degree of immediate visual resemblance to the object depicted"* whereas a photograph signifies a lower and more concrete construal as these *"are caused by the objects they represent in brute physical terms*" (Smith et al., 2015, p. 55). Meaning that the iconic sign could be an illustration of e.g. an apple on a product package containing apple jelly (picture 1) while the indexical sign would be a photograph of an apple (picture 2).


*Picture 1*


*Picture 2*

Two factors in the literature on CLT has been found to affect construal level in relation to visual imagery. This is shape and color, which is applied to this thesis definition of how different levels of construal can be construed and is in line with how the image on the abstract product packaging design work on an iconic level while the images on the product packaging with a concrete construal works on an indexical level. Based on the findings of how shape works on a high construal level and color works on a low construal level (Lee et al., 2017) the visual imagery is also categorized as the illustrations being more abstract for the consumer to comprehend as it is only from the central feature of the shape of the illustration they can decode what it is and do not have the contextual cues of color to depict what food it is. Oppositely, the visual imagery working on an indexical level has, as it is a direct depiction of reality, the food product in its real color which also makes it more concrete for the consumer as they have learned the color codes of different products and has likely gained knowledge of the product by being exposed to the real food before, thereby seeing it as more psychologically close and it will therefore be easier to process e.g. a piece of a leek and bacon depicted indexically (picture 3) rather than iconic (picture 4).


*Picture 3*


*Picture 4*

Furthermore, previous research has argued for illustrations entailing a high construal while photographs entail a low construal as *"illustrations are typically less concrete and bear less resemblance to actual objects than photographs. Building on construal level theory, which posits that a psychologically distant (close) object is construed in a more abstract (concrete) manner, we argue that photographs are associated with low construal levels, whereas illustrations are associated with high construal levels"* (Septianto et al., 2019, p. 104). Due to the effect of abstract language affecting the perception of luxuriousness this thesis aims at exploring and investigating if construal level can be applied to visual imagery on the product packaging and will have the same effect as it does on text.

The definition of abstract- and concrete visual imagery is formulated building on previous findings and using the definition of abstraction which is *"a process of identifying a set of invariant central characteristics of a thing*" (Burgoon et al., 2013, p. 502). Therefore, the definition of abstract- and concrete visual imagery are:

*An abstract visual imagery is an illustration of an object only entailing the central characteristics of the object's shape and fewer observable characteristics leading the object to bear some form of similarity or resemblance to the object it is depicting. The abstract visual imagery is therefore iconic.*

Oppositely,

*A concrete visual imagery is a photograph of an object meaning it is an exact depiction of the object and serves as a physical trace pointing to the object's existence with its observable characteristics such as shape and color leading the object to be a direct representation of the physical object it is depicting. The concrete visual imagery is therefore indexical.*

Connecting this definition of how to manipulate the construal that people perceive the visual imagery on the product packaging with, the past research about the association between luxury and high construal level (Hansen & Wähnke, 2011) is drawn upon. It is expected that construal level applied to visual imagery on the product packaging will have the same effect as it does on text meaning that the product packaging with a visual imagery working on an iconic level (illustration) is expected to be perceived as more luxurious and high quality. Whereas the product packaging with a visual imagery working on an indexical level (photograph) is expected to be perceived as less

luxurious and lower quality. The manipulation of the construal level of a text was made using the concreteness-abstractness dimension scale that the Linguistic Category Model sets up which was found to lead texts to be seen as more abstract the more adjectives compared to nouns there was in it as *"High adjective-to-noun ratios lead to high construal, and low adjective-to-noun ratios lead to low construal"* (Massara et al, 2019, p. 8). Applying this to the visual imagery on the product package it is expected that construal level will affect whether the consumer perceive the product as more or less luxurious depending on the level of abstractness of the visual imagery on the product packaging. This is expected as *"Abstract product descriptions are perceived as more luxurious than concrete product descriptions"* (Hansen & Wänke, 2011, p. 789).

Taking the idea of the adjective-to-noun ratio as a starting point, abstract product packaging design will be defined as the product packaging's visual imagery showing an illustration which has some degree of visual similarity to the object depicted by having the same shape. The most abstract visual imagery are the illustrations with only the central shape being drawn up, entailing only the necessary shape to be able to identify the product that is depicted (picture 5). An illustration that is still abstract however moving closer to concreteness on the scale is an illustration still without color and only the shape to construe what it is, but however with more illustrated details making it closer to resembling the physical product (picture 6). The next step of an illustration moving it even closer to being concrete is adding color to the illustration (picture 7). The most concrete visual imagery is the photograph which is indexical as there is no element of interpretation apparent to know what is depicted here (picture 8). Illustration 1 shows different product packages with different visual imagery and how these are placed on the abstractness to concreteness dimension scale (Illustration 1).

*Illustration 1*


*Picture 5*


*Picture 7*

*Abstractness* ⟷ *Concreteness*


*Picture 6*


*Picture 8*

## Eye-tracking as a method

This thesis experiment uses ET to look at the drivers of attention. The area of interest (AOI) on the product packaging is the visual imagery which is manipulated to either being abstract or concrete. The ET measures which will be used are fixation duration on the visual imagery, revisits to the visual imagery and time to first fixation to the text. Fixation duration is an indication of level of processing which is argued to entail either a low or high construal as it is argued based on the eye-mind assumption that what is being fixated on is processed and the longer a stimulus is fixated on the higher the processing time as more time is used to process what the visual imagery is. The argument for how fixation duration and level of construal is connected is how a longer fixation duration indicates how deeply the information that the participant looks at is processed which will differ depending on how concrete the visual imagery is, as the less details in the visual imagery to decode what it is, the more time it will take to identify what the visual imagery is depicting. Furthermore, revisits is an indication of how much attention an individual pays to the respective AOI, in this case the visual imagery, which helps in gaining an understanding of how much the visual imagery is used in making the decision of how luxurious/high quality the product is. The third ET measure used, that of time to first fixation is usually used as an indicator of saliency, but in this case, it is used to see how quickly participants will seek out the text as a help to identify the visual imagery on the product packaging.

### The relevance of using eye-tracking

ET is a biometric tool chosen for this paper as it records the eye movement of the participants during behavioral processes and *"attention processes plays an active role in constructing decisions"* (Orquin & Loose, 2013, p. 190). Therefore, ET can help in answering the research question as it relates to the investigation of whether a specific stimulus on the product packaging affects consumer's decision-making. As eye movements are often used for measuring visual attention to different stimuli it will provide useful information for this thesis in enabling the researchers to see how people direct their attention and how much attention is paid to the visual imagery. Furthermore, a benefit of being able to capture attention is that *"individuals' attention determines which pieces of information will be recognized, prioritized, and processed"*(Meißner & Oll, 2019, p. 591). Therefore, it is interesting to see which stimuli people will pay attention to and recognize and prioritize

when being asked to rate the luxuriousness/quality of the product. The duration of the fixation on a specific stimulus will also indicate how long it takes for people to process the stimuli they look at.

**The fixation duration as an indication of the level of processing**

The fixation duration *"quantifies how long a participant's eyes were still in a position"* (Meißner & Oll, 2019, p. 596). It is chosen as a measurement as it indicates an increased level of processing the longer the fixation. The level of processing is a psychological construct that can be connected with CLT. A high construal can be said to take longer to process as it is more abstract and therefore is hypothesized to take longer to withdraw the necessary information of what it is as *"The level of processing as a psychological construct is based on the idea that the fixation duration indicates how deeply the information that the participant looks at is processed. The assumption is that short fixations indicate scanning and automatic processes, whereas longer fixations are indicative of deeper processing, such as deliberate consideration of information"* (Meißner & Oll, 2019, p. 597). Another thing that has shown to influence the fixation duration is the cognitive load of gaining the information as *"increased average fixation durations correspond with increases in cognitive load"* (Meißner & Oll, 2019, p. 598). The fixation duration on the visual imagery can therefore both be an indication of how deeply the information is processed and how difficult it is to interpret what the visual imagery shows. The difficulty with which it is to interpret also relates to uncertainty about what it is that one is looking at. Another indicator of cognitive load is how *"higher cognitive load requires faster saccades"* (Meißner & Oll, 2019, p. 598). The more confused a person is about the interpretation of the task at hand, the more frequently people will look back and forth for relevant stimulus to solve the task. To take this looking back and forth into account this thesis is using another ET measure that can be an indication of the higher cognitive load.

**Revisits as an indication of relevance of the visual imagery**

The number of revisits to the visual imagery means the number of fixations on the visual imagery. It is seen as an indicator of relevance as what is looked upon is what will be cognitively processed, and the more times the visual imagery is fixated on the more it is processed. This is based on the eye-mind assumption. Furthermore, revisits indicate what the participant deems relevant to pay

attention to and *"The question of how much attention participants direct to one piece of information compared to other pieces is often interpreted as an indicator of relevance. For example, researchers count the number of fixations to an AOI to quantify how much attention is directed to the respective AOI. The line of thinking is that attention directed to stimuli is the outcome of a goal-directed (search, choice, or learning) process that led to the respective gaze behavior"* (Meißner & Oll, 2019, p. 596). The interesting aspect for this thesis is therefore to see how relevant they see the visual imagery when having the goal of judging the luxuriousness/quality of the product they are looking at.

**The time to first fixation to the text as an indication of uncertainty**

Time to first fixation is usually used as an indicator of visual saliency. However, in this case it is used as an indicator of time to first fixation to the text as this could indicate uncertainty as to what the visual imagery depicts. Previous research has proven that the first thing that is fixated on a product packaging is the visual imagery, hence our expectation that the first fixation to the text will depend on the participant's ease of identifying what the visual imagery depicts.

**The eye-tracking measurements connection to the level of construal**

All three ET measurements chosen to test in relation to CLT has to do with uncertainty. The fixation duration in how it can be an indication of a higher cognitive load which also lead to a deeper level of processing to understand what the visual imagery depicts. Number of revisits in how it shows an uncertainty to whether the visual imagery is relevant to solve the task at hand. The time to first fixation to the text can be an indication of a difficulty in identifying what the visual imagery is showing and therefore relying on the text to be able to identify what the visual imagery is showing. The fact that they all revolve around uncertainty can be related to a higher construal the more uncertain they are, as a low construal will be easy to identify as it shows very concretely what the object is through a photograph that looks exactly like the object in reality. Oppositely, the higher construal has through previous research been proven to be associated with abstractness and a focus on only the central aspects of the object such as the shape to identify what the object is.

# Literature review

This thesis problem formulation was formulated on the background of inspiration from different literature. Both in terms of inspiration to how the visual imagery affects consumer's perception of the whole product, the effect of CLT, the formulation of the hypothesis and the set-up of the research design.

## Packaging as brand communication: Effects of product pictures on consumer responses to the package and brand by Underwood and Klein (2002)

The study extends on the current literature on product appearance and its influence on consumers attention and evaluation. The study set out to investigate if placing a picture on the product packaging has an effect on consumers and what this effect may be. The two following hypotheses were tested *"H1: including a picture of the product on a package will positively affect: a) attitudes towards the package, b) beliefs about sensory brand attributes, c) brand evaluations. (...) H2: Including a picture of the product on the package will have a more pronounced effect on low familiarity brands than on high familiarity brand with respect to: a) attitudes towards the package, b) beliefs about sensory brand attribute, c) brand evaluations"* (Underwood & Klein, 2002, p. 61).

The study tested the two hypotheses by computer generated pictures of either national labeled product or private labeled product designs, which either included or excluded a realistic picture of the product. The products included in the study were spread over three product categories bacon, candy and margarine. For each product category two products were produced one which included a realistic picture of the product and one without a picture. All other elements of the packages were kept equal. The brands used for the study were either a well-known national brand (high-familiarity) or a private brand (low-familiarity). The participants were to evaluate their beliefs about the target product and about the product brand and packaging. For the set-up of the study four brands were shown on each page in a stimulus book. On the first page there would be pictures of four different brands in the same category but only the target brand would have a product picture placed on the package design. All brands would have their price placed underneath. The participants were to evaluate the products on healthiness, taste, beliefs of the target brand and evaluation of the package design.

The study was able to confirm H1, since the authors found that consumers preferred the package design with the pictures over the package designs without pictures. Furthermore, the study found that there was a positive attitude towards the products with a picture on the package design for both private and national labeled brands. The study also found that when it came to the sensory attribute taste it showed that products with a picture positively affected the participants belief of the taste of the product. The study found that the effect was higher for private labeled brands than for national labeled brands.

Critical points

Only one out of four products per page of the stimulus book had a picture placed on the product package, which makes it stand out from the competitors both for the national and private labels, which can be argued to naturally draw the participant attention to it. Furthermore, the study only shows that a product with a picture on has an advantage if no other products in the same category has a picture on its packaging, which is not likely in a realistic setting. Thus, it would be interesting to test if different types of visual imagery on the product packaging has different effects on consumers perception of a product.

Thereby the study is relevant for this thesis because it is used to gain insight into how people are drawn to product pictures and induced the interest to investigate the effect of different visual imagery on the product packaging. Based on this study it was also found interesting to further study the product design of private label brands as it was found that visual imagery has a more positive effect on low familiarity brands compared to national brands.

## The influence the image of the product shown on food packaging labels has on product perception during tasting: effects and gender differences by Lindón, Rebolla, Gil Pérez, Martin and Vincente-Villardón (2018)

This study investigated *"the influence that the visual appearance of the product pictured on the packaging has on the way consumers perceive the product during consumption"* (Lidón, et. al, 2018, p. 689). The authors tested the effect of the colors of apples of an apple sauce. The research included two groups, one which were exposed to a glass of apple sauce with a red apple image on

the front and the other group which were exposed to a glass of apple sauce with a green image on the front. All other elements on the product packaging where kept the same on both products. The participants were asked to judge a new apple sauce entering the market. They all had unlimited time to touch the physical product and taste it. Afterwards the participant answered both sensory and non sensory attribute questions about the product on a 7-point likert scale. The participants were asked how much they liked the product, how willing they would be to buy the product and whether they found the product to be sweet or acidic. The study found *"that the visual appearance of the product pictured affects Liking, Willingness to buy, and some product attributes (...) The study also shows that gender differences exist as these effects do not affect all consumers equally, with women being more sensitive to them than men"* (Ibid, p. 689).

This study is relevant for the thesis problem formulation, as it shows that a product imagery and the overall design of a product packaging can affect how the consumer perceive and evaluate a product. This led the authors of this thesis to find an interest in further researching how other factors and in this case abstract vs. concrete imagery affect people's evaluation and perception of a product. Furthermore, the experimental setup is used for inspiration.

### Art infusion: The influence of visual art on the perception and evaluation of consumer products by Hagtvedt & Patrick (2008)

The study argues that art is intrinsically related to sophistication, exclusivity and luxury. It is found that some companies use art to promote their products and hope that "high-cultural images" has a positive spillover effect on consumers. Some companies hope that by using an art image on or in relation to their product can convey a message to the consumers that their product like a painting is a unique work or art. Research on the actual effect of visual art in relation to products is limited and so the authors of the study set out to *"examine the phenomenon of "art infusion", which we broadly define as the general influence of the presence of art on consumer perception and evaluations of product with which it is associated. More specifically, we theorize that perceptions of luxury associated with visual art spill over from the artwork onto product with which it is associated, leading to more favorable evaluations of these products"* (Hagtvedt & Patrick, 2008, p. 379). Furthermore, the

authors believe that it is not necessarily the content of the artwork which has an affecting role but the association of visual art with luxury.

The notion of art was decided by the authors to be of the consumers opinion. For the sake of the research it is deemed more relevant what the consumers perceive art to be rather than what experts perceive art to be also called consumer focused perspective. Furthermore, the authors performed a pre-test in which they asked participants to distinguish art images from non-art images. The participants were also asked to describe why they perceive an image to be an art image and based on their responses the authors found that the participants define art works as *"works that are perceived as skillful and creative expressions of human experience, in which the manner of creation is not primarily driven by any other function"* (Hagtvedt & Patrick, 2008, p. 380). The authors chose paintings as art images.

The research included three studies. For study one all the participants were brunch guest at a cafe. The participants were presented with two boxes of silverware side by side where one of them had an art image on the outside of the box and the other one had a non-art image. The participants where then asked to answer on a 7-point likert scale on the images were an art image or a non-art image. Afterwards the participants had to answer questions about the perception of the product according to favorability, negative/positive attitude, like/dislike etc. Lastly the participants were asked to rate the products according to prestigious, luxurious, attractive and high class. It was found that the product with the art image on the front were rated higher on the product-evaluation index compared to the non-art image product. Furthermore, it was found that when a product was associated with an art image it was perceived as being significantly more luxurious than when it was associated with a non-art image indicating that there is a spillover effect.

The second study set out to demonstrate the independent nature of the art infusion. Which means that it is not the content which is presented on the art image which have an effect but the association of the artwork and luxury. The study included three advertisements for bathroom fitting where one contained an art image (Girl with the pearl necklace by Johannes Vermeer) another one contained a non art image with identical content (Scarlett Johansson portraying the Girl with the pearl earring) and a no image as a control group. The participants were to evaluate the advertisements on the same scale as in study one. The study found that the product in the advertisement with the art image was

evaluated to be more favorable than the one with the non-art image. This indicates that art images favorably influence the evaluation of a product. Furthermore, the art image was perceived to be more luxurious than the non-art image.
For the third study, three soap dispensers were produced with each their own picture. The first one with a positive artwork (*Plazzo da Mula* by Claude Monet), the second one with a negative artwork (*The burning of the house of lords and commons* by J.M.W Turner) and the third one with a photography of similar content as the first one of the positive artwork (A Venetian canal). According to the author, then the last picture is supposed to function as a photo of the positive artwork by Claude Monet. The authors hypothesized that if the art infusion is content independent then both the positive and negative art image should result in equally favorable product evaluations. The hypothesis hold since both the products with positive and negative art image were evaluated more favorable than the non-art image. Furthermore, the perception of luxury index revealed that the products containing an art image was evaluated as more luxurious than the product with the non-art image.

Critical points

The study indicates that there is a positive spillover effect of the association with art image on product evaluations and the association with luxury. However, there are several critical points in the study that can create biases. Study one was conducted at a cafe during a busy brunch weekend, this can affect the time and concentration from the participants point of view. Also, since the experiment was conducted by the table it is expected that more than one person were at the table and the participants might have been able to discuss their answer and evaluation of the products, which can have had an influence on their answers. The fact that the participants in study one were presented with both the art and non-art image can also bias the participants and make it easy for them to figure out what the study was about when the only change between the two are the images. It can also be argued that the two pictures used, the art image and the non-art image which were supposed to be almost identical might be too different from each other. Furthermore, the research might not have had the same results if unknown art images had been used instead of well-known paintings.

This research is relevant for the problem formulation because it inspired the authors of this thesis to research the relationship between abstractness and concreteness on consumers perception of quality and luxuriousness of product images further. Based on the critical points of the article, it was found that it would be interesting to study if and how non-famous abstract imagery can affect people's

perception of the product. Furthermore, it is perceived to be more valid if the participants are only to be shown one type of imagery at a time.

## Aesthetic package design: A behavioral, neural and psychological investigation by Reimann, Zaichkowsky, Neuhaus, Bender & Weber (2010)

The research set out to study the aesthetic experience of product packaging on consumers through a combination of behavioral, neural and psychological methods. The authors noticed a change in the differentiation game on the market of consumer products, where an increasing number of companies use aesthetic product packaging as a differentiation tactic instead of focusing on product attribution and quality because these elements are becoming more and more homogeneous. For the study the authors therefore focus on *"the underlying affective processes of aesthetic product packaging, how these may become evident in behavior (i.e., longer reaction times and choice) as well as the brain's reward system, and correlation with self-reported product involvement"* (Reimann et al., 2010 p. 432).

Based on a five stage physiological framework created by Leder, Belke, Oberst, and Augustin the authors predicted that they would be able to find a difference in affective processing for consumers presented with a standardized packaging design compared with an aesthetic packaging design. The respective definitions of standardized and aesthetics was made based on a pre-test asking participants to categorize different product packaging as either being standardized or aesthetic. The visual aspects of aesthetic package design were defined as beauty, unity and prototypicality. Oppositely, standardized packaging design was defined based on their functionality and practical utility. This would be measured by a longer reaction time for the products with an aesthetic package design compared to products with a standardized package design. The increased effect and the longer reaction time being due to more emotional responses to the aesthetic product packaging.

Based on previous experiment the authors expected to find that when presented with an aesthetic packaging design people would have a longer reaction time to arrive at their choice compared to people exposed to a standardized package design. Furthermore, the authors expected that aesthetic packaging designs would trigger an emotional response and that key areas of the reward system in

the brain would be activated. Lastly the authors expected that aesthetic product packaging would engage the emotional self and thus generate a stronger engagement by the participant, which led the authors to investigate the following three hypothesis *"H1. The more aesthetic the product packaging design, the more affective processes will be engaged, resulting in increased reaction times. (...) H2. The more aesthetic the product packaging design, the more activated the striatum, particularly the nucleus accumbens, and the ventromedial prefrontal cortex will be. (...) H3. The more aesthetic the product packaging design, the more effectively involved consumers will be"* (Reimann et al., 2010, p. 433-434).

The study was conducted over three experiments. The first experiment set out to test if it is possible to differentiate between aesthetic packaging design and standardized packaging designs. Furthermore, the reaction time of the participants were studied. It was found that it is possible to differentiate between aesthetic and standardized packaging designs and that the reaction time was higher for the aesthetic packaging designs compared to the standardized, which support H1. The second experiment set out to isolate the aesthetic packaging design from the price and the brand. For this experiment the authors found that *"aesthetic packaging design with an unknown brand at a higher price leads to more choices than well-known brands in a standardized package at a high price* (Reimann et al., 2010, p. 437). The third experiment was set up similarly as experiment two, thus for this experiment fMRI was used as a measurement method and to locate the exact area of activation in the brain. After the brain scan the participants were to answer questions about product involvement e.g. appealing, fascination etc. and cognitive involvement e.g. valuable and needed for the products included in the study. This experiment also found that aesthetic packaging designs were chosen more frequently compared to standardized packaging designs. Furthermore, the experiment found a significant difference in the brain activity in the ventromedial prefrontal cortex more precisely the nucleus accumbens (NAcc) and the cingulate cortex. Activity was also found in the primary visual cortex and the precuneus, when it comes to the aesthetic packaging design compared to the standardized packaging design. The findings were most significant for unknown brands with aesthetic packaging designs.

Critical Points

For the first experiment studying reaction time, it can be argued whether the longer reaction time found is due to the aesthetic packaging design or uncertainty. Also, for the experiments the

participants were to either choose a product or not choose a product, which can create a bias since the participants could potentially find a packaging design aesthetic but would not purchase it. The experiments also included the brands on the packaging designs which can create a bias since it can be argued whether the brain activation or the decision was based on the aesthetic appearance of the package or the brand itself.
The study is relevant for this thesis because it researched the effect of aesthetic product packaging design and found that reward value plays an important role in aesthetic product experiences. It was used to formulate hypothesis, especially in relation to the product design and the fact that it is possible to differentiate between standardized product designs and aesthetic package design. Abstract illustrations will be seen as more aesthetic product packaging design than the concrete photograph product packaging. Furthermore, the pre-test research design inspired this thesis in how a pre-test is made where participants are asked to categorize the visual imagery as either being abstract or concrete.

## Construal level shift integration and segregation of the brain network by Stillman, Lu & Fujita (2020)

Based on CLT the study set out to investigate the neurocognitive mechanism for the representational process of the CLT with the use of network neuroscience. The authors uses fMRI as a measurement tool. In order to directly manipulate low-level and high-level construal, the participants were asked to think of different sceneries in near versus distant future. When people are asked to think about an event in the distant future, they are to rely on expectations, since there is a lack of reliable detailed specifics and thereby have to expand their regulatory scope. For the opposite situation where people are asked to think of near events, they rely on local cues.
The CLT proposes that *"people address this challenge by constructing distant objects and events in terms of essential and invariant properties that are unlikely to change across instantiations - a representational process referred to as high-level construal. As objects come closer, CLT proposes that people construe events in terms of the details and idiosyncratic information that becomes increasingly available - a representational process referred to as low-level construal"* (Stillman, et al, 2020, p. 382).

For the high-level versus low-level construal people either contract or expand their regulatory scope. Furthermore according to the authors then *"construal level theory proposes that key to high-level construal is cognitive abstraction"* (Stillman, et al, , 2020, p. 382) and where the key to low-level construal is concretisation. The CLT state that for high-level construal requires integration across disparate inputs in the brain and low-level construal requires segregation. However, according to the authors, no research have neuro-cognitive evidence for what role integration and segregation plays.

The research on network neuroscience, which tries to understand the emergent cognitive phenomena, makes it possible to examine integration and segregation in the brain. Thus, the results can vary depending on the individual and the proposed task. Based on network neuroscience research the authors predicts that brain networks would reorganize to *"promote global efficiency or clustering coefficient when task demands induce high- versus low-level construal (respectively)"* (Stillman, et al, 2020, p. 383).

The experiment performed by the authors were divided into two tasks a Why-How task and a temporal imagery task. For the Why-How task the participants were exposed to different imagery where they were to answer questions relating to how or why. For the temporal imagery task the participants were to visualize different actions which were either to happen in the near future or in the distant future.

The authors found that for the Why-How task that *"How relative to why trials were associated with significantly greater segregation, evidenced by increased clustering coefficient (...) Why relative to how trials, in contrast, were associated with significantly greater integration, evidences by increased global efficiency"* (Stillman, et al, 2020, p. 388). For the temporal imagery task the authors found that *"temporal proximity relative to distance was associated with significantly greater clustering coefficients (...) Temporal distance relative to proximity, in contrast, was associated with marginally greater global efficiency"* (Stillman et al., 2020, p. 388). All finding were consistent with their predictions based on CLT and the previous research on network neuroscience.

This research it relevant to the problem formulation because it gave the authors of this thesis insight into how there is a visible effect in the brain between low and high construal. In this way it inspired

the authors of this thesis to further investigate CLT by conducting an experiment based on this construct testing if its effect could be measured through the biometric tool of ET.

## Distance-dependent processing of pictures and words by Amit & Agom (2009)

The study set out to investigate the association between verbal and pictorial representation and seek to answer in which context the two elements are best functioning. Based on CLT and previous research, the authors argue that *"pictures and words thus carry extra-representation qualia or added psychological value above and beyond the representation of their referent objects. We suggest that these qualia are associated with the variable of psychological distance"* (Amit & Agom, 2009, p. 401). Furthermore, pictures are historically seen as low-level construal and words as high-level construal. The authors therefore predict that since *"pictures and words are species of low- and high-level construal, it follows that pictures best function when they represent near objects or events and that words best function when representing distal objects or events"* (Ibid, 2009, p. 402).

The authors found that words function best for abstract objects and representations and that pictures functions best for concrete objects and representations. Words should therefore be used to represent distal objects and events and vice versa, pictures should be used to represent near objects or events.

This research is relevant to the problem formulation because it inspired the authors of this thesis to investigate if it is possible that not only words can be of high-construal but that the type of imagery affects whether it is a high or low construal and if this has an effect on the evaluation of a product.

## The role of imagery in promoting organic food by Septianto, Kemper & Paramita (2019)

This article investigates how to improve the effectiveness of advertising for organic food looking at the role of visual imagery and advertising claims through three studies and finds that *"matching illustrations (photographs) with organic food (conventional) food increases advertising effectiveness (Study 1). Furthermore, matching illustrations (photographs) with altruistic (egoistic) claims can*

*increase likelihood of purchasing (Study 2) and willingness to pay for organic food (Study 3)"* (Septiano et al., 2019, p. 104).

The study is relevant for this thesis problem formulation as it draws upon CLT by arguing that photographs are associated with a low level construal whereas illustrations are associated with a higher level construal. This argument thereby contributes with one of the main arguments in this thesis. A drawback to their testing of the thesis is however that their manipulation of a photograph vs. illustration does not consider how different depictions of the same ingredients will affect the consumer. Their matching of the so-called same picture as either illustration (picture 9) or photographs (picture 10) depict different vegetables placed differently in the picture.

*Picture 9, Septiano et al., 2019, p. 112*

*Picture 10, Septiano et al., 2019, p. 112*

This study only employed participants having to watch physical advertisement and rate what they thought about it making the placement of the visual and the properties of it less important. However, in this thesis using ET it is important that the visual imagery depict the same thing and are placed in the same place in the manipulation in order to be sure that the ET measurements are indeed a result of the illustration vs. photograph

## An Eye-Tracking Study of Learning from Science Text with Concrete and Abstract Illustrations by Mason, Pluchino, Tornatora & Ariasi (2013)

A study which has looked at abstract vs. concrete illustrations using ET, though not relating it to the CLT, is one by Manson et al. Instead, in this experiment they focused on the text and visual illustrations and the combination of these and found that *"Results showed that the text illustrated by either*

*the concrete or the abstract picture led to better learning than did the text alone"* (Mason et al., 2013, p. 356). Another interesting finding, they made was how *"Eye-fixation data revealed that the abstract illustration promoted more efficient processing of the text. Analysis of the gaze shifts between the 2 types of external representation indicated that the readers of the text with the abstract illustration made a greater effort to integrate verbal and pictorial information"* (Mason et al., 2013, p. 356).

This study is relevant for the thesis problem formulation as it looked into how text is used depending on whether it is an abstract or concrete picture. This inspired the formulation of hypotheses relating to the expectation that following the results of this study participants will rely more on the text information to understand what they look at for the abstract illustration while not needing to rely on the text as much for the concrete picture.

## Do natural pictures mean natural tastes? Assessing visual semantics experimentally by Smith, Barratt & Sørensen (2015)

The article tested if consumers perceive a food product to consist of natural tastes more than artificial flavoring if the package carries a photograph of the ingredient rather than verbal indicators of it. Further, they looked into if this effect would be even stronger for photographs than stylized drawings e.g. illustrations. They found that *"pictures have an effect on assessments of naturalness that was however marginal compared to that of product type. Moreover, participants' general level of food knowledge had a significant influence on their expectations about naturalness"* (Smith et al., 2015, p. 53). In regards to the expectation of how stronger impact would be found for photographs than drawings there was not enough support for this.

This study is relevant for the problem formulation as it investigates if there is an effect between using photographs or illustration in terms of affecting consumers perception of the product. Their research set-up inspired this thesis in how they used the exact same picture and manipulated it to either being a photograph or illustration. However, for their research set-up consumers were only asked to sit down by a computer and click on how likely they thought it was that the product owed its taste to the ingredient that was pictured on the packaging design. As a supplement, using

neuromarketing can help in gaining the knowledge of where people look to make their decision as attention is a big part of decision-making.

## Hypothesis Development

To investigate one aspect of the research question "*How can construal level theory be applied to product packaging and how would this be done?"* several hypotheses are formulated to be tested in order to conclude how CLT can be applied to product packaging design. Based on the theory, methodology and literature review the hypotheses were developed. The hypotheses take an outset from CLT and Hansen and Wähnke's findings on how a text with abstract language construes a high construal leading it to be perceived as more luxurious than a concrete text working on a low construal, which is perceived as more descriptive of ordinary goods. Another aspect that was shed light on in the theory was how the perception of luxury is connected to the perception of high quality, which led to the formulation of further hypotheses. The first six hypotheses were formulated on the background of these findings.

*H1: A product package design with visual imagery working on an iconic level will be perceived as more abstract compared to a product packaging design working on a concrete level.*

*H1a: The product packaging that is perceived as abstract will be perceived as more luxurious compared to a product packaging that is perceived as concrete.*

*H1b: The product packaging that is perceived as abstract will be perceived as better quality compared to a product packaging that is perceived as concrete.*

*H2: A product package design with visual imagery working on an indexical level will be perceived as more concrete compared to a product packaging design working on an abstract level.*

*H2a: The product packaging that is perceived as concrete will be perceived as a less/non luxurious product compared to a product packaging that is perceived as abstract.*

*H2b: The product packaging that is perceived as concrete will be perceived as a lower quality product compared to a product packaging that is perceived as abstract.*

As the formulated hypothesis relates to decision-making, in terms of deciding how luxurious or good quality the product is, it was decided to use ET as a method, as attention has been proven to guide decision-making. Abstractness and concreteness can be said to be a matter of uncertainty as the high construal which abstractness leads to is an indication that people see it as psychologically distant from them and therefore more uncertainty is connected to it. Oppositely, concreteness is perceived as psychologically close and will remove the uncertainty as it is concrete and put into a context. Based on the theory the following hypothesis were formulated to be tested.

*H3: The fixation duration on the visual imagery will be longer for the abstract product packaging design than for the concrete product packaging design.*

The first hypothesis related to ET is related to measuring the fixation duration on a specific stimulus, in this case the visual imagery. The fixation duration is chosen as *"Higher levels of cognitive processing are indicated by longer fixation durations"* (Meißner & Oll, 2019, p. 597) which therefore also can indicate whether the visual imagery is abstract or concrete. Furthermore, *"Several studies have demonstrated that participants look longer and more frequently at information and options that are important for their choice and that are in accordance with their preferences"* (Gidlöf, 2017, p. 30). Participants looking at the visual imagery longer could therefore also be an indication that they deem the visual imagery important for their choice. The next hypothesis also relates to the importance of the visual imagery in solving the task of rating the luxuriousness/quality of the product.

The next hypothesis related to ET was formulated based on the assumption that the more people look at a certain stimulus, here the visual imagery, the more they use it to base their decision on the task that they are given.

*H4: There will be more revisits on the abstract picture compared to the concrete picture.*

The number of revisits the visual imagery gets will be an indicator of how relevant people see the visual imagery to help them in judging what decision to make. The number of revisits can quantify how much attention is paid to the visual imagery and thereby indicate the relevance for the task. Another thing that number of revisits can indicate is the perceptual fluency of information

processing, as an increased number of revisits could indicate that the participant thinks that there is a mis-match between the task given and the stimuli shown.

The literature review showed that the more abstract the visual imagery, the more people will rely on the text (Mason, 2013). Therefore, it is expected that people will be faster to fixate on the text after seeing the abstract visual imagery than they will when seeing the concrete visual imagery as this is more difficult to interpret. Based on previous literature it is evident that the visual imagery is the first thing to gain attention on the packaging followed by the text. A hypothesis is formulated to test this assumption

*H6: Time to first fixation on the text on the product packaging will be faster on the abstract product packaging compared to the concrete product packaging.*

# Research strategy

The research strategy is determined by the research question investigated in this thesis *How are consumers affected by the design of product packaging? And how can construal level theory be applied to product packaging and what implications would this give in the design process of the product packaging?* This is done by approaching the product packaging design through considering the level of construal of it as an independent variable which is determined through a pre-test. The pre-test will help in determining consumers view of what is abstract and what is concrete visual imagery. After this a test is made to gain knowledge of the effect of abstract and concrete visual imagery on the perception of luxury and quality. Participants are asked to rate the level of luxuriousness and quality they perceive the product to be.

## Manipulation

The independent variable in this research is whether the product packaging design is perceived as abstract or concrete. This was defined based on a pre-test asking 20 people to state whether they found the product packaging design to be working on an iconic level or on an indexical level as the most abstract/concrete. The pre-test supported the definitions stated in the methodology section

defining visual imagery working on an iconic level as more abstract while the visual imagery working on an indexical level as concrete. With this definition formulated the visual imagery was manipulated as the product packaging design either having a visual imagery with an abstract construal or a concrete construal. To avoid that participant were exposed to both the abstract and concrete visual imagery for the same product packaging, participants were divided into two different groups that both see the same product packaging but with different values of the visual imagery. With one getting the visual imagery manipulated to have an abstract value (illustration) and one to have a concrete value (photograph).

## Measurement

The dependent variables are either the perceived level of luxury or quality of the product. The wording of luxurious is taken from the literature on CLT. It is measured on a 7-point likert scale going from "Non-luxurious" to "Luxurious" with the scale being continuous. The other dependent variable is the degree of quality with a 7-point likert scale from "low quality" to "high quality" with the scale being continuous. This was chosen as to both have a variation in the question formulations and have another word for value that has a less strong connotation than luxurious. Quality was deemed as well-fitted as a correlation between quality and luxuriousness has been found in previous literature (Ko et al., 2019). Furthermore, it is also interesting to see if the "luxurious" wording in CLT does translate into quality when thinking of food.

Another way that the dependent variable is measured besides the likert scale is through the use of ET. In earlier literature it has been found that people tend to fixate on stimuli they are uncertain about and find hard to interpret for a longer duration as they need more time to process what exactly they are looking at. In this study it is therefore expected that participants will fixate for a longer duration on the abstract visual imagery as these takes more processing to interpret what it is than a photograph of the actual product would. Further, another indication of uncertainty is the number of revisits that the participant will make to a specific AOI. Therefore, in this study participant will likely revisit the abstract visual imagery more times than the concrete visual imagery as they need to see the abstract visual imagery several times before being certain about what it is showing.

## Comparison

The manipulated independent variables are split in two groups with dependent variables measured in fixation duration, number of revisits, time to first fixation on the text and self-report on the perceived luxuriousness and quality of the product. The dependent variables for each group are compared to see if there is a difference in how uncertain participants are with being presented with an abstract visual imagery or a concrete visual imagery. An indication of uncertainty is the number of revisits and the fixation duration and both of these is expected to be higher for the abstract visual imagery. The time to first fixation to text, the uncertainty will show in a shorter time to first fixation to the text. In regard to the self-report on the likert scale it is anticipated that participants will rate the abstract visual imagery as being perceived as more luxurious and higher quality whereas the concrete visual imagery will be seen as less luxurious and lower quality.

## Control

The product packaging designs tested will only differ in the value of the visual imagery on it meaning whether the visual imagery works on an iconic or an indexical level. All other stimuli of the product packaging design will be identical to assure that if there is a difference in how the product packaging design is perceived it can only be due to the visual imagery and the manipulation that the authors of this study have made. A change in shape, color, font etc. would be a salient stimulus that would affect the participants eye-movements. Further, to assure the participants focus on the visual imagery on the package most unnecessary information is stripped from the package such as brand, pattern and other visual imagery as these could all have an influence on the consumers choice of the product. This is done to have a limited amount of other visual stimuli that the participant needs to process. The reasoning for keeping some is for the ecological validity of the product as in a supermarket one would always find a text on the product stating what it is.

# Research Design

The study consists of both primary and secondary data. The secondary data is in the form of theory and previous research. The primary data will be in the form of an ET study and an interview with a marketing and/or a packaging design employee from Dagrofa.

## Eye-tracking experiment

### Sample

The sample group will be collected based on convenience, meaning that the sample group will consist of Danish speaking students within the age group between 23-30 years. The sample size will be of 60 participants which is divided into two sample groups with 30 participants in each. The participants will be randomly distributed to each group, however there will be an equal distribution of male and female in each group in order to minimize gender differences and potential biases.

All participants will sign a consent form prior to the study, allowing the use of the results and ensure that all participants consent and understand the use of the study. The consent form also allows all participants to withdraw from the study at any time both during and after the experiment have been conducted. The participants will be anonymous, and a numerical setup will be invented in order to keep track of each participants results. The consent form will also contain the expected duration (approximately 20 min. per. participant), and the experimental procedure. All participants will be debriefed after the experiment, letting them know what the experiment is actually about.

### Pre-test

As mentioned in the research strategy, prior to the ET experiment a pre-test will be conducted in order to determine the level of abstractness and concreteness of each visual imagery. After having determined the abstract- and concreteness of the images, another pre-test of the ET experiment setup will be conducted. This is done in order to determine if the participants will be able to determine what the study is about, or if there is enough fillers present. Furthermore, the pre-test will determine if there is anything misleading text or questions which are difficult to understand or read

etc. The pre-test participants will be randomly selected and will have the same introduction to the study as the rest of the sample group. Because the experiment is divided into two experiments, it is found that in order to have internal validity, two pre-tests will be conducted for each experiment.

**Introduction to the experiment**

All participants will have the same verbal introduction prior to the experiment. The participants will be introduced as followed. All participants will be welcomed to the laboratory, were they will be introduced to the ET screen. They will be told how they will be exposed to approximately 30 pictures of everyday consumer goods. Half of the pictures will have only the front of the product showing where the other half will be showing both the front and back of the product (fillers). For the products only showing the front, there will be unlimited time to look at the product and answering the question provided on the screen, which will be in the form of a 7-point likert scale where the participant is to use the mouse to move the scale to fit with the participants answer to the provided question. For the pictures showing both the front and back of the product there will be limited viewing time of 6 sec. After the 6 sec. there will be a few questions which the participant has unlimited time to answer. The answers will be given on a 7-point likert scale. Afterwards the participant will be placed on a chair in front of the ET screen and the experiment will begin.

**Experimental setup**

The participants will be placed in front of a computer with an in-built ET. Group one will all be exposed to the first experiment and group two will be exposed to the second experiment. Both groups will be exposed to 15 product images related to this study and 15 product images related to another master thesis groups study. These 15 other product images will function as fillers in order to avoid that the participant will know what the experiment is really about.

Both groups will be exposed to pictures of products with abstract and concrete visual imagery. Half of the pictures will be products with abstract visual imagery and the other half will be with concrete visual imagery. If for example group one is exposed to a marmalade containing an abstract visual imagery, group two will be exposed to the same product but with a concrete visual imagery. All of the products originally contained an abstract product imagery but have been manipulated in Photoshop in order to create a counter product containing a concrete product imagery. The concrete product imagery will be manipulated as close to the original abstract one as possible. For all of the

products, the background has also been manipulated in order to remove all other abstract elements e.g. patterns. All other variables of the products will be held constant. The two sample groups will be exposed to approximately the same amount of abstract and concrete visual imagery as well as quality and luxurious related questions.

For the experiment, all products will be placed slightly to the left side on the ET screen in order to avoid middle fixation bias. Between each new product there will be a fixation point in the form of a little red point in the middle of the screen. This is placed in order to "reset" the fixation of the participants. If the products were placed in the middle of the screen, it is expected that the participants would fixate on the middle of the product when the image changes since this is where their eyes are already fixating due to the fixation point. All products will be of a somewhat realistic size in order to keep the experiment as realistic as possible. Above the product the task is given formulated as either *"How luxurious/non-luxurious do you perceive the following product to be?"* or *"How do you perceive the quality of the following product?"*

The participants will have unlimited time to study the products and will only be able to move on to the next when they have answered the question presented on the screen. The participants will be able to place the marker anywhere on the 7-point likert scale and have to move the marker from the default placement in order to move on. It is important for the analysis that the participants are only to answer one question for each product (quality/luxuriousness) in order to analyze which stimuli they fixate on in order to make their decision. If both questions were to be answered it would not be possible to distinguish between which stimuli they rely on to evaluate quality and which they rely on in order to evaluate luxuriousness.

The products and the filler products will all be randomized for each experiment. The following pictures shows four of the products with its visual imagery both the abstract illustration and its manipulated counterpart with the concrete photograph and examples of the setup for the two sample groups. All the 15 product packaging designs used for the experiment can be found in appendix 1.


CHICKEN
Tikka
Masala
400 G


CHICKEN
Tikka
Masala
400 G


CHIPS MED SMAG AF
SOUR
CREAM
& ONION
175 G


CHIPS MED SMAG AF
SOUR
CREAM
& ONION
175 G


EKSTRA STORE
GRØNLANDSKE
REJER
Dybfrosne.
Isglaserede.


EKSTRA STORE
GRØNLANDSKE
REJER
Dybfrosne.
Isglaserede.


APPELSIN
Marmelade


APPELSIN
Marmelade


Hvor luksuriøst/ ikke luksuriøst synes du dette produkt er?
Ikke luksuriøst
2
3
4
5
6
Luksuriøst
Next


Hvilken kvalitet synes du dette produkt er?
Lav kvalitet
2
3
4
5
6
Next
Høj kvalitet


Hvor luksuriøst/ ikke luksuriøst synes du dette produkt er?
Ikke luksuriøst
2
3
4
5
6
Luksuriøst
Next


Hvilken kvalitet synes du dette produkt er?
Lav kvalitet
2
3
4
5
6
Next
Høj kvalitet

Hvilken kvalitet synes du dette produkt er?


Lav kvalitet 2 3 4 5 6 Høj kvalitet

Next ➡

Hvor luksuriøst/ ikke luksuriøst synes du dette produkt er?


Ikke luksuriøst 2 3 4 5 6 Luksuriøst

Next ➡

Hvilken kvalitet synes du dette produkt er?


Lav kvalitet 2 3 4 5 6 Høj kvalitet

Next ➡

Hvor luksuriøst/ ikke luksuriøst synes du dette produkt er?


Ikke luksuriøst 2 3 4 5 6 Luksuriøst

Next ➡

**Follow up questions**

At the end of the experiment all participants in both sample groups were to fill out a questionnaire (appendix 2). The questions of interest to this study is gender, age, to what extent they know the Gestus brand, and to what extent they agree that the brand represents quality. The questionnaire contained further questions, which were only relevant to the study set out by the collaborating master thesis group. These can be found in appendix 2.

**Fillers**

The experimental distractions will be in the form of another master student groups experiment, which seeks to answer, to some extent, similar self-reported questions and have a similar set up of the presented study. The ET images of the two groups will be randomly mixed for the setup. The distracting group's images will contain an image of one consumer good showing both the front and the back side. The viewing time will be 6sec and afterwards the participants will be presented with questions about the products, which they are to answer on a 7-point likert scale. They have unlimited time to answer the questions.


*Example of a filler*

## Interview

Before the lockdown of Denmark, the authors of this thesis reached out to Dagrofa knowing that they are using both illustrations and photographs as product images on their product packaging design. The ET experiment only uses products from Gestus, which is a private labeled brand owned by Dagrofa and are only available in Dagrofa's own stores. However, in the experiment all indications of the brand (e.g. logo) have been removed in order to limit the chance of the participants

recognizing the products and in order to limit brand biases. The private label "Gestus´s" product packaging design for their household products all contains a product or product related image, which all are abstract illustrations according to this thesis pre-test. It would therefore be interesting to interview one of their marketing and/or product design employees to gain insights into the background and reasoning for these design decisions and whether they have done any experiments or consumer research to base their choices on. The following questions were prepared for the interview.

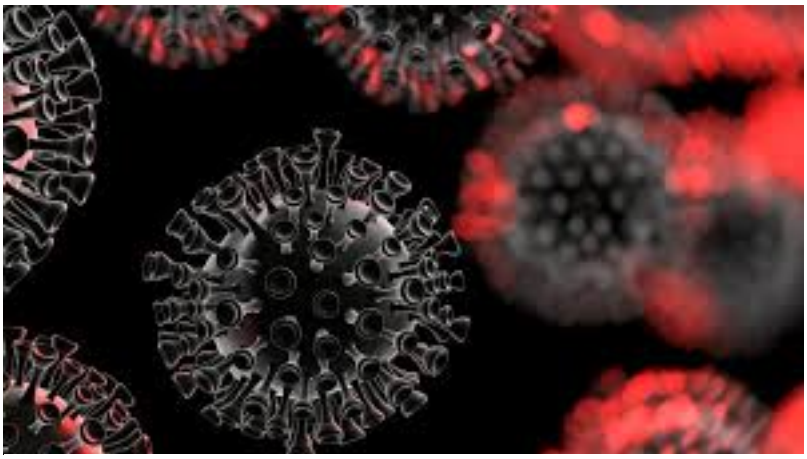
**Interview questions**

The interview was set out to be semi structured, giving the possibility to add questions as subjects arise and at the same time keeping a structured overview of subjects and questions which have to be covered to understand their decision process, to answer the thesis research question and develop interesting discussion points based on the answers and the results found in the ET experiment.

- Would you please start out by introducing yourself and your main responsibilities in the company and in relation to product development and design?
- How would you describe the positioning of each of your brands?
- What initiatives have you taken to emphasize this positioning?
- What considerations go into the decision of how to design different product packaging design?
- How do you determine the product packaging design of a new product?
- Do you perform any type of consumer research in accordance to which packaging design to use for a product prior to releasing it, if yes how?
- Do you have a standardized product packaging design depending on the product type/category?
- Have you built guidelines of how product packaging for your different private label brands should look like? If yes, what are the guidelines for each brand?
- Is it a well-thought strategy how Gestus uses illustrations while First Price have photographs?
- Do you consider what product categories fit the specific brands? Have you given thought to how Gestus range of products might have a more hedonic value and do not include necessity goods?

- Are there any managerial and/or experimental reasons for why you use abstract imagery (illustrations) for your Gestus products?
- Do you see a difference in the communicative value of illustrations vs. photographs. What are the perks of illustrations? What benefits are there with photographs on the product packaging design?
- Do you perceive your Gestus product imagery to be abstract?
- Do you have any statistics showing that abstract imagery (illustrations) works better for some product and concrete imagery (photographs) works better for other types of products?
- Have you tested out abstract vs. concrete imagery on your products? if yes, what were the findings?
- Have you given thought into how different product packaging works for different products? Some Gestus products have both illustrations of what the product contains while also having photographs of the product? Have you had any specific considerations in terms of that?
- Have you ever changed a product imagery after releasing the product? If yes, what was the reasons for this and what did you change it from and to?
- Do you think that the concept of abstract and concrete imagery has an effect on fast moving consumer goods and consumers' willingness to buy?
- Do you think it will have any effect on the product perception such as quality and luxuriousness if you replaced all your abstract food product images with concrete images?

# Analysis



*Sorry, no data this year due to corona virus*

Due to the outbreak of the corona virus in Denmark in the Spring of 2020 and the Danish government's decision to close down most of society there is sadly no data. As the closing down of society included closing down university campuses it was not possible to gain access to the SenseLab at CBS campus where the ET is located. Without access to the ET, data collection was not possible. Furthermore, as mentioned it was planned to interview a marketing and/or a packaging design employee from Dagrofa. However, due to the Corona virus Dagrofa did not have time to do the interview prior to the hand-in date.

With no option for collecting the needed data to investigate the thesis problem formulation, CBS officially announced that the solution to the lack of ability to collect data should be to write a purely theoretical paper. The choice to write a purely theoretical paper was decided together with our supervisor as it was deemed an important contribution to our thesis' problem formulation to be able to use ET. However, with the existing literature it is possible to theoretically argue for the expected results and whether the formulated hypothesis can be assumed to be verified or not. This means that the thesis will infer the expected results based on the already existing theory and literature review.

# Results

The result section is built up as the phrasing of the hypothesis followed by the expected result of this hypothesis and the reasoning for why this is expected.

*H1: A product package design with visual imagery working on an iconic level will be perceived as more abstract compared to a product packaging design working on an indexical level.*

H1 is expected to be verified thereby showing that construal level can be applied to visual imagery. This is based on the theory and literature arguing how *"illustrations are typically less concrete and bear less resemblance to actual objects than photographs. Building on construal level theory, which posits that a psychologically distant (close) object is construed in a more abstract (concrete) manner, we argue that photographs are associated with low construal levels, whereas illustrations are associated with high construal levels"* (Septiano et al., 2019). As previously defined in this thesis illustrations are said to work on an iconic level as it bears resemblance to the object it depicts but is

not an exact depiction of it. Therefore, illustrations are seen as visual imagery working on an iconic level.

Another finding concerning the application of CLT to visual imagery that led this thesis to expect the verification of H1 is the argument of how shape affects construal level of the visual imagery. The argument being that of how shape through the principle of invariance and essentiality combine construal level and visual perception as the higher invariance in shape makes it a central characteristic to object identification as a change in shape could change the objects meaning. This central characteristic that shape is to object identification makes it work on a higher construal level, as previous literature has found one of the characteristics of a high construal level to be the focus on central features (Trope et al., 2007). The other factor of shape working on a higher construal is the visual imagery's shape being essential to the identification of the object. The shape therefore again shows as the central characteristic to identifying an object (Lee et al., 2017).

Furthermore, the factor of color in affecting construal level build further on the expectation that H1 could be verified. The use of colors on a visual imagery is seen as a contextual cue meaning that this would make the visual imagery associated with lower construal, as the use of color would give more concrete cues to what the visual imagery is exactly depicting. Illustrations are often without color leading them to only be interpreted by the central characteristic of its shape without it being put into context by its color (Ibid).

Hence, it can be verified that a product packaging design with visual imagery working on an iconic level will be perceived as more abstract compared to a product packaging design working on an indexical level.

*H1a: The product packaging that is perceived as abstract will be perceived as more luxurious compared to a product packaging that is perceived as concrete.*

As H1 is verified it made it possible to take the next step and see if the findings of how abstract language is seen as more luxurious (Hansen & Wänke, 2011) can be applied to the abstractness of the visual imagery on the product packaging. Following that construal level has been argued to be applied to the visual imagery where illustrations are seen as abstract it is expected that this change in construal level of the visual imagery will change the consumer's value perception. The thesis

therefore expects that the argument of *"An abstract product presentation leads consumers to perceive the product as more exclusive (and) luxurious"* (Hansen & Wänke, 2011, p. 795) will have the same effect on visual imagery as the abstractness of an illustration will create a high level construal making consumers perceive it as being more luxurious.

Indeed, previous studies testing the difference between showing either visual imagery working on an iconic or indexical level on a product packaging e.g. illustration vs. photograph or real picture vs. abstract art found this manipulation to affect consumers value perception. One of the studies which was reviewed in the literature review did ask about the perception of luxury between non-art and art and found artworks to be perceived as more luxurious (Hagtvedt & Patrick, 2008). Although this study's research design was different from this study it is argued that illustrations will hold the same abstractness as paintings and therefore might induce the same luxuriousness perception that an artwork does.

*H1b: The product packaging that is perceived as abstract will be perceived as higher quality compared to a product packaging that is perceived as concrete.*

In line with the testing of whether the abstractness of the visual imagery led to the perception of luxury the authors of the thesis found it interesting to see if the abstractness of the visual imagery led to the perception of the product being higher quality than the concrete visual imagery. Again, the expected result is being able to verify this hypothesis, however being able to verify this is uncertain as there are both arguments for and against that the abstract visual imagery on the product packaging would be perceived as higher quality than the concrete visual imagery. The expectation of verifying the hypothesis stems from how previous studies have found that manipulating the visual image did affect consumers perception. As luxuriousness and quality has been found to be correlated (Ko et al., 2019) it follows that the perception of the abstract visual imagery as being more luxurious will spill-over to also being an indicator of higher quality. As luxurious is a strong word for grocery retailing products it is expected that the value perception will rate higher on the scale concerning higher quality than they will with luxuriousness.

It is however expected that the product category of grocery retailing could be associated as higher quality if the product packaging is depicting a photograph of the ingredient the product contains.

This is based on the assumption that some consumers will be aware of the legislations concerning food labelling, knowing that a photograph is an indicator that it is the natural taste of the ingredient. Therefore, the association in their mind could be that the illustrations is a sign that the product is made from artificial flavoring. One of the study's reviewed in the literature review (Smith et al., 2015), did the manipulation between a photograph, illustration and text focusing on the perceived naturalness of the product. The naturalness aspect can be argued to be an assessment of the quality of the product as the product's taste stemming from their natural taste and not artificial flavoring could be considered better quality. It is therefore considered that some of the product packaging depicting a visual imagery working on an iconic level could be rated as lower quality than its counterpart with a visual imagery working on an indexical level.

*H2: A product package design with visual imagery working on an indexical level will be perceived as more concrete compared to a product packaging design working on an iconic level.*

It is expected that H2 will be verified. This expectation stems from the theory and literature review where previous articles have defined that visual imagery working on an indexical level is depicting the exact object which is what a photograph is doing. Further, tying this argument to how *"photographs are associated with concreteness and low construal levels"* (Septiano et al., 2019, p. 110) it is expected that visual imagery working on an indexical level will be perceived as more concrete. As well as H1 the shape and text has been found to affect the construal level of a visual imagery as *"people treat shape as a high-level visual feature and color as a low-level visual feature of objects and events"* (Lee et al., 2017, p. 721). The concreteness of a photograph shows in how it is a concrete depiction of the ingredient since it contains the information of both the shape and color thereby both having the central characteristics of the shape as well as the more contextual information of the ingredient shown through the color and texture details of the depicted ingredient. The color puts it into context as this e.g. tells how ripe or fresh the ingredient is.

*H2a: The product packaging that is perceived as concrete will be perceived as a less/non luxurious product compared to a product packaging that is perceived as abstract.*

Expecting that the abstractness of a visual imagery on a product packaging design leads to a higher construal thereby influencing the consumers perception of the product as being more luxurious this thesis chose to look into if there would be a reverse effect on the visual imagery perceived as concrete. It is expected that H2a will be verified, as the concreteness of a photograph will be seen as something familiar. In the Hansen & Wänke article it is argued that luxury goods are associated with a high construal as it is something that consumers are not familiar with (Hansen & Wänke, 2011). This notion of how it is the unfamiliarity that also influences the association with a high construal creates the argument that as photographs will probably be more familiar to consumers as it is an exact depiction of an ingredient, it will feel more concrete than the illustration of an ingredient which is likely to be less familiar to consumers.

*H2b: The product packaging that is perceived as concrete will be perceived as a lower quality product compared to a product packaging that is perceived as abstract.*

Whether a picture that is perceived as concrete will be perceived as lower quality, is difficult to infer from the literature. On one hand, this thesis expects that the existing legislations in regard to food labelling could influence consumers to actually perceive the product packaging with a photograph as the one being of higher quality compared to the illustration. This could be the case if consumers are aware of the legislations concerning misleading food labelling where many cases have ruled that a photograph of an ingredient on the product packaging is an indication that this ingredient is one of the natural taste givers to the product, while illustrations on product packaging in some courts have been ruled to be accepted even though the ingredient on the product packaging contains only artificial flavorings from this product as the illustration have been deemed to be so stylized that it is evident it is not natural (Smith et al., 2015). On the other hand, the perception that luxury is an indicator of good quality should mean that if H2a can be confirmed as being perceived as less luxurious due to the concreteness of the visual imagery, then the quality should be rated lower as well. Conclusively, the authors of the thesis expect that the existing legislations on misleading food labelling would lead consumers to perceive a product packaging design with a concrete visual imagery, will be rated as higher quality than the illustration. Thereby, it is expected that H2b cannot be verified.

*H3: The fixation duration on the visual imagery will be longer for the abstract product packaging design than for the concrete product packaging design.*

H3 is expected to be verified. This is argued based on the eye-mind assumption stating how what is being fixated is what is being processed and therefore a longer fixation duration is an indication of how deeply the information is being processed by the consumer (Orquin & Loose, 2013). The longer fixation duration on the abstract visual imagery would therefore be an indication that it takes longer to process and understand what this visual imagery is depicting than it does to process what the concrete visual imagery is. The difficulty in interpreting the illustration compared to the photograph links back to the reliance on the shape of the product with no contextual clues such as the color. Considering the scale of the abstractness (p. 57) it is also considered how the more abstract the visual imagery the longer the fixation duration. As previously argued in this thesis the fixation duration and CLT is connected in how deeply the information that the participant looks at is processed which will differ depending on how concrete the visual imagery is, as the less details in the visual imagery to decode what it is, the more time it will take to identify what the visual imagery is depicting. Thereby, the abstract illustrations reliance on central characteristics and the unfamiliarity to the illustration compared to the well-known concrete photograph makes it seem more psychological distant and in this way working on a higher construal than the concrete visual imagery which works on a lower construal as seeing a well-known depiction of an object such as a photograph feels more psychologically close. The processing of understanding the abstract visual imagery therefore takes longer than the concrete visual imagery, meaning that the longer the fixation duration, the more abstract. A longer fixation duration therefore means that the visual imagery feels more psychologically distant and unknown and *"the farther removed an object is from me on any distance dimension, the higher (more abstract) the level of mental construal of that object"* (Van Lange et al., 2012, p. 131). The higher the level of mental construal the higher the fixation duration will be. On this background it is expected that H3 will be verified.

*H4: There will be more revisits on the abstract visual imagery compared to the concrete visual imagery.*

H4 was formulated on the basis of how revisits are an indication of how much attention an individual pays to the respective AOI, in this case the visual imagery, which helps in gaining an

understanding of how much the visual imagery is deemed relevant in making the decision of how luxurious/high quality the product is. As the visual imagery plays a big part in the consumer's perception of the value of the product it is expected that the visual imagery will be deemed as relevant to answer the given task which will be shown through a higher number of revisits to the visual imagery. Further, as the abstract visual imagery, hence the illustrations are expected to be seen as more luxurious, participant will pay more revisits to the illustration since they will attend to the illustrations because they see this as an answer to their goal of how luxurious the product is due to the abstract illustrations are seen as more luxurious. Hence, H4 is expected to be verified because there will be more revisits on the abstract visual imagery compared to the concrete visual imagery as this is deemed a more relevant indicator of the luxuriousness of the product. The higher number of revisits is also expected to be a sign of greater uncertainty as to how the participant will perceive the illustration.

*H5: Time to first fixation on the text on the product packaging will be faster on the abstract product packaging compared to the concrete product packaging.*

H5 is expected to be verified. Previous literature has found the visual imagery to be the first to be fixated on (Pieters & Wedel, 2004) which is also the expectation in this thesis. The time to the first fixation will be an indication of the difficulty in interpreting the visual imagery and therefore showing the need to rely on the text for the understanding of what the visual imagery is. As it is expected that there will be greater uncertainty to the interpretation of what the abstract visual imagery depicts, it is expected that the participant will be quicker to fixate on the text when seeing the abstract illustration to interpret what it is while they will be more certain of what it is when seeing the concrete photograph thereby not needing to rely on the text to understand what the concrete visual imagery depicts. The expectation of verifying H5 is also based on one of the articles reviewed which found that participants "*with the abstract illustration made a greater effort to integrate verbal and pictorial information"* (Mason et al., 2013, p. 356). This article used ET as well and showed how the abstractness of the visual imagery led to greater reliance on the text to be able to interpret what was depicted. Hence, H5 is expected to be verified as the abstractness of the illustrations will make people rely on the text.

# Limitations and further research

For the experimental setup there are limitations which can influence the internal and external validity, the results and the analysis of the study.

## Sample group

The size of the sample group and the participants of the sample group can influence whether the results have external validity. The sample group needs to be of a big enough size in order to say anything about the population or groups of the population. Due to the fact that the study uses neuroscientific measurements in the form of an ET does limit the amount of participant needed, because it is able to measure more accurately and is not based on what the participants think that they were fixating on or may remember, but what they actually are fixating on (Copenhagen Business School, 2019).

Due to the age and level of education of the sample group it can be argued that the study will only have external validity for people who are homogenous to the group participating in the experiment. It can be argued that older generations and people with a higher level of education have a larger knowledge of art in general. According to statistics, this group of people tend to spend more time in general on art (Danmarks statistik, 2019). It can be argued that these people may interpret abstract visuals differently due to their interest in it and thereby interpret product packaging with an abstract visual imagery differently, but this would have to be further researched. Furthermore, it is also found that women tend to spend more time on art in general compared to men. Therefore, it could be expected that women interpret abstract and concrete visual imagery on product packaging design differently than men (Danmarks statistik, 2020). Based on this information it would be relevant to conduct the study on different age groups, level of education and gender to test if abstract and concrete visual imagery have a higher effect on some of these groups.

## Consumer's knowledge

Another limitation is how the study used product packaging from the Gestus brand which are sold in many supermarkets in Denmark, meaning that participants could have seen the packaging design

before and thereby recognize the brand. As knowledge affects construal level (Lee et al., 2017) it was decided to ask participants in our study about their knowledge of the Gestus brand. The participants are asked to answer the question "To what extent do you know the following brands" (appendix 2). This question is relevant in order to determine the degree to which the participant knows the Gestus brand, in order to evaluate if the people who have a larger knowledge of the brand deviate from the general evaluation of the Gestus products. This can indicate that these participants may recognize the products in the experiment even though the brand logo was removed.

## One product category

Due to the focus of the study on a certain product category it is not possible to know if the findings apply to other product categories. Therefore, it would be interesting to conduct the same type of experiment with other product categories in order to determine if it has any validity in these categories. Furthermore, it should also be researched if there are differences in how abstract the imagery is. It can be argued that product imagery can be even more abstract than the ones used for this study, it would be interesting to investigate if there is a limit as to how abstract a product imagery can be before it may or may not have any effect on the perception of product quality and luxuriousness. It would also be interesting to investigate if there are any differences in the type of brand using abstract and concrete product imagery and investigate if less known private labeled brands could benefit from using abstract imagery to compete and draw attention from more well known public labeled brands.

## Ecological validity

A limitation to the study is how it is conducted in a laboratory and not in a supermarket where the products would be placed next to many other products. This was chosen as the interest of the thesis was to know how consumers perception of the product was affected by the visual imagery on the product packaging. For further research it would be interesting to see if consumers in the store would consider these specific product properties as luxurious and high quality in the store when seeing the product packaging tucked in between myriads of other choices. The experimental set up would be relatively easy to conduct in a more realistic setting either in a staged supermarket or in an actual supermarket, with the participants wearing physical ET glasses during their supermarket

experience. Conducting the experiment in a real-life setting, makes it possible to see how the abstract and concrete imagery would function when there are a lot of other stimuli present.

The proposed experiment is less ecologically valid as it will only be the shape, color, text and visual imagery which is accessible to the consumer in judging the luxuriousness/quality of the product. In real-life settings the products would often contain patterns, brand, slogan, labelling and perhaps a mixture of illustrations and photographs. As mentioned CLT is something that can make coherence of the whole package. Even though this thesis argues for the existence of a relationship between abstraction and perceived luxuriousness/quality, it is not certain which other stimuli on the package adds to the perception of a product being perceived as luxurious and of high quality e.g. special colors, the font of the text, the angle from which the visual imagery is depicted, the placement of the imagery, the shape of the product packaging etc. This should be further researched.

## Price as a variable

It could be interesting to include price as a variable as we know the high construal often make people perceive the product as more expensive. This could be done either by showing the price with the product or by having the participant to indicate their perceived price of the individual products. As mentioned previously, consumers perceive a higher price as an indication of higher quality (Fortunato et al., 2014). Studies have shown that a higher construal leads consumers to rely more on the price as they see it as more psychologically distant (Maglio, 2020). Considering price, it would be interesting to investigate if the effect of consumers perceiving abstract illustrations as more luxurious than the concrete photographs also affect their willingness to buy the product, as rating the product as luxurious might not be an indication that they would buy it. Furthermore, as mentioned a misfit between the perceived luxuriousness and the product category affect consumers negatively (Hansen & Wänke, 2011). Therefore, taking the next step and asking people after they rate the product as luxurious if they would like to buy it, could indicate that consumers see a mismatch between grocery products being presented as luxurious.

### Consistent CLT of whole packaging design

CLT is useful in how it connects the whole packaging design. It does not only refer to one specific stimuli on the package as is evident throughout this thesis which means that "*Construal level theory can guide a more holistic view of messages by offering insight into how a multitude of seemingly distinct message components may have underlying consistencies. This principle can motivate further research on how multiple message components can be manipulated together to communicate topics more effectively and bring about intention and behavior change"* (Lee et al., 2018, p. 320). The implications of finding how all the different components on the packaging design interacts is how certain visual imagery, text and background can align with different construal levels and if it is possible to match the construal level across all components on the product packaging it will lead to more persuasive effects as all components for example working on a higher construal level leads to *"a consistent high construal representation in one's mind and entail easier processing and effective persuasion"* (Lee et al., 2018, p. 323).

## Discussion

This thesis has found that consumers are affected by the product packaging design and especially the visual imagery, plays a big part in affecting the value perception of the product. The effect will be discussed relating it to consumer behavior and decision-making. The importance of the visual imagery led to an experiment to test how CLT could be applied to the product packaging design. This was done through a manipulation of the visual imagery on the product packaging. The argumentation for why this is possible as well as a discussion on the usefulness of CLT is presented in the following sections. The results showed an effect on consumers' perception of the product and the implications of these will be discussed. Lastly, the ecological validity of the experiment will be discussed.

## How consumers are affected by the design of product packaging

Consumers are affected by the design of the product packaging in how it influences their behavior and decision-making in terms of valuation of the product and the decision to buy it. In some cases, product packaging will work as the sole reasoning for deciding to purchase a specific product.

### Brand identification

Product packaging design is what draws the consumer's attention to the product and if a product does not gain attention it will not be available as an option in the consumer's mind. The different elements on product packaging which affects consumers are e.g. the color, shape, text and visual imagery. Colors and shapes are the first thing that catches consumers' visual attention as they are the most visually salient. Attention to these are therefore bottom-up but can also be top-bottom as looking for sour cream and onion chips consumers will likely look for a green squared shape. Visual imagery on the package also works as visually salient and consumers pay attention to visual imagery before the textual information as visual imagery requires less cognitive efforts to interpret and thereby generate the information faster. Features will be salient when standing in contrast to the other products on the shelf and is important in the identification of a brand. Product packaging is what helps in brand identification as it gives the cues consumers need to decide which product to choose (Garber et. al. 2000).

### Package comprehension

Furthermore, the product packaging conveys information about the product and what it contains through its color, shape, visual imagery and text. Meaning that the product packaging as well as conveying brand identification, communicates implicit and explicit claims about the products and illustrate benefits, attributes, ingredients and promotional offers to the consumer (ibid). For many products there is a product packaging design norm of how a product in a certain category should look like and what the different colors of the product imply. Consumers use these norms when having a goal in mind of what to find through looking for a specific color or shape.

## How product packaging design affects consumer behavior

Throughout the thesis it is evident that decision-making consists of an evaluation of the product followed by an action (Glimcher & Fehr, 2014). Value perception is a trade-off between potential gains and potential losses (Delvecchio, 2001). Value perception is different from consumer to consumer as they perceive value differently (Zielke, 2014). Value from a product packaging can be related to what it communicates to peers both when buying the product in front of other peers and sometimes by the product being visible in one's home. The product packaging has a symbolic meaning and express and communicate who we are (Gabriel & Lang, 2015). The perceived quality of a product is therefore an important assurance to social risk. The purchasing of products that through their product packaging design communicates that this is good quality, consumers can communicate that they are the type of person who can afford spending extra on their grocery products to get the high-quality products. This type of "show-off" both when shopping in front of peers and showcasing certain products at home due to their aesthetically pleasing quality can be seen as conspicuous consumption and costly signaling (ibid). Conspicuous in how you have enough money to afford the higher quality products compared to others, and costly signaling in how it is a financially more expensive alternative but nevertheless an important signaling value as it signals the consumer to be able to use extra money to get a better quality and more aesthetically pleasing packaging design.

The other aspect that consumption satisfies for consumers is their search for identity (ibid). Consumers themselves might perceive some product packaging to be better than others, and therefore purchasing it as an extension of their own identity (Belk, 1988). This could e.g. be the case for packaging design that focuses on the aesthetic look of the packaging design. Thereby communicating that they are a person who values that thought has gone into the details.

## How product packaging affects decision-making

In the brain you can see how action e.g. the decision is taken following the valuation of the product (Glimcher & Fehr, 2014). As mentioned, the evaluation is a trade-off between the different gains and losses which relates to risk. The different forms of risk previously described is functional, financial and social (Delvecchio, 2001). In terms of product packaging design, the functional risks

could be the packaging material not being sufficiently good to protect the content of the product or maybe being designed in a way such that a shape can give away that the packaging has been damaged thereby indicating that the product itself has been damaged. This would mean a potential loss due to the lacks in the physical performance of the product if the lacks are so strong that the product is damaged beyond repair. The social risk is very much in line with the symbolic meaning of different products and the consumers need to communicate to other peers through their decisions of what to purchase. The risk being deciding to buy a brand that is not accepted by one's peers as they stand for values and beliefs going against what the consumer wish to communicate about themselves. The financial risk related to product packaging is considering the content of the product package. The financial risk relates to the possible risk that the consumer feels the product packaging misled them through how the information on the product packaging design was conveyed. This leads to a monetary loss for the consumer as they wasted money on a product that didn't perform as expected(Ibid).

The product category affects the risks associated with the purchase (Ibid). Decision-makers therefore might be more willing to rely on heuristics from the product packaging e.g. the color or the visual imagery depicted on the product packaging, as the possibility of a wrong choice for grocery retailing is not as bad as it would be for high-involvement products such as a computer. This is due to how often grocery product are bought, since a wrong purchase of a grocery product can easily be replaced with another product. Furthermore, the accumulated knowledge the consumer has made through previous purchases of grocery products has increased their knowledge as to the heuristic cues to use to evaluate a product in terms of its quality (Ibid).

**The visual imagery on the product packaging design**

The importance of the visual imagery on a product packaging design shows in how it has been found to be an extrinsic cue to evaluate the quality of the product (Gil-Pérez et al., 2020). Consumers do not always notice the verbal cues on the product packaging but rely much more on visual cues such as photographs and illustrations on the product packaging design. These visual cues can *"boost the self-evaluations and may increase the likelihood that consumers will use the image as an extrinsic cue and a product-quality indicator"* (Krishna et. al, 2017, p. 47). The visual cues can help the consumer to better imagine the product´s smell, look, sound, feel and taste and therefore

influences the customer's expectations to the gains from the product. Further, the visual imagery has shown to be the first thing consumers fixate on (Pieters & Wedel, 2004).

As evident through the thesis some articles have already begun looking into how different visual imagery creates different mental construal. Building on CLT these articles have looked into findings of how high construal focus on central characteristics while low construal focus on detail related to specific contexts (Lee et al., 2017). This beginning interest with mixing CLT and the theory on visual perception led the authors of this thesis to investigate whether the mental construal of visual imagery could be manipulated to either induce a high or low construal when the visual imagery is placed on a product packaging. The idea stems from how it is possible to manipulate the construal level of text (Hansen & Wänke, 2011) (Massara et al, 2019).

## How CLT can be applied to product packaging

CLT can be applied to product packaging through the visual imagery. It was found that illustrations are seen as abstract whereas photographs are seen as concrete (Septiano et al., 2019). As mentioned, mental construal is not a question of either or, but rather works on a continuum with abstractness in one end and concreteness in the other (Trope et al., 2007). Putting this together with the adjective-to-noun ratio which is used to manipulate the construal level of text (Massara et al, 2019) the authors of this thesis created the abstractness to concreteness dimension scale (p. 57) placing the different product packaging designs compared to how abstract or concrete it is.

### Why construal level affects consumer behavior

The arguments for construal level having an effect on consumer behavior when applied to product packaging design stems from how construal level states that people understand stimuli in the environment based on the perceived self and the object to be evaluated (Trope et al., 2007). Seeing the consumer as a culturally embedded interpreter that both seeks tribal belonging and uniqueness through the symbolic worlds of goods means the perceived self and the object in question are both influenced by how the person interprets themselves and the object. Hence, the psychological distance that a person perceives between themselves and an object is highly influenced by their

interpretation of both their own identity and the symbolic meaning of the good. This means that the level of mental construal affects their evaluation of different products and low-level construal leads people to consider feasibility aspects whereas a high construal leads consumers to consider the desirability aspect (ibid). The experienced psychological distance between a person and the object can be experienced through a temporal distance in terms of buying products for future use, social distance can be in terms of buying for a friend or buying something that the consumer knows will be visible to peers when they visit, for example a product that would be standing visible at a dinner event.

**How construal level affects decision-making**

The idea that construal level applied to product packaging design could affect consumers' perception of the value of the product stems from the findings that consumers' decisions are affected by how psychological distance impacts the quality of what the consumers decide through its effect on how the consumers decides (Maglio, 2020) meaning that using either a high or low construal affects what consumers focus on e.g. products that seem mentally distant are associated with a high construal and means that people will focus on the central characteristics of the product (Trope et al., 2007) and due to the abstractness rely more on heuristics such as price (Yan & Sengupta, 2011). Vice versa, products that seem mentally close are associated with a low construal and will therefore be evaluated focusing more on concrete and contextual characteristics (Trope et al., 2007) such as the ingredient list etc.

## Considerations regarding CLT applied to Product Packaging Design

CLT applied to product packaging design did affect consumers' perception of the product. Using an illustration as the visual imagery made consumers perceive the product as more luxurious. This is in line with previous findings of how abstractness which is associated with a high construal leads consumers to perceive the product as more luxurious (Hansen & Wänke, 2011). However, as grocery retailing products are of a more ordinary nature there are several considerations that should be taken into account for construal level to have the wishful effect.

**Fit between product category and the associated construal of the product packaging design**

As mentioned, it could decrease the consumer's evaluation of a product, thereby influencing choice if there is a lack of fit between the product category and the way it is presented (Ibid). Therefore, some grocery retailing products could be too much of necessity goods to be seen as fitting with an abstract product packaging. However, this thesis argues that it is possible to see some grocery retailing products as more luxurious than others as some of the dimensions that establish a sense of luxury can be extended to some grocery retailing products meaning that even within grocery retailing there are different product categories that could benefit from using CLT. Considering the 5 key dimensions which establish the sense of luxury (Vigneron & Johnson, 2004) it will be argued what properties the product needs to hold for the consumer to be able to see a fit between the product and the abstract product packaging design.

**Grocery products establishing a sense of luxury through their desirability and hedonic value**

For the key dimension of perceived extended self, it can be argued that the product needs to be something that can be desirable and thereby being something that can enhance the consumer's self-concept (ibid). Desirability is argued to be tied to a higher construal as it is seen as abstract (Trope et al., 2007). Thereby, necessity goods should not communicate using abstractness in terms of illustrations as there would be a clear misfit here since necessity goods are something that is needed and something that everyone needs to use and not something that is desired and can enhance one's own extended self. An example could be that a product with abstract illustrations might be bought as the consumer perceives it as aesthetically pleasing and thereby want it to be an extension of themselves as someone who care about one's grocery products being aesthetically pleasing. The key dimension of perceived hedonism (Vigneron & Johnson, 2004) relates to how some grocery retailing products can give hedonic pleasure through intrinsically pleasing properties rather than only functional benefits. It is these products that has a hedonic aspect to it that can be perceived as luxurious, meaning that products that will benefit and could be evaluated more positively by using an abstract product packaging design are products that can be seen as an extra treat out of the ordinary such as marmalade, chips, waffles and already prepared meals such as lasagna and Tikka Masala.

**High quality grocery products establishing a sense of luxury and signaling value of the established luxury being perceived as conspicuous**

The product packaging design using illustrations has the reverse effect in terms of how the product is high quality as it is the abstractness of the product packaging that communicates it is high quality (Yan & Sengupta, 2011) (Fortunato et al., 2014). However, if an abstract product packaging design is chosen depicting an illustration, it is important that the product is indeed good quality. Otherwise, consumers will evaluate it negatively as they see a misfit in what the product packaging design communicates about the product and will therefore avoid it next time. The signaling value the product packaging design will have if it is desirable, has hedonic value and offers a high quality, the purchase of these can be seen as conspicuous as it shows the customer purchasing these have the necessary means to buy it.

**Placement is more important in grocery retailing than uniqueness**

The key dimension of uniqueness (Vigneron & Johnson, 2004) is the only dimension as to what establish a sense of luxury which cannot be applied to grocery retailing products. The uniqueness in terms of having a smaller supply of the product than what the demand is, does not work for grocery items as such. For grocery retailing placement is important and it is argued that it would have a more damaging effect not having a lot of shelf facings in the supermarket as it is more likely to not be seen (Gidlöf et al., 2017). It could also be argued that the items with an abstract product packaging could be seen as unique if they are more expensive than other products within their category as less consumers can afford to buy them.

Evidently, stating that grocery retailing products can be seen as luxurious is a long stretch, but seeing how several of the key dimensions used to establish a sense of luxury can be applied to some grocery shopping products it gives a strong argument for that even ordinary products can be manipulated to be seen as luxurious or high quality just by manipulating whether it is an illustration or a photograph depicted on the product packaging. It is not expected either that the effect will be huge and consumers will perceive the luxury ordinary goods to be on the same level as other luxury goods, but that it will have an effect big enough to make the consumer perceive the value of it

differently. Therefore, abstract illustrations will be seen as more luxurious and higher quality, where concrete photographs will be seen as less luxurious.

**Fit between store format and the associated construal of the product packaging design**

Consumers behave differently within grocery retailing. Their behavior is guided by what they value when buying groceries (Sigurdsson et al., 2016, p. 49). It has been argued that different store formats attract different consumers and where the consumer decides to shop depends on what they value (Willems et al., 2016). It is therefore argued that some store formats over others attract consumers that will value aesthetic product packaging design with illustrations more.

**Hard discounters and concrete photographs on the product packaging design**

Hard discounters' consumers are price conscious as they value lower prices and is therefore probably not interested in paying a higher price in return for getting a product packaging design where time has gone into illustrating the packaging. Oppositely, they are more likely to value the concrete photograph on the packaging design as they quickly can comprehend what it is. Further, people shopping in discounters see grocery shopping as something that just needs to be done and the hassle-free shopping also means not having time to focus on the visual imagery on the product packaging and appreciate the aesthetic value of it (Willems et al., 2016). It can be argued that since shopping is just something that needs to be done, consumers here might feel they are under time pressure to get the grocery shopping done as quickly as possible. In terms of this, studies have shown how consumers filter out visual imagery and only focus on text when they are pressured on time (Gidlöf et al., 2017). This would be a further argument for why they would not be interested in the product packaging designs with an abstract visual imagery.

**Soft discounters fit with abstract construal to increase value perception of their private label brands**

For the soft discount stores which is a compromise between what the hard discounters and non-discounters offer, product packaging with a higher construal could be something that consumers here value. Soft discounters have a wide range of private label brands along with the national brands (Willems et al., 2016). The private labels here could benefit from the luxuriousness that construal level could provoke as the low awareness leads consumers to perceive the value of the product from other heuristics than the brand (Delvecchio, 2001). As the visual imagery in this thesis has shown to represent different mental construal it does make sense for these stores to be able to communicate their own private label brands as luxurious and high quality through the use of illustrations.

**Non-discounter's focus on aesthetics and enjoyment as perfect fit for abstract illustrations on product packaging design**

The authors of this thesis argue that the best fit for using abstract illustrations on product packaging design is in the non-discount supermarkets as the customers choosing to shop for groceries here have been found to value aesthetics, recreation and enjoyment more than customers at hard and soft discounters (Willems et al., 2016). As consumers see grocery shopping as more of a recreational activity and take their time shopping around it is argued that they would appreciate the extra design details on the product packaging concerning the illustration and the overall aesthetic experience and value it more. That they see grocery shopping as a recreation activity and enjoy it, it is also argued that they will spend more time doing the grocery shopping where studies have shown that consumer which are not under time pressure will filter visual imagery more (Gidlöf et al., 2017), meaning that consumers in non-discounters are more likely to perceive the value of the product based on the details that have gone into the visual imagery and the overall design of the product packaging. Furthermore, they do not mind a higher price and they would probably be willing to pay more for an aesthetically pleasing product packaging.

## Color is still an important factor

The illustration is abstract as it only depicts the shape of the ingredient without any color to rely on in the identification of it (Lee et al., 2017). However, consumers attention is drawn to visual salient features such as color as well as using visual saliency when searching for a specific product on the shelf e.g. looking for the orange color for orange marmalade (Gidlöf et al., 2017). For product packaging designers it is therefore important to not disregard the color and take the importance of the color into their consideration when designing the product. One way to come across still keeping the drawing abstract with its reliance on the shape only could be to draw the whole background of the label in a visual salient color to assure that consumers still attend to the product packaging design (picture 11) or using colored lines to draw up the shape of the ingredient (picture 12).


*Picture 11*


*Picture 12*

## Considering how higher construal is seen as more expensive

As abstract product presentation leads to a perception that the product is more expensive (Hansen & Wänke, 2011), it is important that it is only the products that carry enough benefits to be perceived as being worth being more expensive that manipulates the level of construal to being more abstract. Making abstract product presentations for products that cannot through the 5 dimensions establish a sense of luxury (Vigneron & Johnson, 2004) affects consumer's evaluation negatively. Therefore, the use of abstract product packaging design will be a disadvantage for some product categories if consumers do not perceive this product category as luxurious in any way and therefore see the products as extremely expensive due to the abstractness. Therefore, a fit between the level of construal and the product category is important.

## Ecological validity

### Pros of goal-oriented tasks

This thesis chose to give the participants in the ET study a task by either asking *"How luxurious/non-luxurious do you perceive the following product to be?"* or *"How do you perceive the quality of the following product?"*. Choosing to give participants a task both have pros and cons. The arguments for choosing to give them an assignment is the argued goal-oriented nature of eye-movements and the argument that what gains attention is driven by behavioral relevance and learning in terms of reward maximization and uncertainty reduction, meaning that we pay attention to stimuli we believe is relevant in the environment and will help in maximizing reward and reduce uncertainty in understanding the environment we are in. Indeed, the goal-oriented nature of attention was already found by Yarbus in 1967 and has since been supported by other studies finding that "*the informativeness of objects in scenes is goal contingent and that eye movements reflect the human thought processes; so the observer's thought may be followed to some extent from records of eye movements"* (Pieters & Wedel, 2007, p. 231). Yarbus argument of how attention is allocated to what is seen as important, led the authors of the thesis to believe that with our assignment we will through the ET be able to see what the participants pay attention to and what they think helps them in answering the assignment. As the thesis looked into the perception of value in regard to the two specific aspects of luxuriousness and quality, it was deemed important to give them the exact task of evaluating the product in terms of these as we through their eye-movements could see what they saw as relevant on the product packaging in evaluating the level of luxuriousness and quality.

### Cons of goal-oriented tasks

A potential drawback from giving participants an assignment specifically asking them about the perceived luxuriousness and quality of the product can be that we are priming them by putting the idea of luxuriousness in their head. The participants might not even have considered the luxuriousness or quality of the product if it had not been mentioned. Further, we ask them to take a stance in regard to rating the luxuriousness where it is questionable if they would have done that if we had not asked. This means that the research set-up with asking people how they perceive a specific

aspect can have biased a higher level of conscious reflection on specific product properties than what consumers might have otherwise reached in real-life situations when faced with a food consumption choice since we directly ask participants about their expectations on selected properties such as luxury and quality among several other possible properties that they could evaluate the product packaging as.

**The goal of attention**

However, the thesis argued that in line with the investigated subject of CLT applied to product packaging design it was important to know if the manipulation of the construal level of the visual imagery did affect consumers perception of the luxuriousness of the product as well as a less strong connotation by asking them to evaluate the quality. Further, theory on attention has shown to play an important role in decision-making, and decision-making has through the use of fMRI been shown to be a process starting with evaluation and then followed by the action of choosing one thing over the other. The argument is therefore that the participant would have no matter what evaluated the product, and the assignment they are given then assures that they are asked to consider the evaluation on the aspects of quality and luxuriousness which is related to the CLT and the topic of investigation.

**Stimulus-oriented attention**

The opposite form of attention to goal-oriented is stimulus-oriented where there is an implicit assumption *"that there is a "default" task-free, stimulus-driven, mode of viewing and that vision for task is special in some way"* (Tatler et al., 2011, p. 4). Hence, consumer's attention is controlled by bottom-up features and models such as the saliency-based model explains how it is the most salient features that gains the attention. However, *"the assumption that "free-viewing" is a task-free condition for the viewer is questionable. It seems more likely that free-viewing tasks simply give the subject free license to select his or her own internal agendas"* (Tatler et al., 2011, p. 4). Meaning that if we give the participants free-viewing without any task they will come up with their own task in their mind, and the interpretation of what they pay attention to will therefore be difficult as we do not know their internal priorities in terms of recognizing and remembering what they are seeing. In

terms of this, one could say that *"we are not studying viewing behavior while free of task, but rather we are studying viewing behavior when we have no real knowledge of what the viewer has chosen as the purpose of looking"* (Tatler et al., 2011, p. 4). This difference between either giving the participants in the ET experiment a task or not will of course affect the fixation behavior, however, the free viewing task does not mean that the eye-movements we see reflect "free-viewing" which is evident in how even in free-viewing tasks the correlation between visually salient features and fixations in the picture is weak. Free-viewing tasks are therefore *"problematic if we wish to try to generalize these models to how gaze is allocated in natural behavior"* (Tatler et al., 2011, p. 17).

**Stimulus-oriented behavior showing attentional capture to saliency**

These arguments however do not mean that saliency-based models are not good for anything. They can provide explanations of attentional capture. The total salience which guides eye-movements during search has also shown to be *"the sum of bottom-up salience due to the brand's perceptual features, and top-down salience due to the goal-based selective enhancement and suppression of these features. Because bottom-up salience is determined by the perceptual features of the visual display, it is independent of the search goal"* (Van Der Lans et al., 2008, p. 923) showing how saliency still does explain some eye-movements and can be used in seeing which stimulus are salient to know what will capture attention. One thing to keep in mind concerning visual saliency is how a stimulus can be salient in one context but not in another (Tatler et al., 2011). This has been argued for in this thesis as well as of how visually salient stimulus are what stands out from the background. Indeed, explanations for attentional capture is highly relevant to know for product packaging design when placed on shelves booming with many other products. As consumers faced with so many choices could choose based on what catches their eye, also meaning that what is not seen will not be an option when consumers decide what to buy. However, the visual attention is more relevant to know when investigating consumers overall gaze behavior in front of a shelf whereas investigating the evaluation of certain products need a task to assure that consumers do evaluate the product based on the aspect investigated and mirrors the goal-oriented nature of grocery shopping (Willens et al., 2016). Knowing through this thesis ET study that consumers use the visual imagery to evaluate the luxuriousness of the product and that this increases the higher the construal is, shows that consumers would look at the visual imagery when entering the store with the goal of finding something luxurious.

**Ecological validity of goal-oriented attention**

However, wishing to improve the ecological validity, the free-viewing tasks *"may be adequate models for how we look at pictures but are unlikely to generalize to gaze behavior in other situations"* (Tatler et al., 2011, p. 17). Other situations are e.g. real-life situations such as grocery shopping where it has been found that it in its nature is goal-oriented (Willens et al, 2016) meaning that consumers when entering a store already has certain goals of what they need to find (Gidlöf et al., 2017). Goals that the consumer has in mind that could potentially be met, based on the findings that product packaging design with abstract illustrations are seen as more luxurious could be if their goal is to find something aesthetically pleasing that would be visible for guests or something they see as an extra treat, then they might look at the product packaging design with the abstract illustrations.

**Heuristic affecting the ecological validity**

A heuristic that could affect the result is the anchoring heuristic. By asking "*How luxurious/non-luxurious do you perceive the following product to be?*" people will evaluate the product based from their anchor of what luxurious is. Luxurious has a strong connotation to it and as previously discussed, consumers might not think that grocery retailing products could ever be perceived as luxurious. It is therefore interesting to see participants eye-movements after reading the luxuriousness question in terms of where they look or are uncertain about the question indicated by eye-movements going back and forth from picture and question if they do not see the connection between these. The phrasing of luxurious however is due to that this is what has been investigated in relation to CLT. The perhaps too strong connotation of luxury in regard to grocery retailing products led to asking about the perceived quality of the product to see if the illustrations would be rated higher on quality than luxuriousness. The idea of using high quality stems from how high quality is often associated with luxury. At the same time, it does not have as strong a connotation as luxury, and high quality is seen as a fair description of grocery retailing products.

**Knowledge and prior experience affecting CLT**

It has been found that knowledge affects construal level (Lee et al., 2017) which is why it was decided to ask participants in our study about their knowledge of the Gestus brand. As knowledge and the level of prior experience has been found to be a boundary condition that can lead to results not being in line with CLT it is important to know the participants knowledge of the product so it can be seen whether some results might be influenced by the participants previous knowledge of the products. As consumers feeling they know the product might not associate it with a high construal.

This is in line with Hansen and Wähnke's notion on how the high mental construal of luxury goods is due to the lack of experience with them. Meaning that the more unknown a product is to a person the more abstract it is. Contrarily, the products the consumer knows well and have prior experience with will be associated with a lower mental construal as it is something familiar. Therefore, consumers knowing the Gestus brand and recognizing the products could lead them to associate with a lower mental construal thereby rating it as less luxurious. However, the high quality could still be rated high as the accumulated knowledge from using the products could be that these are high quality products.

Another aspect regarding knowledge that can influence consumers value perception of the product packaging design can be that consumers perceive the illustrations as higher quality than photographs as their accumulated experience with product packaging design being that packaging with illustrations are higher-end products.

# Conclusion

The purpose of this thesis was to answer the research question *"How are consumers affected by the design of product packaging? And how can construal level theory be applied to product packaging and what implications would this give in the design process of the product packaging?"*

Both quantitative and qualitative methods were used to be able to investigate the research question. The use of ET was chosen to give insight and increase knowledge of what consumers pay attention to and being able to quantify consumers interest in the different AOIs through biometric measures.

The qualitative methods were chosen as to give an increased knowledge through the in-depth interview if the use of illustrations or photographs was something that is already considered in the marketer's design process of the product packaging and what their considerations in regards to applying one over the other was. Accompanying the interview, several theories were chosen to help analyze and answer the research question. The theory which were deemed most important to gain knowledge within was CLT, decision-making, consumer behavior and product packaging design. Furthermore, a literature review was conducted to gain an insight into how the visual imagery can be manipulated and how this affect consumers perception of a product as well as the mental construal level.

The first aspect of the research question was to analyze how consumers are affected by the design of the product packaging. Through reading secondary literature, it was found that the packaging design of a product both affects consumers behavior and decision-making in terms of valuation of the product and the decision to buy it, as it is the product packaging that is used in brand identification and package comprehension. The value of the product packaging design is that it works as a communicator to the consumer of what the product is and works to promote the content of the product packaging. Furthermore, the value of the product packaging is also related to what it communicates to peers about the consumer when choosing specific product packaging designs over others. The consumer's value perception of a specific product is a trade-off between potential gains and losses. Consumers in a purchase decision will rely on the product packaging design to evaluate the quality of the product and decide whether it is worth buying. The different risks the consumer considers when deciding to purchase something is functional, financial and social. The product packaging communicates cues that can help consumers in the evaluation of the different risks.

The second aspect of the research question of how CLT can be applied to product packaging it was chosen to focus on the visual imagery and how a manipulation of this could lead to affecting the level of mental construal. By combining different theories, that of CLT, visual perception and semantics definitions were made of what entailed an abstract visual imagery and what entailed a concrete visual imagery. The abstract visual imagery is defined as *an illustration of an object only entailing the central characteristics of the object's shape and fewer observable characteristics leading the object to bear some form of similarity or resemblance to the object it is depicting. The abstract visual imagery is therefore iconic,* and a concrete visual imagery is defined as *a photograph of an object meaning it is an exact depiction of the object and serves as a physical trace pointing to*

*the object's existence with its observable characteristics such as shape and color leading the object to be a direct representation of the physical object it is depicting. The concrete visual imagery is therefore indexical.* The argument from CLT of how abstractness is associated with higher level construal while concreteness is associated with low level construal leads to the conclusion that abstract visual imagery depicted as illustrations lead consumers to form higher level mental construal whereas the concrete photographs lead the consumer to form lower level mental construal. It was argued that, since the level of mental construal is a continuum depending on the individual's perception of the perceived psychological distance between them and the object and not a dichotomy of abstract and concrete, the level of construal of the visual imagery would also entail different dimensions. An abstractness to concreteness dimension scale was created, showing the different degrees of abstractness and concreteness that the visual imagery can entail (p. 57).

Building on the knowledge of how product packaging affect consumers evaluation of the product and how the level of mental construal affects consumers evaluation of objects it was expected that the product packaging design applying CLT would have an effect on the value consumers perceive to be tied to the product. Taking previous findings of how abstractness has been found to affect consumers to perceive the product as more luxurious as a starting point, it was assumed that when applying CLT to the visual imagery on the product packaging design this would affect whether the consumer perceive the product as more or less luxurious depending on the level of abstractness of the visual imagery on the product packaging design. Thereby expecting that the more abstract the visual imagery, the more luxurious it would be perceived as and vice versa.

These assumptions were tested through an ET study. It is expected that the participants will rate the product packaging designs with an abstract illustration as more luxurious than the product packaging with the concrete photographs. The phrasing of making participants rate the quality of the products as to have a word that is more associated with grocery products, did however not show any significant difference between a product packaging design with illustration and one with a photograph, as both of these are expected to receive the same quality ratings. As attention has shown to play an important role in decision-making several hypotheses related to attention was formulated. The biometrics of fixation duration, number of revisits and time to first fixation showed to be indicators of whether the consumer perceives the visual imagery as abstract or concrete. It is expected that the more abstract the visual imagery is, the longer participants will fixate on the visual imagery and the quicker they will fixate on the text after looking at the visual imagery as a guidance to

interpreting what it is. Furthermore, the number of revisits to the visual imagery is expected to indicate that the participants deemed the visual imagery on the product packaging to be a relevant indicator of the products luxuriousness and quality and furthermore needed more revisits to the abstract illustration to interpret what this was.

The final aspect of this thesis research question is what implication the application of product packaging design would give in the design process of the product packaging. As the application of CLT to product packaging is expected to show an effect there are several implications tied to this as practitioners can use this to affect consumers in the direction that they want their products to be perceived as. If practitioners want their products to be perceived as luxurious, the use of abstract visual imagery on the product packaging design will make consumers perceive it as more luxurious. Conversely, if the wish is to keep the products to be perceived as more ordinary, the use of concrete photographs on the product packaging design will make consumers perceive it as more concrete and closer related to their everyday life. The concrete photographs being associated with a lower construal is most beneficially if the product category is e.g. necessity goods that is used every day and therefore feels psychologically closer to the consumer due to the low temporal construal.

The thesis' study showed that even ordinary goods like food products can be manipulated to be perceived as more luxurious through the use of CLT. A product perceived as luxurious has its benefit for some product categories if they can fulfill any of the 5 dimension that can establish luxury which are perceived extended self, perceived uniqueness, perceived quality, perceived conspicuousness and perceived hedonic value. The product that fulfill just one of these dimensions would benefit from the use of abstract illustrations on the product packaging leading the consumer to perceive the product as more luxurious.

# Academic Contributions and Managerial Implications

## Academic Contributions

Theoretically, the level of construal of the visual imagery on a product packaging design and its effect on consumer's perceived luxuriousness of the product has not yet been researched and overall

the construal level effects on different components of the product packaging design has not been thoroughly researched and the current research has therefore added to the literature with an understanding of the use of the visual imagery to manipulate the level of construal and the strength of the effect of the CLT applied to product packaging design. This thesis advanced and empirically validated that CLT can be applied to product packaging in terms of its visual imagery and how it affects consumer value perception of the product packaging design. It found that the level of construal of the visual imagery affected the perceived luxuriousness of the product and how the construal level triggers variation in consumer's perception of the luxuriousness of the product.

The findings have several theoretical contributions. First it contributes to the literature on CLT and visual imagery by further establishing that illustrations are associated with abstractness and a high construal level due to their focus on central characteristics of object recognition such as shape whereas photographs are associated with concreteness and a low construal due to its indexicality making it an exact depiction of what it shows thereby giving all contextual cues to identify what it is. Previous research has started to look into how CLT applies to visual imagery where one study applied the idea of visual imagery either showing an abstract illustration or a concrete photograph (Septiano et al., 2019). However, the use of illustrations vs. pictures was not the main test of their experiment and they did not account for how the difference in shape of the visual imagery and what elements was depicted in respectively the illustrations and photographs. This thesis study thereby validates the effect of CLT applied to the visual imagery as it showed that keeping all things equal except for manipulating the visual imagery either being an illustration, or a photograph did affect consumer's perception of the luxuriousness of the product.

Secondly, it contributes to the literature on product packaging design and how consumers process and interpret packaging design. To the authors of this thesis knowledge, this thesis is the first to investigate how CLT applied to the visual imagery on a product packaging design affected consumers perception of the value of the product in terms of luxuriousness and quality. It showed how the one element of visual imagery on the product packaging design can affect the evaluation of the whole product. Furthermore, this contribution is a step towards being able to combine the different elements of a product packaging design through all elements working on the same construal level (Lee et al., 2018).

## Managerial Implications

Managerially, this paper offers several considerations for managers to take into account when designing the product packaging for a product and considering how they wish the consumer to perceive the product.

Firstly, it was shown that the level of construal of the visual imagery on the product packaging design affects consumers' perception of the product. Abstract illustrations were associated with a high construal and will lead the consumer to perceive the product packaging design with these as more luxurious and high quality. Oppositely, concrete photographs were associated with a low construal will lead the consumer to perceive the product as more ordinary and less luxurious. Managers should therefore consider which construal level they want to induce, as construal level can be induced in practice.

Secondly, this thesis offers an easy and effective way to manipulate the abstractness of the visual imagery through the creation of the abstractness to concreteness dimension scale (p. 57). This scale and the definition of what respectively a concrete and an abstract visual imagery are, makes it easier to implement as it states what entails abstractness and concreteness in a visual imagery. For practitioners, this method could therefore be applied effectively in the design process of product packaging to affect the construal level. The most abstract visual imagery are illustrations with only the central shape being drawn up, thereby only entailing the most central and necessary shape to be able to identify the product that is depicted. This leads to high construal. Oppositely, the most concrete visual imagery is the photograph which is indexical as there is no element of interpretation apparent to know what is depicted. This leads to low construal.

Thirdly, the thesis emphasizes the importance of considering the use of color when practitioners apply construal level to product packaging design. As the abstractness of the visual imagery is manipulated through only focusing on central characteristics the higher the construal does not mean that practitioners should disregard using color on the product packaging design. Color is an important salient factor to gain consumers attention and therefore the use of it needs to be considered. Practitioners can come across still keeping the illustration abstract with its reliance on shape only by either coloring the whole background of the product packaging design or using colored lines to draw up the shape of the illustration. Thereby, the illustration is still seen as abstract, but will be visually salient to consumers assuring that they will attend to the product packaging design.

Fourthly, practitioners when applying CLT to product packaging should remember to take the legislations of misleading food labelling into account. They need to be aware that if the food packaging is depicting a photograph of an ingredient, this should be the natural taste-giver in the product. Depicting a visual imagery of what the product can be used to make therefore needs to be depicted as an illustration and not a photograph e.g. for baking powder the visual imagery of a muffin needs to be depicted as an illustration as to not be misleading. Another aspect concerning the legislations practitioners should be aware of is how the effect of abstract illustrations being perceived as high quality does not entail that concrete photographs on the other end of the abstract to concreteness scale is perceived as lower quality. Indeed, the thesis' results showed that also concrete photographs of the ingredient on the product packaging was perceived as high quality. Consumers perceiving photographs of products on the product packaging design as high quality could be a consequence of consumers knowing the legislations of misleading food labelling knowing that an exact depiction of the ingredient means that this is the natural taste giver of the product and not only artificial flavoring. Managers applying CLT to product packaging should therefore be aware of the legislations concerning misleading food labelling when designing their product packaging.

Fifthly, construal level effect on the perceived luxuriousness of the product suggest an extra consideration for practitioners when choosing to apply CLT to their product packaging design. Throughout the thesis, it is evident that higher construal as well as leading to the perception of luxury, it also leads to the perception that the product is more expensive. Therefore, manipulating the construal level to be higher will only be good for some product categories. As discussed only product categories that can offer some of the dimensions in establishing luxury will be suited to depict abstract illustrations. The product categories that could have advantage of a higher construal are the ones entailing dimensions of desirability, hedonic value, high quality, uniqueness and conspicuous consumption. Product categories where the higher construal would be a disadvantage is necessity products as consumers often use price as a criterion for what to choose and perceiving the necessity good as expensive could influence the consumer to decide not to buy it.

Sixthly, this thesis outlined which construal level would benefit in which store formats thereby offering practitioners guidelines as to which manipulation of the construal level of the visual imagery on the product packaging works best where. It was suggested that manipulating the visual imagery to work on a lower construal through using concrete photographs would work best in hard discounters where consumers see grocery shopping as something that just needs to be done and would

therefore value the low construal visual imagery which they can quickly comprehend what is. As the hard-discount customers also value the lower price, they would not appreciate the expensive association tied to the abstract product packaging design. The store format that would appreciate the higher construal levels of the visual imagery are the non-discounter where consumers value aesthetics and see the grocery shopping trip as an enjoyment. Therefore, they would appreciate the aesthetically pleasing product packaging design with the illustration where thought has been given into the detail.

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