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Context Dependency of Consumer Decisions - Selected Contributions to the Research on Extremeness Aversion, Compromise Behavior and the Attraction Effect

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List of Abbreviations

ADE	Asymmetric Dominance Effect
AVE	Average Variance Extracted
AW	Attribute Weighing
CE	Compromise Effect
CG	Control Group
CP	Cognitive Processing
CS	Core Set
EG	Experimental Group
ES	Extended Set
FMCG	Fast Moving Consumer Goods
FTP	Future time Perspective
HTMT	Heterotrait-Monotrait ratio
ISAT	Itamar Simonson & Amos Tversky
LA	Loss Aversion
MSA	Measure of Sampling Adequacy
MtC	Motivation to Conform
VIF	Variance Inflation Factor

Introduction and Summary of the Thesis

The subsequent chapters of this doctoral thesis contain five essays with separate, independent contributions to the field of context effect research. In the order presented here, this doctoral thesis first addresses the robustness of the attraction effect in decisions with real consequences. The second chapter examines compromise behavior under unavailability. This is followed by an examination of extremeness seeking and extremeness aversion (compromise behavior) under the influence of varying future time perspectives in the third chapter. In two separate contributions in chapters four and five, this doctoral thesis further offers a theoretical discussion of various drivers and moderators of the compromise effect resulting in a novel conceptual model, which is subsequently tested empirically.

Context effects mark the observation that consumers' preferences are influenced by the composition of the choice set itself (Simonson, 1989; Bhargava, Kim, & Srivastava, 2000; Prelec, Wernerfelt, & Zettelmeyer, 1997).[1] Researchers have identified several context effects that thus violate the value-maximization principle stipulated by traditional choice theory, most notably the attraction effect and the compromise effect.

The attraction effect is marked by asymmetric dominance of a target option (the choice option intended to be made more attractive) over a less attractive decoy option for instance, by having an identical price but better quality than the decoy (Huber, Payne, & Puto, 1982; Simonson & Tversky, 1992). This makes the target option appear relatively more attractive. In contrast, compromise options, that is, options located in the mid-range of a choice set, do not owe their oft-observed prominence to any form of dominance, but advantages inherent to a middle position. For instance, a middle option that acts as a compromise between extreme alternatives, while arguably never the ideal choice, will not turn out to be the worst possible choice either. Thus it minimizes the potential for loss, which also makes it easier to justify to other individuals (Sheng, Parker, & Nakamoto, 2005; Simonson, 1989; Simonson & Tversky, 1992).

Although a prolific research field over several decades (Lichters, Sarstedt, & Vogt, 2015), context effect research has recently regained momentum spurred by criticism of the robustness and even the existence of the effects outside of laboratory settings with overly

[1] While the term "context effects" is most widely associated with choice set specifications (e.g. range and number of options or product descriptions), some researchers have defined context more broadly to include environmental conditions like weather, time, or social surroundings (e.g. Payne, Bettman, and Johnson (1991); Thomadsen et al. (2017))

stylized product descriptions in unrealistic choice tasks (Frederick, Lee, & Baskin, 2014; Yang & Lynn, 2014). An equally intriguing rebuttal by prominent context effects researchers pinpoints the need for further, properly executed research (Huber, Payne, & Puto, 2014; Simonson, 2014), in particular with respect to the robustness of the effects in varying settings (e.g. unavailability of choice options) and conditions (e.g. hedonism, durability and time horizon), and with regard to the use of more realistic stimuli (e.g. product depictions and choices with real consequences) indicating real world applicability in varying settings. The attraction effect, also referred to as asymmetric decoy effect, has recently been under particular scrutiny after several replication attempts failed.

The first chapter of this doctoral thesis consists of an essay that directly addresses this issue. Specifically, it shows the importance of appropriate choice task design to replicate the attraction effect, and addresses the question of how robust the attraction effect is when observed under real world conditions. Thus, the first chapter directly picks up the criticism that Frederick et al. (2014) expressed concerning a seminal study conducted by Simonson and Tversky (1992).

In an effort to test whether Frederick et al.'s (2014) failed replication indicates a general problem with the attraction effect or merely faulty study design on the part of the aforementioned authors, the replication study reported in the present doctoral thesis carefully observed the critical design aspects of context effect replication studies suggested by Simonson (2014). For instance, product prices were adjusted for inflation; further the decoy was selected with great care as to be asymmetrically dominated, but not irrelevant to the decision maker. Finally, the experimental setup did not use hypothetical choices as Frederick et al. (2014) did, but included economic consequences. Accordingly, participants had the choice between a cash prize and physical prizes to take home with them as a reward for their participation in the study. These efforts resulted in the observation of a statistically significant attraction effect and thus refute earlier criticism. This finding stresses the importance of proper study design when attempting the replication of an effect and lends credibility to the robustness of the attraction effect. Finally, since the data was collected at a public event to which all citizens of a major German city had free access, this study offers an account of the attraction effect that pays tribute to the more general discussion on the use of student samples and the generalizability of lab findings (Calder, Phillips, & Tybout, 1981; Sears, 1986; Winer, 1999). The essay featured in the first chapter of this thesis has been published in the

acclaimed peer reviewed *International Journal or Research in Marketing* (Müller, Schliwa, & Lehmann, 2014).

Interestingly, choice behavior has been shown to be affected not just by the choice options present when making a decision, but also by those options of which a decision maker is aware, but that are not in fact available for selection – so called phantom decoys (Farquhar & Pratkanis, 1993; Highhouse, 1996; Pratkanis & Farquhar, 1992). The reasons for this unavailability can be manifold, including stock-outs, bottle necks in the production process or simple budgetary restrictions (Doyle, O'Connor, Reynolds, & Bottomley, 1999). Research typically defines phantom decoys as choice options that are unavailable, and with respect to their general attributes, superior to one of the other alternatives. This renders phantom decoys somewhat similar to the attraction effect in terms of their reliance on dominance (Highhouse, 1996). However, with regard to the otherwise similarly prominent compromise effect, which relies on non-dominated choice options, research on how unavailability affects choice behavior is almost non-existent. Given how diverse and common unavailability of individual choice options in the market place can be, this indicates a surprising research gap.

The second chapter focuses on this research gap. In two empirical studies, the compromise effect is tested under varying unavailability conditions. Specifically, the goal was to test for the robustness of the compromise effect in unavailability conditions that indicate low ("discontinued") and high ("sold out") popularity of the unavailable choice option and observe whether these adverse reasons for unavailability differ with regard to the resulting choice behavior. Two separate studies examine these main effects and possible moderating roles of product class expertise and motivation to conform using logistic regression analysis. While the first study did not result in statistically significant effects, the second study supports the notion of relevance of inferred reasons for unavailability. The results indicate a distinctly positive effect of sold-out choice options on the compromise effect, while no such effect occurred for discontinued options. An earlier version of the findings in this chapter was presented during the poster session of the *Summer Academic Conference of the American Marketing Association* in San Francisco in August 2017. The present version was presented at the *20th Anniversary Conference of the Gesellschaft für angewandte Wirtschaftspsychologie e.V.* and is currently under review at the *European Journal of Marketing.* No other authors were involved.

The compromise effect, frequently also referred to as extremeness aversion, after the underlying principle to which compromise behavior, as a means to avoid extreme choice

alternatives, is typically attributed (Neumann, Böckenholt, & Sinha, 2016), has been described as the less robust context effect compared to the attraction effect (Huber et al., 2014). Indeed, numerous studies have shown that the prominence of the compromise effect does vary with the conditions under which a choice situation presents itself. For instance, the depletion of mental resources, time pressure and product class familiarity have been shown to mitigate the effect (Lin, Sun, Chuang, & Su, 2008; Pocheptsova, Amir, Dhar, & Baumeister, 2009; Sheng et al., 2005), while a prevention focus, decision uncertainty and conflict, and the need to justify the choice to others foster it (Dhar, Nowlis, & Sherman, 2000; Mourali, Böckenholt, & Laroche, 2007; Sheng et al., 2005; Simonson, 1989).

The third chapter of this doctoral thesis expands on this by examining how future time perspective, that is the perception of how much life-time one has left, affects extremeness aversion and extremeness seeking respectively (Carstensen, Isaacowitz, & Charles, 1999; Fingerman & Perlmutter, 1995). Chapter three focuses on how these effects depend on the utilitarian or hedonic nature of the products involved in choice situations and how product durability moderates choice preferences further. Finally this chapter explores possible moderators and underlying mechanisms of choice behavior under the influence of varying time horizons. Drawing from two empirical studies, this chapter first shows that a shortened future time perspective does indeed affect choice behavior. It does so to the end of finding more extremeness seeking for high quality options in hedonic goods and low value options in utilitarian goods, while an extensive future time perspective led to extremeness aversion and normative choice behavior in either category. Second, the durability of the products in question is found to act as a moderator, most notably for utilitarian goods which show opposite forms of extremeness seeking for durable and non-durable products. Third, the exploration of possible moderators and underlying mechanisms suggests the relevance of concern with prediction uncertainty regarding one's decision and indicates a shift in decision making styles toward feeling-driven decisions. These discoveries are not just relevant for researchers as they mark the first contribution that combines context effects and future time perspective, but also for practitioners and advertisers who use time primes in their marketing efforts. The essay of which chapter three is comprised has been accepted for presentation at the Academy of Marketing Science's *World Marketing Congres*s held in Porto 2018 and is currently under review in the *Journal of Business Research*. It was co-authored with Doreen Neubert.

A diverse body of literature has contributed to our understanding of the compromise effect and identified underlying principles and drivers of compromise behavior. For instance, the research field has gained clarity with regard to underlying mechanisms, boundary conditions, and moderators rooted in the broader decision context, like decision uncertainty (Sheng et al., 2005) and time pressure (Dhar & Nowlis, 1999; Pettibone, 2012), the person of the decision maker, for instance individual need for cognition (Drolet, Luce, & Simonson, 2009) and need for uniqueness (Simonson & Nowlis, 2000), and products characteristics, such as brand names (Sinn, Milberg, Epstein, & Goodstein, 2007) and equal relevance of product attributes (Sheng et al., 2005). Surprisingly, little has been done to aggregate these findings and evaluate for instance individual drivers of compromise behavior relative to one another. Even a first meta-analytical approach offered by Neumann et al. (2016) rather examines parameters of varying experimental designs, such as the number or presentation of product attributes (e.g. numerical vs. extensive description), than providing insights on how previously identified drivers affect choice behavior when considered jointly, possibly moderating one another.

Based on this premise, the fourth chapter in this doctoral thesis offers a conceptual overview over past contributions to compromise effect research. Specifically, it integrates a considerable number of drivers, moderators, and boundary conditions put forward by past research, and discusses several new, potentially relevant drivers of compromise behavior. Based on the consideration of both, theory and past empirical findings, this essay proposes, for instance, interaction effects of need for cognition and cognitive load, and established drivers like regulatory focus and regulatory fit. Furthermore, potentially relevant effects of previously not considered constructs such as lay rationalism, approval motivation and task involvement on the compromise effect are discussed. The contents of chapter four are the sole work of the author of this dissertation and are currently under review at the *Journal of Consumer Marketing*.

In an extension of the conceptual integration of past research and the theoretical discussion of relevant new, but not yet tested drivers presented in chapter four, chapter five offers a first joint empirical examination of several of these drivers. Using structural equation modeling, this chapter considers loss aversion as a direct driver (rather than a general choice rationale), product class expertise, regulatory focus (prevention and promotion focus), and need for cognition as drivers of compromise behavior. The latter is further tested as a moderator of product class expertise and regulatory focus. However, both main effects and moderating

effects failed to reach statistical significance. No other authors were involved in the research presented in chapter five.

This doctoral thesis is comprised of several contributions to the field of context effect research. The five chapters that make up this dissertation offer numerous meaningful, new contributions and insights into the robustness of the attraction effect and the compromise effect under varying conditions, and open up promising avenues for future research.

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Chapter I

Prize Decoys at Work – New Experimental Evidence for Asymmetric Dominance Effects in Choices on Prizes in Competitions

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1. Introduction

In their seminal paper "Choice in context: Tradeoff contrast and extremeness aversion" published 1992 in the *Journal of Marketing Research*, Itamar Simonson & Amos Tversky (termed hereafter ISAT) showed that consumer choice can be influenced by the set of options presented to the decision-maker. Specifically, in one of their experiments, ISAT demonstrated that preferences between two non-dominated options winnable in a competition, namely prize A (a $6 cash payoff) and prize B (an attractive pen from the well-known brand "Cross pen") can be shifted by 11% toward the target prize B by introducing a prize decoy C (a less attractive "Sheaffer pen") that is dominated by B, but not by A. Hence, an asymmetric dominance effect (ADE) occurs as introduced by Huber, Payne, and Puto (1982). (For details of the experimental set-up in the present study see Figure A1)

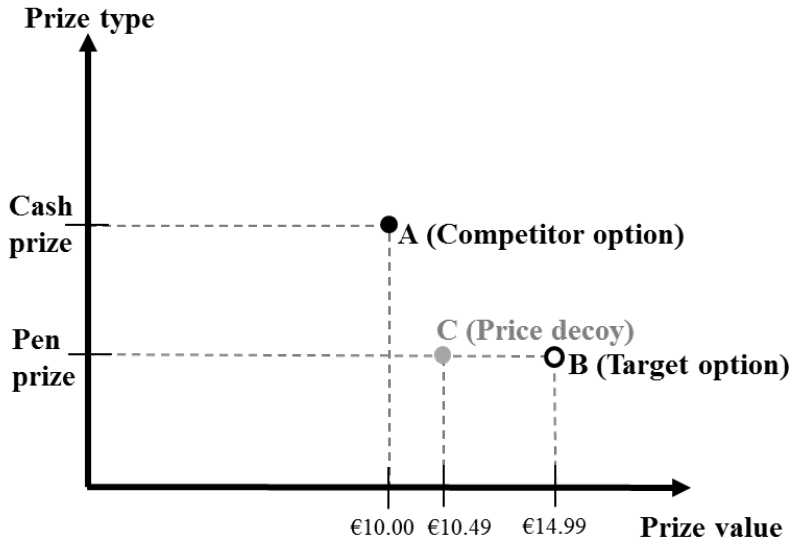

Figure A 1: A schematic overview of a choice set invoking the asymmetric dominance effect

In numerous studies (e.g. Ratneshwar, Shocker, and Stewart.(1987); Lehmann and Pan (1994); Heath and Chatterjee (1995)), the ADE proved to be a robust phenomenon across various product categories (such as beer, juice, TV sets, batteries, or cars) and choice settings (e.g. brand/product entries vs. exits). However, two groups of researchers, namely Frederick, Lee, and Baskin (2014) and Yang and Lynn (2014) recently devoted extensive time and energy to conduct laudable multi-category replication studies. Both groups report difficulties producing the ADEs, even when using established stimuli setups from published research. As for ISAT's specific prize decoy experiment as described above, Frederick et al. (2014) failed to replicate an ADE-conform choice shift toward the target pen. Thus, in light of their overall findings, the authors question the general robustness of the ADE, and suggest considering it

as an experimental artifact limited to stylized product representations.

Yet, as highlighted in Simonson's follow-up comment (2014), the design of their replications may account at least for some of the failures to produce an ADE in general, and the prize decoy experiment in particular. Specifically, Frederick et al. (2014) observed hypothetical, imaginary prize choices instead of real decisions on prizes. However, recent research findings indicate that context effects vary in size depending on whether consumers face real-life economic consequences or not (e.g. Diels and Müller (2013)). Secondly, Simonson (2014) argues that Frederick et al. (2014) used as their pen decoy an inferior (i.e. a fully dominated) option. As a result, it is likely that subjects dismissed the decoy as a true alternative to the $6 cash prize. Therefore, the required tradeoff considerations and the contrast between the targeted "Cross pen" and the decoy were eventually not triggered. Third, Simonson (2014) raises doubts as to what extent the $6 cash prize used in ISAT's original study conducted nearly 25 years ago was meaningful to subjects today.

We replicate the effectiveness of the prize decoy in an experimental setting that comes as close as possible to ISAT's original design with three distinct differences (see Table A1). First, we applied a real prize competition which motivated subjects to make their choice carefully. Second, we pretested whether the subjects' perceptions of the prize options in the product space of prize options induced, in fact, attribute tradeoffs as required for an ADE. Third, we included meaningful cash and pen prizes.

Author(s)/ publication year	**Sample** Subjects/ Size	**Conditions** Core Set	Extended Set	**Prizes** Cash (Competitor)	Pen I (Target)	Pen II (Decoy)	**Manipulation Check** Tradeoff conformance?	**Choice Framing** Economic consequences applied?
Simonson & Tversky 1992	Students N= 221	n=106	n=115	$6	Cross	Sheaffer	Not stated	YES 10% of the total sample (n=20) Prize-trade framing
Frederick, Lee, & Baskin 2014 Study I	Picnickers N=263	n=118	n=145	$6	Cross	Bic	Not stated	NO Hypothetical study (no winners) Prize-trade framing
Frederick, Lee, & Baskin 2014 Study II	Picnickers N=255	n=124	n=131	$6	Cross	Bic	Not stated	NO Hypothetical study (no winners) Choice framing
Present study 2014	Students and nonstudents N=193	n=101	n=92	€10	M. Twain worth €14.99	Lamy worth €10.49	Check applied (84% con-formance)	YES 10% of the total sample (n=20) Prize-trade framing

Table A 1: Designs of the original, previous, and the present domain replication study on ADEs using prize decoys

2. Method and material

To identify an *adequate stimuli set of significant cash and ball pen prizes* **[1]**, we ran preliminary group discussions among the target population of our study (small-sized samples of students, university employees and visitors of a major German university). We concluded that cash and pen prizes worth 10€ (roughly $14) and higher are perceived as significant when participating in a real prize competition. Hence, we selected €10 as the respective cash prize. Further, based on statements on the likeability of real pen brands, we selected a popular "Mark Twain" pen packaged in an eye-catching box (AMAZON selling price: €14.99) as the

target pen prize, whereas an unpackaged “Lamy” pen (worth €10.49) perceived as less attractive than the target pen by about 90% of the discussion group members served as the pen prize decoy (see Appendix A I for information on prizes). Next, we conducted a comprehensive follow-up pretest (n=126) to check whether our prizes triggered the required *tradeoff considerations*. We found that when taking part in prize competitions, 84% of the subjects favor a) a cash prize over a corresponding material prize such as a pen that has the same monetary value, and b) a higher prize value over a lower prize value (see Appendix A II for the wording and the pretest results) **[2]**.

In our main experiment, 193 student and nonstudent visitors participated in an online survey conducted in four semi-cubicles equipped with PCs at an exhibition stand during the open house day of a major German university (see Appendix A III for screenshots of the survey software). In the first part of the survey, we briefed subjects that they were participating in a real prize competition in the form of a brand quiz in which they were presented with a series of ad slogans and (parts of) icons of well-known brands with their task being always to identify the correct brand out of four displayed brand names. Next, participants learned that the best 10% of them would be contacted the next day and awarded a €10 cash prize. We additionally briefed the participants that winners had the chance to trade the €10 cash prize for a gift in the form of a ball pen. At this survey stage, subjects read on a separate page that the tradable pen prize was located under an opaque box sitting next to the PC screen, waiting for their inspection. Two of the four semi-cubicles were equipped with the core set pen option in that the box included only the targeted “Mark Twain” pen, whereas at the other workstations, it covered the extended set inclusive of the “Lamy” decoy. By letting the participants draw a ball from an urn numbered from 1 to 4 which indicated the cubicle subjects were directed to, we assigned our sample at random to the core set condition *CS* (n_{CS}=101) and the extended set *ES* (n_{ES}=92).

After finishing the inspection of the pen(s), subjects pushed a button to proceed to the second part of the survey. On a separate screen, the prize options were presented in a common alternative-by-attribute matrix format in which each option was represented in a column with the rows depicting the prize type, the prize value and an image (pens only). Subjects indicated their prize choice by checking a box below the respective column **[3]**. In the third part, subjects went through the brand quiz. Finally, subjects provided demographic data and indicated which prize attribute they considered more important when making their prize choice using a rating scale ranging from 1 (= prize value) to 5 (= prize type).

After finishing the survey, every tenth participant was selected to go through a short debriefing interview.

3. Results

The analysis of the debriefing interviews confirms that the selected participants were largely unaware of any applied prize choice set manipulation. Further, pre-analyses of data reveal that the random assortment of subjects to the conditions was successful as CS and ES turn out to be homogeneous with respect to the participants' gender, occupation, and age (see Appendix A IV: each $\chi^2<1.55$, $p>.68$). Moreover, as shown in the Appendix A V, manipulation checks reveal that the time taken to read the general prize competition instructions is nearly the same under CS and ES (M_{CS}=18.39sec, SE_{CS}=0.91; M_{ES}=20.21sec, SE_{ES}=1.49; *Welch's* t_{153}=-1.07, p=.30). However, we detect differences in the time that subjects spent to inspect the pen(s) (M_{CS}=29.68sec, SE_{CS}=1.64; M_{ES}=44.02sec, SE_{ES}=3.00) which turns out to be significant in a two-sided t-test under unequal group variances (*Welch's* t_{142}=-4.18, $p<0.01$). In sum, our manipulation checks suggest that a) subjects under both conditions did carefully read and comprehend the competition rules, and b) under ES, the pen prize decoy was noticed and considered because the subjects spent on average 15 seconds more to inspect the "Mark Twain" pen and the "Lamy" pen before continuing the online survey with their final prize choice than those subjects under condition CS who were exposed only to the targeted "Mark Twain" pen.

As for the main analysis, in the core set CS, 75 of the 101 subjects chose the €10 cash prize and only 26 selected the "Mark Twain" pen (see Appendix A VI). In contrast, of the 92 subjects who were assorted to the extended set condition ES, only 48 opted for the cash prize, whereas 35 (9) subjects selected the targeted "Mark Twain" (the decoy "Lamy") pen. Hence, the *absolute* choice share of the target pen increased from 25.7% in CS to 38.0% under ES. Alternatively, expressed as a shift in the relative share as is the common approach in research on ADEs, the choice share of the target pen *relative* to the competitor cash prize increases from 25.7% (=26/101) to 42.2% (35/[48+35]) which indicates a significant 16.4 % shift in the targeted pen's *relative share* (χ^2=5.54, $p<.05$).

Further, as additionally depicted in Table A2, we checked the efficacy of the pen prize decoy across potential moderating factors such as demographic data. The ADE induced by the prize decoy holds across any gender (male vs. female subjects) and occupation type (nonstudent vs. student participants). As an example, regarding female subjects (n_{female}=106), the relative

choice share of the targeted pen increases from 25.5% under CS to 42.3% under the extended set ES, hence indicating a substantial ADE of 16.8% which is at least marginally significant (Fishers' exact test: p=.09, see the Appendix A VII for further results).

Study	Sample	Subsamples	**Relative choice share of the target prize option**[a]		**Magnitude of the ADE (effect size)**		
			Core set (CS)	Extended set (ES)	Absolute gain[b]	Rate of increase[c]	Phi Coefficient (φ)
Simonson & Tversky 1992	N=221	n.a.	35.8%	46.9%	+11.1%	1.31	0.111
Frederick, Lee, & Baskin 2014 Study I	N=263	n.a.	33%	30%	-3.0%	0,91	0.024
Frederick, Lee, & Baskin 2014 Study II	N=255	n.a.	38%	32%	-6.0%	0,84	0.024
Present Study 2014	N=193	Overall	25.7%	42.2%	+16.4%	1.64	0.174
		Males (n=87)	26.1%	42.1%	+16.0%	1.61	0.169
		Females (n=106)	25.5%	42.3%	+16.8%	1.66	0.177
		Students (n=89)	23.4%	41.0%	+17.6%	1.75	0.189
		Non-Students (n=104)	27.8%	43.2%	+15.4%	1.55	0.161

Table A 2: Summary of the magnitude of the ADE in selected prize decoy studies
[a] Calculated as the number of choices of the target option ("Mark Twain pen") divided by the number of choices of the target option ("Mark Twain pen") and the competitor option (10€ cash).
[b] Expressed as the difference in relative choice share of the target under the extended set and the core set.
[c] Expressed as the target's relative choice share under the extended set divided by target's relative share under the core set.

4. Discussion

As a first finding, our domain replication confirms ISAT's original results in that a robust 16.4% ADE is detected when subjects face the option to trade a cash prize for a particular pen prize. In fact, our results confirm that *a meaningful prize decoy is at work*: Subjects'

propensity to give cash for getting a material good can systematically be increased by the introduction of a second material good that is asymmetrically dominated by the target, but not by the cash prize (as indicated by the target pen's larger selling price of €14.99 vs. the €10.49 price of the decoy, whereas the cash prize provides only €10).

Second, our findings support Simonson's (2014) line of reasoning regarding the failed replication attempts by Frederick, Lee & Baskin (2014) and Yang & Lynn (2014): The efficacy of decoys obviously depends on several conditions, one of which being that the decision-maker have to consider the decoy as a true *meaningful alternative* to the competitor option. Only then, the required tradeoff considerations towards the target may be triggered. Therefore, studies in the research field of context effects should be based on comprehensive pretest work to identify those tradeoffs relevant for decisions before conducting the actual experiments.

Third, as an interesting side finding of our replication (see Appendix A VIII for details), subjects' *ex post* evaluations of the prize attribute importance indicate that the weight given to the prize value is significantly higher when the decoy is included in the extended set condition **[4]**. Therefore, as supposed in the work of Wedell (1991) and Ratneshwar et al. (1987), increasing the frequency of items along the dimension on which the target is superior to the competitor (which in our prize choice replication is the prize value), does, in fact, increase the weight that participants assign to that dimension. Thus, a so-called frequency decoy is at work in our setting which is noteworthy since prior research indicates that an ADE is more likely to occur when the decoy option enlarges the dimension on which the competitor is superior to the target (Heath & Chatterjee 1995). However, this particularity is far beyond the scope of this paper, and we leave the issue of examining a) the general conditions under which ADEs occur, and b) which types of decoys and cognitive processes facilitate or hamper the occurrence of ADEs to further research.

Notes

[1] Note that we deliberately selected ball pens as prizes because most of the group discussion members stated to use them more often than fountain pens.

[2] This is important because only then, *a tradeoff is established* as is a prerequisite for the occurrence of an ADE. Put differently, the observed *84% tradeoff conformance* means that nearly nine out of ten subjects experience that to receive a cash prize that can be used for any purpose instead of a material good prize (pen), a loss in the prize value has to be accepted. In turn, to increase the value of the prize, subjects have to give up the option to spend money at will (cash) and to accept a material prize (pen).

[3] Note that the order of appearance at the screen was fixed: From left to right, subjects in the core set condition were presented with the cash prize and the "Mark Twain" pen, whereas in the extended set, the decoy "Lamy" pen was depicted between these two options.

[4] Considering the applied rating scale of attribute importance ranging from 1 (= prize value was the most important attribute) to 5 (= prize type was the most important attribute), we find that under the extended set condition, subjects' mean value is smaller than under the core set condition (M_{ES}=3.84, SE_{ES}=0.16, M_{CS}=4.09, SE_{CS}=0.14) which turns out to be significant in a two-sided t-test under unequal group variances (*Welch's* t_{183}=2.84, p<0.01). Thus, as compared to CS, the attribute "prize value" was more important under ES as indicated by the smaller mean rating.

Appendix A

Appendix A I: Stimuli

Competitor (C)	Decoy (D)	Target (T)
Cash	 Lamy ballpoint pen	 Mark Twain ballpoint pen
Prize value: €10.00	**Prize value: €10.49**	**Prize value: €14.99**

Appendix A II: Prestest: Tradeoff Conformance

Crosstabulation: Would you prefer a higher prize value (e.g. €15) to a lower prize value (e.g. €10) when you participate in a prize competition? * Would you prefer a monetary prize (e.g. €10 payoff in cash) over a material prize (e.g. a pen worth €10) when you participate in a prize competition?

			"Would you prefer a monetary prize (e.g. €10 payoff in cash) over a material prize (e.g. a pen worth €$10) when you participate in a prize competition?"		
			No, I disagree!	Yes, I agree!	Total
"Would you prefer a higher prize value (e.g. €15) to a lower prize value (e.g. €10) when you participate in a prize competition?"	No, I disagree!	Count	3	9[a]	12
		% of Total	2,4%	7,1%	9,5%
	Yes, I agree!	Count	8	**106**	114
		% of Total	6,3%	**84,1%**	90,5%
Total		Count	11	115	126
		% of Total	8,7%	91,3%	100,0%

[a] Example on how to read the table: Nine subjects agreed to prefer a monetary prize (e.g. $10 payoff in cash) over a material prize (e.g. a pen worth $10) when participating in a prize competition, but disagreed to the statement that they would always consider a higher prize value (e.g. $15) as preferable to a lower prize value (e.g. $10) when participating in a prize competition.

Appendix A III: Screenshots of the conducted online survey

Welcome-text

Today, your have the opportunity to put your knowledge about various brands, we all encounter frequently when shopping, to the test.

Please notice:

The best participants of our quiz have the chance to win a prize!

Let's go

Gift-info

Before we start, please read the following information carefully!

The brand quiz will ask you to answer 10 questions about well-known brands. You will be given four answer-options from which you are asked to choose the one you deem correct. For every correctly answered question, you will receive one point.

Continue

Ballpoint-pen-intro

All winners of our brand quiz additionally get the chance to make the following, attractive trade:

Every winner can trade his cash prize for a gift in the form of a high-value ballpoint-pen!

I have taken a look at the pen(s)

Prize choice in the core set condition (CS)

Which prize would you like to receive, should you be among the winners of our brand-quiz?

Prize:	Money	Gift
Prize type:	**Cash**	 Markt Twain Ballpoint-Pen
Prize value: (UVP des Herstellers)	€ 10.00	€ 14.99
Your Choice:	○	○

Continue

Prize choice in the extended set condition (ES)

Which Prize would you like to receive, should you be among the winners of our brand-quiz?

Prize:	Money	Gift	Gift
Prize type:	**Cash**	 Lamy Ballpoint-Pen	 Markt Twain Ballpoint-Pen
Prize value:	€ 10.00	€ 10.49	€ 14.99
Your Choice:	○	○	○

Continue

Beginning of the quiz

Let's start our quiz.

At the end of the quiz you will see which answers were correct and you will be shown your total quiz-score.

Continue

Exemplary brand quiz question

THE BRANDQUIZ

Question 2:

Which brand does the logo depicted above, belong to?

- A) Bayer
- B) BMW
- C) Braun
- D) Bahlsen

Log in answer!

Appendix A IV: Check for structural homogeneity of experimental conditions

Gender of the subject * Experimental condition Crosstabulation

Count

		Experimental condition		
		Core Set	Extended Set	Total
Gender of the subject	male	46	41	87
	female	55	51	106
Total		101	92	193

No structural differences between the experimental groups according to gender.

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	**.019[a]**	**1**	**.891**	**1.000**	**.503**
Continuity Correction[b]	.000	1	1.000		
Likelihood Ratio	.019	1	.891	1.000	.503
Fisher's Exact Test				1.000	.503
Linear-by-Linear Association	.019	1	.892	1.000	.503
N of Valid Cases	193				

0 cells (0,0%) have expected count less than 5. The minimum expected count is 41,47.[a]

Occupation status of the subject (student vs. nonstudent) * Experimental condition

Crosstabulation

Count

		Experimental condition		Total
		Core Set	Extended Set	
Occupation status of the subject (student vs. nonstudent)	student	47	42	89
	nonstudent	54	50	104
Total		101	92	193

No structural differences between the experimental groups according to occupation.

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.015[a]	1	**.902**	**1.000**	**.509**
Continuity Correction[b]	.000	1	1.000		
Likelihood Ratio	.015	1	.902	1.000	.509
Fisher's Exact Test				1.000	.509
Linear-by-Linear Association	.015	1	.902	1.000	.509
N of Valid Cases	193				

0 cells (0,0%) have expected count less than 5. The minimum expected count is 42,42.[a]

Age of the subject * Experimental condition Crosstabulation

Count

		Experimental condition		Total
		Core Set	Extended Set	
Age of the subject	< 20 years	17	17	34
	20-30 years	64	52	116
	30-40 years	10	14	24
	above 40 years	10	9	19
Total		101	92	193

No structural differences between the experimental groups according to age.

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1.544[a]	3	**.672**	**.682**	
Likelihood Ratio	1.546	3	.672	.682	
Fisher's Exact Test	1.578			.670	.
Linear-by-Linear Association	.084	1	.772	.794	.420
N of Valid Cases	193				

0 cells (0,0%) have expected count less than 5. The minimum expected count is 9,06.[a]

Appendix A V: Manipulation checks

No difference between conditions in reading of the introduction page.

Group Statistics

	Experimental condition	N	Mean	Std. Deviation	Std. Error Mean
Working time online survey 2: Quiz introduction	Core Set	101	18.39	9.164	.912
	Extended Set	92	20.21	14.243	1.485

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Working time online survey 2: Quiz introduction	Equal variances assumed	7.545	.007	-1.065	191	.288	-1.820	1.709	-5.191	1.551
	Equal variances not assumed			-1.045	152.796	**.298**	-1.820	1.743	-5.263	1.622

Significant difference in inspection time for two versus three prizes.

Group Statistics

	Experimental condition	N	Mean	Std. Deviation	Std. Error Mean
Working time online survey 3: Pen inspection	Core Set	101	29.68	16.500	1.642
	Extended Set	92	44.02	28.866	3.009

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Working time online survey 3: Pen inspection	Equal variances assumed	35.58	.000	-4.28	191	.000	-14.339	3.348	-20.94	-7.74
	Equal variances not assumed			-4.18	141.8	**.000**	-14.339	3.428	-21.12	-7.56

Appendix A VI: Main analysis

Prize Choice * Experimental condition Crosstabulation

Count

		Experimental condition		Total
		Core Set	Extended Set	
Prize Choice	€ 10	75	48	123
	MarkTwain	26	35	61
Total		101	83	184

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	5,547[a]	1	**,019**	**,027**	**.014**
Continuity Correction[b]	4,830	1	,028		
Likelihood Ratio	5,544	1	,019	,027	.014
Fisher's Exact Test				**,**027	.014
Linear-by-Linear Association	5,517	1	,019	,027	.014
N of Valid Cases	184				

0 cells (0,0%) have expected count less than 5. The minimum expected count is 27,52.[a]

Appendix A VII: Check for moderators

Gender

Crosstab

Count

Experimental condition			Gender of the subject		Total
			male	female	
Core Set	Choice on prize in the Core Set {$10. MarkTwain}	$10	34	41	75
		MarkTwain	12	14	26
	Total		46	55	101

Crosstab

Count

Experimental condition			Gender of the subject		Total
			male	female	
Extended Set	Choice on prize in the Extended Set {$10. Lamy. MarkTwain}	$10	22	26	48
		Lamy	3	6	9
		MarkTwain	16	19	35
	Total		41	51	92

Main Effect in Females

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	3.147[a]	1	**.076**	**.090**	**.059**
Continuity Correction[b]	2.435	1	.119		
Likelihood Ratio	3.146	1	.076	.090	.059
Fisher's Exact Test				.090	.059
Linear-by-Linear Association	3.116	1	.078	.090	.059
N of Valid Cases	100				

0 cells (0.0%) have expected count less than 5. The minimum expected count is 14.85.[a]

Main Effect in Males

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	2.403[a]	1	**.121**	**.164**	**.094**
Continuity Correction[b]	1.736	1	.188		
Likelihood Ratio	2.402	1	.121	.164	.094
Fisher's Exact Test				.164	.094
Linear-by-Linear Association	2.374	1	.123	.164	.094
N of Valid Cases	84				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 12.67.

Robustness Checks **Gender**

Females

PEN

	CHI²-Test	CS2	exp	CS3	exp	
10 €	obs	41	37	26	30	67
	rel. share	74,5%		57,8%		
TWAIN Pen	obs	14	18	19	15	33
	rel. share	25,5%		42,2%		
	sum	55		45		100

df=	1
CHI²=	3,147
p-level=	0,1

Effect size 16,8%

PEN

	CHI²-Test	CS2	CS3
10 €	obs	41	26
	rel. share	74,5%	51,0%
TWAIN Pen	obs	14	19
	rel. share	25,5%	37,3%
other Pen	obs	-	6
	rel. share	-	12%
		55	51

Males

PEN

	CHI²-Test	CS2	exp	CS3	exp	
10 €	obs	34	31	22	25	56
	rel. share	73,9%		57,9%		
TWAIN Pen	obs	12	15	16	13	28
	rel. share	26,1%		42,1%		
	sum	46		38		84

df=	1
CHI²=	2,403
p-level=	n.s.

Effect size 16,0%

PEN

	CHI²-Test	CS2	CS3
10 €	obs	41	26
	rel. share	74,5%	51,0%
TWAIN Pen	obs	14	19
	rel. share	25,5%	37,3%
other Pen	obs	-	6
	rel. share	-	12%
		55	51

Occupation status

Crosstab

Count

Experimental condition		Occupation status of the subject (student vs. nonstudent)		Total
		student	nonstudent	
Core Set	Choice on prize in the Core Set {$10. MarkTwain} $10	36	39	75
	MarkTwain	11	15	26
	Total	47	54	101

Crosstab

Count

Experimental condition			Occupation status of the subject (student vs. nonstudent)		Total
			student	nonstudent	
Extended Set	Choice on prize in the Extended Set {$10. Lamy. MarkTwain}	$10	23	25	48
		Lamy	3	6	9
		MarkTwain	16	19	35
	Total		42	50	92

Main Effect in Students

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	3.073[a]	1	**.080**	**.104**	**.064**
Continuity Correction[b]	2.309	1	.129		
Likelihood Ratio	3.074	1	.080	.104	.064
Fisher's Exact Test				.104	.064
Linear-by-Linear Association	3.037[c]	1	.081	.104	.064
N of Valid Cases	86				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 12.24.

Main Effect in Nonstudents

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	2.539[a]	1	**.111**	**.137**	**.084**
Continuity Correction[b]	1.905	1	.168		
Likelihood Ratio	2.537	1	.111	.137	.084
Fisher's Exact Test				.137	.084
Linear-by-Linear Association	2.513[c]	1	.113	.137	.084
N of Valid Cases	98				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 15.27.

Occupation

Student

	CHI²-Test	CS2	exp	CS3	exp	
10 €	obs	36	32	23	27	59
	rel. share	76,6%		59,0%		
TWAIN Pen	obs	11	15	16	12	27
	rel. share	23,4%		41,0%		
	sum	47		39		86

df=	1
CHI²=	3,073
p-level=	0,1

Effect size 17,6%

	CHI²-Test	CS2	CS3
10 €	obs	36	23
	rel. share	76,6%	54,8%
TWAIN Pen	obs	11	16
	rel. share	23,4%	38,1%
other Pen	obs	-	3
	rel. share	-	7%
		47	42

Nonstudents

	CHI²-Test	CS2	exp	CS3	exp	
10 €	obs	39	35	25	29	64
	rel. share	72,2%		56,8%		
TWAIN Pen	obs	15	19	19	15	34
	rel. share	27,8%		43,2%		
	sum	54		44		98

df=	1
CHI²=	2,539
p-level=	n.s.

Effect size 15,4%

	CHI²-Test	CS2	CS3
10 €	obs	39	26
	rel. share	72,2%	51,0%
TWAIN Pen	obs	15	19
	rel. share	27,8%	37,3%
other Pen	obs	-	6
	rel. share	-	12%
		54	51

The robustness checks show a significant relationship at p<.1 (1-sided) for all subgroups (Gender, Occupation), i.e. no moderation by these variables.

Appendix A VIII: Attribute importance

Which attribute was more important when making your prize choice (ranging from 1="Higher value of the prize is most important!" to 5=the type of the prize is most important")?

Independent Samples Test

Experimental condition			Frequency	Percent	Valid Percent	Cumulative Percent
Core Set	Valid	Prize value	13	12.9	12.9	12.9
		Rather the prize value	1	1.0	1.0	13.9
		Both equally important	13	12.9	12.9	26.7
		Rather the prize type	11	10.9	10.9	37.6
		Prize type	63	62.4	62.4	100.0
		Total	101	100.0	100.0	
Extended Set	Valid	Prize value	18	19.6	19.6	19.6
		Rather the prize value	7	7.6	7.6	27.2
		Both equally important	20	21.7	21.7	48.9
		Rather the prize type	7	7.6	7.6	56.5
		Prize type	40	43.5	43.5	100.0
		Total	92	100.0	100.0	

Group Statistics

	Experimental condition	N	Mean	Std. Deviation	Std. Error Mean
Which attribute was more important when making your prize choice (ranging from 1="Higher value of the prize is most important!" to 5=the type of the prize is most important")?	Core Set	101	**4,09**	1,401	,139
	Extended Set	92	**3,48**	1,572	,164

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Differen-ce	95% Confidence Interval	
									Lower	Upper
Which attribute was more important when making your prize choice?	Equal variances assumed	5,942	,016	2,854	191	,005	,611	,214	,189	1,033
	Equal variances not assumed			**2,839**	**183,07**	**,005**	,611	,215	,186	1,035

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Chapter II

Loved or Hated? How Inferred Product Popularity of Unavailable Options Affects Consumer Decision Making and the Compromise Effect

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1. Introduction

A rich body of literature dedicated to context effects, most notably the compromise effect and the attraction effect, examines how the choice options available in a consumption situation affect decision makers' preferences (e.g. Huber, Payne, and Puto (1982); Simonson and Tversky (1992), Neumann, Böckenholt, and Sinha (2016)). Interestingly, even options of which a consumer is aware, but that are in fact not available (e.g. out of stock), have this effect (Pratkanis & Farquhar, 1992). While the relevance of *un*available options has spawned great interest among context effect researchers (e.g. Doyle, O'Connor, Reynolds, and Bottomley (1999); Pettibone and Wedell (2007); Scarpi and Pizzi (2012)), most contributions to the field focus on the effects of *un*available options, so-called phantom decoys, that dominate other, available choice options. Such phantom options have been shown to lead to greater preference for similar, dominated options that are still available by providing choice reasons such as easier justification (Kramer & Carroll, 2009; Simonson, 1989), by giving a sense of scarcity, or by prompting regret for missing out on choosing the *un*available option (Pratkanis & Farquhar, 1992). Our knowledge concerning the mechanisms, by which unavailable options affect context effects in choice situations that are not marked by dominance relationships however, is still very limited. Presently the only contributions to this particular field are two single-product studies, in which Simonson (1989) and Wiebach and Hildebrandt (2012) merely establish that the compromise effect, which marks the observation that individuals have a preference for middle choice options, can also occur under conditions involving unavailable choice options. However, we lack any insights on the underlying mechanisms, for instance whether similarity, which plays a vital part in (asymmetric) phantom decoy effects (Pratkanis & Farquhar, 1992; Scarpi & Pizzi, 2012), is equally important, when it comes to the compromise effect which assumes equal over-all value of all choice options. Can individuals, for instance, still infer similarity between choice options and thus shared attractiveness if all choice options are offered at the same price-value ratio? Along these lines, it furthermore seems prudent, to question the role of potential moderators of the tendency to draw inferences from other consumers' purchase behavior that may be indicated by the unavailability, for instance motivation to conform and product class expertise.

Considering how frequently consumers encounter situations where the best seats in a movie theater or clothes in their size are sold out, limited time video-game pack offers have expired or the symmetrical Christmas trees in a lot have all been reserved (Kramer & Carroll; Kramer & Carroll, 2009; Pettibone & Wedell, 2000, Pratkanis & Farquhar, 1992), it comes as a surprise that, to our best knowledge, no further research, let alone structured theoretical or

empirical works on the compromise effect under unavailability conditions and the underlying mechanisms exists.

The present paper seeks to change this. The aim is to extend our knowledge of how the compromise effect is influenced by unavailable extreme options. Specifically, the paper examines the impact of unavailability, product similarity, and inferred product popularity. Additionally it considers the role of product expertise and motivation to conform as possible moderators.

This paper is structured as follows: first existing literature is reviewed to provide a theoretical background for the compromise effect, the phantom options, and the mechanisms at work when considering unavailable choice options. The resulting hypotheses are then tested in two separate studies. The paper concludes with an overview of the general results and a discussion of the former.

2. Theoretical background and hypothesis development

2.1 Choice based on reasons – value structures of the compromise effect and unavailable choice options

Compromise literature typically refers to the value added assumption to explain compromise behavior (Pechtl, 2009). It follows the rationale that a choice option that is added to a set and makes a target option take the compromise position (Figure B1), adds value to the compromise option by providing additional "reasons" that justify its choice (Shafir, Simonson, & Tversky, 1993; Simonson, 1989). In case of the compromise effect, this reason or justification is typically the expected loss minimization rationale (Sheng, Parker, & Nakamoto, 2005; Simonson & Tversky, 1992). Prospect theory states that losses are weighted heavier than equal gains by decision makers (Kahneman & Tversky, 1979). Accordingly, a choice option that is located between other, more extreme choice options is laden with the smallest potential for loss, compared to extreme choice options which could turn out to be the option that is farthest away form a retrospectively ideal choice. Thus, individuals are averse to extreme choice options and choose compromise options more frequently, because they can be rationalized or justified more easily to oneself and others (Simonson & Tversky, 1992). Following this rationale, decision makers may look for additional contextual cues and reasons to justify and guide a consumption decision. They may for instance make inferences about the attractiveness of choice options based on the observation of other consumers' behavior or the consequences thereof, for instance by what products are generally offered and which options

are still available or already sold out, raising additional “reasons” (Chuang, Cheng, & Hsu, 2012; Ku, Kuo, Fang, & Yu, 2014; Prelec, Wernerfelt, & Zettelmeyer, 1997). For instance, commodity theory and the principle of scarcity attractiveness suggest that an *un*available option is often perceived as more attractive or valuable by merit of its mere unattainability (Scarpi &Pizzi, 2012). This attractiveness can then spill over to the next, most similar choice option that is still available and render it more desirable (Pratkanis & Farquhar, 1992; Scarpi & Pizzi, 2012). This assumption stems from phantom decoy research, where the unavailable option is the dominant, ideal choice option. However, in a compromise choice set dominance plays no role as all options are by definition equal in total value, that is, they are located along a single trade-off line with equal distances between the options (Sheng et al., 2005). This fixed spatial allocation of choice options further clearly distinguishes the compromise effect from the reversed similarity effect (Müller & Diels, 2016), but also limits the potential for spill-over effects to forms of similarity that are unrelated to spatial proximity (e.g. a common design or brand instead of similar price, quality rating, or package size which are typically visualized on a trade-off line by a small distance between choice options - see Figure B1 for comparison). However, such “value neutral” similarity that is not based on proximity along a trade-off line opens up the possibility of spill-over effects that can have both, a positive and a negative connotation depending on the attractiveness of the unavailable option. For instance, if a decision maker perceives the *un*available option as (un)attractive, even though its objective attributes do not indicate any form of domination, the unavailability may (diminish) enhance any choice preferences for the compromise option. If, for instance, decision makers interpret the cause of the unavailability as positive (sold out = high demand), this may lead to enhanced compromise choice. If on the other hand, the reason for unavailability is perceived as negative (discontinued = low demand), being second with respect to an unattractive attribute may cause and adverse reaction.

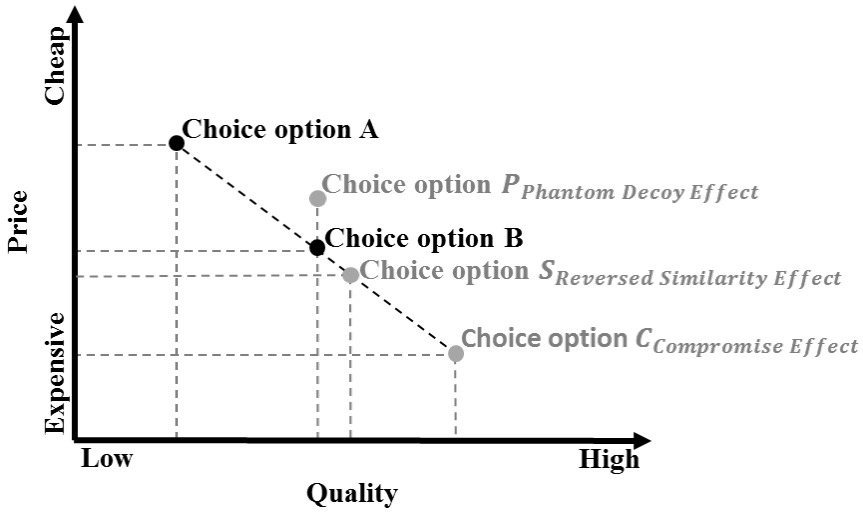


Figure B 1: Context effects involving unavailability and the respective choice positioning

In consequence it seems that the compromise effect might be enhanced or diminished by the circumstance that one extreme choice option is sold out or discontinued and the resulting inferences concerning the popularity of a product. Hence, in comparison to an available, extreme choice options,

H1a: The presence of a similar, sold out option in a choice set bolsters the compromise effect,

and contrary to this,

H1b: The presence of a similar, discontinued option in a choice set diminishes the compromise effect.

2.2 Expertise as a moderator of compromise behavior under *un*availability

An essential assumption of compromise effect research is that consumption decisions are to varying degrees governed by uncertainty, risks, and the desire to avoid them (Sheng et al., 2005; Simonson, 1989; Simonson &Tversky, 1992). This also reflects in the meta-analytical finding, that the compromise effect is generally more prevalent in decisions involving durable products than those involving non-durable goods (Neumann et al., 2016). This finding follows the rationale that the former are more complex and involve greater financial risks than the latter. When risks are considerable and decision uncertainty is high, decision makers often seek contextual cues, reference points and justifications for their decisions (Sheng et al., 2005;

Simonson, 1989; Simonson & Tversky, 1992). On the contrary, clear preference structures diminish context effects (Huber, Payne, & Puto, 2014; Simonson & Tversky, 1992). Accordingly, individuals who are experts with respect to a product class, that is, who know how to efficiently use a product to gain the most value from it (Alba & Hutchinson, 1987; Sheng et al., 2005), are less likely to use context to make a consumption decision (Ratneshwar, Shocker, & Stewart, 1987; Sheng et al., 2005). Similarly, product class familiarity, a term often used interchangeably with expertise or product class knowledge, facilitates information processing and the use of knowledge concerning which product attributes are most important (Alba &Hutchinson, 1987; Coupey, Irwin, & Payne, 1998; Sheng et al., 2005). Furthermore, in the specific case of unavailable choice options, Ge, Messinger, and Li (2009) find that consumers rely less on inferences about other consumer's behavior, when they are knowledgeable and familiar with a product class. Accordingly we expect that the magnifying and mitigating effects of both positive and negative reasons for unavailability will be diminished when individuals possess product class expertise. In essence, we propose a second order moderation, that is, a moderation of the salience of popularity inferences by product class expertise

Hence,

> H2: Product class expertise weakens the effect of inferred popularity of unavailable choice options for both cases, sold out (popular) and discontinued (unpopular) choice options.

2.3 Motivation to conform as a moderator of compromise behavior under *un*availability

Huang and Zhang (2016), in their work on out-of-stock options, point out that context effects like the compromise effect have to a great extend only been considered in a social vacuum. While we have in the previous hypothesis postulated that expertise moderates the need to rely on social contextual cues, it only seems prudent to follow Huang and Zhang (2016)'s trail insofar as to also consider individual predisposition to give the opinion of others weight in guiding one's own behavior. This consideration is only consequential as the compromise effect has been found to be affected by related concepts like the need for uniqueness (Simonson & Nowlis, 2000), self-confidence (Chuang, Cheng, Chang, & Chiang, 2013), and reference group suggestions (Chuang et al., 2012). Since the present study does not primarily aim to examine the compromise effect under customer interaction considerations, but rather under unavailability conditions, and thus only indirect inferences about other customer's

preferences, the motivation to conform to other's expectations seems to be a promising moderator (Ailawadi, Neslin, & Gedenk, 2001; Bearden, Netemeyer, & Teel, 1989). First, it seems plausible that individuals who wish to conform to the opinion of others are more susceptible and thus more likely to respond to the social, popularity-indicating cues emanating from "sold out" and "discontinued" markings. Second, individuals who have a great desire to learn from others and conform, seem more likely to then also choose an option that is closest to a seemingly popular, but unavailable option (sold out) or farthest away from an option other consumers seem to have had little interest in (discontinued). In consequence, a compromise effect that is magnified as the consequence of high inferred popularity should be further enhanced in decision makers with high motivation to conform. Contrary to this, a compromise effect that is diminished under conditions of low inferred popularity should be further diminished in individuals with a high motivation to conform. Hence,

> H3: Motivation to conform enhances the effect of inferred popularity of unavailable choice options for both cases, sold out (popular) and discontinued (unpopular) choice options.

3. Study 1

3.1 Methods

Study 1 addresses the differential effect of high and low inferred popularity on the compromise effect hypothesized in H1, that is, in it we test whether inferred high and low popularity of an unavailable option have opposite effects on the magnitude of the compromise effect.

3.2 Participants and procedure

For the first study, 96 individuals, mostly university students who had been recruited via social media, participated in a survey which involved hypothetical consumption decisions. The study employed a between subject design, according to which participants were randomly assigned to one of four groups to fit a 2 (compromise / no compromise) x 2 (popular / *un*popular) manipulation. Individuals in the first group had to choose from a two-product choice set to determine preferences without a compromise set-up. The second group faced a three-product choice set in which all options were available and one option took the compromise position. The third group had to choose from the same three-product choice set, but with the third option being *un*available due to high popularity ("sold out"), while participants in the fourth group were given the choice between three products with the third

option *un*available due to low popularity (“discontinued”). The product categories had been used successfully in the past and reflected current relevance: portable grills which varied in cooking surface and weight, and Bluetooth speakers which varied in battery life and price (Appendix B I). While the two options present in the basic choice set differed in terms of their visual design (cylindrical vs. cubic body shapes), the option that was added for the extended sets, used identical designs for the compromise option and the added, third choice option (e.g. both cubic-shaped). This was done to indicate similarity beyond primary attributes price and quality and thus induce an attribute-unrelated spill-over of popularity from the unavailable option to the compromise option, maintaining an equal distance between choice options along a trade-off line.

3.3 Measures

The compromise effect was operationalized as a relative choice share difference of the compromise option between a choice set that contains two choice options and another set that consists of three choice options (Appendix B I). A relatively higher choice preference for the compromise option in sets with three options on display would thus indicate the occurrence of the compromise effect in the form of a violation of the independence of irrelevant alternatives (Neumann et al., 2016; Simonson, 1989; Simonson & Tversky, 1992).

3.4 Results

Preliminary analysis showed that participants perceived the product options as intended by the study design with regard to the relative positions in the product space. The manipulation of perceived popularity using “sold out” and “discontinued” signs were only partially successful. While participants perceived the sold out grill as more popular than the discontinued grill, ($M=5.5$ vs. $M=4.69$, $p<0.1$), the manipulation failed for Bluetooth speakers ($M=5.19$ vs. $M=5.23$, n.s.). Subsequent analyses accordingly only consider grills.

In order to establish similarity without manipulating the proximity of choice options along the trade-off line between the primary product attributes, and thus to distinguish the effects observed in the present study from reversed similarity effects (Müller & Diels, 2016), we further tested for the success of our product-design-based similarity manipulation. We separately asked participants how similar they found the compromise option compared to the choice option with a different design and the choice option with the same design as the compromise. Controls for similarity showed that individuals indeed perceived the compromise option as more similar to the round high weight and size option ($M=2.99$ vs. $M=4.64$, $p<0.001$) than to the square low tier option ($M= 3.23$ vs.4.92, $p<0.001$).

Within the sample collected for study 1, the choice shares of the compromise option remained stable when comparing the two-option choice set to the condition in which the third option was available for choice (+0.9%, χ^2= 0.007, n.s.), indicating that no compromise effect occurred. The inclusion of a "sold out" choice option led to a slightly increased choice share of the compromise option (+3.6%, χ^2= 0.093, n.s.), while the "discontinued" option resulted in a choice share similar to the set with all options available for choice (+1.2%, χ^2= 0.012, n.s.). However, while the effect direction in our sample follows H1a, none of the effects were statistically significant.

3.5 Findings study 1

While the tentative direction of the effects observed in study 1 occurred along the lines of H1a, that is, the compromise option gained most favor when the third alternative was unavailable due to high popularity, none of these results were statistically significant. Ge et al. (2009) provide a possible explanation for our observations. They find that the presence of out-of-stock options (equal here to high inferred popularity) in a choice set can reduce choice deferral because individuals perceive a sense of urgency to make a decision. This sense of urgency may have a similar impact as time pressure, which Lin, Sun, Chuang, and Su (2008) find to impede compromise behavior. A similar effect may have occurred in the present study.

The lack of support for our hypothesis may however also simply be in part attributable to the small sample size. Indeed, power analysis using g*Power 3 suggests a sample size of 578 at an α of 0.05 for a small effect size that can be expected of the compromise effect (Faul, Erdfelder, Lang, & Buchner, 2007). Furthermore, the limitation of study 1 to a single product after failed manipulations highlights another shortcoming of study 1.

This prompts us to address issues like the limitations of sample size (statistical power), limited evidence from one product class and furthermore stricter manipulation controls in a follow-up study.

4. Study 2

4.1 Methods

Study 2 is a partial replication of study 1 using a decidedly larger sample to not only clearly identify the main effects hypothesized under H1a an H1b, but also to examine the moderating effects of product class expertise and relevance of motivation to conform hypothesized in H2 and H3. Since manipulations in study 1 were only successful in the case of one product set,

the design of study 2 was also broadened to test the effects in three different product categories.

4.2 Participants and procedure

The basic multifactorial, between-subject design of study 2 resembled that of study 1 with the exception of the replacement of Bluetooth speakers with two new product categories in the choice sets: portable battery chargers/power banks (attributes: charge capacity and weight/size), and suitcases (attributes: capacity/volume and weight). Similarity and dissimilarity for the newly added product categories were again operationalized via product design with cylindrical and cubic power bank models and soft, as opposed to hard-shell suitcase models (Appendix B II). Furthermore, to avoid contamination of the influence of context by repetition, each participant in the experimental group containing three choice options faced one choice task with all options selectable, one with a choice option marked as "sold out", and one with a "discontinued" choice option (Ahn, Kim, & Ha, 2015).
The data was collected using an online survey. Participants in the main study were recruited via social media and randomly assigned to one of four groups.

4.3 Measures

The compromise effect was operationalized as before. To measure product class expertise, we adapted the scale employed by Mishra, Umesh, and Stem (1993) to the German context. Similarly, to assess motivation to conform, we adapted the short form (sub-)scale proposed by Ailawadi et al. (2001), originally developed by Bearden et al. (1989).

4.4 Results

4.4.1 Manipulation checks

A total of 537 individuals (57.9% university students, 50.7% male, mean age was 28 years) were recruited via social media and completed the survey. After data cleaning procedures, which included the deletion of straight-liners, speeders and participants who identified the goal of the survey correctly (e.g. due to past studies) leading to answer bias, 499 participants remained. Of these, between 330 (unavailability sets) and 344 (availability sets) had perceived the product stimuli correctly to allow for the occurrence of the compromise effect, that is, along a single trade-off line of non-dominated options. Only if this is given, can observed behavior be clearly attributed to the stipulated context effects (Simonson, 2014). With respect to the intended perception of reason for unavailability and popularity, manipulation success

varied between experimental groups. Out of the 330 participants who perceived the product attribute as intended, 171 and 96 individuals respectively identified the reason for unavailability correctly as “sold-out” and “discontinued” and inferred the expected high and low popularity associated with either reason. This means, only approximately one third and one fifth of the participants acknowledged the reason why an option was unavailable, and also interpreted “sold out” markings as signaling high popularity, and “discontinued” markings as signifying low popularity. Since the present paper is primarily an effort to extend our understanding of the effect itself and its mechanisms, not the robustness of the compromise effect, subsequent analyses will focus on these participants. However, Appendix B III does show the effects for all 330 participants since popularity manipulations success was diffused, but present when considering the entire sample. Analogous to study 1, we also controlled the manipulation of similarity. Measured on a 7-point Likert scale, the difference between the two similarity indicators was positive and statistically significant for all products (power banks: M= 1.89 (S.D.= 1.59), vs. M= 3.25 (S.D.= 2.42), $p<0.001$; suitcases: M= 2.55 (S.D.=2.05) vs. M= 3.84 (S.D.= 2.62), $p<0.001$, grills M= 1.94 (S.D.= 1.68) vs. M= 2.89 (S.D.= 2.37), $p<0.05$).

4.4.2 Main effects

Following the procedure used by previous research in the field (Pechtl, 2009), we consider the occurrence of the compromise effect and all hypothesized effects on an aggregate level (i.e. all three product categories are aggregated to test our hypotheses) and on a product specific level. In our effort to replicate the compromise effect, we observe an increase in the relative choice share of the compromise option with the introduction of a third choice option of +10.2% ($\chi^2= 5.977$, $p< 0.05$) on an aggregate level and of 21.1% in the grill category ($\chi^2= 10.743$, $p< 0.01$). With respect to the relative choice share of the compromise option under high inferred popularity induced by a sold out choice option (H1a), we observe a similarly strong compromise effect on an aggregate level as previously in the base-set (+9.9%, $\chi^2= 4.804$, $p<0.05$) and a markedly stronger effect in the suitcase category (+24.0%, $\chi^2= 9.050$, $p<0.01$). Contrary to this, we observe no statistically significant compromise effect when the unavailable choice option is discontinued and thus viewed as unpopular (H1b) on the aggregate level (+3.2, $\chi^2= 0.321$, n.s.) or in any individual product category. Table B1 provides a full overview over aggregate and product specific choice shares.

Relative Choice Shares (%)																
	Aggregate (%)				**Grills (%)**				**Power Banks (%)**				**Suitcases (%)**			
	2	3	SO	DI	2	3	SO	DI	2	3	SO	DI	2	3	SO	DI
L	43.8	33.6	33.9	40.6	41.7	20.7	35.9	32.5	30.7	31.1	27.8	40.0	59.1	54.7	35.1	51.6
M	56.2	66.4	66.1	59.4	58.3	79.3	64.1	67.5	69.3	68.9	72.2	60.0	40.9	45.3	64.9	48.4
ΔM		***+10.2****	***+9.9****	***+3.2***		***+21.0*****	***+5.8***	***+9.2***		***-0.4***	***+2.9***	***-9.3***		***+4.4***	***+24.0*****	***+7.5***
H✓				**H1b**				**H1b**							**H1a**	

Absolute Choice Shares																
	Aggregate				**Grills**				**Power Banks**				**Suitcases**			
	2	3	SO	DI	2	3	SO	DI	2	3	SO	DI	2	3	SO	DI
L	167	73	58	39	53	19	28	13	39	19	10	10	75	35	20.	16
M	214	144	113	57	74	73	50	27	88	42	26	15	52	29	37	15
H		**88**				***3***				***18***				***7***		

Table B 1: Effect overview: Relative choice shares (%) and absolute choice shares
SO= "sold out" condition, DI= "discontinued" condition

Results for the less restricted sample in which only individuals with incorrect product perception were excluded, but which included also participants who had not recalled the reason for unavailability correctly or indicated congruent inferred popularity, echoed these results emphatically (Appendix B III).

4.4.3 Moderating effects – the influence of product class expertise and motivation to conform

We used logistic regression to assess whether compromise choice was affected by product class expertise and motivation to conform. Since product class expertise is by definition product specific, all three products had to be analyzed separately. For both constructs, product class expertise, and motivation to conform, no established, German counterparts existed, which therefore were generated via back-translation using the original items. Since this approach results in a first-time use of the scales, an exploratory factor analysis, rather than a confirmatory factor analysis was conducted to identify the factor structure. The results indicated a single-factor structure in case of product class expertise with sufficiently high reliability for all products (power bank: Factor 1: Eigenvalue of 3.139 (78.466% of Variance Explained), MSA= 0.816, Cronbach's alpha = 0.907; suitcases: Factor 1: Eigenvalue of 2.794 (69.846% of Variance Explained), MSA= 0.792, Cronbach's alpha= 0.892; portable grills: Factor 1: Eigenvalue of 3.036 (75.905% of Variance Explained), MSA= 0.815, Cronbach's

alpha= 0.852). However, the motivation to conform-scale did indicate low shared variance of items (MSA= 0.519) and insufficient reliability (Cronbach's alpha = 0.541). In consequence, we used the factor scores resulting from product class expertise, and a simple mean of the motivation to conform measures after removing the item with the lowest item to total correlation (resultant Cronbach's alpha = 0.613) for the subsequent analyses. With respect to the results of the logistic regression analyses performed separately for all three product categories, none of the coefficients were statistically significant with the exception of product class expertise for suitcases (β= -0.394, p<0.1), which denotes a negative effect of expertise as was hypothesized in H2 (model overview Table B2).

Product	**Predictors/ Coefficient & p-value**		**Hosmer and Lemeshow Test**	**Nagelkerke R^2**
Power bank (sold out)	MtC Expertise	β = -0.243, (p= 0.219) β = -0.096, (p= 0.719)	p= 0.326	0.031
Power bank (discontinued)	MtC Expertise	β = -0.374, (p= 0.230) β = 0.805, (p= 0.104)	p= 0.606	0.264
Suitcase (sold out)	MtC Expertise	β = 0.044, (p= 0.811) β = -0.394*, (p= 0.084)	p= 0.316	0.053
Suitcase (discontinued)	MtC Expertise	β = 0.359,(p= 0.128) β = 0.393, (p=0.203)	p= 0.803	0.102
Grill (sold out)	MtC Expertise	β = 0.051, (p= 0.764) β = 0.369, (p= 0.114)	P= 0.283	0.045
Grill (discontinued)	MtC Expertise	β = 0.-081, (p= 0.730) β = 0.305, (p= 0.365)	p= 0.534	0.030

Table B 2: Model overview logistic regression
(MtC= Motivation to Conform)

4.5 Findings study 2

We find support for H1a, that is, a more pronounced compromise effect when an extreme choice option is sold out and popular rather than available for selection in one product category. On the aggregate level, the effect is similarly as strong as when three choice options are available. With regard to H1b we furthermore find that in two instances, the discontinued choice option indeed diminished the compromise effect, that is, the effect was statistically not significantly different from zero when one option was marked as "discontinued", while it was present in the base set with all three options available. Further, in direct comparison of the sold out and discontinued conditions, the former results in a compromise effect, while the latter does not. This supports our general argument that the reasons for unavailability matter as they differ with respect to inferred popularity and choice preference. With no results supporting H2 and a singular statistically significant effect on a 10% significance level along the lines of H3, we find only very limited support for a moderating effect of product class

expertise, and no evidence supporting motivation to conform as a moderator. These findings are supported by the broader sample included in Appendix B III, which offers more evidence for H1a and H1b, albeit is limited with respect to the interpretation of inferred popularity as a driver of the observed effects. The lack of support for H2 is particularly surprising, as there is ample evidence for the moderating role of expertise and related constructs (e.g. familiarity and product class knowledge) in context effect research (Mishra et al., 1993; Ratneshwar et al., 1987; Sheng et al., 2005).

5 General discussion, limitations and future research

"*I am an old man and have known a great many troubles, but most of them never happened.*" (Mark Twain)

This quote typically attributed to Mark Twain exemplifies how the concern for something immaterial can affect our lives as individuals. The present research pinpoints this by showing how even unavailable alternatives can influence consumption decisions.

Simonson (1989) early on provided the first evidence that supported the robustness of compromise effects under conditions that involve unavailable choice options. The present contribution differs with regard to its extended aim to examine the possibility of differential (opposite) effects based on inferred popularity. In doing so, we answer the call of Pettibone and Wedell (2007) for research on conditions under which unavailable options can have adverse, that is negative, effects on target product choice and tried to shed some light on the mechanisms that drive compromise behavior under unavailability conditions. The present paper presents a first foray into this field. Furthermore, Simonson (1989) provided study participants with instructions to explicitly consider the unavailable choice options in their decision making process and thus made the unavailability setting artificially salient (see also Doyle et al. (1999)). The present work was designed to observe the effects in a more life-like setting in this respect.

The findings of the present paper, in particular those stemming from study 2, offer support for the notion of a differential effect of the reasons for unavailability in compromise set-ups. Specifically, our results suggest that a "sold-out" option has a distinctly more positive effect on the compromise effect than a "discontinued" option. While a "sold out" option can indeed result in a compromise effect that is as strong as or stronger than in settings where all choice options are available (H1a), we find the compromise effect diminished to zero when a "discontinued" option is included (H1b). The fact that these effects are more pronounced (i.e.

occur more broadly) when we include participants who had not identified the reason for unavailability correctly (Appendix B III), rather than exclude them (Table B1), however suggests, that similarity, resulting in spill-overs is not the sole driver of the observed behavior. It is also possible that similarity and the reason for unavailability were subconsciously acknowledged and interpreted, but not recalled as such (i.e. self-report manipulation checks failed to measure a de-facto successful, but subconsciously processed and thus not acknowledged manipulation).

Since logistic regression indicated only a singular case of a marginally statistically significant negative effect of class expertise and none for motivation to conform on compromise choice in either low or high popularity condition, we conclude that neither H2 nor H3 are sufficiently supported by the results.

A possible explanation for the absence of a moderating effect of motivation to conform might stem from the scale used in the present study. To keep the study concise in order to motivate more (voluntary) participation, the short three-item scale version suggested by Ailawadi et al. (2001) was used to measure motivation to conform. This scale which was originally based on Bearden et al.'s (1989) consumer susceptibility to interpersonal influence scale, had to be translated into German by the authors of the present study. What's more, the English items themselves aimed more at a direct interaction with others (e.g. "It is important to me to fit in"), and differed not only verbally from, but also only covered part of the multi-faceted construct Bearden et al. (1989) described: *"the need to identify or enhance one's image with significant others through the acquisition and use of products and brands, the willingness to conform to the expectations of others regarding purchase decisions, and/ or the tendency to learn about products and services by observing others and/ or seeking information from others"* (p. 474). Accordingly, items like *"If I have little experience with a product, I often ask my friends about the product"* and *"To make sure, I buy the right product or brand, I often observe what others are buying and using"*., used in the original scale Bearden et al. (1989) proposed, hit closer to home in addressing a predisposition to pay attention and ascribe importance to other consumer's behavior irrespective of their presence and might thus have been a more suited, albeit longer scale.

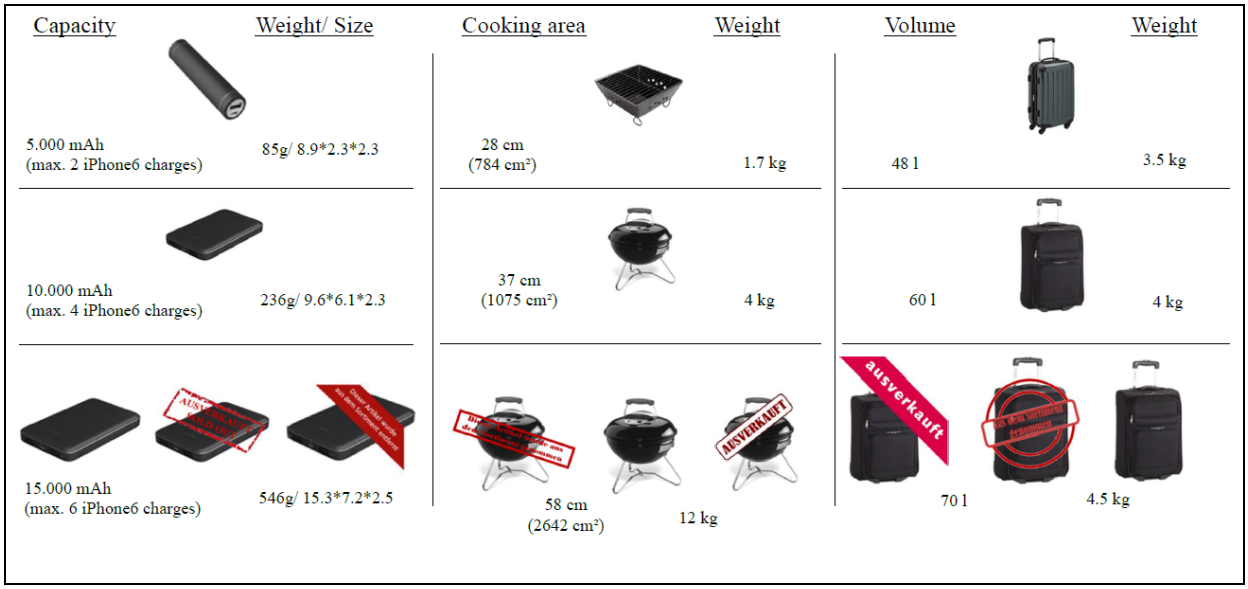
The present work used a common product design to mark product similarity beyond product attributes, the logical next step is to examine whether the same effect occurs in products of the same brand. If the similarity-based effects observed here hold for products of the same brand, this will underpin the managerial implications of our findings.

Appendix B

Appendix B I

Appendix I: Experimental Stimuli Study 1*The order of product depictions within a choice set was randomly rotated to clearly distinguish the extremeness aversion based on attributes from the mere choice based on the physical middle positioning of the compromise option.

Appendix B II:



Appendix II: Experimental Stimuli Study 2

Appendix B III

Relative Choice Shares (%)																
	Aggregate (%)				*Grills(%)*				*Power Banks(%)*				*Suitcases(%)*			
	2	3	SO	DI	2	3	SO	DI	2	3	SO	DI	2	3	SO	DI
L	43.8	35.9	35.2	38.2	41.7	20.8	41.6	33.0	30.7	31.3	24.3	38.1	59.1	54.8	39.6	43.2
M	56.2	64.1	64.8	61.8	58.3	79.2	58.4	67.0	69.3	68.7	75.7	61.9	40.9	45.2	60.4	56.8
ΔM		7.9**	8.7**	5.7		20.9***	0.1	8.7		-0.6	6.4	-7.3		4.2	19.4***	15.8**
H✓			H1a	H1b				H1b							H1a	

Absolute Choice Shares																
	Aggregate				*Grills*				*Power Banks*				*Suitcases*			
	2	3	SO	DI	2	3	SO	DI	2	3	SO	DI	2	3	SO	DI
L	167	92	116	126	53	20	47	35	39	21	27	43	75	51	42	48
M	214	164	214	204	74	76	66	71	88	46	84	70	52	42	64	63
H		88				15				39				20		

Appendix III: Relative Choice Shares and Absolute Choice Shares; o*nly cases with correctly identified product attributes (n=330)*

Appendix B IV

One-Sample Test

	Test Value = 0					
					95% Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
SimilarityDifferencePowerbanks	16,796	329	,000	1,89091	1,6694	2,1124
SimilarityDifferenceSuitcases	16,208	329	,000	1,79394	1,5762	2,0117
SimilarityDifferenceGrills	9,386	329	,000	1,30606	1,0323	1,5798

Manipulation Checks for sample with n= 330

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Chapter III

Extremeness Aversion and Extremeness Seeking: Future Time Perspective-Related Differences in Consumer Choices of Hedonic vs. Utilitarian Products

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1. Introduction

Extremeness aversion manifests itself in compromise behavior, that is, a consumer's preference for choice options located in the middle of a choice set as a means to avoid extreme choice alternatives (Neumann, Böckenholt, & Sinha, 2016). While the effect is generally well documented, a large body of literature shows the dependence of manifest extremeness aversion on a number of parameters, like decision makers' traits and dispositions (e.g. prevention focus, need for cognition, and decision uncertainty) or product attributes (durability or hedonic nature) (Dhar, Nowlis, & Sherman, 2000; Mourali, Böckenholt, & Laroche, 2007; Sheng et al., 2005).

Indeed, hedonic and utilitarian properties, and the durability of products are among the prime moderators of extremeness aversion (Neumann, Böckenholt, & Sinha, 2016) which is problematic from a marketer's perspective, as these attributes are inherent to the products and cannot well be adjusted without altering the product. However, this limitation may be curved by an emergent concept called future time perspective, which denotes the perception of time as a limited resource and a growing scarcity of remaining chances in life (Carstensen, Isaacowitz, & Charles, 1999). For one, previous research indicates that future time perspective may affect individuals to change their attitude and behavior from extremeness aversion motives towards receptiveness to emotional appeals and short term oriented enjoyment (i.e. hedonic vs. utilitarian and, durable vs. non-durable) (Williams & Drolet, 2005; Bülbül and Menon 2010; Wei et al. 2013). At the same time, future time perspective is subject to external impulses (Wei et al. 2013). This makes it an interesting subject for research with potentially great implications for practitioners who, for instance, wish to nudge consumers toward hedonic products in general, or who would like to implement choice sets that cater to extremeness aversion or extremeness seeking in particular (Drolet et al., 2007).

Over a lifespan individuals typically perceive their time left in life as more and more limited and this has important bearings on goals people pursue (Carstensen et al., 1999; Fung, Carstensen, & Lutz, 1999; Lang & Carstensen, 2002). Research shows that the future time perspective influences the hierarchy of oftentimes conflicting individual goals in a way that, the more limited humans perceive their time, the more they focus on emotion related goals in contrast to knowledge related goals (Carstensen, 2006; Fung & Carstensen, 2006). From a marketing perspective the variation in future time perspective affects attitudes towards advertisements and products (Micu & Chowdhury, 2010; Wei, Donthu, & Bernhardt, 2013; Williams & Drolet, 2005) and further acts as a moderating factor for the well-established link

between customer satisfaction and loyalty (Kuppelwieser & Sarstedt, 2014). However, our understanding of the precise consequences of time horizon manipulations with regard to varying consumption decisions and the underlying mechanisms remain to a large extend a black box, in particular with respect to extremeness aversion and extremeness seeking tendencies. We address this research gap and offer three novel contributions.

First, we examine how the manipulation of future time perspective leads to variations in choice behavior for hedonic and utilitarian products that indicate a shift away from the extremeness aversion paradigm and normative behavior toward behavior that can be described as extremeness seeking instead. In study 1, we shed light on this issue by examining the consequences of future time perspective manipulations with regard to a range of products that identify as either hedonic or utilitarian as this is a differentiation known to influence consumer preferences and decision making (Dhar & Wertenbroch, 2000; Khan, Dhar, & Wertenbroch, 2005; Okada, 2005). Drolet, Williams, and Lau-Gesk (2007) were the first to provide evidence that such preferences are moderated by affective content of information in advertisements. Stemming from the contradictory nature of long and short future time perspectives concerning the receptiveness to affective and rational goals (Williams & Drolet, 2005), we argue that consumption preferences depend on the primarily important goal individuals pursue. Accordingly, we propose to examine the behavioral outcomes of manipulated future time perspective using products that can be categorized as hedonic or utilitarian, in order to address changing prioritization of affective goals.

As our second contribution we offer insights into how the durability of a product, essentially whether it is used (durable) or used up (non-durable, like fast moving consumer goods), moderates the impact of future time perspective on choice behavior that aligns with extremeness seeking vs. extremeness aversion in hedonic and utilitarian goods. Accordingly, in study 2 we examine how a products' consumption life-span reflects on the manipulated future time horizons of decision makers.

Third, we shed first light on potential moderators of the choice behavior rooted in the person of the decision maker. To this end, we also explore in study two the role of changing preoccupation with prediction uncertainty, rationality versus feeling-driven decision making as a motivator of decisions, and mood as consequences of an altered future time perspective.

In aggregation, we demonstrate time horizon-dependency of preferences for varying product types, with regard to extremeness aversion and its natural counterpart extremeness seeking

(Neumann, Böckenholt, & Sinha, 2016; Simonson, 1989), while offering first insights into character traits of the decision maker.

2. Background

2.1 Future time perspective

Future time perspective, that is, the perception of how much time one has left in life, shapes the goals individuals strive to achieve (Carstensen, 2006; Carstensen et al., 1999; Lang & Carstensen, 2002). At early stages in their lives individuals seek knowledge and hence, choose social partners that are likely to fulfill knowledge related goals. Over the course of a lifetime, and while time is more and more perceived as limited, that is, a scarce resource, a shift of preferences from knowledge related goals to emotion related goals can be observed (Carstensen, 1992; Carstensen et al., 1999; Fung & Carstensen, 2006; Fung et al., 1999). Chronological age and future time perspective are typically negatively correlated (Fung et al., 1999). However, from a consumer research perspective, focusing on future time perspective instead of chronological age is more promising as the former can explain variations in an individual's perspective on time that are caused by external, and oftentimes uncontrollable forces in life (Drolet et al., 2007). For example, severe diseases or catastrophes cause a significant decline in future time perspective and induce changes in attitude and consideration of opportunities even in young adults (Fung & Carstensen, 2006; Västfjäll, Peters, & Slovic, 2008). In addition to that, a limited future time perspective induces changes in the perception of positive affect (Kellough & Knight, 2011). Marketing and consumer behavior research shows that the limitation of future time perspective leads to a preference for emotional advertisements and, in contrast, a long future time perspective leads to a preference for rational advertisement (Williams & Drolet, 2005). In a similar vein, Bülbül and Menon (2010) show that this preference for emotional advertisements in settings with limited future time perspective is induced by concrete emotional content rather than abstract emotional content. These findings are in line with predictions of socioemotional selectivity theory claiming that under a limited future time perspective individuals prioritize emotional meaning and affective goals higher than knowledge and vice versa (Carstensen, 2006). It is plausible that these diverging goal selection processes, induced by future time perspective, also affect product evaluation. Wei et al. (2013) provide a first reference indicating that a shortened future time perception causes attitudinal changes in favor of hedonic goods. In contrast, an expansive future time perception benefits the attitude towards utilitarian products.

2.2 Living in the moment: Extremeness aversion and extremeness seeking under a shortened future time perspective

Numerous studies have found that consumption decisions are greatly affected by context, such as the number and range of choice options present when facing a decision (Dhar & Simonson, 2003; Milberg, Silva, Celedon, & Sinn, 2014; Simonson & Tversky, 1992). For instance, one frequently cited effect known as extremeness aversion, marks the tendency of decision makers to avoid choice options with extreme attribute values (Neumann et al., 2016; Simonson & Tversky, 1992). The rationale behind this is rooted in prospect theory, specifically the notion that potential losses outweigh potential gains (Kahneman & Tversky, 1979). When facing a decision scenario under uncertainty, individuals focus on what they stand to lose rather than on potential gains and in consequence foremost try to minimize the potential loss. In a choice set containing several product options of which none seem clearly superior, this loss aversion motivates individuals to choose the middle option because it comes with smaller risks than options with extreme values (Neumann et al., 2016; Sheng, Parker, & Nakamoto, 2005; Simonson & Tversky, 1992). To use a practical example, one can easily see how the most expensive coffee maker bears a high financial risk of overpaying for features one will never use. A budget version on the other hand, might produce awful-tasting coffee or even pose a health hazard due to low-quality of materials used in the construction. A model from the mid-price range might seem like a less risky choice option over all, minimizing the chance of overpaying or having to drink awful coffee. However, this rationale is not always applicable, but is affected for instance by the product category (Neumann et al., 2016), time pressures (Lin, Sun, Chuang, & Su, 2008), the decision makers' level of decision uncertainty (Sheng et al., 2005) desire to be unique (Simonson & Nowlis, 2000), and possibly their future time perspective.

A short future time perspective is associated with a greater focus on affect and emotional appeal (Williams & Drolet, 2005). Applied to the context of consumption decisions, this suggests that individuals whose future time perspective is shortened, prefer choice options that have a greater emotional appeal, meaning their predominant attributes address the affective sphere and offer emotional, rather than a functional value (Drolet et al., 2007). This indicates a shift in personal goals and in consequence in preferences towards products and product attributes that provide emotional value to satisfy the newly formed or uncovered preferences (Simonson, 2008). Choice options which offer particularly great emotional value and which therefore had no particular relevance under a long future time perspective, gain

favor under a shortened future time perspective. While some individuals may have clear preferences, ample evidence suggests, that consumers often find it hard to clearly weigh attributes against one another and reach an absolute conclusion (Simonson, 2008). In consequence, a loss-minimizing middle choice option often appeals to these consumers (Sheng et al., 2005). Ryu, Suk, Yoon, and Park (2014) for instance, find that extremeness aversion results from equally weighted product attributes, that is, when all attributes equally provide goal-congruent value. In contrast, extremeness seeking is the consequence of asymmetrically weighted attributes. However, attribute weights are subjective and change with the circumstances and decision makers' priorities (Okada, 2005; Simonson, 2008). The desire for affective value, made salient by the shortened future time perspective, for instance, can increase the importance weight ascribed to the quality attribute (as opposed to the price). This disrupts the attribute weight equilibrium and debilitates the simple loss aversion rationale in favor of whatever choice option scores highest with respect to the experiential product attribute and thus offers the most experiential value. Since they are defined by a dichotomy of high and low experiential value, hedonic and utilitarian goods provide a particularly fertile ground to research the behavioral consequences of future time perspective alterations (Chernev, 2004; Chitturi, Raghunathan, & Mahajan, 2008; Hirschman & Holbrook, 1982).

Specifically, we expect that in choice sets involving product categories that are predominantly hedonic in nature, a short future time perspective leads to the choice of the extreme option (e.g. a high quality option) offering the greatest affective (hedonic) value and thus results in greater extremeness seeking.

With utilitarian goods on the other hand, there is no clear advantage of any option with regard to the affect and pleasure oriented consumption goals. In consequence, decision makers with a short future time perspective seek out the option which offers the least of an unwanted attribute, and thus incurs the lowest cost, resulting in extremeness seeking in an opposite direction (e.g. a cheap option). Alternatively, individuals may have no clear preference within a product category that offers no goal congruent value and observe normative decision making. These behavioral consequences would be in accordance with the "pick-your-poison-effect" identified by Levav, Kivetz, and Cho (2010).[2]

[2]Related research concerning pain avoidance and pleasure seeking goals supports the effects proposed here by evidencing extremeness seeking tendencies when only one product attribute is goal congruent, and extremeness aversion tendencies when all product attributes are equally congruent or equally incongruent to personal goals (Higgins, 1997; Levav et al., 2010; Mourali, Böckenholt, & Laroche, 2007)

Hence, we expect to observe extremeness seeking in two opposing directions:

> H1a: A shortened future time perspective leads to extremeness seeking in favor of options *with a high hedonic value*
>
> H1b: A shortened future time perspective leads to extremeness seeking in favor of options with a *low utilitarian value*

Meta-analytical findings indicate that extremeness aversion is regularly more pronounced in durable goods than in and non-durable goods (Neumann et al, 2016; Lichters et al, 2016). Durable goods typically involve greater financial risk (Derbaix, 1983) which gains further importance due to the long lifetime of these products and the concurringly long period one will have to live with the consequences of a possibly poor choice (Simonson, Nowlis, & Lemon, 1993). Similarly the greater longevity of durable products results in less frequent purchase situations and unfamiliarity with the product category, a known driver of extremeness aversion (Sheng et al, 2005). Furthermore, such purchases incorporate choice situations that commonly involve great complexity with regard to the product itself. This results in greater uncertainty and cognitive processing, which both favor extremeness aversion and consequentially mitigate extremeness seeking behavior (Lichters, Müller, Sarstedt, & Vogt, 2016; Sheng et al., 2005). This indicates that the effect hypothesized in H1a is potentially moderated by durability to the effect of stronger extremeness seeking in non-durable products than in durable products. This would be the consequence of generally greater willingness to diverge from a “safe” middle option in favor of the option that offers the greatest hedonic value, and thus maximizes the desirable value under a short future time perspective. Contrary to this, the effect expressed in H1b is motivated by the desire to minimize an undesirable value, a goal achieved by choosing a low utilitarian value option. The effect is thus reversed. The longevity of a chosen option makes the “lesser-evil” rationale behind choosing a low utilitarian value option even more salient. Accordingly the preference for non-durable low utilitarian value goods is smaller than for durable low utilitarian value goods.

Accordingly we hypothesize:

> H2a: Extremeness seeking is stronger in *non-durable hedonic goods* than in *durable hedonic goods*.

H2b: Extremeness seeking is stronger in *durable utilitarian goods* than in *non-durable utilitarian goods.*

In study 1 we test the occurrence of extremeness seeking and extremeness aversion behaviors under shortened and extensive future time conditions. Specifically we provide an initial examination of opposing effects of future time perspective on products that are hedonic and utilitarian in nature.

3. Study 1

3.1 Methodology Study 1

The experiment took place at a German university. Participants received course credit or a 7€ reimbursement after taking part in the experiment. Participants were randomly assigned to one of the experimental groups (EG1=limited future time perspective, EG2=extended future time perspective) or the control group (CG). First, to control for potential covariates, we measured personality related items via a short version of the Big 5 inventory, impulsivity related behavior via the UPPS-scale, mood, and demographics. Next, we applied our experimental factor with the help of a verbal manipulation of the future time perspective. For EG 1 we invited participants to imagine they had only one year left in life. For EG 2 we invited them to visualize a life that lasts 20 years longer than normally under suitable health conditions (Fung & Carstensen, 2003). In a similar vein as Berry et al. (2015), we supported the manipulation by pictorial impressions of landscapes that depicted a wide or shortened horizon in a natural landscape, respectively an urban background or a mix of both for the control group. Afterwards, we measured the individual future time perspective using a German version of the scale proposed by Lang and Carstensen (2002). Afterwards, we asked participants to provide information about their choice behavior. Study participants chose one option from a set of three choice options in the product categories wine (hedonic) and refrigerators (utilitarian). Previous research had specifically identified these particular product categories as examples of hedonic products in case of wine, and utilitarian products in case of refrigerators (e.g., Bruwer & Alant, 2009; Khan, Dhar, & Wertenbroch, 2005; Park & Kim, 2012). However, products are typically not exclusively hedonic or utilitarian, but are identified by their more prominent qualities or product attributes (Dhar & Wertenbroch, 2000; Okada, 2005). For instance, chocolate offers both, nutrition (utilitarian value) and indulgence (hedonic value) (Chernev, 2004; Voss, Spangenberg, & Grohmann, 2003). For this reason we henceforth refer to the various hedonic choice options in a choice set as high, medium or low

hedonic value options and to utilitarian products accordingly as high, medium, and low utilitarian value option. Products were described in terms of typical attributes indicating each option's respective quality and price. For each product category we offered a low option A, a medium option B, and a high option C (in terms of price and quality). Each product in every category was depicted with its individual price and a quality rating, which we controlled by asking participants for their perception of price and quality for each of the products. The Appendix C I provides information on all relevant measures in our studies.

3.2 Results Study 1

A total of 190 participants took part in the experiment. We did not find evidence for an unequal distribution of male (overall 96) and female (overall 94) participants as well as age (overall: M= 22.36; S.D.= 2.91) between groups. Furthermore, several repeated measure ANOVAs showed that all products were perceived as differing in der quality and price dimensions (A, B, C). First, we checked for the reliability of the future time perspective scale and found it sufficient with a value of .880. We averaged the 10 items and applied an ANOVA including Games Howell post-hoc test. Table C1 shows that we successfully limited future time perspective as participants in EG 1 display significantly lower values compared to CG and EG 2. Although participants in EG2 display a nominally higher future time perspective compared to CG, this difference is not significant. Hence, the extension of future time perspective was not successful. This is not entirely surprising, as young adults typically display an extensive time horizon and are rather prone to manipulations that shorten this perspective than the other way around (Wei et al., 2013). Nevertheless, a potential effect in EG2 cannot be solely attributed to our manipulation. Hence, we do not consider this experimental group in our further analysis.

	EG1	CG	EG2
Mean	2.9318	4.4813	4.6390
SD	1.1523	.8165	.8965
EG1 n = 66	-		
CG n = 64	1.5495***	-	
EG2 n = 60	1.7072***	.1577	-

Table C 1: Future time perspective between groups
Notes: SD = Standard deviation; * p < .10; ** p < .05; *** p < .01

Next, we examine the differences in choices between experimental groups for hedonic and utilitarian products. We only find significantly different choice frequencies for the hedonic product (Table C2) In the hedonic category (wine) option C (high hedonic value) is most popular in the *short* future time perspective group (34.8%) as opposed to the control group with a more *extensive* future time perspective (10.9%), while the A-option (low hedonic value) is chosen less frequently (36.4% vs. 71.9%). This offers support for our hypothesis H1a. While the choice share of the cheapest option in the utilitarian product category nominally increases under a shortened future time perspective (Table C2), as we expected under H1b, this increase is not statistically significant.

		Hedonic (Wine)* $\chi2(2)=17.55$, $p<.01$			Utilitarian (Refrigerator)* $\chi2(2)=3.981$, $p=.137$ (n.s.)	
		Short FTP (a)	Control Group (b)		Short FTP (a)	Control Group (b)
	A	24 (36.4%)	**46[(a)] (71.9%)**	A	36 (54.5%)	25 (39.1%)
	B	19 (28.8%)	11 (17.2%)	B	18 (27.3%)	19 (29.7%)
	C	**23[(b)] (34.8%)**	7 (10.9%)	C	12 (18.2%)	20 (31.3%)
	Σ	66	64	Σ	66	64

Table C 2: Results study 1
(a), (b) Results are based on two-sided tests with significance level .05. For each significant pair, the key of the category with the smaller column proportion appears under the category with the larger column proportion.*Percentages denote shares within groups; FTP = future time perspective

3.3 Findings study 1

Study 1 shows that the manipulation of future time perspective is possible and potentially can affect consumers' preferences in hedonic goods and their choice behavior accordingly. Demand for the high quality product is indeed highest for participants with a short future time perspective as opposed to the control group with a more extensive future time perspective, which supports our H1a.

The aim of study one was to provide an initial test for differential behavioral outcomes of hedonic and utilitarian consumption situations with respect to varying time horizons. As such, study 1 produced support for H1a and warrants further examination of the consequences of future time perspective with respect to choice behavior.

Study 2 establishes the presence of the hypothesized effects more broadly. It does so by testing a greater variety of products, and examining the further dependency of the results from study 1 on product durability. Study 2 thus aims in particular at retesting H1a and H1b and examining the potentially moderating effect of product durability as expressed in H2a and H2b. Additionally it addresses the question of what further motivations and underlying

mechanisms might affect extremeness seeking as a consequence of a short future time perspective.

4. Study 2

Our first study provides evidence that for participants with an ex ante extended future time perspective a further enhancement is at least challenging. Thus, in study 2 we exclusively focus on the limitation of time horizons of young adults with the help of the manipulation established in study 1. We argue that young adults inherently have an extended future time perspective which impedes the success of manipulations aiming at further extensions. Next, we enhance our design by implementing the aspect of durability of the products. Hence, we employ a 2x2x2 factorial design (short future time perspective vs. control, hedonistic vs. utilitarian, durable vs. non-durable product). Third, we extend our investigation of the effectiveness of our manipulation beyond solely measuring changes in future time perspective. In addition, we also measure the individual perception of remaining lifetime as a single item measure and on top draw on a measurement of the effectiveness of time horizon manipulation similar to Williams and Drolet (2005). Furthermore, we control for differences in personality, impulsive behavior and risk attitude as displayed in Table C3. We also measured participants' preoccupation with prediction uncertainty and drivers of motivation to shed further light on potential moderating factors of decision making processes rendered salient by the manipulation of time horizons. All relevant measures are listed in Appendix C I.

4.1 Results study 2

Overall 98 (48 in EG and 50 in CG) participants from a German university took part in the experiment and received 5€ as compensation for participating. The average age was 22.34 years and we did not find evidence for a significant difference between groups in terms of age ($t(85.24)=.124$, $p=.901$). Similarly, we did not find differences between groups regarding gender ($\chi^2(1)=.354$, $p=.552$). We also measured personality traits, impulsive behavior, and risk attitude to control for potentially confounding factors and only found one sub-dimension of impulsive behavior significantly differing between groups (Table C3).

Scale	Sub-dimension	Cronbach's alpha	between group differences
Personality	Extraversion	.856	t(96)=-1.071, p=.287
	Neuroticism	.542	t(96)=-.745; .458
	Agreeableness	.283	not reliable, not applied
	Conscientiousness	.611	t(96)=1.024; p=.308
	Openness	.601	t(96)=.423, p=.673
Impulsive behavior	Urgency	**.655**	**t(96)=-2.50; p<.05**
	(lack of) premediation	.724	t(96)=1.332: p=.186
	(lack of) perseverance	.421	t(96)=1.090; p=.278
	Sensation seeking	.945	t(96)=-.527; p=.599
Risk attitude	./.	n.a.	t(96)=-.576; p=.566

Table C 3: Reliability and pre-analysis

4.1.1 Manipulation checks

We found the future time perspective scale sufficiently reliable with a Cronbach's alpha of .888 and hence averaged the individual item scores for each participant to build an index for the future time perspective measurement. As expected, participants in the experimental group displayed significantly lower levels of future time perspective ($t(98)= -6.481$, $p<.001$). In a similar vein, when asking participants to indicate their present position in their lifespan (lifetime horizon), participants in the experimental group indicated that they are closer to the end of their life compared to the control group ($t(94)=3.943$, $p<.001$). Next, and in line with Williams and Drolet (2005), we calculated two measures for an individual's perceived time horizon (short and long) and combined them to build a single item measure. We did so by subtracting the individual value for long time view from the short time view. As a result individuals with negative values display a more expansive time perception. In contrast, the higher the value, the more limited people perceive time left in life. We find that our manipulation was successful as participants in the experimental group showed significantly higher values ($t(96)=5.118$, $p<.001$) compared to the control group. Furthermore, we controlled for price and quality perceptions of the products. All of these were as we expected them to be (A=lowest price and quality, B=medium price and quality, C=highest price and quality). We ran several repeated measure ANOVAs and found that for all products in each product category the perception of price and quality were differing significantly in the intended directions.

4.1.2 Main results

First, we test for differences between hedonic and utilitarian products under the control condition (long future time perspective) and experimental condition (short future time perspective respectively) on a summated level, that is, choice frequencies of high, low and medium, options from both product categories were added up prior to the analysis (Table C4).

The application of several Chi-square tests including z-transformations and Bonferroni-corrections yields results as depicted below.

		Hedonic* $\chi2(2)=30.300$, $p<.001$			Utilitarian* $\chi2(2)=4.283$, $p=.117$ (n.s.)	
		Short FTP (a)	Control Group (b)		Short FTP (a)	Control Group (b)
	A	16 (17.0%)	**40[(a)] (40.0%)**	A	39 (41.5%)	33 (33.0%)
	B	29 (30.9%)	**47[(a)] (47.0%)**	B	27 (28.7%)	**43[(a)](43.0%)**
	C	**49[(b)] (52.1%)**	13(13.0%)	C	28 (29.8%)	24 (24.0%)
	Σ	94	100	Σ	94	100

Table C 4: Summated choice-shares for hedonic and utilitarian products for experimental and control group
(a), (b) Results are based on two-sided tests with significance level .05. For each significant pair, the key of the category with the smaller column proportion appears under the category with the larger column proportion. *Percentages denote shares within groups; FTP = future time perspective

The data indicate that hedonic choice options with high hedonic value are preferred under a short future time perspective in opposition to a clear preference for the middle and low hedonic value option under a long future time perspective. Thus, we find support for our H1a and hence, are able to replicate our findings from study 1. Furthermore, Table C4 shows normative behavior, that is, equal shares for utilitarian products in the manipulated condition, and a statistically significantly higher preference for the middle choice option under the control condition.

Next, we focus on the influence of future time horizon manipulations on a product level to address the moderating role of durability for hedonic and utilitarian products (Table C5). We find that on a product level our H1b also holds in case of the refrigerator (utilitarian and durable), as we observe significant extremeness seeking tendencies towards option A. For toilet paper (utilitarian and non-durable) the effect significantly reverses and we observe extremeness seeking towards option C.

In comparing within group shares for each product category (hedonic vs utilitarian) we find that our H2a (58.3% vs. 45.8%) and H2b (59.6% vs. 42.6%) also hold.

		Non-durable*			**Durable***	
Hedonic		Wine $\chi2(2)=28.943$, $p<.001$			Action Cam $\chi2(2)=8.779$, $p<.05$	
		Short FTP (a)	Control Group (b)		Short FTP (a)	Control Group (b)
	A	13 (27.1%)	**35[(a)] (70.0%)**	A	3 (6.3%)	5 (10.0%)
	B	7 (14.6%)	11 (22.0%)	B	23 (47.9%)	**36[(a)](72.0%)**
	C	**28[(b)] (58.3%)**	4 (8.0%)	C	**22[(b)] (45.8%)**	9 (18.0%)
	Σ	48	50	Σ	48	50
Utilitarian		Toilet paper $\chi2(2)=4.707$, $p<.1$			Refrigerator $\chi2(2)=6.406$, $p<.05$	
		Short FTP (a)	Control Group (b)		Short FTP (a)	control group (b)
	A	11 (23.4%)	16 (32.0%)	A	**28[(b)] (59.6%)**	17 (34.0%)
	B	16 (34.0%)	23 (47.9%)	B	11 (23.4%)	20 (40.0%)
	C	**20[(b)] (42.6%)**	11 (22.0)	C	8 (17.0%)	13 (26.0%)
	Σ	47	50	Σ	47	50

Table C 5: Choice-shares hedonic versus utilitarian products with regard to durability
(a), (b) Results are based on two-sided tests with significance level .05. For each significant pair, the key of the category with the smaller column proportion appears under the category with the larger column proportion.
*Percentages denote shares within groups; FTP = future time perspective

4.1.3 Exploratory results concerning underlying mechanisms

Lastly, we focus on potential drivers of the observed differences in preferences by checking for significant correlations within and between groups (Table C6). For this purpose, we generated a sum-score for each participant increasing by a value of one with every observation of extremeness seeking behavior conforming to the hypothesized direction. A low score thus indicates choice behavior that is not conform to our hypotheses H1a and H1b; while a high score indicates hypothesis-conform behavior. This allows us to further analyze the relationship between any variable we consider to have an effect on extremeness seeking in the hypothesized effect direction. Furthermore, we applied a principal components analysis with Varimax rotation on the five items of preoccupation with prediction uncertainty to derive a measure for the construct. This analysis resulted in a one-factor solution. For all following analyses we draw on the corresponding factor score.

Surprisingly, Table C6 shows that overall future time perspective only significantly correlates with the number of extreme choices and positive mood and that preoccupation with decision uncertainty correlates with decision motivation (indicating rationality rather than feeling driven motives). However, a closer look at correlations within the experimental group reveals that future time perspective correlates negatively with preoccupation with prediction uncertainty while the number of choices correlates negatively with decision motivation. In addition, we observe significant differences between groups for preoccupation with prediction uncertainty ($t(96)=-2.382$, $p<.05$) and decision motivation ($t(96)=-2.639$, $p<.05$).

		1	2	3	4	5	6	7
1	Number of extreme choices	Overall 1 Short FTP 1 / Control Group 1						
2	Future time perspective	Overall -.309** Short FTP -.142 / Control Group .111	Overall 1 Short FTP 1 / Control Group 1					
3	Preoccupation with prediction uncertainty	Overall -.160 Short FTP -.129 / Control Group .084	Overall .053 Short FTP -.310* / Control Group .175	Overall 1 Short FTP 1 / Control Group 1				
4	Decision motivation	Overall -.239* Short FTP -.287* / Control Group .101	Overall .043 Short FTP -.250 / Control Group .028	Overall .223* Short FTP .364* / Control Group -.030	Overall 1 Short FTP 1 / Control Group 1			
5	Good Mood	Overall .058 Short FTP -.093 / Control Group .022	Overall -.199* Short FTP .003 / Control Group -.255	Overall .136 Short FTP .187 / Control Group .190	Overall -.061 Short FTP .053 / Control Group -.159	Overall 1 Short FTP 1 / Control Group 1		
6	Awake Mood	Overall -.100 Short FTP -.215 / Control Group .022	Overall -.108 Short FTP -.016 / Control Group -.068	Overall .058 Short FTP .357* / Control Group -.096	Overall -.145 Short FTP .053 / Control Group -.232	Overall .368** Short FTP .458** / Control Group .272	Overall 1 Short FTP 1 / Control Group 1	
7	Calm Mood	Overall -.087 Short FTP -.166 / Control Group -.001	Overall .025 Short FTP .103 / Control Group -.061	Overall .168 Short FTP .144 / Control Group .199	Overall .076 Short FTP .062 / Control Group .089	Overall .551** Short FTP .606** / Control Group .522**	Overall .166 Short FTP .262 / Control Group .111	Overall 1 Short FTP 1 / Control Group 1

Table C 6: Correlation Analyses ***Correlation is significant at the .01 level; *Correlation is significant at the .05 level; FTP = future time perspectiv**

4.2 Findings Study 2

Study 2 replicated and extended the findings from study 1. The results confirm those regarding H1a, indicating extremeness seeking behavior for hedonic choice options with particularly high hedonic value under a shortened future time perspective. Furthermore we find statistically significant support for H1b, in particular after controlling for the moderating effect of product durability. The main effect of extremeness seeking for low utilitarian value options is markedly moderated by durability, that is, in durable products the effect is clearly present, supporting H1b, while the effect does not occur in non-durable products. Here, we surprisingly find an opposite effect direction, that is, increasing preference for the high utilitarian value option. The proposed moderating effect of durability is prominent for hedonic as well as utilitarian products. Hence, we find support for H2a and H2b. When the product is hedonic, the shares for the high (hedonic) value option are higher for the non-durable product. In contrast, when the product is utilitarian we find higher shares for the durable product option with low (utilitarian) value. Finally, study 2 reveals correlative relationships between future time perspective and a positive mood and the preoccupation with prediction uncertainty respectively. Furthermore we observe a general positive (negative) link between feeling-motivated decision making (rational decision making) and extremeness seeking behavior. This offers preliminary insights into the motivation of decision maker's abandonment of loss aversion and the willingness to seek out extreme choice options and provides first evidence that the observed shifts in choice behavior as we discussed them are mediated or moderated by the aforementioned constructs.

5. General discussion, limitations and future research

Our research addresses how future time perspective affects consumer preferences and choice behavior in the context of extremeness aversion and extremeness seeking with regard to hedonic and utilitarian goods, how product durability impacts on this effect and it sheds first light on underlying mechanisms affecting the observed behavior. Specifically, we show that the manipulation of future time perspective is possible and can affect consumers' preferences in hedonic goods and their choice behavior accordingly. Demand for the high quality hedonic products is indeed highest for participants with a short future time perspective as opposed to individuals with a more extensive future time perspective (H1a). Our results further show, that this effect is moderated by the durability of the products involved in a choice (H2a) to the effect that non-durable products result in greater extremeness seeking than durable products.

With regard to utilitarian products, we observe a main effect in the opposite direction of that of hedonic products, that is, individuals prefer low utilitarian value options, when faced with a limited time horizon (H1b). This effect too is moderated by product durability (H2b), and even more strongly so than for hedonic products. In this instance, while short future time perspective leads to extremeness seeking towards low quality options in the case of durable products, decision makers clearly prefer high quality options when it comes to non-durable products. While generally not at odds with H2b, the expressly high demand for utilitarian high value options under a shortened future time perspective comes as a surprise.

While the moderating effects of durability are largely in line with previous findings, that decision makers opt for the "lesser evil" and reduce financial loss (Levav et al., 2010) when having to make a choice, our results also indicate that the choice behavior for non-durable utilitarian products follows a different rationale. While the product category may have been predominantly utilitarian, the understanding that dominant, but non-exclusive associations with a product category identify products as either hedonic or utilitarian, suggests that a utilitarian good like toilet paper can still offer some degree of experiential (hedonic) value (Chernev, 2004). It seems plausible, that as a consequence of a markedly short future time perspective, this previously irrelevant hedonic value has gained sufficient weight to tip the scales and become the primary attribute considered in the consumption choice. Additionally, the greater preference for the high quality choice option in case of a non-durable utilitarian good might indicate that the (financial) losses that result from choosing the expensive, high quality option were still perceived as over-all limited and thus not warranting extremeness aversion (Neumann et al., 2016).

An alternative post hoc explanation is that the quality of a non-durable product was perceived as immediately rewarding, while the durable product's quality justifies the monetary loss only when one can enjoy it over an extended period of time, which under a shortened future time perspective might not be possible. The lack of an effect of mood on choice behavior is particularly interesting, since it seemingly confounds findings from previous research (Lin, Yen, & Chuang, 2006). However, this underlines that the effects of a shortened future time perspective are distinct from the risk avoidance mechanism proposed to underlie the effect of mood in other settings. In a similar vein, our findings provide further insights with regard to previous studies that strictly associate extremeness seeking with hedonic products and extremeness aversion with utilitarian goods (Kim & Kim, 2016).

Our research offers strong implications for advertisement practitioners. We clearly show that advertisement slogans using any time primes, which may affect individuals similarly to our future time perspective manipulation, can have diametrically opposing effects on hedonic and utilitarian products. While time primes along the lines of "time's short, enjoy…" for instance, can increase demand for hedonic goods, demand for utilitarian products can actually be harmed. In addition, in cases of a non-durable utilitarian product an emphasis on short time horizons can direct attention towards the hedonic aspect of consuming this product.

In general, we have to account for the possibility of structural biases that originate from our experimental design, which relies on hypothetical choices. Individuals who are asked to imagine a situation and decide, but who do not have to suffer any real consequences (e.g. pay the actual price or accept opportunity costs), show less consideration of economic consequences and reflect less on the outcome of their choice (Müller, Kroll, & Vogt, 2012). Müller et al. (2012) specifically show that this can moderate context effects. Thus, we have to take into consideration that the present results may be somewhat biased, for instance, towards expensive choice options. This however, makes the observation of preference shifts between conditions even more salient.

Furthermore, our findings diverge from those of Wei et al. (2013) insofar as that we were unable to manipulate an extension of future time perspective in young individuals. This is in line with future time perspective theory which argues that most young individuals typically have the perception of having infinite time in life to start with. The extension of infinity thus marks a problem for the manipualtion of future time perspective with the goal of a further extension. Future research will need to both theoretically and, afterwards, given the theoretical implication, empirically address this question.

The finding that individuals with a shortened future time perspective display extremeness seeking and opt for high quality options even when making a choice concerning utilitarian products that have a short life-span, is insofar remarkable, as it indicates that it might be possible to shift attribute weights sufficiently to cause a utilitarian product to be evaluated by its hedonic and thus presumably far less relevant attributes. This has potentially far-reaching implications not just for future time perspective research, but marketing research in general. Our finding indicates that utilitarian products can under certain circumstances be evaluated predominantly based on their hedonic attributes, instead of the utilitarian attributes which traditionally identify them.

This provides further evidence for the possibility of a “hedonification” of utilitarian products. Future research should address the question how and to what degree this explains for instance the effect of an appealing design as an enriched, categorical attribute that offers affective value and impacts on the purchase likelihood and price-sensitivity for utilitarian goods (Chitturi et al., 2008; Kim & Park, 2017; Nowlis & Simonson, 1997).

Our results further support previous findings from related research, that value-added processes (easier justification adds value to a middle option, making it preferable) and value-shift processes (the subjective value of an attribute increases) can both affect the occurrence of the compromise effect, that is the manifestation of extremeness aversion (Pechtl, 2009).

Our exploratory findings concerning underlying mechanisms and motivators of the observed choice behavior opens up new avenues for future research. In particular, the finding that extremeness seeking is positively associated with feelings-based decision making is interesting, as this suggests, that the effects we observe may not solely result from changing attribute importance, but might also be a consequence of changing decision making styles.

Socioemotional selectivity theory is a promising theoretical framework for this. The emphasis on emotions and affect under a short future time perspective is well established and plausible (Fung & Carstensen, 2003, Fung & Carstensen, 2006)). Future research should focus on the mechanism of goal setting procedures that come along with this emphasis. Especially our finding that a short future time perspective is connected to making decisions based on “gut feeling” while the final tendency to opt for extreme choices is connected to less worrying about the outcome of choice, should be taken into consideration. A broader model of antecedents of decision making could be built on this finding.

Appendix C

Appendix C I: Overview of Measures

Construct	Author(s)	Items	Study 1	Study 2
Personality[1] Big 5 inventory	Rammstedt and John (2007)	10 items answered by indicating agreement on a 7-point Likert-type scale (from 1= totally disagree, to 7 = totally agree) with 5 sub-dimensions extraversion neuroticism agreeableness conscientiousness openness	Y	Y
Impulsive behavior[1]	German version of UPPS scale of (Whiteside & Lynam, 2001) by Kovaleva, Beierlein, Kemper, and Rammstedt (2014)	8 items answered by indicating agreement on a 7-point Likert-type scale (from 1= totally disagree, to 7 = totally agree) with 4 sub-dimensions - urgency - (lack of) premeditation - (lack of) perseverance - sensation seeking	Y	Y
Risk attitude[1]		Single item indicating willingness to take risks on a 11-point Likert-type scale (from 0=not at all willing to take risks, to 10=very much willing to take risks)	Y	Y
Gender[1]	n.a.		Y	Y
Age[1]	n.a.		Y	Y
Faculty[1]	n.a.		Y	Y
Federal state of birth[1]	n.a.		Y	Y
Faculty[1]	n.a.		Y	Y
Future time perspective (German Version)[2]	Lang and Carstensen (2002)	10 items answered by indicating agreement on a 7-point Likert-type scale (from 1= totally disagree, to 7 = totally agree).	Y	Y
Lifetime horizon[2]	developed by authors	Single item, displaying an arrow and asking to indicate where participants perceive themselves on the arrow with the beginning of the arrow indicating beginning of life and arrowhead indicating end of life (1=at the very beginning my life 22=at the very end of my life)	N	Y
Time horizon[2]	Williams and Drolet (2005)	2 scales with 3 items in each scale; measuring either the extent to which participants perceived the message (manipulation) as time limiting or time extending on a 7-point Likert-type scale	N	Y

Appendix C I continued				
Choice sets[2]		Choice situations asking to indicate a preference from a set of 3 products (from each product category) with A=low price, low quality product, B=medium price, medium quality product, C=high price, high quality product)	Y (2 product categories)	Y (8 product categories)
Preoccupation with prediction uncertainty	Sheng et al. (2005)	Sub-scale from decision uncertainty instrument 5 items answered by indicating agreement on a 7-point Likert-type scale (from 1= totally disagree, to 7 = totally agree) (low values indicate little concern about regretting future consequences of decisions made)	N	Y
Decision motivation	developed by authors	Single item asking to indicate what the main driver in decision making was with 1="I made my decision based on a "gut feeling"" to 7 "I made my decision by thoroughly thinking about pros and cons"	N	Y
Evaluation of product attributes in terms of price and quality[3]	n.a.	Evaluation of all products on a 7-point-Likert-type scale: How do you perceive i) the price / ii) the quality of product A, B, C with 1=very low to 7=very high	Y	Y
Mood[3]	Steyer, Schwenkmezger, Notz, and Eid (2004)	12 bipolar items answered on a 5-point semantic differential scale with 3 sub-dimensions - good-bad mood (4 bipolar items) - awake-tired mood (4 bipolar items) - calm-nervous mood (4 bipolar items)	N	Y

[1] Questionnaire No1; [2] Questionnaire No 2; [3] Questionnaire No 3

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Chapter IV

Drivers and Inhibitors of the Compromise Effect – A Conceptual Overview

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1. Introduction

A plethora of empirical studies demonstrates that consumers' buying decisions depend on the context in which they are embedded (Dhar & Simonson, 2003; Milberg, Silva, Celedon, & Sinn, 2014; Simonson & Tversky, 1992). The compromise effect is arguably one of the most researched of these context effects (Chang, Chuang, Cheng, & Huang, 2012; Müller, Benjamin Kroll, & Vogt, 2010; Nikolova & Lamberton, 2016). According to the compromise effect, consumers avoid extreme options when making consumption decisions, and show a preference for options that take the position of a compromise between the more extreme alternatives (Simonson, 1989). Consequently, a product that becomes a compromise option due to another more extreme option having been added to a set of choices, can gain favor with consumers (Figure D1). This observation is striking, as it directly violates the regularity principle (Luce, 1977) which is a basic axiom of normative choice theory, stating that the popularity of options in a choice set cannot be enhanced by the addition of a new option.

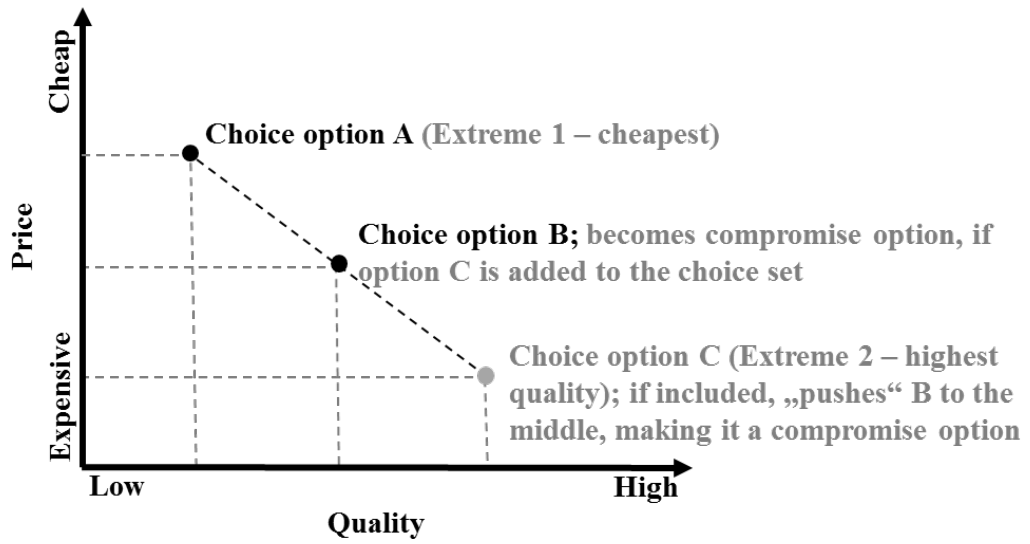

Figure D 1: Illustration of the compromise effect

Since its introduction more than two and a half decades ago, numerous researchers have attempted to identify the compromise effect's underlying mechanism and the various factors that contribute to its occurrence, or that diminish it. For example, research has found that the compromise effect is the result of a demanding cognitive process of elaborate comparative judgement (Dhar, Nowlis, & Sherman, 2000; Dhar & Simonson, 2003; Khan, Zhu, & Kalra, 2011; Lichters, Brunnlieb, Nave, Sarstedt, & Vogt, 2016; Noguchi & Stewart, 2014; Simonson, 1989) that hinges on the availability of cognitive resources and individual need for cognition (Drolet, Luce, & Simonson, 2009; Lichters et al., 2016, Lin, Sun, Chuang, & Su,

2008, 2008; Pocheptsova, Amir, Dhar, & Baumeister, 2009). Further, research has identified drivers and antecedents of the compromise effect that are for instance rooted in individuals' loss aversion and product attribute evaluation such as regulatory focus, need for uniqueness, and self-confidence (Chuang, Cheng, Chang, & Chiang, 2013; Mourali, Böckenholt, & Laroche, 2007; Ryu, Suk, Yoon, & Park, 2014; Simonson & Nowlis, 2000). However, so far neither conceptual work, nor empirical examination has attempted to integrate more than three such antecedents at a time (Table D1), let alone develop an overarching conceptual model of the compromise effect.

Publication	***Conceptual variables discussed in publication***	***No. of conceptual variables examined jointly***
Chang et al. (2012)	Susceptibility to interpersonal influence Accountability Deciding for others Regret anticipation	3
Chuang et al. (2013)	Self Confidence Uncertainty Risk Preference	2
Chuang, Cheng, and Hsu (2012)	Suggestions Uncertainty Group cohesiveness	3
Drolet et al. (2009)	Need for cognition Cognitive load Temporary motivation to use Self-Goals	3
Goukens, Dewitte, and Warlop (2009)	(Private) self-awareness Variety seeking (Preference-behavior consistency) Preference fluency	2
Kim and Kim (2016)	Consumption situation (hedonic vs. utilitarian) Valuation (by calculation vs. by feeling) Justification Attribute weighing	2
Levav, Kivetz, and Cho (2010)	Regulatory Focus Regulatory Fit	2
Mourali et al. (2007)	Regulatory Focus Justification Regulatory product properties	2
Ryu et al. (2014)	Regulatory Focus (Risk / hedonic value)	2
Sheng, Parker, and Nakamoto (2005)	Decision Uncertainty Familiarity (Loss Aversion) Attribute symmetry Attribute Importance	2
Simonson and Nowlis (2000)	Providing Reasons Evaluation by others Need for Uniqueness	3
Present paper	***(Loss Aversion)*** ***(Justification/ Evaluation by others)*** ***Need for cognition*** ***Cognitive Load*** ***Regulatory focus & Regulatory Fit*** ***Product Familiarity*** ***Task Involvement*** ***Lay Rationalism*** ***Approval Motivation***	***7***

Table D 1: Overview of empirical studies on antecedents and drivers of the compromise effect

Only recently, a first step towards an integration of findings concerning the compromise effect was undertaken by Neumann, Böckenholt, and Sinha (2016). In a meta-analytical approach, the authors shed light on the impact of variations in experimental design parameters. They show for instance, how the use of numerical attribute-representations or product types (e.g. durables) in compromise studies can systematically affect the magnitude of the compromise effect irrespective of any intended experimental manipulations. In doing so, Neumann et al. (2016) provide valuable guidelines to researchers who seek to avoid experimental design specifications that could bias research results. However, motivational drivers of compromise behavior, such as approval motivation or relevant personality traits like individual need for cognition, are not topicalized in their work, neither is there any other presently available research that takes a meta-perspective of previous findings on such drivers and motivators. Consequently, context effect research is still lacking a comprehensive model that considers interdependencies between known drivers of the compromise effects on a broader scale.

This paper fills this research gap by developing a conceptual model that not only integrates numerous existing contributions to compromise literature, but also extends existing research by incorporating several new antecedents and moderators of compromise behavior. To do so, this paper first provides a synthesis of existing literature that categorizes past research into a basic framework of three research areas, and then directly links various known explanatory factors like need for cognition, and regulatory focus to the compromise effect to combine them into a basic conceptual model. In a second step, following this revisitation of past works, this paper broadens the basic conceptual model to account for additional moderating effects and factors, such as approval motivation and lay rationalism, that as of yet, have not been included in the compromise effect discussion. In conclusion, this paper proposes an extended conceptual model of the compromise effect based on the formulation of seven main effect propositions.

2. Developing a conceptual model of compromise effect drivers

Uncertainty regarding choice outcomes and loss aversion are the basic premises of the compromise effect (Simonson, 1989; Simonson & Tversky, 1992; Tversky & Simonson, 1993). Uncertainty in this context can relate to (I) future performance outcomes of a choice: “Does the quality match my expectation?”, (II) temporal stability of preferences - “Will my product-attribute prioritization change over time?”, and (III) the social outcome - “Do my peers agree with my choice?” (Sheng et al., 2005; Simonson, 1989). As a result of this

uncertainty, decision makers may ascribe roughly equal weight to all relevant attributes of choice options within a choice set, and in extension also to the choice options themselves (Chernev, 2005). For example, a decision maker who is not sure, what matters most, that is, which product attributes are most important when buying a particular product (e.g. a laptop computer), will as a default assume that all attributes are roughly equally important (e.g. CPU and RAM). In consequence, that decision maker sees no clear advantage in a choice option that offers more of either attribute (e.g. more RAM, less CPU-power or vice versa) and will likely tend to opt for the low risk, low loss option: the compromise. Following prospect theory, according to which potential losses have a greater impact on decision-making than potential gains (Kahneman & Tversky, 1979), compromise choice is a means to avoid greater loss (Sheng et al., 2005; Simonson, 1989). Situated between more extreme alternatives, a compromise option might, plainly put, never be the ideal choice. However, it will also never be entirely the wrong choice. Specifically, the potential loss associated with a compromise option is smaller in comparison to that of an extreme choice option, and thus appears preferable to consumers (for a formalized approach see Sheng et al. (2005) and Chuang et al. (2013)). Individuals who wish to avoid losses in a choice situation therefore exhibit extremeness aversion, which manifests itself in compromise behavior (Simonson & Tversky, 1992). The loss-aversion premise of the compromise behavior is closely linked to another, much debated, premise, namely justification of a choice in expectation of evaluation by others (e.g. Neumann et al. (2016); Simonson (1989); Chernev (2005); Sheng et al. (2005); Simonson and Nowlis (2000); Tsetsos, Usher, and Chater (2010)). Individuals' greater risk when choosing an extreme option is typically more difficult to justify to others, and would therefore garner more criticism from others in case of a retrospectively poor choice.[3] The easier justification of a compromise option makes a product in such a position more valuable for the decision maker, particularly if the product attributes offer insufficient grounds for clear preferences (Pechtl, 2009). Specifically, the compromise option provides one compelling argument when taking retrospective evaluation by others into account: Irrespective of the evaluators' preferences, they will not judge a compromise option to be as bad a choice, as an extreme option at the "wrong" end of the spectrum of choice options. The compromise option thus offers reasons to choose it, that transcend attributes and attribute-preferences of other individuals (Pechtl, 2009; Simonson, 1989). This mechanism by which evaluation by others affects compromise choice, is supported by findings relating to the cognitive nature of the

[3]Justification without expectation of judgement has only limitedly gained empirical support as a motivator of compromise behavior, and is more disputed than expected evaluation by others (Simonson 1989; Simonson, Nowlis 2000; Chernev 2005).

compromise effect (Simonson, 1989). For instance, Tetlock (1985) finds that when individuals expect to be held accountable by others they apply a more thorough and complex thought process than otherwise. This is in line with the observation that compromise choices result from a cognitively engaging and demanding process, and take longer to reach than non-compromise choices (Jang & Yoon, 2015; Pocheptsova et al., 2009; Simonson, 1989).

Summating this, research on the compromise effect can generally be categorized into three connected areas that cover basal aspects to which the occurrence of the compromise effect is typically attributed: uncertainty and the (equal) weighing of attribute importance, the loss aversion rationale, and the necessary cognitive resources for the processing of stimuli and invoking compensatory trade-offs (Figure D2 provides a schematic overview and non-exhaustive literature categorization).

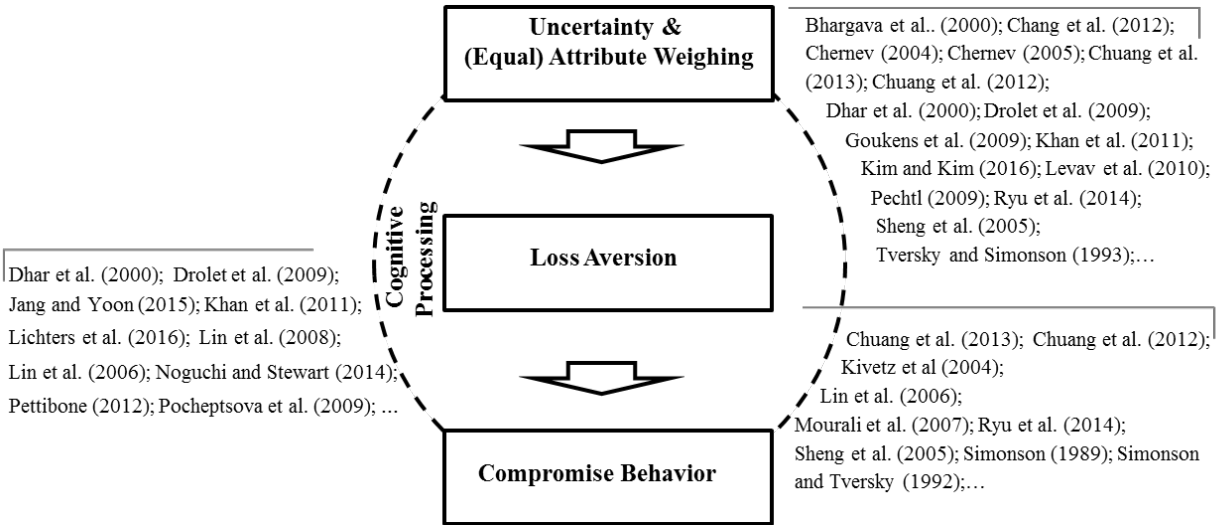

Figure D 2: Basic framework of compromise effect research
(non-exhaustive literature categorization according to primary focus of each contribution; double mentions indicate equal contributions to several fields)

2.1 Regulatory focus - personal goals as drivers of loss aversion and compromise choice

Regulatory focus refers to how individuals approach pleasure and avoid pain (Higgins, 1997). Higgins (1997) distinguishes two types of regulatory focus: Promotion focus and prevention focus. Under a promotion focus individuals derive pleasure or pain from the presence or absence of positive outcomes. For prevention focus, the opposite is the case: pleasure and pain both result from the absence or presence of negative outcomes. In essence, promotion focus pertains to an individual's orientation along goals of advancement, accomplishment, and growth, whereas prevention focus refers to goal orientation concerned with protection,

safety, and responsibility (Higgins, 1997; Mourali et al., 2007). Individuals with a prevention focus judge the possible outcomes of a purchase decision in terms of what was lost, or not lost, which makes them more inclined to take a compromise option with its lower potential for loss. That is, a prevention focus will increase individuals' tendency to choose the compromise option. Empirical research provides support for this notion. Specifically, Mourali et al. (2007) show that individuals who are prevention-oriented frequently choose compromise options, while a promotion focus diminishes the compromise effect. The observation that these tendencies are further amplified when individuals have to justify their choices, and thus have to reflect on their goals, underpins justification to others as a motivator of compromise choice.

Recent research has provided valuable insights into the mechanism of this effect. For instance, Das (2015) finds that prevention focus is associated with lower levels of impulsiveness and more vigilant, reflective decision making. In a similar vein, Ryu et al. (2014) show that individuals with a prevention focus pay more attention to the likelihood of an outcome, than to the desirability or hedonic value of that outcome, while for those with a promotion focus, this order is reversed. Therefore, prevention focus gives precedence to the concern with potential harm (i.e. loss aversion), while underplaying the potential gains of a decision outcome. In sum, prevention-oriented regulatory focus makes the loss avoidance motivation more prevalent in decision makers, while promotion-oriented decision makers are less concerned with losses and therefore less likely to avoid extreme choice options. Hence we echo previous works and propose:

Proposition 1a

A prevention focus leads to a pronounced compromise effect.

Proposition 1b

A promotion focus diminishes the compromise effect.

2.2 Need for cognition - the role of cognition in compromise choice

Need for cognition, which describes an individual's "tendency to engage in and enjoy thinking" (Cacioppo & Petty, 1982), abstract), is another potential candidate for explaining compromise behavior. Steinhart and Wyer (2009) for instance, find that when participants in a cognitively challenging task expect failure, those with a high need for cognition are prone to

pursue failure avoidance goals. This behavior is commensurate with extremeness aversion.[4] Further, Lin, Yen, and Chuang (2006) show that need for cognition moderates the impact emotional states have on compromise behavior, and Lichters et al. (2016) affirm the relevance of cognitive effort in compromise choice from a biological standpoint. Lichters et al. (2016) show that individuals with low levels of serotonin, a neurotransmitter known to correlate positively with cognitive performance (Park et al., 1994), have a lower preference for compromise options. While this appears to indicate that need for cognition and the exertion of cognitive effort promote the compromise effect, observations that Drolet et al. (2009) make regarding compromise behavior suggest a complex interaction of the motivation and the ability to engage in cognitive effort. Specifically, they find that individuals with a high need for cognition, that is, who are motivated to engage in cognitive activity, seem to reflect deeply on their self-goals, namely on their values, constraints, and preferences (Drolet et al., 2009). Consequently, rather than being compelled by the loss-minimization and justification rationales that lead to a compromise choice, they rely on this greater self-goal clarity in choosing the extreme option that provides them with the most value with respect to these goals (Drolet et al., 2009; Goukens et al., 2009). The impact of need for cognition, however, is moderated by cognitive load which is imposed on an individual's cognitive system (Paas & Van Merriënboer, 1994) . Specifically, Drolet et al. (2009) show that individuals with a high need for cognition still prefer compromise options if the cognitive load is high (e.g. induced via a memory task), and the use of cognitive resources to identify a preference-congruent choice option is therefore inhibited. For the isolated effect of high cognitive load however, Drolet et al. (2009) observe a diminished compromise effect, which could be the consequence of stimulus processing at the lexicographic level which prohibits any trade-off considerations with regard to product attributes. In sum, Drolet et al. (2009) research suggests that cognitive load and need for cognition taken individually, weaken the compromise effect, while interaction of these constructs can result in a reversed influence on the compromise effect. To reiterate this:

Proposition 2a

Need for cognition diminishes the compromise effect.

Proposition 2b

Cognitive load diminishes the compromise effect.

[4] Contradictorily, the same was true for pleasure-seeking goals, which are typically more in line with extremeness-seeking behavior (Higgins 1997; Mourali et al. 2007).

Proposition 2c

Cognitive load moderates need for cognition, resulting in a stronger compromise effect.

2.3 Interplay between need for cognition, regulatory focus and regulatory fit

Drolet et al.'s (2009) findings that a high need for cognition tends to diminish the compromise effect due to greater self-goal clarity, have far-reaching implications for the branch of compromise research dealing with regulatory focus and regulatory fit.

If high need for cognition promotes reflection on one's goals and greater preference clarity, it seems reasonable to extend this to a greater awareness of one's regulatory focus. An individual with a high prevention-orientation is more likely to display compromise behavior (Mourali et al., 2007). This is based on the assumption that a compromise option caters to such an individual's regulatory goals of harm avoidance and protection from loss. A person's actual awareness of these goals can, therefore, also be expected to be moderated by cognitive processing, that is, the individual's need for cognition. Hence:

Proposition 3a

Need for cognition positively moderates the effect of regulatory focus on compromise behavior.

Research has shown that the alignment of regulatory focus and the regulatory purpose of a product (regulatory fit) further affects the compromise effect. On the one hand, Levav et al. (2010) find that if one of the relevant product attributes fits the individual's regulatory focus and another does not, the compromise effect is diminished. On the other hand, the compromise effect becomes stronger if all the relevant product attributes fit the consumer's prevailing regulatory focus. Take, for instance, a consumer who is considering to buy a new car, and whose main concern is the costs. He finds three models that differ only with respect to the sales price and how economically the engine runs. Of these three, the more fuel efficient models are also more expensive. In this case the goal of wanting to save money can be met by mutually exclusive product attribute levels: a low sales price, and low fuel consumption. Therefore, between being cheap to acquire and being cheap in the upkeep, all car models offer different means to satisfy the same goal: saving money. Levav et al. (2010) describe this as a fit of regulatory focus (here prevention of financial loss) and the product's attributes (here sales price and fuel efficiency), which results in compromise behavior due a greater perceived difficulty to make a choice between product options that are different, but

equally suited to satisfy the car buyer's consumption goal. This resonates with the description of the compromise effect as a "tie breaker" in a difficult choice situation (Simonson, 1989). Furthermore, in focusing on the alignment of product attributes and personal regulatory goals, the entire concept of regulatory fit arguably hinges on how aware consumers are of their regulatory goals. Here need for cognition again, could play a pivotal role. In promoting a thorough assessment of one's goals (Drolet et al., 2009), a high need for cognition may also have a favorable effect on the identification of regulatory fit. Only an individual who is aware of his/her regulatory goals can be affected by the goal's congruence or incongruence with a product's attributes. Following the lines of argumentation above, we propose:

Proposition 3b

Regulatory fit results in a greater preference for a compromise option.

Proposition 3c

Need for cognition positively moderates the impact of regulatory fit on compromise behavior.

2.4 Information processing and preference awareness in compromise choice – familiarity

In a product knowledge context familiarity relates to past experiences with the product and the ability to properly consume or use the product for its intended purpose (Alba & Hutchinson, 1987). As such, familiarity plays an important role in various fields of consumer research, e.g. word-of-mouth communication, advertising, and stock pricing (Cho, Kang, & Cheon, 2006; Hoch & Ha, 1986; Kent & Allen, 1994; Lane & Jacobson, 1995; Sundaram & Webster, 1999). This prominence across a wide range of fields is based on two main functions of product familiarity. First, familiarity facilitates and enhances information processing by enabling individuals to make more sense of product related information (Alba & Hutchinson, 1987; Johnson & Russo, 1984). Second, individuals with high product familiarity have greater clarity regarding their own preferences and needs, and how best to satisfy them. Specifically, product familiarity enables a consumer to determine which product attributes carry greater weight in reaching satisfaction with a decision outcome – in agreement with the adage "you can't know that you don't like it unless you have tried it" (Alba & Hutchinson, 1987; Marks & Olson, 1981; Simonson, 2008). As Park and Lessig (1981) state, high product familiarity makes individuals more capable of differentiating between choice options, and more

confident in their decisions. Consequently, since decision uncertainty is a prerequisite for extremeness aversion, and thus for the compromise effect, which results from choice making based on reason instead of clear attribute preferences (Simonson, 1989; Simonson & Nowlis, 2000), product familiarity, by bolstering confidence and preference clarity, reduces compromise behavior. In being more certain about the ideal choice based on preference knowledge and product attributes that are weighted accordingly, decision makers who are familiar with the product do not have to refer to the rationale of a loss-minimizing compromise choice, but can choose the extreme option best suited to their goals (Sheng et al., 2005; Simonson, 1989; Simonson & Tversky, 1992). These considerations underpin the following proposal:

Proposition 4

Familiarity with the product impedes compromise behavior.

Figure D3 summarizes the set of propositions articulated above in a conceptual model.

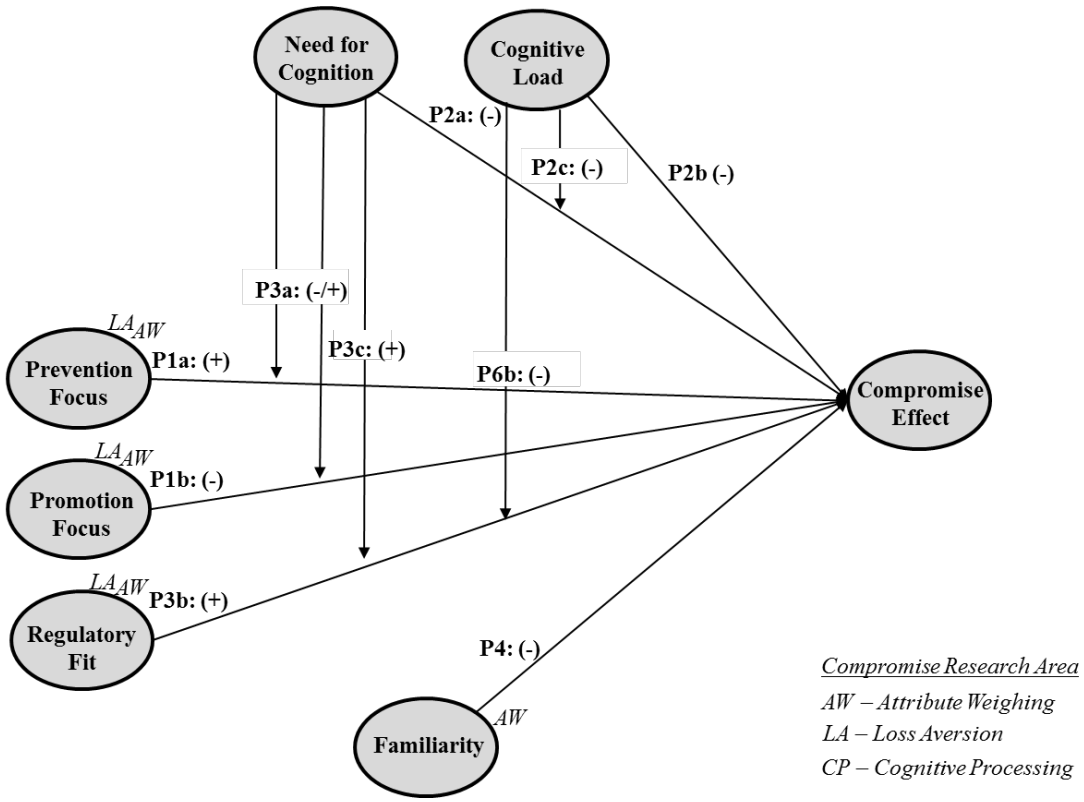

Figure D 3: Conceptual model 1

2.5 Extensions to the conceptual model

The propositions discussed thus far represent a synthesis of insights gained from existing compromise literature. The effects discussed, have, in part, been tested empirically elsewhere. However, to a large extent they were investigated in isolation of one another, therefore neglecting interaction effects (Figure D3). The following section addresses this limitation and extends the model by introducing additional relevant drivers and discussing the interdependencies between known and new drivers.

2.6 Task Involvement – personal relevance, attribute interpretation and attention in consumer choice

Similar to product familiarity and need for cognition, a high level of task involvement that is, high personal relevance of a decision task, can lead to a greater reflection on one's preferences and the more extensive use of product information to cater to those preferences (Goukens et al., 2009; Petty & Cacioppo, 1986; Petty, Cacioppo, & Schumann, 1983). One might intuitively equate high personal relevance to a more pronounced focus on the risks (e.g. evaluation by others, or poor product performance), which could lead to the avoidance of extreme options. However, a different effect might prevail: Because highly involved consumers ascribe greater importance to the outcome of a decision, they spend more energy on reflecting on their true motivations and preferences, and on how best to serve their resultant goals (Mishra, Umesh, & Stem, 1993; Petty et al., 1983). Involved decision makers scrutinize product attributes to identify how their preferences are most likely to be satisfied, instead of resorting to the compromise rationale, or to other heuristics that offer attribute-independent reasons for choices, such as them being "safe" or "relatively better", albeit not ideal, options (Bettman, Luce, & Payne, 1998; Dhar et al., 2000; Mishra et al., 1993; Pechtl, 2009). This argument seems to be supported by Müller, Kroll, and Vogt's (2012), finding that the compromise effect is stronger in hypothetical choices than in binding choices with real payments, the latter of which are arguably more involving. These considerations prompt the following:

Proposition 5a

Task involvement has a negative effect on compromise behavior.

In their work on the attraction effect Mishra et al. (1993) argue that product class knowledge, which for them is comprised of product class familiarity and product class expertise, can lead to more intense information processing and greater task involvement. While plausible, the

authors fail to find statistically significant support for a direct link between familiarity and task involvement. This might in part be due to a misconception of task involvement as being identical to product involvement (Tyebjee, 1979). However, it does seem plausible, that familiarity with a product class allows individuals who show involvement (and cognitive engagement) in a task to reflect more on preference-attribute functions, that is which products best serve their consumption goals if they are sufficiently knowledgeable of the value of each attribute. Thus, familiarity might acts as a moderator rather than an antecedent of task involvement. Accordingly,

Proposition 5b

> Product class familiarity enhances the effect of task involvement on compromise behavior

2.7 Lay rationalism as a driver and cognitive boundary condition

Lay rationalism refers to the tendency to resist affective decision-making behavior, and instead to base decisions on rationalistic attributes (Hsee, Zhang, Yu, & Xi, 2003). Specifically relevant to the present context, lay rationalism describes "the relative weight individuals place on reason versus feelings in decision situations that involve tradeoffs between the two factors" (Hsee, Yang, Zheng, & Wang, 2015 p. 135). As such, lay rationalism directly leads to the very heart of compromise effect, which has been advocated as being the result of a choice based on reason (Simonson 1989). The fact that lay rationalism has not been considered in context effect research is therefore surprising.

In their early work on the topic, Hsee et al. (2003) point out that lay rationalism may explain why consumers come to contradictory conclusions when indicating which product they would enjoy most, as opposed to which they would actually choose (Hsee, 1999; Hsee et al., 2003). This, according to the authors, is the consequence of decision behavior driven by experiential, hedonic judgement in the former, and decision behavior driven by rational choice in the latter case. This notion is in agreement with the string of arguments put forward by Neumann et al. (2016) whose meta-analytical finding is that compromise effects are more likely to occur in product choices that involve utilitarian products (i.e., those serving a functional purpose) than in hedonic products (i.e., those serving experiential purposes like fun and excitement). Further, the preference for utilitarian options has been positively associated with the need for justification, and the level of internal conflict experienced by the decision maker regarding which option to choose. Both of these conditions are also positively related to extremeness

aversion (Hirschman & Holbrook, 1982; Khan, Dhar, & Wertenbroch, 2005; Okada, 2005). In conformity with the findings that the compromise effect is indeed more prominent in choices concerning utilitarian goods (Neumann et al. 2016), the present paper proposes a positive effect of lay rationalism on compromise choice. Individuals with a high level of lay rationalism generally focus strongly on reasons when making a decision; consequently they are more prone to choose the compromise option which provides such reasons and justifications (e.g. comes with low relative risk), than individuals with low levels of lay rationalism. These considerations give rise to the following:

Proposition 6a

> Lay rationalism has a positive impact on compromise behavior

The cognitive effort dedicated to making a decision affects the reflection on one's goals, and the congruency of those goals and a product's attributes (Drolet et al., 2009). Therefore, analogous to the interaction effects involving need for cognition, it is plausible that the effect of lay rationalism is moderated by cognitive load. Only if a decision maker is able to access the cognitive resources necessary to evaluate attributes with respect to personal goals, and to rationalize a choice based on goal-attribute congruency, is the compromise option a plausible choice. If the decision maker experiences a high cognitive load, however, these thought-processes and a resultant compromise choice could be hampered, which prompts the following:

Proposition 6b

> Cognitive load negatively moderates the effects of lay rationalism on the compromise effect.

2.8 Approval motivation and the social motivation of loss aversion

Inferences about the preferences of others have been shown to have a sizable impact on product choice (Wernerfelt, 1995). The relevance of social context is further emphasized by Simonson's (1989) findings regarding the positive impact of expected evaluation by others on the compromise effect. In a similar vein, Simonson and Nowlis (2000) observe that need for uniqueness negatively affects the compromise effect. They propose that the lower fear of evaluation which comes with high need for uniqueness, leads to more "unconventional," extreme choices. The question however remains whether, in an individualism-oriented culture, particularly one criticized for being overly "share" and "like"-oriented (Feiler, 2014; Fishwick, 2016; Vanderkamp)), need for uniqueness is consistently characterized by less fear

of evaluation by others, and therefore as automatically detrimental to the compromise effect. For instance, conspicuous consumption, the ostentatious display and consumption of goods with the intention of attracting attention and being identified as wealthy, exemplifies that in particular a strong desire to find other's approval can be pursued by consuming specifically the unconventional (Corneo & Jeanne, 1997; O'Cass & McEwen, 2004). In a similar vein, Bellezza, Gino, and Keinan (2014) and Rahman and Cherrier (2010) link need for uniqueness directly to the perception of status, competence, and "coolness." These counter-directional observations suggest that need for uniqueness may lead to both more, or less compromise behavior depending on another factor, namely approval motivation; that is, the desire to be viewed favorably by one's peers. Specifically, we propose that approval motivation, as put forward by Martin (1984), is the underlying reason for either choosing a compromise, or choosing the extreme option. Indeed, approval motivation appears to be a very fitting manifestation of what drives individuals in their desire to be accepted by peers, be it by appearing unique or by conforming to norms. Approval motivation can be viewed as a counterpart to social desirability. The better known social desirability construct, however, focuses more on the broader need to present a positive image in general, than on the desire to please others and avoid rejection (Martin, 1984). Approval motivation uses items such as "Depending upon the people involved, I react to the same situation in different ways," to measure the other-orientation and the "fitting-in-and-being-accepted" component of social acceptance. Approval motivation is thus concerned specifically with potential social loss suffered when diverting from choices others would approve off. Based on the premise of the compromise effect that unfavorable evaluation by others can cause a social loss, which could be avoided by choosing an easily justifiable compromise option, approval motivation can be posited as a direct driver of compromise behavior. In sum, approval motivation is a measure of the weight afforded the non-physical, social component of loss-aversion. It, therefore, shows a positive relationship to the compromise effect, and leads to the following:

Proposition 7a

Approval motivation is positively related to the compromise effect.

Based on the newly identified roles of lay rationalism, approval motivation, and task involvement as compromise drivers, and on the moderating roles of familiarity, need for cognition, and approval motivation first discussed in the present work, an extended conceptual model for the compromise effect is proposed in Figure D4 below.

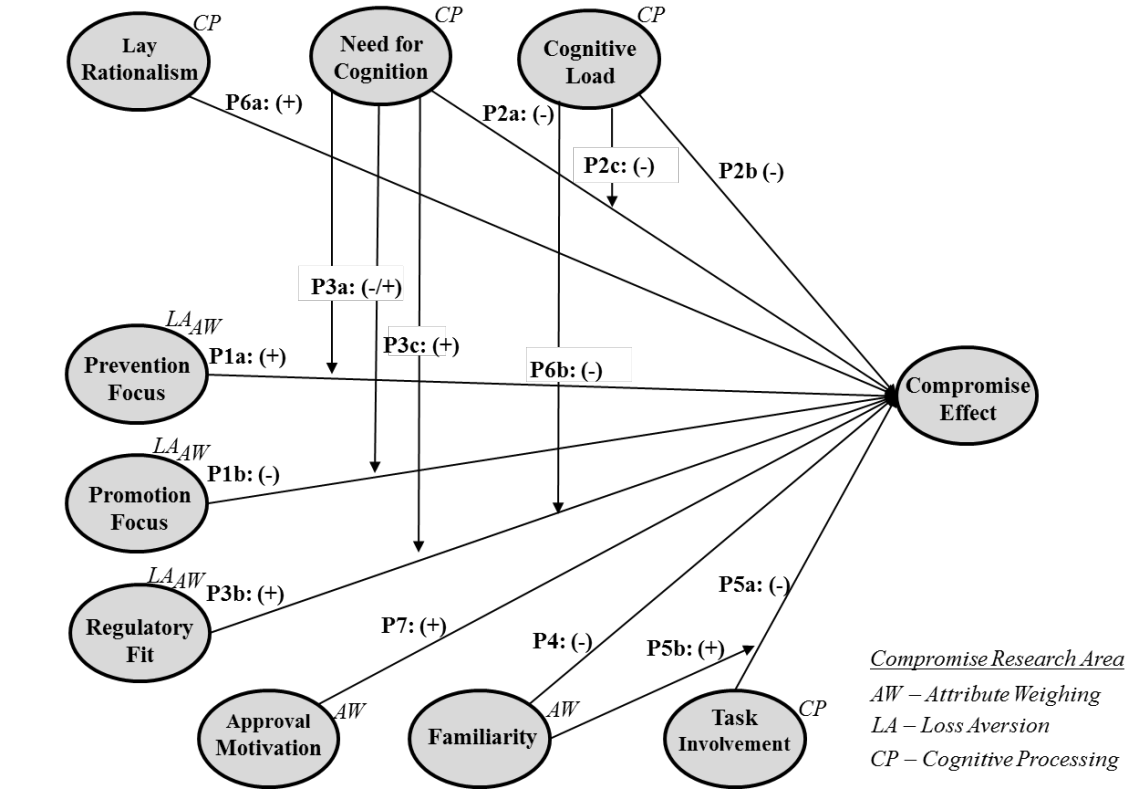

Figure D 4: Conceptual model 2

3. Conclusion

Considering the large body of research dedicated to improving our understanding of the compromise effect over the past two and a half decades, the absence of more comprehensive models that integrate these separate findings, and that identify the relative importance of individual drivers and interaction effects, is striking. Indeed, after more than twenty-five years of empirical theory application (Lichters et al. 2015), it seems time for a review and consolidation of previous findings.

In pursuit of an interpretative consolidation of earlier and current research on the compromise effect, the present contribution has conceptually introduced and discussed known drivers and antecedents of compromise behavior from all three essential areas of compromise research: attribute weighing, loss aversion and cognitive processing. Specifically, this paper integrated previous findings based on a thorough synthesis of existing research into a basic conceptual model. The resultant model was then extended further by introducing several newly recognized potential drivers of compromise behavior, such as approval motivation and lay rationalism, which might provide fertile grounds for further compromise effect research of their own, but which also potentially interact with established drivers. For instance, in an extension of Drolet et al.'s (2009) work, we propose additional interaction effects between need for cognition and regulatory focus, and between cognitive load and lay rationalism.

The conceptual approach to research consolidation offered here, naturally only prefaces a much- needed empirical examination of the matters at hand. Thus, it is only the first step towards answering the call to consider both theory and effect application in consumer behavior research, and specifically, in context effect research (Lichters, Sarstedt, & Vogt, 2015). Not only does future research still need to empirically test the relationships between various drivers of the compromise effect, but as (Lichters et al., 2015) point out, many observations regarding drivers of consumer behavior also have to be considered against boundary conditions such as economic consequences. An empirical analysis of the coincidence of drivers, relative effect sizes, and interaction effects proposed in the present paper would offer important implications for theory application, and would lay the groundwork for effect application research.

Whereas the goal of this paper was to integrate some of the most important moderators of compromise behavior into one model, several additional findings that resulted from the research synthesis presented here, seem noteworthy.

One such finding is the potentially greater impact of approval motivation in compromise research. This concept extends beyond the already known subject drivers we discussed in the present paper. Specifically, the moderating effects of need for uniqueness, as discussed by Simonson and Nowlis (2000), and evaluation by others (Sheng et al., 2005; Simonson, 1989), while not explicitly the subject of the present paper, are worth reviewing if one considers the role of approval motivation proposed in this paper. If one entertains the thought that need for uniqueness can indicate a desire for distinction, as well as a desire for attention, it is clear that need for uniqueness is not the competing with, but rather is bounded by approval motivation (Simonson & Nowlis, 2000). The latter could therefore be an underlying force that determines the effect of need for uniqueness on compromise behavior. Specifically, high approval motivation could appeal to need for uniqueness when it is motivated by the desire to be perceived as “cool” (Rahman & Cherrier, 2010), and might thus refer to the fear of evaluation and even enhance the compromise effect. The opposite would be the case if approval motivation is low and need for uniqueness indeed expressed a desire for distinctiveness (Song & Lee, 2013).

Similarly, following the rationale that evaluation by others carries more weight when an individual is concerned about the opinion of others, approval motivation might make expected evaluation by others either very salient (high approval motivation), or diminish the effect (low approval motivation) with respect to compromise choice (Sheng et al., 2005; Simonson, 1989)

Another observation that results from the work on the present research paper, but extends beyond the drivers in focus, concerns Levav et al.'s (2010) findings that regulatory fit encourages compromise behavior. Levav et al. (2010) show that regulatory fit, that is a condition in which the decision maker's primary regulatory goal aligns with all relevant attributes of a product, can lead to more rather than less cognitive conflict, and thus compromise behavior. However, when only one attribute fits the decision maker's regulatory goal, he/she chooses the extreme choice option that performs better on this attribute. This effect bears a close resemblance to observations concerning the influence that attribute importance weighting has on compromise behavior, as indicated by Drolet et al. (2009). Their data suggests that the compromise effect is weakened whenever decision makers perceive product attributes as being unequally important, or having unequal weight with respect to their consumption goals. If, however, individuals weigh attributes as equally important in achieving their personal goals, the compromise effect remains stable. Consequently, regulatory fit could be viewed as a case of equal attribute weighing, rather than as a separate effect.

In sum, this paper aimed to enrich compromise effect research by consolidating findings reported in existent literature, and relating drivers and inhibitors that were previously shown to affect compromise behavior in isolation, to one another. In doing so this paper not only sheds light on potential interaction effects previously overlooked, but also contributes to the discussion on the applicability of compromise theory. Finally, we extend the existing research by discussing additional, potentially highly relevant moderators of the compromise effect.

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Chapter V

Antecedents and Drivers of the Compromise Effect - An Empirical Examination

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Victor Schliwa

1. Introduction

Marketing and consumer research have taken a great interest in understanding how the decision context affects consumer's buying behavior (Lichters, Müller, Sarstedt, & Vogt, 2016; Milberg, Silva, Celedon, & Sinn, 2014; Yoon & Simonson, 2008). According to the compromise effect, one of the most researched contexts effect in the literature (Chang, Chuang, Cheng, & Huang, 2012; Müller, Benjamin Kroll, & Vogt, 2010; Nikolova & Lamberton, 2016), consumers prefer options that take the position of a compromise between more extreme options in a choice set (Simonson 1989).

The great prominence of this particular context effect has led to ample research on the antecedents and mechanisms underlying compromise behavior. For instance, prior research has found that regulatory focus (Mourali, Böckenholt, & Laroche, 2007; Ryu, Suk, Yoon, & Park, 2014), need for cognition (Drolet, Luce, & Simonson, 2009), and cognitive performance (Lichters, Brunnlieb, Nave, Sarstedt, & Vogt, 2016) significantly influence the compromise effect. Similarly, Chuang, Cheng, Chang, and Chiang (2013) have discovered that self-confidence attenuates the compromise effect and Simonson and Nowlis (2000) identified a significant influence of need for uniqueness on compromise behavior. While these studies provide important insights into the isolated effects of certain antecedents, attempts to integrate any of these findings, considering effects jointly or relative to one another, are scarce. In fact, the small number of studies that investigated antecedents simultaneously, focused on few main effects and largely neglected potential moderating or mediating effects.

The present paper addresses this issue in a twofold manner. First, it conceptually connects influential contributions in context effect research from the past 25 years to set drivers and antecedents of the compromise effect that have been tested or theoretically discussed elsewhere in isolation, in perspective to one another. Second, it empirically tests how these antecedents tie in with one another on a more individual level using structural equation modeling. In doing so, the present research also addresses recent criticism regarding the common practice to base context effect studies on averaged choice probabilities (Liew, Howe, & Little, 2016).

2. Theoretical background and hypotheses

The regularity principle (Luce, 1977) is a basic axiom of normative choice theory. According to the regularity principle, the addition of a new option should not cause an increase of the choice probability for one of the existing options. Similarly, the independence of irrelevant alternatives axiom (Huber & Puto, 1983; Luce, 1959) postulates that adding a new option should not change the preference relation between the original set of options.

However, context effects like the compromise effect violate these assumptions (Huber, Payne, & Puto, 1982; Simonson, 1989). Compromise behavior arises from a common dilemma: consumers who face a purchase decision often have to trade off product attributes that compete with one another, for example, high quality and a low price. The compromise effect marks the observation that consumers, who are experiencing such a conflict between attributes, often solve it by choosing a choice option that takes the position of a compromise between other, more extreme alternatives (Simonson, 1989). Figure E1 illustrates this effect using the attributes price and quality. Here, a cheap choice alternative is positioned as a low-tier option (L) at one end of the product space opposite a high-tier option (H) of high quality at the other end. A third option (M) is located between the two in terms of price and quality and thus takes a compromise position.

The following sections contain the elaboration of several relevant antecedents and drivers of compromise behavior. Figure E2 summarizes the resulting hypotheses.

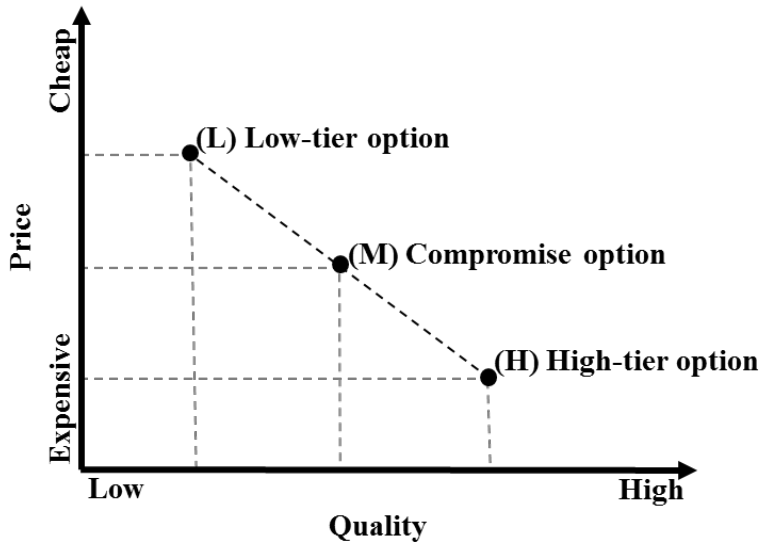


Figure E 1: Illustration of the compromise effect

2.1 Loss aversion and the compromise effect

Customers who prefer compromise options typically seek to avoid losses (Chuang et al., 2013; Simonson, 1989; Simonson & Tversky, 1992). This assumption follows prospect theory, which states that losses weigh heavier than gains in decision-making (Kahneman & Tversky, 1979). Sheng, Parker, and Nakamoto (2005) argue that individuals rate choice options based on the value and performance a chosen option delivers relative to other alternatives. If in retrospect an option that was not chosen proves to be superior, consumers perceive forgoing this option as a loss. To illustrate why this loss is always smaller when choosing a compromise option, consider Figure E1 again. When choosing, for instance, a low-tier option (L), the potential loss equals the distance from the low tier option to the high tier option (H) in case the latter turns out to provide greater value. On the other hand, when choosing the compromise option, the loss is limited to the shorter distance between (M) and either extreme option, irrespective of which option delivers the greater value in retrospect. In consequence, a compromise option is appealing to customers who are uncertain about the value of product attributes, because a compromise minimizes the potential loss. In showing how loss aversion motivates compromise behavior, Sheng et al.'s (2005) reasoning addresses the motivational core of compromise behavior. Loss aversion is therefore particularly deserving of renewed evaluation relative to other drivers of the compromise effect. Accordingly the present paper's first hypothesis is:

> H1: The greater individual loss aversion, the more pronounced the compromise effect will be.

2.2 Regulatory focus and the compromise effect

Regulatory focus introduces a motivational component to the hedonic principle of avoiding pain and approaching pleasure (Higgins, 1997). Two regulatory foci can be identified: prevention and promotion focus. Under promotion focus, individuals are motivated by meeting goals aligned with matters of advancement, growth, and accomplishment. Adversely, under prevention focus, motivational goals align with safety and responsibility or more broadly, the desire to avoid mismatches to a desired outcome (Crowe & Higgins, 1997; Higgins, 1997). Such a mismatch can come in the shape of a poor consumption decision and the ensuing losses. This makes prevention focus appealing for compromise research. Specifically, the greater prioritization of loss avoidance under prevention focus, acts as a motivational force behind compromise behavior. A compromise option offers a choice alternative that minimizes the potential loss associated with extreme options, and

therefore serves the prevention goal. As a behavioral outcome of prevention focus, the compromise effect can be expected to be made more salient by prevention orientation; furthermore, prevention focus is a potential mediator for loss aversion. Contrarily, promotion focus may let individuals seek extreme options to match the desired end state aligned with their accomplishment goals – to have a chance to truly achieve their individually ideal outcome instead of a second best result with a compromise option. Mourali et al. (2007) and Ryu et al. (2014) shed light on this direct effect of regulatory focus on compromise behavior. Specifically, these author groups showed that subjects with a prevention focus had a greater tendency to choose a compromise option than individuals who had been primed for a promotion focus. Due to the non-exclusive nature of regulatory focus, the parallel evaluation of prevention and promotion focus's impact on the compromise effect in the context of a structural equation model seems particularly worthwhile.

H2a: The compromise effect becomes more pronounced under a prevention focus.

H2b: The positive effect of loss aversion on the magnitude of the compromise effect is mediated by prevention focus.

H3: The compromise effect becomes diminished under a promotion focus.

2.3 Knowing oneself and knowing the product: expertise and need for cognition in the compromise effect context

Product knowledge has repeatedly been brought up as a potential driver of varying context effects (Mishra, Umesh, & Stem, 1993; Ratneshwar, Shocker, & Stewart, 1987; Sheng et al., 2005). While the compromise effect is the result of contextual cues affecting a consumption decision, knowledge diminishes the very necessity to use context and relative product evaluation to determine which product to choose (Simonson, 2008). Individuals with a strong expertise in a product category are less affected by external factors, but instead use their knowledge regarding what attributes provide them with the greatest benefit to guide their decision-making (Alba & Hutchinson, 1987). In sum, expert customers' clarity regarding their own preferences allows them to identify preference-congruent choice options more easily and rely less on context (Sheng et al., 2005).

Hence,

H4: Expertise in a product class has a negative impact on the compromise effect

A plethora of research shows the influence of contextual cues on the construction of preferences (Simonson, 2008). While preferences can be constructive in nature (i.e., they are formed at the moment a decision situation arises), this does not contradict the existence of stable, inherent preferences that relate to personal goals (Drolet et al., 2009; Simonson, 2008). Rather, it forces the question of when stable, existing preferences guide consumption decisions and when preferences are determined by context. A number of studies have shed light on how the ability or inability to reflect on stable preferences in a decision situation, might affect the compromise effect as an example of preference construction (Lin, Sun, Chuang, & Su, 2008; Pettibone, 2012; Pocheptsova, Amir, Dhar, & Baumeister, 2009). Their findings are unanimously suggesting that compromise effects become more prominent when the ability to consider one's true preferences is somehow hindered, for instance under mental load (e.g., time pressure) or mental exhaustion. Drolet et al. (2009) pinpoint a second, largely overlook facet: motivation. They propose that whether a consumption decision is driven by context or inherent preferences is equally affected by a decider's ability, as by the propensity to reflect on personal goals. In a number of studies they thoroughly investigate the relevance of need for cognition, that is, the joy of engaging in mentally effortful tasks (Cacioppo & Petty, 1982), in compromise set-ups. They show that an individual's need for cognition and the liberty to act upon that need interact in accessing stable preferences. Interestingly, they find that depending on the combination of motivation and ability, the compromise effect can be moderated positively or negatively. Surprisingly, there are no further studies that have applied these findings to any of the other antecedents and drivers of context effects. The present study expects to replicate Drolet et al.'s (2009) finding of a diminishing effect of need for cognition on the compromise effect in conditions baring mental load and subsequently expands the effect to further applications:

H5a: High need for cognition diminishes the compromise effect.

Hypotheses 2a and 3, express the assumption that the direction of an individual's regulatory focus can increase or diminish the compromise effect. While promotion goals favor extreme options, prevention goals motivate a greater preference for a compromise option. It seems

plausible, that the propensity to reflect on one's stable preferences in a decision situation would also support a more ready application of preferences stemming from regulatory focus. Thus,

> H5b: Need for cognition moderates the effect of regulatory focus on the compromise effect.

As detailed above, product class expertise increases an individual's ability to process information and understand which product best satisfies that person's needs and matches his or her preferences (Alba & Hutchinson, 1987). Need for cognition impacts consumption decisions similarly, indicating propensity to think about which choice option best fits one's actual preferences instead of following the bread crumb route of contextual clues. Analogous to Drolet et al.'s (2009) findings on the interaction of need for cognition as a motivational component and mental load as an indicator of the ability to access stable preferences, an interaction of need for cognition and product class expertise can be expected. If the individual expertise generally enables a decision-maker to identify which product best serves his or her needs, it still depends on that person's willingness to exert any cognitive effort to actually do so when a consumption decision arises. A high need for cognition therefore further enables preference-guided decision-making and diminishes the compromise effect. A low need for cognition limits the use of existing expertise, in consequence leading to a greater probability of compromise behavior.

> H5c: Need for cognition positively moderates the effect of expertise on the compromise effect.

Figure E2 provides an overview over the hypothesized effects and thus visualizes the conceptualized interaction between drivers of compromise behavior.

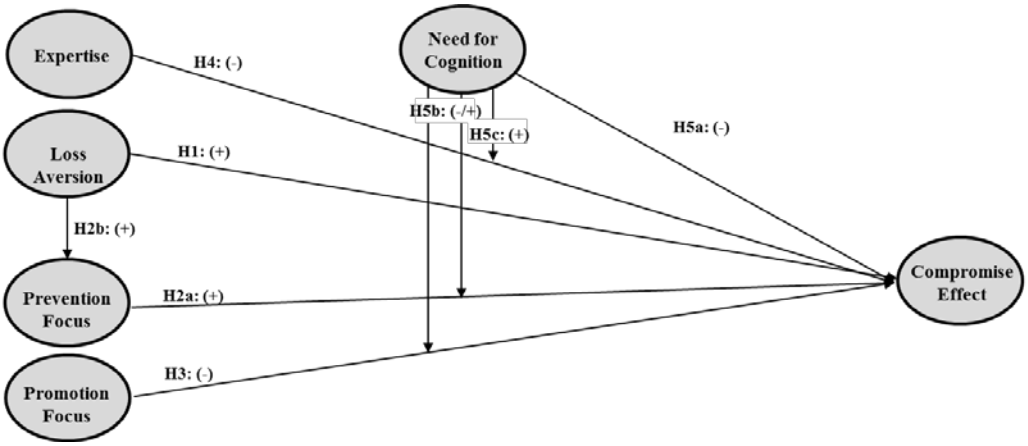


Figure E 2: Conceptual model and hypotheses

3. Methodology

3.1 Sample, study design and stimuli

The data for the present study was acquired via a Qualtrics panel of English-speaking U.S. residents. The total sample consisted of 207 participants of whom 69 were male and 138 were female. With a mean age of 40-44 years, the youngest participants belonged to the age group 25-29, while the oldest participants were 65-69 years old.

Each participant of the study completed a 20-25 minute online survey. Upon completing a set of screening questions regarding the relevance of the products used in the survey, every participant was shown four product sets consisting of two options each. Participants were asked to indicate their preference for both options. Next, participants answered an array of self-report scales to assess the psychometric properties of interest for this study. Finally every participant was asked again to express preferences for the products, this time from product sets that had been extended by a high-tier option. This within-subject study design allows for an analysis of preference shifts based on the proposed antecedents and drivers of the compromise effect. The specific order of preference tasks and psychometric scales was selected to limit consistency response bias (Peer & Gamliel, 2011); participant's desire to remain consistent in their product evaluation, which would artificially diminish the compromise effect.

Four product groups were included in the study: electric toothbrushes, over-ear headphones, peanut butter, and marinara sauce (Appendix E I). This product choice reflects the observation of varying effect sizes for fast-moving consumer goods (FMCG) and durable

goods (Lichters, Brunnlieb et al., 2016; Müller et al., 2010; Müller, Kroll, & Vogt, 2012). Both durable product groups have previously been used successfully in context effect studies (Lichters, Brunnlieb et al., 2016; Lichters, Müller et al., 2016; Ryu et al., 2014). FMCG products were chosen to reflect realistic, contemporary purchases. All products were presented to participants in the form of color photographs alongside a description of the most relevant product attributes and the retail price. Following the nature of the products this resulted in product descriptions ranging from rich product descriptions (e.g., electric toothbrushes: brush heads included in package, rotation speed, pulsation speed, battery-life, cleaning programs, consumer rating and price) to brief product descriptions (marinara sauce: brand name, quality indication, weight and price) to pay tribute to potential moderating effects (Simonson, 2014).

3.2 Measures

To operationalize the compromise effect, the present study used a constant sum scale (Hauser & Shugan, 1980; Mishra et al., 1993) and asked individuals to distribute 100 preference points among the product options in every choice set according to how much they leaned toward each option. Shifts in preference points between choice sets were then used to identify compromise behavior (Mishra et al., 1993). The constant sum approach was chosen to allow for a variance based analysis of antecedents' impact on the compromise effect.

Need for cognition was measured using the well-established scale introduced by Cacioppo and Petty (1982). Measures for product class expertise were adopted from Mishra et al. (1993). Regulatory focus was assessed using the newly developed scale by Sassenberg, Ellemers, and Scheepers (2012) to avoid internal consistency problems related to earlier iterations of the Regulatory Focus Questionnaire (Sassenberg et al., 2012). Loss aversion was measured via a coin-toss lottery with increasing wagers and constant pay-offs (Fehr & Goette, 2007; Gächter, Johnson, & Herrmann, 2007) that was converted into a single-item measure indicating the maximum wager (potential loss) the subject was willing to accept.

4. Analyses and Results

4.1 Preliminary Analysis and Analysis of the Compromise Effect

First the success of the stimulus design was assessed. In order to observe compromise behavior, the high-, medium, and low-tier options have to be perceived as such. For this purpose, participants were asked to indicate how they perceived each choice option with

respect to the general attributes of quality (semantic differential: low - high), and price (cheap - expensive). The results indicated a successful stimulus design. All manipulations of price perception were significantly ($\alpha = 0.01$) different from one another in the expected direction that is, survey participants perceived products that were used for the low-tier option as cheaper than the compromise option, which in turn was perceived as cheaper than the high-tier option. For the quality attribute, the manipulation controls indicate the same ascending order with all three choice options being significantly ($\alpha = 0.01$) different form one another. The stimuli were therefore fit to induce compromise behavior.

Following Mishra et al.'s (1993) approach to measuring context effects, the present paper identifies the compromise effect as a violation of proportionality; the assumption that a choice option should lose proportionally to its previous choice share if a new choice option is introduced (Luce, 1959). In the present study the principle is applied to preference point shares and a compromise effect is therefore observed, if the share of preference points captured by the compromise option deviates positively from the expected share of preference points based on its share in the two-product set-up. In the present research only headphones showed a significant (p= 0.48) compromise effect with a mean proportion change of 2.5%.

Apparent difficulties in understanding the instructions for the coin-toss lottery that was used to measure loss aversion forced a reduction of the sample for all analyses that involved this driver as part of a model, and thus the following chapter to n=169.

4.2 Model estimation and results

Because preliminary analyses indicated the violation of distribution assumptions for several of the construct scales and the goal of the present research is the identification of drivers, and the extension of previously identified driver structures, this study employed PLS-SEM instead of CB-SEM (Hair, Ringle, & Sarstedt, 2011). The present study made use of the statistical software SmartPLS (Ringle et al. 2015) and followed the procedures for model assessment proposed by Hair, Hult, Ringle, and Sarstedt (2017). Since the multi-item measures used in the present study are well established in literature and designed to reflect the latent variable they represent, they are treated as reflective measurement models in the context of PLS-SEM.

The first step in the assessment of a model with reflective measures is to evaluate internal consistency reliability. With the exception of the *prevention focus* scale, which denoted a

value of 0.504, all scales showed composite reliability values above the threshold of 0.7. Cronbach's alphas resemble these results with all values lying above 0.7, except for prevention focus (Cronbach's alpha = 0.571). To investigate the scales' convergent validity, one considers the constructs' average variance extracted (AVE). Here, values of above 0.5 are typically viewed as appropriate. In the present study the construct *product class expertise* met this criterion. However, *need for cognition* and both *regulatory focus* scales showed low AVE values. This indicates that several items deviated from the construct they were expected to measure. Additionally performed exploratory factor analyses indicated that with the exception of *product class expertise* none of the scales resulted in a single factor measure in spite of the underlying theory. Considered in detail, the results suggest this might partially be due to a method issue: The scales for *need for cognition* and *prevention focus* employed negatively worded items, a common practice to avoid common method bias (DeVellis, 2011). However, the exploratory factor analyses resulted in one factor that contained all positively worded items, and another that contained all negatively worded items of the *need for cognition* and *prevention focus* scales. A possible explanation for the poor performance of the measurement model might therefore be the occurrence of a second factor as an artifact resulting from the item wording: In an effort to reduce common method bias, artificial variance was introduced (DeVellis, 2011; Spector, Van Katwyk, Brannick, & Chen, 1997). Taking this in to consideration, the analysis was continued with a reduced set of items for these scales, omitting negatively worded items from the analysis and acknowledging that all results reported hereafter have to be viewed with great caution as the multi-item measures employed now deviated greatly from the versions previously validated in literature. This limits the interpretation of the empirical results greatly.

After eliminating negatively worded items, composite reliability values for *need for cognition* remained at a satisfactory level while convergent validity improved beyond the necessary threshold. However, in the case of *prevention focus* both values remained low. Since adjustments in the scale showed no improvement, the construct was dropped altogether from further analysis. Of the remaining constructs, all reached the threshold values for internal consistency reliability and convergent validity. The next step in the analysis of a measurement model is the assessment of discriminant validity. According to Hair et al. (2017) and Henseler, Ringle, and Sarstedt (2015), the Heterotrait-Monotrait ratio (HTMT) is the appropriate measure due to its greater reliability compared with other methods like the Fornell-Larcker criterion or cross loadings. In the present study all values

for the HTMT statistic remained below the maximum of 0.85 and were significantly different from 1, indicating discriminant validity for the remaining constructs. After evaluating reliability and validity of the measurement model, the structural model can be assessed. Collinearity was not an issue, as all values remained below the threshold of 5 for the variance inflation factor (VIF). The assessment of the path model resulted in the finding that none of the hypothesized paths were statistically significant, although it seems noteworthy that the nearly significant constructs *loss aversion* (0.09, p = 0.119) and *need for cognition* (-0.160, p = 0.102) showed the expected effect direction (further details in Table E1).

Construct (Driver)	**Coefficient**	**S.D.**	**t-Statistic**	**p-Values**
Expertise	-0.076	0.109	0.700	0.242
Loss Aversion	0.090	0.076	1.180	0.119
Need For Cognition	-0.160	0.126	1.272	0.102
Promotion Focus	-0.092	0.165	0.558	0.289
Need for Cognition*Promotion	0.133	0.154	0.864	0.194
Need For Cognition*Expertise	-0.004	0.104	0.038	0.485

Table E 1: Effect overview of drivers the compromise effect; dependent variable: compromise effect (headphone preference); R^2=0.053

5. Discussion

Previous research identified numerous antecedents of compromise behavior. However, the vast majority of these antecedents were examined in isolation from one another. This study critically reviews several known antecedents of the compromise effect and empirically examines their relative direct and combined impact on the compromise effect when included in a single model.

In tasks measuring preferences for products in four product categories, the aim was to replicate the compromise effect in various conditions (Lichters, Müller et al., 2016). In spite of successful stimuli design, only one statistically significant compromise effect with a small total effect size was recorded for the product category of headphones. A possible explanation for the low compromise preference might lie in the strong prior preferences for high quality within the sample: $Mean_{TB} = 4{,}06,; Mean_{HP} = 4{,}24;\ Mean_{PB} = 4{,}43;\ Mean_{MS} = 4{,}33$ on a 6-point scale anchored as “I only paid attention to the price (1)” and “I only paid attention to the quality (6)”. Huber, Payne, and Puto (2014) point out, that

strong preferences may diminish context effects. With only one significant compromise effect resulting from the sample, the subsequent analysis of drivers and antecedents using PLS-SEM, resulted exclusively from this product category.

The assessment of the measurement model, prior to the path analysis, indicated several issues that affected the subsequent findings. The scales used to assess *need for cognition*, *promotion* and *prevention focus* proved problematic. While, with the exception of *prevention focus*, all scales showed sufficient reliability, all three measurement tools initially performed poorly with respect to validity tests. The low shared variance among items within their respective construct was attributed to the occurrence of a method bias. By removing negatively worded items, the issues with the *need for cognition* and *prevention focus* scale were remedied, however, the performance of the *prevention focus* scale could not be improved and it had to be omitted in subsequent analyses. Pre-tests conducted in German indicated problems similar to those found in the present study with regard to the measurement tools employed. The present study is therefore a first effort to rule out culture and language induced bias as an explanation for poor measurement results. As the problems persist in near-identical from, the cultural component seems to be negligible here, rather the present findings suggest the need to review established measurement scales in general in future research.

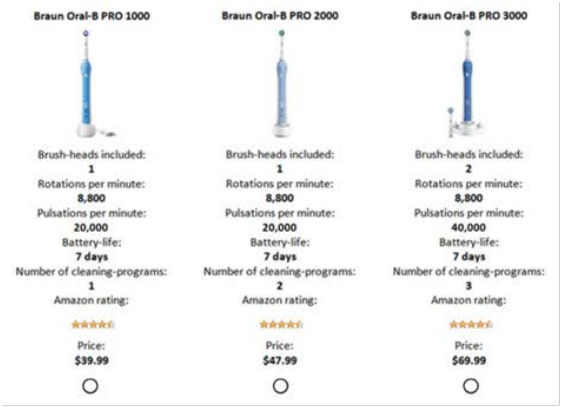
With one scale omitted due to reliability and validity issues and others greatly altered from their original form, the potential findings of the present study were cut short in general. The PLS-SEM analysis resulted in no significant paths for any of the posted hypotheses. Since the present research paper is founded on previous observations in the field of context effect research, the results of the analysis may in part be attributable to the small size of the mean compromise effect and little variance in the present study, possibly a consequence of strong prior preferences (Huber et al., 2014). Since the scales used to assess the hypothesized antecedents of the compromise effect had to be greatly altered from their original from, presently, little can be concluded from the lack of support for the hypothesized relationships, as the shortened scales might suffer from insufficient construct validity (DeVellis, 2011), i.e. the scales might have lost the ability to collect information crucial to the intended construct along with the deleted items.

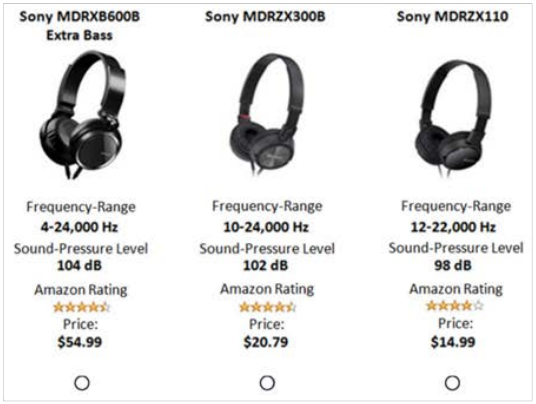
With only one statistically significant compromise effect of small size to begin with and the poor performance of the measurement scales that were employed, implications for research

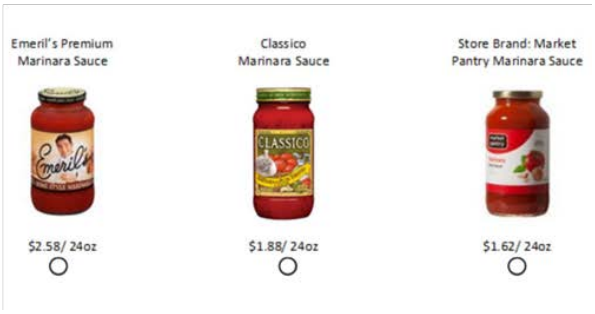
are broad with respect to measurement research, highlighting the need for a review of measurement scales. However, the implications concerning the intended subject of this study are limited. With regard to the drivers and antecedents of compromise effects, only conceptual links could be established successfully. The empirical analysis of the relative impact of individual drivers and potential interaction between them falls short of generating empirical evidence for the hypothesized effects in consequence of the problems in the measurement of the relevant constructs.

Appendix E

Appendix E I







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Victor Schliwa