## DISSERTATION PROPOSAL

## Three Essays in Marketing Peter Stüttgen

Thursday, April 28, 2011 3:30 pm GSIA 324

Essay 1: Adding Significance to the Implicit Association Test

The Implicit Association Test (IAT) has not only become one of the most widely used research tools in psychology, but has also been employed frequently by marketing academics and practitioners to measure consumers' implicit attitudes towards brands and other things. However, we argue that the IAT's reliability varies from application to application, depending on the attitudes to be measured, the stimuli used, etc. Thus, the reliability cannot be established a priori. Instead, we propose a straightforward post-hoc method based on pairwise significance tests (i.e., comparing the IAT-effects of two participants at a time) to check whether the underlying measurement assumptions were satisfied in a particular application, giving the IAT a sufficiently high reliability to be analyzed confidently. Using extensive simulations as well as an empirical application, we illustrate the underlying problem and show that the proposed method is sensitive to otherwise unobserved sources of error.

## Essay 2: Identifying Stockouts and Shrinkage at the Micro-Level

In this essay, we develop a Bayesian model to estimate the occurrence of stockouts and shrinkage (product loss) at the daily level using data that is readily available to suppliers (daily sales and shipment data). This allows the suppliers to monitor the retail outlets if the incentives to avoid stockouts are not perfectly aligned, without having to physically check for stockouts in the stores. Incorporating detailed information from conversations with store managers as well as from inspection of the data, we find that the average stockout rates vary widely between stores, identifying two stores with stockout rates twice as high as for most other stores. Thus, the model identifies stores that may have management issues. Similarly, we find that the amount of shrinkage varies significantly across stores, where the maximum estimated shrinkage rate in our data is 20 times larger than the minimum estimated shrinkage rate. Moreover, the model can distinguish between store stockouts (i.e., zero inventory in the store) vs. shelf stockouts (i.e., an empty shelf, but some inventory in other parts of the store).

## Essay 3: A Satisficing Choice Model

Consumer choice models have been an integral part of the marketing discipline for several decades. These models typically assume utility-maximizing choice behavior on the part of the consumer. While this has proven to generate very useful insights with

relatively limited computational burden, this assumption is almost certainly not satisfied for inexpensive frequently purchased consumer goods. More recently, some models have relaxed this assumption by estimating non-compensatory choice models. These models still assume complete information acquisition before making a choice, which is known to be untrue in a realistic setting. We provide a more realistic consumer choice model based on Herb Simon's proposition of "satisficing choice". In order to gather data on the information acquisition, we conduct a ``visual conjoint" experiment, i.e., we present participants with images of supermarket shelves where the assortment varies according to a conjoint design. During the experiment, an eye-tracker records the participants' eye movements, thereby providing the required data. The proposed model jointly models the observed search path as well as the observed choices. Using only the information set actually available to the decision maker at the time of the decision in the choice model should provide more accurate information on the decision criteria than the common assumption of complete knowledge. Since the search path should be influenced by the decision criteria, the observed choices in turn should help to better explain the observed search path. The results will be validated by comparing them to self-report data of participants' preferences.