*MAXI PROJECT PROPOSAL*

***Background information***

*Brand Personality*

The construct of brand personality has attracted during the past decades increasing attention. From a psychological point of view, the combined influence of congenital genes and living environment determines personality (McCrae et al., 2000). This is manifested in many aspects such as character, interests and abilities. But what happens when we begin to project these traits on objects and non-human entities? The assumption that inanimate objects such as brands can be perceived as human-like sets of features have gained increasing attention in marketing and consumer psychology. This is understood as a human's tendency to anthropomorphize consumable items. ( Yongjun & Jooyoung, 2010). As suggested by Becheur et al. (2017), brands are no longer simple abstractions but can be assimilated to humans with their ability to attract and influence behaviour.

In other words, brands are believed to express a distinct personality which allow humans to relate, commit and trust them.

Thus, brand personality can be defined as "that set of traits that individuals assign to a product or service as if these were people." (Geuens, Weijters, & De Wulf, 2009; Schifman, Kanuk, Hansen, 2012).

In other words, by ascribing human-like characteristics to consumable products, we view brands as extensions of ourselves (Chaplin & John, 2005). Aaker in 1997 developed the brand-personality scale and a number of studies followed suggesting that the relationships between consumers and brands bear a general resemblance to social relationships. (Aggarwal 2004, Fournier 1998). Within this theoretical framework, the brand is conceived as an active and contributing actor in the dyad between the consumer and the brand itself (Sung & Kim, 2010).

*Brand Trust*

As an active partner of the human-brand interaction, brands are implicitly assessed not only on their presumed personality, but on more intrinsic traits such as their fairness, or the extent to which we can trust them. In fact, brand trust has been defined as the “willingness of the average consumer to rely on the ability of the brand to perform its stated function” (Chaudhuri & Holbrook, [2001](http://onlinelibrary.wiley.com.ezproxy.lib.gla.ac.uk/doi/10.1002/mar.20349/full#bib25), p. 82; Morgan & Hunt, [1994](http://onlinelibrary.wiley.com.ezproxy.lib.gla.ac.uk/doi/10.1002/mar.20349/full#bib51), p. 23). As it is possible to gather from the definition, the notion of reliance plays a crucial role in defining brand trust, suggesting two main cognitive components as essentials to it: trustworthiness and expertise.

Respectively, they refer to the consumer’s confidence in the brand to provide high performance in a honest manner and the extent to which such brand is perceived to be skillful in its operative field. According to previous literature, trust is traditionally associated with competence, honesty and benevolence (Coulter & Coulter, [2002](http://onlinelibrary.wiley.com.ezproxy.lib.gla.ac.uk/doi/10.1002/mar.20349/full#bib27); Doney & Cannon, [1997](http://onlinelibrary.wiley.com.ezproxy.lib.gla.ac.uk/doi/10.1002/mar.20349/full#bib30)). Therefore, consumers beliefs of a brand being reliable, competent, honest and fair all contribute to increase perceived trust of such brand (Altman & Taylor, [1973](http://onlinelibrary.wiley.com.ezproxy.lib.gla.ac.uk/doi/10.1002/mar.20349/full#bib9); Chaudhuri & Holbrook, [2001](http://onlinelibrary.wiley.com.ezproxy.lib.gla.ac.uk/doi/10.1002/mar.20349/full#bib25)). Considering all the aforementioned assumptions, it is possible to argue that people may relate to brands similarly to how they relate to people. In a natural setting, this kind of interactions take place on a daily basis as economical interplay or transactions. The question that arises rather spontaneously is whether we perceive brands more like inanimate objects or dynamic entities similar to human beings.

*Brand perception: objectification or personalization ?*

Rapid recognition of faces lies at the basement of our social interaction apparatus. As human beings, we heavily rely on faces perceptions as a cue for identifying familiar individuals.

Classic research in cognitive psychology has identified distinct brain regions associated with recognition of different classes of inanimate objects. Furthermore, different brain areas have been identified to underpin object against face recognition as well as different reaction times.

Human faces are in fact processed faster than objects (Dawson et al., 2005;Kita and Inagaki, 2012).

A study by Mitchell et al.(2002), investigated the neural systems subserving person versus object knowledge and found distinct patterns of neural activations.

Judgments relative to persons were associated with a unique pattern of brain activity and included areas of the brain previously implicated in other social-cognitive functions: the medial prefrontal cortex, superior temporal cortex, intraparietal sulcus, and fusiform gyrus.

These regions showed a general little average change from baseline activation for person judgments, along with significant deactivations for object judgments. Overall, these findings suggest the idea of person perception as a functionally dissociable semantic construct within the brain (Yoon et al., 2006).

Thus, it is possible to assume that product-based judgments are processed differently to human-based ones. However, taking into account the aforementioned assumption, it is possible to argue that brand personality judgments are in fact processed similarly to human ones.

Given this assumption, we argue that interacting with a human or a brand in a depersonalised setting ( for example a simulated economic transaction) should generate similar levels of emotional arousal (reflected in similar mean reaction times and patterns of acceptance/rejection).

*The Ultimatum Game*

We simulate the economic transaction with the Ultimatum Game, a classic economic-bargaining paradigm. Firstly proposed by Guth, Schmittberger and Schwarze, the ultimatum game involves two players (the responder and the proposer) who have to split a certain amount of money between themselves. Specifically, the Proposer is attributed a certain amount of money and must decide the amount to give to the other agent, the Responder. Aware of the total offer and the amount suggested by the Proposer, the Responder will decide to either accept or reject the offer. Accepting the offer leads to a split of the sum accordingly to the Proposer suggestion. On the other hand, rejecting it will leave both the agents with nothing.

According to standard game theory, the player's sole aim is to maximise payoffs. Therefore, a rational prediction understands the responder accepting any amount of money greater than zero (e). Similarly, the proposer should propose the smallest non-zero amount of money (A-e). However, there is a robust body of literature suggesting that the ultimatum game defies those classic predictions. These results appear consistent over modifying variables such as stake size (Tompkinson et al., 1995; Hoffman et al., 1996), context (Hoffman et al., 1994) and culture (Roth et al., 1991; Cameron 1999). According to this affirmed pattern, players tend to behave irrationally and reject offers that are not perceived as fair. On average, the mean offer is usually between 40% and 50% of the total sum and participants tend to reject the offer when it is equal or smaller than 20% of the sum (Henrich, 2000). This robust pattern of results led economists to postulate new models featuring humans innate proclivity to fairness and reaction to punishment (Camerer & Thaler, 1995; Roth 1995; Konow 1996). This means that affective state is a decisive component in decision making during an ultimatum game ( Van ‘r Wout et al., 2006). This pattern however was only noticed when humans were interacting with other humans rather than a computer ( Van ‘r Wout et al., 2006).

Therefore, individuals playing the ultimatum game show different behavioural patterns interacting with a computer ( a “pure” object devoid of any emotive value) or a human being.

The aim of this experiment is to investigate the behavioural correlates of brands perception. To our knowledge, no other study in the past has compared interaction between brands or people in an economic setting, nor has used the paradigm of the ultimatum game to investigate it. Therefore, we aim at bridging the conceptual gap between brands, objects and humans, investigating whether human beings tend to interact with brands in the same way they would interact with an object, or by ascribing it human-like traits and thus treating it as a human being.

Overall, we expect the well-documented behavioural pattern of accepting all fair offers and a declining acceptance rate as the offers became progressively less fair. However, we are focusing on the differences between conditions : brands / humans.   
From a decision making point of view, we postulate that very fair and unfair offers (we are gonna define them *extreme offers*) may contain very little decision uncertainty. In this context, decision uncertainty is modulated as difficulty of the task as a function of the fairness of the offer. In these situations people have little doubt about the decision they should implement, thus employing less time to make a decision. But as the fairness of the offer become more blurred (30/70 or 40/60 split) decision uncertainty should become higher and should be maximal somewhere in the proximity of the fairest offer (eg. 40/60 split). This relationship can be described with the Pierons Law which is described in the next paragraph.

On these premises, we postulate the following hypothesis:

1. Overall, mean reaction times will vary as a function of decision uncertainty. More specifically, extremely fair and extremely unfair offers will predict shorter reaction times.

Secondly, we are concerned with indirect ratings of trustworthiness towards brands and humans. This will be our proxy measure to determine whether individuals show differential processing of brands as opposed to humans. Specifically, we expect brands to be regarded similarly to humans in a social decision making context. This would imply an analogous emotive component attributed to the subjects decisions in the ultimatum game in relation to brands interaction. Thus, we postulate our second hypothesis:

2. We predict that equal ratings of trustworthiness will result in similar rejections to offers coming from human beings and than brands and lower rejection rates to offers from the computer.

Pieron’s Law

*Piéron’s Law* explains the general relationship found between reaction time and intensity of a stimulus (Piéron, 1920, 1952).

*MRT* = α*I*^β + γ

Accordingly, α and β are scaling parameters that determine the slope of the function and γ is an intercept (Luce, [1986](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3249387/#B21)).

The original formulation of the law assumed its relationship to stimulus intensity (Piéron, [1914](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3249387/#B28)). For example, when participants were instructed to press a button as soon as a light was switched on, MRTs were found to follow a power law decrease with increasing luminance of the light. Over the last century, the law has been reported in many different domains, including brightness detection (Piéron, [1914](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3249387/#B28)), tone detection (Chocholle, [1940](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3249387/#B10)), taste detection of dissolved substances (Bonnet et al., [1999](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3249387/#B5)), odor detection (Overbosch et al., [1989](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3249387/#B26)), heat detection (Banks, [1973](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3249387/#B2)), and the go/no-go task (Jaskowski and Sobieralska, [2004](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3249387/#B19)).

In recent years, Piéron’s Law has been found to hold in two-alternative forced choice (2AFC) tasks as well (Pins and Bonnet, [1996](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3249387/#B29); Palmer et al., [2005](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3249387/#B27); Stafford et al., [2011](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3249387/#B35)). Similar to the initial studies that reported Piéron’s Law, MRTs were found to decrease as a power law with increasing stimulus intensity, even though the task was not a signal detection task but instead a choice task. For example, Stafford et al. ([2011](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3249387/#B35)) demonstrate that reaction times in the Stroop color naming task scale according to a power law with the luminance of the color dimension. These studies raise the question whether Piéron’s Law describes a specific relation between stimulus intensity and MRT or whether Piéron’s Law is related to the more general notion of discriminability in (perceptual) decision-making. Thus, the typical power law decrease in MRT is not only observed with increasing stimulus intensity, but also when a decision becomes increasingly easy. One reason for arguing in favor of this hypothesis is that the typical stimulus detection task that is associated with Piéron’s Law can be thought of as a 2AFC task. The decision that is required is that between providing a response or withholding a response. The stimulus intensity can now be thought of as a factor on the decision difficulty, because a low intensity stimulus discriminates poorly between the two response alternatives (respond or withhold a response).

**The Current Study**

Previous research has traditionally utilized direct ratings of brands and faces in order to extract patterns of familiarity and liking and determine levels of brand trust (Yoon et al., 2009; Sung & Kim, 2010). However, we identified a “linguistic problem” recurring with this kind of method. During the rating task, participants are asked to ascribe to brands and people the same adjectives such as “powerful” or “successful”. In other words, we may use similar lexicon to make judgments of persons and products but we cannot conclude that we are drawing from the same semantic concepts when using those terms. That is to say, different neural cognitive processes may be responsible for generating the underlying attribution ( Yoon et al., 2006).

In order to resolve this limitation, we implemented a different methodology aimed at simulation a financial transaction between the participants and the brand or the person. We believe that this procedure will yield more accurate and meaningful results as a form of indirect ratings of trustworthiness.

*Design*

The current experiment will follow a full within subjects design, where each participants will take part in every condition. The study will be divided into two main sessions. The first one will measure indirect ratings of trustworthiness towards a set of humans faces and brands and respective reaction times. The values from the ratings, that will range from 0 to 100, and the Reaction Times are the dependent variables.

The independent variable is the stimulus presented (either a person’s face or a brand logo).

The second session will measure acceptance and rejection rates of unfair offers during different trials of the ultimatum game where participants played the role of the receiver against human beings, brands or a computer (control group) in the role of the proposer.

*Ratings*

The first session implies collecting data of ratings towards famous people faces and brands. In order to do so, we created an adapted trust game that will allow us to gather indirect ratings of trustworthiness regarding famous faces and brands.

This simplified version of the trust game required the participants to imagine a scenario in which they were involved in a financial transaction with the person/brand on the screen. The participants will be instructed on the nature of the trust game and once the stimulus (either a famous person’s face or a brand) will appear on the screen, they will have to express how likely is the person on the screen to reciprocate half of the share on a scale from 0 to 100 (0 being never and 100 being always).

Ultimatum game

Participants will take part in a one shot decision ultimatum game. On the basis of the work carried out by Kim and colleagues (2012), we structured the ultimatum game upon 10 different rations of offer in order to recreate different scenarios. More precisely, the 10 conditions will range from extremely fair (9.5:05 ) to fair (5:5) and extremely unfair (0.5:9.5).

To ensure participants’ sustained attention, these offers were presented in random order in the course of separate blocks. On the basis of the research carried out by Sanfey et al. (2003), we considered unfair those offers of 30% of the total sum or below.

*Stimuli:*

The stimuli were a set of people faces and brands. According to previous research (Mussel et al., 2014) smiling as compared to non-smiling facial expressions have a decisive impact on decision making by underpinning cognitive and emotional processes in economic bargaining.

Therefore, we selected only neutral faces for the current experiment.

Results

A linear mixed model with random intercept at the subject level and with offer amount and partner type as independent variables was fit to the data.

* Reaction times

A mixed effects generalized linear model was fit to reaction time data to explore any difference between partner type. Decision type (accept or reject), partner type (human or computer) and offer amount were included as independent variables in the model, with subject modeled as a random factor

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