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THE MEANING OF TIME

HOW TIME INFORMATION DRIVES VALUE, SOCIAL, AND EMOTIONAL JUDGMENTS

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TABLE OF CONTENTS

List of tables 8
List of figures 9
English Summary 11
Nederlands Samenvatting 14

CHAPTER I. INTRODUCTION 17

1. Time information 18

2. Inference-making 19

3. Time information cues 23
    3.1. Time-points and time sequence. 23
    3.2. Duration 26
4. Dissertation outline 30

CHAPTER II.THE LATE-ACTION BIAS: CLOSENESS TO A FINAL OUTCOME INCREASES PERCEIVED ACTION IMPACT 32

1. Introduction 33

2. Methods and results 35

    2.1. Study 1 35
        2.1.1. Method 36
        2.1.2. Results 36

    2..2. Study 2 38
        2.2.1. Method 39
        2.2.2. Results 39

    2.3. Study 3 40
        2.3.1. Method 40
        2.3.2. Results 41

    2.4. Study 4 42
        2.4.1. Method 42
        2.4.2. Results 43

3. General discussion 45

CHAPTER III. STATUS, FAST AND SLOW 48

1. Introduction 49

2. Theoretical background 52
    2.1. Response time 52
    2.2. Status-signaling 54

2.3. Dominance and prestige paths to status 54
2.4. Process evidence: why self vs. other orientation signals status 56
3. Methods and results 58

3.1. Study 1A 59

3.1.1. Methods 59
3.1.2. Results and discussion 60

3.2. Study 1B 60
3.2.1. Methods 60
3.2.2. Results 61

3.3. Study 2 62
3.3.1. Methods 62
3.3.2. Results 63
3.3.3. Conclusion 64

3.4. Study 3 65
3.4.1. Methods 66
3.4.2. Results 63

3.5. Study 4A 68
3.5.1. Methods 68
3.5.2. Results 69

3.6. Study 4B 71
3.6.1. Methods 71
3.6.2. Results 72

4. General discussion 74

CHAPTER IV: NEGATIVE EMOTIONAL EFFECTS OF EFFORT INFORMATION 78

1. Introduction 82

2. Theoretical background 83
2.1. Product mood and consumer mood 83
2.2. Mood and effort 83

3. Study overview 85

4. Methods and Results 88

4.1. Study 1 88
4.1.1. Methods 88
4.1.2. Results 89
4.1.3. Discussion 96

4.5. Study 2 99
4.5.1. Methods 99
4.5.2. Results 100
4.5.3. Conclusion 101

4.6. Study 3A-3C 102

4.7. Study 3A 103
4.7.1. Methods and results 103
4.7.2. Discussion 103

4.8. Study 3B 104
4.8.1. Results 105
4.8.2. Conclusion 106

4.9. Study 3C 106
4.9.1. Methods 106
4.9.2. Results 107

5. General discussion 109

6. Appendix 112

CHAPTER V: CONCLUSION, CONTRIBUTIONS, AND FUTURE RESEARCH 116

1. Recapitulation of findings 117

2. Theoretical implication 119

3. Practical contribution 121

4. Limitations and future research 123

5. References 125

LIST OF TABLES

Chapter II - Late- action bias

TABLE 2.1 - *Combined results of Study 1 and 2.* **36**

Chapter IV - Negative emotional effects of effort information

TABLE 4.1 – *Study overview, Chapter IV* **87**

TABLE 4.2 – *Ratings sequence, Study 1.* **89**

TABLE 4.3 - *Perceived Mood valence of cultural products, Study 3A.* **103**

TABLE 4.4 - *Perceived production effort of cultural products, Study 3A.* **103**

Appendix

TABLE 4.5. - *Results of Study 2 – Manual condition.* **113**

TABLE 4.6. - *Results of Study 2 – Novel condition.* **114**

LIST OF FIGURES

Chapter I - Introduction

FIGURE 1.1. *Wason's task.* **21**

FIGURE 1.2. *Adapted Wason's task.* **22**

Chapter II – Late- action bias

FIGURE 2.1. *Results of Study 3.* **42**

FIGURE 2.2. *Results of Study 4.* **43**

Chapter IV – Negative emotional effects of effort information

FIGURE 4.1. *Effect of mood consideration sequence on choice, Study 1* **90**

FIGURE 4.2. *Effect of mood consideration on WTB, Study 1* **91**

FIGURE 4.3. *Effect of mood consideration on Quality, Study 1.* **91**

FIGURE 4.4. *Effect of mood consideration on Author's mood, Study 1* **93**

FIGURE 4.5. *Effect of mood consideration on Consumer anticipated mood.* **94**

FIGURE 4.6. *Serial mediating effect of Sequence, Author's Mood, Consumer's Mood, and Product Quality on WTB, Study 1.* **95**

FIGURE 4.7. *Serial mediating effect of Sequence, Author's Mood, Consumer's Mood, and Product Quality on Choice, Study 1.* **96**

FIGURE 4.8. *Sequential mediation analysis, Study 2.* **101**

FIGURE 4.9. *Sequential mediation, Study 3C.* **108**

ENGLISH SUMMARY

People use time information on a daily basis. For instance, they are always confronted with response times (e.g., how long it took for a company to respond to your job application), often think about effort in terms of time (e.g., how long it took for a student to study for an exam), and can easily tell which action followed the other one (e.g., which company was the first one to come up with a radically new product). In this dissertation, I investigate how people use time information to make sense of the world around them and give meaning to their action, other people's actions, and product features. People continuously use information they have to guess information they do not have but desire to obtain or need. While this sometimes leads them astray, it is a fundamental mechanism of human psychology. I draw my hypotheses from research in social psychology, cognitive psychology and consumer behavior. By using principles from these literatures, I aim to shed light on how people make sense of the world based on time information.

In Chapter II, "Late- Action Bias", I aim to show that people use time-point information – when in an event a particular action took place – to judge both its value and its impact on the outcome. While previous research shows that people privilege actions and experiences that come first, I show that actions that come closer to the end of an experience are preferred and more likely to be chosen – sometimes over normatively dominating options. Across four studies and several domains, I show that people are biased towards later actions because they have the illusion that they have a bigger impact on the final outcome. Time information, in this case, drives preference and impact perceptions.

In Chapter III, "Status, fast and slow", I study Decision time as an independent variable. While previous research mostly focuses on the negative consequences of slower decision times, I show that slower decision times lead observers to believe that the decision-maker has

higher status. In Study 1A and 1B I show the main effect and exclude Busyness as an alternative explanation. In Study 2 I show that when Status is already clear from the situation, people cease to use response time as a status cue. In Study 3 I show that reflecting on Status makes participants more likely to choose slower decision makers. In Study 4A and 4B I investigate the mediating role of Self-orientation on perceptions of Status and I investigate its spillover to entities related to the respondent. In Chapter III, therefore, I elaborate a view of response time as a signal of status, which people decode when they do not have status information.

In Chapter IV, "Negative emotional effects of effort information", I study effort information as time information. Whereas extant literature focuses on the positive marketing effects of effort information on product perception, I show that effort information leads consumers to forecast themselves into worse mood valence post-consumption. This effect is sequentially driven by perceptions of author mood valence and product mood valence. In studies 1A through 1D, I show that consumer believe that products that took longer to make are sadder. In study 2, I show that this is cause by inferences that consumers make about the author mood during the production process and leads consumers to forecast themselves in a worse mood post-consumption. In studies 3A through 3C, I show that in the case of cultural products, product length is an antecedent of perceived effort and leads to inferences of more negative mood valence, more negative product valence and more negative post-consumption consumer valence.

In summary, using insights from literature on social psychology, cognitive psychology, and consumer behavior, this dissertation aims to provide a clearer picture of the many ways in which people use time information to make sense of the world through inference-making. In three essays, I aim to advance knowledge regarding how people make evaluations, decisions

and inferences on other people and products based on the time information they have at their disposal.

NEDERLANDSE SAMENVATTING

Tijd vormt een dagdagelijkse informatiebron voor mensen. Zo worden we voortdurend geconfronteerd met reactietijden (bv., responstijd van een bedrijf op een sollicitatie) of denken we aan de benodigde tijd om een taak te voltooien (bv., voorbereidingstijd voor een examen). Daarnaast kunnen we ook makkelijk inschatten welke acties op elkaar volgen (bv., welk bedrijf het eerste een innovatief product op de markt bracht). In dit proefschrift onderzoek ik hoe mensen informatie over tijd gebruiken om de wereld om hen heen te begrijpen en betekenis te geven aan hun eigen acties, de acties van anderen en producteigenschappen. Mensen gebruiken voortdurend de informatie die ze bezitten om zaken in te schatten die ze niet weten, maar wel te weten willen komen of nodig hebben. Hoewel dit hen soms op een dwaalspoor brengt, is het een fundamenteel mechanisme van de menselijke psychologie. Bijgevolg leid ik mijn hypotheses af uit onderzoek in de sociale psychologie, cognitieve psychologie en consumentengedrag. Door principes uit deze literatuur toe te passen, wil dit proefschrift verduidelijken hoe mensen informatie over tijd gebruiken om de wereld te begrijpen.

In Chapter II, “Late- Action Bias”, toon ik aan dat mensen de verkeerde opvatting hebben dat acties – die dichter bij het eind van een gebeurtenis plaatsvinden – meer impact hebben dan acties die vroeger plaatsvinden.

Hoewel uit eerder onderzoek blijkt dat mensen een voorkeur hebben voor acties en ervaringen die aan het begin van een gebeurtenis plaatsvinden, toont deze studie dat acties naar het einde toe van een gebeurtenis de voorkeur genieten en vaker gekozen worden, soms zelfs over andere dominerende opties. Aan de hand van vier studies en literatuur uit verschillende domeinen, toon ik aan dat mensen geneigd zijn tot acties die later plaatsvinden in een gebeurtenis, omdat ze de illusie hebben dat deze acties een grotere impact hebben op de

uiteindelijke uitkomst. In dit geval heeft informatie over tijd dus een impact op perceptie en voorkeuren.

In hoofdstuk III, "Status, fast and slow", bestudeer ik beslissingstijd als een onafhankelijke variabele. Hoewel eerder onderzoek voornamelijk gericht was op de negatieve gevolgen van langzamere beslissingstijden, laat ik zien dat tragere besluitvorming mensen laat geloven dat de beslisser een hogere status heeft. Studie 1A en 1B tonen dit effect aan en sluiten de alternatieve verklaring uit dat dit komt doordat de beslisser als iemand drukbezet wordt gepercipieerd. In Studie 2 laat ik zien dat wanneer het al duidelijk is dat de beslisser een hoge status heeft, mensen niet langer de responstijd als signaal voor status gebruiken. In Studie 3 laat ik zien dat mensen bewust maken van status ervoor zorgt dat ze meer kiezen voor langzame beslissingsnemers. In Studie 4A en 4B onderzoek ik de mediërende rol van zelfgerichtheid op percepties van status en onderzoek ik de overloop naar entiteiten gerelateerd aan de respondent. Zodus behandelt hoofdstuk III een weergave van responstijd als een signaal van status, waarop mensen zich baseren wanneer ze geen statusinformatie hebben.

In hoofdstuk IV, “Negative emotional effects of effort information”, onderzoek ik ‘inspanning’ als een bron van tijdsinformatie. Terwijl bestaande literatuur focust op de positieve marketingeffecten van inspanningsinformatie op productpercepties, laat ik zien dat inspanningsinformatie consumenten er ook toe kan aanzetten om voor zichzelf een negatievere gemoedstoestand na de consumptie te voorspellen. Inspanningsinformatie heeft namelijk een invloed op de percepties van de consument over de gemoedstoestand van de producent en dit op zijn beurt drijft de percepties van de consument over de gemoedstoestand van het product. In studie 1A tot en met studie 1D toon ik aan dat consumenten geloven dat producten die meer tijd vergen om vervaardigd te worden een negatieve gemoedstoestand hebben. In studie twee laat ik zien dat dit effect een gevolg is van de interpretatie van de

consument over de gemoedstoestand van de producent tijdens het productieproces. Deze interpretatie zorgt er op zijn beurt voor dat de consument een negatieve gemoedsstemming na consumptie bij zichzelf voorspelt. In studie 3A tot en met 3C laat ik zien dat - in het geval van culturele producten - de productgrootte gezien wordt als een symbool voor inspanning en dat deze bijgevolg kan leiden tot negatievere gemoedstoestanden, een lagere productwaarde en een slechtere gemoedstoestand bij de consument na consumptie.

Samengevat, met behulp van inzichten uit de literatuur over sociale psychologie, cognitieve psychologie en consumentengedrag, wil dit proefschrift een duidelijker beeld geven van de talrijke manieren waarop mensen tijdsinformatie gebruiken om de wereld te begrijpen door bepaalde inferenties te maken. Via drie essays probeer ik inzicht bij te dragen over hoe mensen evaluaties, beslissingen en inferenties maken over andere mensen en producten en dit op basis van de tijdsinformatie die ter beschikking is.

CHAPTER I. INTRODUCTION

CHAPTER I. INTRODUCTION

1. Time information

Time information is everywhere. Since you have started reading this sentence, *a few seconds* have passed. You will probably spend *a few hours* reading this dissertation. But if you decide to skim most parts, it should not take you *more than half an hour*. By the way, it took me *three and a half years* to run all the studies included here and write them up. It was not a bed of roses: *earlier* in my PhD I could not replicate some results in the literature. I wasted *almost a year* in these pointless efforts. *Later on,* I acquired better skills in evaluating the literature and my own work. This led me to ask more defined research questions and yielded more reliable results, which I *promptly* sent to my advisor and my other co-authors. Busy people, these co-authors: sometimes, it takes them *days* to reply. As you will realize while reading this work, this brief introduction includes all of themes related to time information that I am going to show. A lot of time information is just that: description of the amount of time it took to do something and the sequence of actions in time. Time information, however, can convey a lot more meaning than just time. I will make three examples.

1. “Microwave” Vinnie Johnson was a crucial part of the Detroit Pistons dominating NBA basketball in the late ‘80s. Some (me, mostly) feel that he never was given the credit he deserved. He never scored *decisive* buckets, since he did most of his scoring in the first two quarters of the game.

2. My friend Janine is texting a guy she likes. The guy is too slow to reply for Janine’s taste. Janine: “I hate him! He’s so slow to text me back. Who does he think he is?”

3. A student wishes to re-discuss his grade. You desperately want to avoid bad student reviews, so you give him the chance to redo the exam. The student asks: “How long is this going to take? I tend to feel empty and sad when I work more than one hour”.

In examples 1, 2, and 3, the general public, my friend Janine, and your student all used time information to make judgments that are *not* about time. The general public used time-points when “Microwave” Johnson was at its best to make judgments about its impact on games. My friend Janine used response speed to claim that the boy she likes thinks he’s a big deal. And your student justified his laziness by anticipating how he’ll feel after some effort.

In this dissertation, I study how people use time information to make judgments and form impressions that are not related to time. Time information conveys different meanings: value, emotional, and social. The aim of my work is to discover the mechanisms through which people and consumers make sense of the world through time information.

2. Inference-making

In this section, I wish to explain why people use time information as a cue for something else. First of all, people use these cues when they need to. They wish to know something about the state of the world, but they do not have the specific information they desire or are asked for. Therefore, they form impressions of missing information based on the information they have (Uleman, Adil Saribay, and Gonzalez 2008). This is not only the case of time information – which we will see in more detail later on. For instance, competence is a valued feature in politics (you would not want to elect a failed reality-show star for President), but people often do not know how competent candidates are. Therefore, people try to use information that they have to infer information that they value. This can have disturbing results when people try to judge how competent candidates are from their facial features - and then elect them based on these competence judgments (Todorov 2005). Inferences can be even more disturbing. Some groups – disadvantaged groups mostly, such as women, people of color, and homeless people

– are consistently associated with negative stereotypes (Fiske et al. 2002; Cuddy, Fiske, and Glick 2007). When people have to rate people coming from these social groups, they consistently rate them worse than advantaged groups on universal dimensions of competence and warmth. These examples involve inferences that people make based on immutable - or at least, hard to change - features (facial features, gender). But people also make inferences about other people based on behavior. When they do so, they tend to ascribe other people's actions to personal, stable factors rather than situational ones (Jones and Nisbett 1972). This is known as the actor-observer asymmetry because – when people are asked to explain their own actions – they typically resort to contextual explanations instead (Malle, Knobe, and Nelson 2007). In fact, people react pretty harshly to being stereotyped or judged – but are quick to stereotype and pass judgment on others (Smith 1984; Dweck, Chiu, and Hong 1995). When people react to other people stereotyping them, they often mention that others *could not know* and had *insufficient information* to form such judgments. Here lies the core of the question: people make inferences about other people because they do not have all the information they need. In this case, they do not have information relative to the internal state of the actor they observed.

Coming to time information, often people use it as a cue for something else because it is all they have. An important example is the effort heuristic (Kruger et al. 2004). When consumers buy products, they wish to know their quality. But quality is often hard to observe – especially with products that people do not know well. Therefore, people rely on *how much time* the product took to be produced in order to infer its quality.

Inference-making requires people to use imperfect signals that may violate (sometimes) logical principles of causation, dominance, and, in general, are imprecise (Nisbett et al. 1983). Inference-making is *correlational.* This means that, if A implies B, B also implies A. The attentive reader may have spotted the logical mistake in this sentence: it is called *affirming the*

consequent and it is one of the most famous logical fallacies. Other examples: if I have the flu, then I will have a sore throat. I have a sore throat. Does this mean I have the flu? Many people may be tempted to this conclusion, yet it is fallacious. Having a sore throat, in this example, is caused by the flu, but the flu could be just one of many possible causes of my sore throat. Yet, people often reason by affirming the consequent. One of the most famous experiments about this type of reasoning is the Wason task (Wason 1968; Wason and Shapiro 1971; Griggs and Cox 1982), illustrated in the figure below.

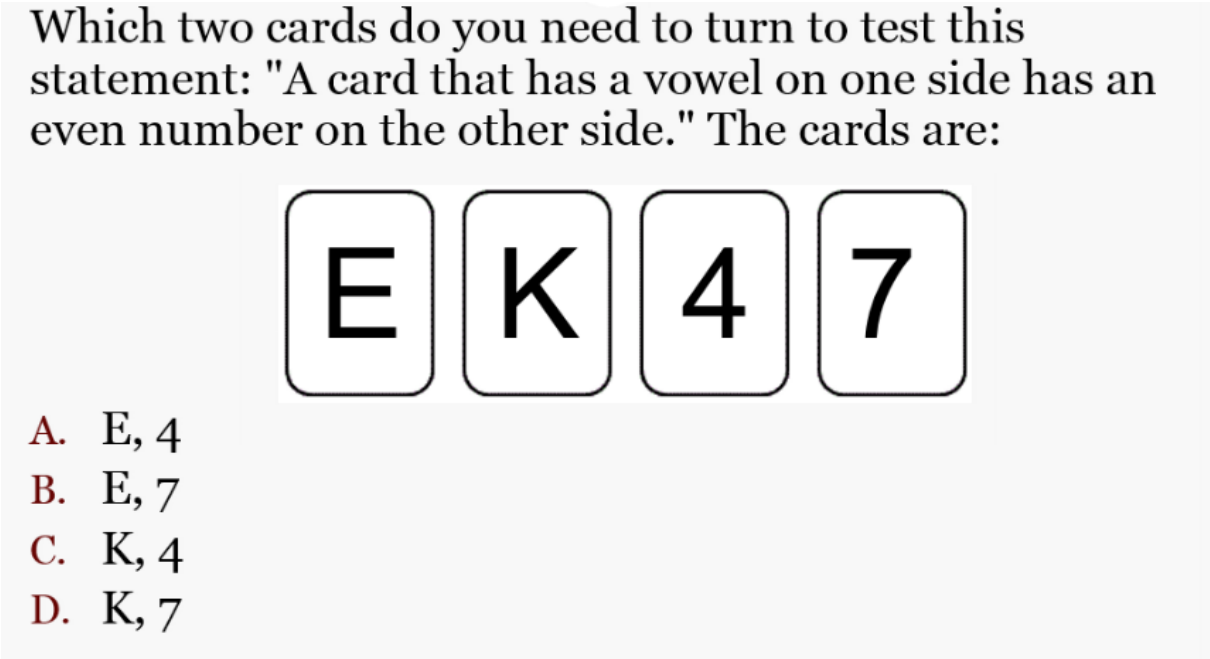

Figure 1.1. Wason's task

Intuitive answers are rather difficult here – about 10% of people choose the right one (Wason 1977). The only right one, which obeys the strict logic of this task, is option B. The reasoning, again, is rather unintuitive: only a card with *both* a vowel and an odd number can falsify the statement in Figure 1. The statement says nothing about the pairing of consonants with odd or even numbers – which is why it is not necessary to turn around the "K" card. The statement also says nothing about pairing with odd numbers – its *if…then* logic only applies to vowels and even numbers. That is why it is unnecessary to turn around the "4" card. Many

participants – including yours truly – are still puzzled at this explanation. However, Cosmides and Tooby (1992) propose an adapted version of Wason's task, centered around drinking age – shown in Figure 2. The statement to falsify here is: "If you are drinking alcohol, you must be over 18 years old". This task is equivalent to the Wason's task, but it has much higher rate of success – around 80% (Cosmides 1989; Cosmides and Tooby 1992): it is much more intuitive to understand that the cards that are needed to falsify the statement are "16" card and "Beer" card. Similarly to the task above, the statement says nothing about ages above 18 or non-alcoholic drinks.

Figure 1.2. Adapted Wason's task (Cosmides and Tooby 1992).

The striking differences in success rates between these two versions of the same task (10% vs. 80%) begs the question: who is wrong, people or psychologists? The Wason task and similar tasks are often portrayed as evidence that people are poor inference-makers and that they violate – early and often – the rules of logic inference (Wason 1968; Wason and Shapiro 1971). There is, however, a whole line of literature questioning whether people really are irrational. Its proponents question the realism of the proposed tasks and suggest that, in the real world, when things go together, they stay together. It is psychologists' tasks that are unrealistic (Gigerenzer and Brighton 2009; Brighton and Gigerenzer 2015): the Wason's task itself, if made more realistic, yields a much lower error rate: people understand it better and make fewer mistakes (Johnson-Laird, Legrenzi, and Legrenzi 1972; Cosmides 1989).

This controversy touches on an extremely thorny subject: are people rational or not? That is, are people able to make accurate and good decisions? I am not pretending that this work will settle this debate. But I will make one point. The ultimate genesis of many inferences is personal experience. This is not to say that all this information is accurate: individuals do show bias – to some extent - especially. I do make the point that, more often than not, people make ecologically rational decisions. These decisions may not tend to maximize expected utility or follow the rules of inferential logic, but they are useful to make sense of a complicated world with limited information, memory, and computational capacity. Inference-making is one of these mechanisms. While not very precise, it is still useful to people to understand other people and objects and navigate their everyday life. In Chapter III, I study a type of correlational inferences that people make about dispositional traits of other people – rather than situational traits. People think that other people – and institutions- that take longer to respond have higher status. This is a) an inference about missing information with present information, and b) a correlational inference. People have experience with higher status people and know that they tend to be more self-oriented and less other-oriented. This makes them more likely to be slower respondents. Therefore, when people observe longer decision times, they infer higher status. Although these inferences may not be *logically* valid, it may be *ecologically* valid. In this view, these inferences are means to get *satisficing* information rather than *maximizing* it (Simon 1957, 1979).

3. Time information cues

In this work I study two kinds of time information cues- and the time-unrelated information they transmit. To clarify, I study situations where people have access to time information – which is a cue for information of another type: value (Chapter II), status (Chapter III), mood (Chapter IV).

The first one is *position in time* (Chapter II). This type of time information is the time-point – within a larger period – in which an action happened. “Microwave” Johnson used to score in bunches between the second and the third quarter, but not in the last one. The second type of time information I study is *duration* information (Chapters III and IV). Duration information tells you *how long* a period of time was. Janine’s flirt took *4 hours* to reply to her text; it will take your student *1 hour* of exertion into the exam before he feels sad.

The aim of this section is to give the reader an overview of which time information cues people use, and how they use them to draw conclusions about products and other people. One thing must be kept in mind: consumers make inferences based on lay theories and their own experience (Molden and Dweck 2006). This combination allows them to make educated guesses about products and other people (Payne, Bettman, and Johnson 1986). These guesses may be often imprecise, yet they give people good enough information to navigate situation with incomplete and imperfect information (Gigerenzer and Brighton 2009).

3.1. Time-points and time sequence.

The arrow of time is unidirectional and clear: it goes from the past, to the present and the future. People perceive time differently when they are at each of these different time-points (Mogilner, Hershfield, and Aaker 2018) . The distinction is not fuzzy: people perceive themselves as *different* when they imagine themselves in the past or in the future, compared to the present (Klos, Weber, and Weber 2005; Hershfield et al. 2011). When they look back to the past, they have a rather clear idea of what came earlier or later, and the same goes for future events (Becker, Connolly, and Slaughter 2010) . That is, even within temporal windows that are temporally and psychologically distant, people have clear idea of the *time sequence* of events. This has marketing implications: consumers tend to prize pioneer companies that enter a market earlier rather than later (Carpenter and Nakamoto 1989). This means that consumers

use time-point cues (e.g., early-entrant versus late-entrant) and their sequence in time in order to make value judgments about companies and the products they sell. People typically prefer objects that are connected with earlier time-points. For instance, consumers show a preference towards idea originality as the engine of progress (Barron 1955). Other psychological processes could be driving "earlier is better" kind of lay theories. People have the lay belief that being in contact with something (an object or a person) can transfer its very essence to other people (Rozin, Millman, and Nemeroff 1986; Nemeroff and Rozin 1994). For instance, people show aversion to food touched but unspoiled by a cockroach, or to a sweater designed by an evil creator (Rozin et al. 1986; Stavrova et al. 2016). This "magical conviction" is called contagion (Rozin and Nemeroff 2002). Originally studied in non-Western populations (Hubert and Mauss 1902), belief in contagion seems to be a human universal (Rozin and Nemeroff 2002). It is possible to express contagion in temporal terms, as is the case of temporal contagion: consumers have the belief that products closer to the creator may be infused with the creator's essence: they show a preference for earlier serial numbers, an apparent cue of closeness – psychological rather than physical – to the creator (Smith, Newman, and Dhar 2016).

There is more evidence that *information processed earlier* can sway consumer judgment. Consumers like stimuli they processed first (songs and pictures) over very similar stimuli they happen to process later (Pandelaere, Millet, and Van den Bergh 2010). Similarly, laypeople prefer wines they tasted earlier compared to those they tasted later (Mantonakis et al. 2009). First things come first, but often are also best (Carney and Banaji 2012): people tend to prefer objects that they have encountered earlier. Information learned first has a bigger impact on behavior than information learnt later (Anderson 1965), even when it is framed as such (LeBoeuf, Williams, and Brenner 2014). But first is not always best. People seem to "save the best for last" (O'Brien and Ellsworth 2012), and when evaluating experiences retrospectively,

they overvalue what happened closer to the end (Kahneman et al. 1993). In sum, the literature shows that depending on the situation, people can display a preference from either early or late time-points.

In Chapter II, I show that people, when evaluating actions, display a late-action bias. That is, they would prefer to act closer to a final endpoint rather than earlier. This bias is driven by the mistaken belief that later actions have a bigger impact on the final outcome compared to earlier ones. I provide evidence of this bias across several environments – sports, business, everyday life. The word "bias" has a negative connotation, indicating the tendency to make decisions that are ultimately detrimental for the individual. The evidence we provide indicates that late-action bias may be detrimental for consumers in *risk* environments, where probability and information are known and specified, such as a basketball game. However, in an *uncertainty* environment, where neither events nor their probabilities are easy or even possible to forecast, this bias may not be a counterproductive strategy (Tversky and Fox 1995; May 2001).

3.2. Duration

The role of duration in the psychological perception of time has been belittled in psychological research. It may be that, in retrospect, duration has a smaller impact than people anticipate on the evaluation of experiences (Ariely and Carmon 2000; Ariely and Zakay 2001). What counts are extremely intense periods – of pain or excitement, for instance – and how the experience is going to end (Ariely and Carmon 2000). But duration is present everywhere in everyday life: while people may not be very accurate at estimating it and measuring it intuitively, they have a host of means that do this for them – clocks being the most evident examples. Having this information written down – and a benchmark to which people can compare it to – is extremely useful when trying to infer time-unrelated information from time-related information. In a purchasing setting, there may be several interesting but

unobservable features that consumers wish to know. However, time-related details may be known, and consumers will use time information to gauge product features. For instance, consumers make ample use of the "effort heuristic" (Kruger et al. 2004). Consumers, especially when the information they get is ambiguous and interpretable, tend to think that products that took longer are of higher quality. This effect it generalizes to different product types (art, memorabilia). Consumers subsequently reward higher quality with higher willingness-to-pay. Crucially, the way that the authors operationalize effort is "time spent producing the item". In this way, consumers interpret time information and translate it into a quality judgment. Time information of this type is likely to be influenced by "amateur production experience": consumers have first-hand experience of producing something through effort (e.g., an essay in school) and readily apply it when they judge products. This heuristic is "ecologically rational" (Todd and Gigerenzer 2007; Gigerenzer and Brighton 2009). While experimentally it is possible to vary the amount of effort and keep the product constant at the same time, in real life, effort does have a positive impact on quality. This heuristic, therefore, helps consumers make sense of the world in a rough-and-ready manner. Time spent is not the only effort cue used by marketers and in general, showing production effort has a positive effect: consumers like to see effort and prize higher-effort product.(Buell, Kim, & Tsay, 2016; Buell & Norton, 2011; Fuchs, Schreier, & Van Osselaer, 2015).

In Chapter III, I explore the downsides of effort information. While previous research (Kruger et al. 2004; Mohan, Buell, and John 2014; Buell et al. 2016) has shown that highlighting effort information is generally a positive cue for products, I show that effort information is a signal of negative mood valence. Consumers believe that they will feel in a more negative state after they consume a higher-effort product compared to a lower-effort one. This belief is driven by inferences of the author's mood during the production, which spill over to anticipated consumer's mood.

I study a second aspect of duration: response time. Recent research has investigated how people respond and react to response time. In interpersonal interactions – such as a salary negotiations – negotiators are more likely to accept faster offers and counteroffers (Calseyde, Keren, and Zeelenberg 2014). In general, people like faster responses better and are more likely to accept them. This is driven by lower perceptions of doubt: faster responses tend to be perceived as more sincere and thus are preferred- sometimes over normatively superior alternatives – in judgment and choice. This holds true for both observed and enacted decisions. When people are induced to delay their choices they are more likely to second-guess them and either postpone or change them (van de Ven, Gilovich, and Zeelenberg 2010). The reverse also happens – in a real-life example of correlational reasoning. People are more likely to postpone difficult choices, where they experience the highest degree of doubt (Krijnen, Zeelenberg, and Breugelmans 2015). Postponing choices to an undefined future can also have positive consequences for self-control. People that postpone temptation without specifying a timeframe are more likely to forgo temptation – in this way reducing the value of the tempting object and reducing, for instance, consumption of unhealthy foods (Mead and Patrick 2015). Why do people associate doubt and response speed, and why do they see it as negative when slower decisions come from other people? They may be relying on their own experience. Evidence from a series of economic games (Rand, Greene, and Nowak 2012) and a meta-analysis (Rand 2016) shows that a) slower decisions are both less cooperative, more greedy and less intuitive, and b) faster decisions are more likely to be unconditionally cooperative rather than strategically cooperative (i.e., less likely to be focused on expected payoff maximization and more likely to be economically harmful for the decider).

Faster responses are not unambiguously good: people believe that they tend to be less conflicted and thus less nuanced and more extreme – either positively or negatively (Evans, Dillon, and Rand 2015; Evans and van de Calseyde 2017). People also believe that faster

negative responses are more diagnostic of one's real inclinations, and therefore judge faster respondents more harshly on moral dimensions if they performed a hostile action, and more positively if they performed a cooperative one (Critcher, Inbar, and Pizarro 2013; Jordan et al. 2016).

In Chapter III, I explore the positive impact that slower response time has on status perceptions. I show that slower respondents are considered of higher status than faster respondents. I show that people believe that slower responders have lower competence and warmth – two fundamental dimensions of person perception - (Fiske et al. 2002), yet I propose that they consider them of higher status. This may sound puzzling to the reader: how can the same entities be considered simultaneously of high status and of low competence? Slower response time is a *dominance pathway* to status – based on clarifying hierarchies and behaving in a coercive way rather than helping others and being available. I show that competence is not a necessary condition for high status if people are willing to exert dominance on others – or at least, as in our case, perform actions that others identify as hostile (Henrich and Gil-White 2001; Cheng et al. 2013). In fact, hostility and dominance can be the pre-condition to status without any connection on competence, both in humans and other animals (Henrich and Gil-White 2001).

There is a point I wish to stress. A lot of previous research has investigated the subjective experience of time. This dissertation is fundamentally different. While this stream of research investigates how people perceive the passing of time (Varey and Kahneman 1992; Kahn, Ratner, and Kahneman 1997; Ariely and Zakay 2001) or how they perceive themselves in the future compared to the present (Wilson and Gilbert 2005; Quoidbach, Gilbert, and Wilson 2013), I study what people think of simultaneous time information attached to external objects. My dependent variables, moreover, are time-*related* concepts but never the subjective feeling of time itself.

4. Dissertation outline

I present three empirical chapters. In Chapter II, I show evidence of *Late-action bias.* People report that they would rather act towards the end of a time period. This bias is driven by the illusions that actions closer to the end of a time-point have a bigger impact on the final outcome. In Chapter III, I show that slower response time is a signal of status. Slower respondents are perceived of higher status. These perceptions are driven by the lower perceptions of Other-orientation that slower responses convey. In Chapter IV, I investigate how effort information affects consumers' anticipation of post-purchase mood valence. I show that people think that products that took more time to make – cultural products, which can convey emotional meaning – will make them feel sadder, post-consumption. This effect is driven by sequential inferences regarding the author's mood valence during production, and the product's mood.

A stylistic note: the introduction and the conclusion of this dissertation are written using the first singular person ("I"), while the empirical chapters use the first plural person ("We"). This is motivated by the will to reflect different authoring process – largely individual in Chapter I and V, and largely combined in Chapters II, III, and IV.

CHAPTER II. THE LATE-ACTION BIAS: CLOSENESS TO A FINAL OUTCOME INCREASES PERCEIVED ACTION IMPACT

CHAPTER II.THE LATE-ACTION BIAS: CLOSENESS TO A FINAL OUTCOME INCREASES PERCEIVED ACTION IMPACT

1. Introduction

Being early matters. People prefer pictures they see first over very similar pictures they see subsequently (Pandelaere, Millet, & Van den Bergh, 2010), wines they taste first over later tasted wines (Mantonakis et al. 2009), political candidates whose names appear first on the ballot (Koppell and Steen 2004) and companies that enter the market first over rivals that entered later (Carpenter and Nakamoto 1989). Information influences judgments more if it is first (Anderson 1965) or even framed as first (LeBoeuf et al. 2014) and early information tends to be better remembered than later information (Murdock, 1962). Even academic papers tend to be cited more when they appear earlier rather than later in a given issue (Berger 2016)

In spite of the existence of a ubiquitous first-is-best effect (Carney and Banaji 2012), the present paper shows that for actions, being later is better. Specifically, the present paper shows a late-action bias: People prefer to be involved in an action that is closer to an end-point than an objectively more impactful but earlier action. For instance, we find that people would prefer ending a game of basketball scoring a single point in the last minute than having scored two points at some prior moment in the game even though, from a normative point of view, the latter action had a larger impact on the outcome of the game. This suggests that temporal closeness to a final outcome affects perceptions of action impact.

Why would later actions be viewed as more impactful than earlier ones? We attribute this to the importance of changes in people's evaluations. For instance, a $5 discount is evaluated

more positively when it applies to a $25 items rather than a $125 one (Thaler 1980; Tversky and Kahneman 1981) and a 5-oz weight is more readily noticeable when added to another 5-oz weight rather than a 5-lbs weight (Thurstone 1927). People may similarly judge action impact by evaluating how much an action changes the observed outcome, compared to the state of the outcome at the time of the action. So, if one scores the first two points in a basketball game in which one's team wins 91-90, one has contributed 2 of the 91 points (2.2%). However, if one makes the last point in that same game, one has contributed the entire last point (100%). In general, outcomes may change a lot over time but are likely to change less over a short period of time than a longer one. If action impact is judged compared to the change in outcome it contributes to, from the time of the focal action to the end-point in time, later actions should be perceived to be more impactful. It is important to note that the late-action bias is not just observed in the context of a sports game. In fact, we observe this phenomenon for earnings, job performance evaluations and life-saving surgeries.

There is a stream of literature that connects causation (manipulated by telling participants that two events are causally related) with temporal distance: the more two events are perceived to be causally related, the shorter the temporal distance between them (Faro, Leclerc, and Hastie 2005; Faro, McGill, and Hastie 2010, 2013; Faro 2010). This stream of research makes the inverse observation that we make in this paper. While we argue that temporal distance is inversely related the impact of an event (e.g., a basket) on another (e.g., the outcome of the basketball game), this stream of research makes the argument that the impact of an event on another (either present – through causation – or not present – without causation) shrinks the temporal distance between them. In this sense, this works complements this stream of literature by making the opposite observation. Finally, while in real life causation and correlation are often conflated by observers – even by scientists (Rohrer 2017) – temporal contiguity is easily evaluable.

The overvaluation of the impact of late actions, compared to earlier ones, may reminisce the reader of research showing that near-end experiences have some special importance. For instance, a chocolate is evaluated better if it is the last in a series rather than just the next one (O'Brien and Ellsworth 2012) Moreover, near-end experiences are overweighed in the retrospective evaluation of an overall experience (Fredrickson and Kahneman 1993). However, such findings would not predict a preference for a late objectively less impactful action to an earlier objectively more impactful action. Late experiences may be evaluated better because when people know something is the last, they pay more attention to them or savor them more (O'Brien and Ellsworth 2012). Research on retrospective evaluations typically compare situations in which an experience ends well versus not so well (Ross and Simonson 1991; Kahneman et al. 1993) but does not compare the impact of a late moderately positive experience to an earlier more extremely positive one. This research stream is different from ours on two accounts. First, it mostly focuses on retrospective evaluations, while we focus on prospective evaluation. To the best of our knowledge, the only study in which participants may be asked to provide prospective evaluations of event sequences that of Varey and Kahneman (1992), where participants in Experiment 1 are asked to rank hypothetical sequences of discomfort in an experience, and show aversion towards those that end with a high degree of discomfort, because they will cause worse retrospective evaluation. This leads us to the second fundamental difference from this research stream. This research has focused mostly on how action sequence impacts the evaluation of the whole event. In Study 3 and 4 of the present paper, however, we manipulate the evaluation of the event, and we show that this has a causal impact on the evaluation of the single action, thereby showing an inverse causal path.

The research on retrospective evaluations does imply a profound preference for ending on a high note. In fact, that preference is so profound that people irrationally prefer a painful

experience to be followed by a mild displeasure rather than ending abruptly even though this preference extends their aversive state (Kahneman et al. 1993) and prefer to die when happy than to live on in a declined state of happiness (Diener, Wirtz, and Oishi 2001). One could argue that the preference for a later action somewhat reflects the desire to end on a positive note. However, that argument assumes that later actions are, counter-normatively, imbued with more impact than earlier actions, which is exactly the bias the present paper demonstrates.

2. Methods and results

No participants took part in more than one study. The data are posted at https://osf.io/ubmyj/?view_only=4aac03a5957b4d8daf2f9fffc79a7660.

2.1. Study 1

In study 1, participants chose between an earlier and a later action, with the earlier action being objectively more impactful. We predict that, counter-normatively, people would prefer the later, less impactful option.

2.1.1. Method

A total of 306 MTurk participants (147 males, 156 females, 3 unreported, M_{age}=38, M_{edu}=15.4) were randomly assigned to a control condition or a final condition. In the control condition, participants had to indicate their preference between two actions, one of which was objectively more impactful than the other. In the final condition, we added information that the less impactful action was close to a final outcome (see information in brackets below). Participants had to make 5 choices, each in a different context. The specific choices and contexts are: Basketball: would you rather Score two points in a game of basketball [***in the last minute of the game***] versus Score three points in a game of basketball; Hockey: Make one save in hockey game [***in the last minute of the game***] versus Make two saves in a hockey game; Marathon: Be able to run [***the last***] one mile of a marathon at 15 mph versus Be able to

run 1 mile of a marathon at 20 mph; Investing: Earn your company 50 thousand dollars [***in the last month before you present your results to investors***] versus Earn your company 100 thousand dollars; and Surgery: Perform one successful life-saving surgical operation [***one week before the patient is supposed to die***] versus Perform two successful life-saving surgical operations.

2.1.2. Results

A repeated-measures logistic regression with Scenario as within-participants factor, and Condition as between-participants factor revealed a main effect of Scenario (Wald $\chi^2(4)=69.18$, $p<.001$), indicating different baselines of choices between Scenarios, and a significant Scenario by Condition interaction, indicating a different effect of Condition in different Scenarios (Wald $\chi^2(4)=53.89$, $p<.001$). Most importantly, there was an overall significant effect of Condition, (Wald χ^2 (1) =128.94, $p<.001$). In the Control condition, the least impactful actions were chosen only 14%, but this proportion increased to 43% in the Final condition, when those actions occurred closed to the final outcome.

In sum, the present study documents a late-action bias. In four out of five scenarios, a less impactful action became significantly more attractive when it appeared to occur shortly before the final outcome of an event (See Table 2.1. for detailed results). While the less impactful action did not become significantly more attractive when it occurred late in the Investor scenario, we still observed an increase (from 16.4% to 22.5%) in the share of participants choosing it. So, we observe that an action becomes more attractive when it occurs close to a final outcome for all five scenarios.

Decision Scenario	Control condition	Final condition	Difference	χ^2	p	Cramer's φ
Study 1						
Basketball	7.2	66.2	59.0	113.55	<.001	.61
Hockey	7.2	48.3	41.1	63.90	<.001	.46
Marathon	33.6	53.0	19.4	11.65	<.001	.20
Investors	16.4	22.5	6.1	1.78	.18	.08
Surgery	7.9	23.8	15.9	14.45	<.001	.22
AVERAGE	14.5	42.8	28.3			
Study 2						
Investor	3.8	20.4	16.6	19.88	<.001	.26
Exam	33.8	33.1	-0.7	.02	.90	.01
Basketball	5.1	71.1	66.0	140.34	<.001	.69
Videogame	3.8	57.7	53.9	104.39	<.001	.59
Performance review	2.5	32.4	29.8	47.70	<.001	.40
AVERAGE	9.8	43	33.1			.38

Table 2.1. Combined results of Study 1 and 2. Percentages choosing the less impactful action as a function of condition

2.2. Study 2

Study 2 aims to replicate the late-action bias using five new scenarios, and three new contexts.

2.2.1. Method

For this study, we recruited 299 participants on MTurk (156 males, 143 females; 296 from USA, 2 from UK, 1 from another country; M_{age}=36.6; M_{edu}=15.2). Similar to study 1, participants were asked to make five decisions. Participants were randomly assigned to either the Control condition, where they had to choose between an objectively less and objectively more impactful action, or the Final condition, where they had to make the same choice but in which the least-impactful action seemed to occur close to a final outcome. The specific choices and contexts are: Investing: would you rather Earn 12 thousand dollar for your own company [***in the last week before you present your results to investors***] versus Earn 15 thousand dollar for your own company; Exam: Learn by heart the names of 15 human bones [***the night before an anatomy exam***] versus Learn by heart the names of 30 human bones; Basketball: Score a one-point basket in a game of basketball [***in the last minute of the game***] versus Score a two-point basket in a game of basketball; Videogame: Score 100 points in a videogame [***right before the videogame level ends***] versus Score 120 points in a videogame; and Performance Review: Have a good performance review at work [***the day before corporate comes for a visit***] versus Have a very good performance review at work.

2.2.2. Results

A repeated-measures logistic regression with Scenario as within-participants factor, and Condition as between-participants factor indicated an effect of Scenario (Wald $\chi^2(4)=55.12$, $p<.001$) and a significant Scenario by Condition interaction (Wald $\chi^2(4)=98.65$, $p<.001$). Most importantly, there was a significant main effect of Condition (total: Wald $\chi^2(1)=157$, $p<.001$). In total, participants chose the least impactful action only 10% of the times (77/785) in the Control condition, but this increased to 43% (305/710) in the Final condition, when the least impactful decision seemed to occur close to a final outcome. The increase is again significant in 4 out of 5 scenarios (see Table 2.1. for detailed results); it is not significant in the Exam scenario, for which we actually observe virtually no difference. In retrospect, the

Exam scenario was perhaps somewhat ambiguous. Where in other scenarios, the actions took place during the event, in the Exam scenario, they took place before the critical event, namely the exam itself.

2.3. Study 3

Studies 1 and 2 provided no information about the final outcome but possibly participants assumed that it was favorable outcome. The aim of the present study was to examine the impact of information regarding the final outcome on the late-action bias. We predict a late-action bias when no information on the final outcome is provided, in line with Studies 1 and 2, and when the outcome is known to be favorable. We have no clear predictions for unfavorable outcomes, though.

2.3.1. Method

We recruited 804 participants for this study (59% female, average age=36.8 years, average years of education=15.1). They were randomly assigned to one of five conditions: Control, Final, Adverse, Explicit, and Favorable. The scenario was a Basketball scenario, similar to that of previous studies. In all conditions, participants had to indicate if they would prefer scoring a one-point basket or a two-point basket. In this study, we also made clear that, for each outcome, one or two points were going to be the total points with which participants would end the game with. So, the options in the Control [Final] condition were: Would you rather: Score a one-point basket in a game of basketball [***in the last minute of the game***]. One point would be the total points you finish the game with versus Score a two-point basket in a game of basketball. Two points would be the total points you finish the game with. In the remaining conditions, we gave information on the final outcome of the game. In the Adverse condition, we added to the late (but less impactful) action: “After you scored, the opposing team also scores and wins the game.” In the Explicit condition, we added “After you scored, no one else scores and your team wins by one point”, making it explicit that the participants’

action led to a win for his/her team. In the Favorable condition, we added "After you scored, one of your teammates scores a 3-pointer and your team wins by 2 points". The main difference with the Explicit is that the participant cannot claim full responsibility for the favorable outcome. This study was preregistered at https://aspredicted.org/4eh6i.pdf. .

2.3.2. Results

Our Independent Variable was Condition, and our Dependent Variable was the choice of the one-point basket instead of the two-point basket. We found a significant overall effect of Condition, Wald χ^2 (4) =259.06, p<.001. In the Control condition, 13 out of 161 (8%) participants chose the one-point basket. The Control condition was not significantly different from the Adverse condition (13%, p=.16), but significantly different from every other one at p<.001: Final: 40%; Explicit: 85%; Favorable: 82%. The latter two conditions also differed significantly from the Adverse and Final conditions, all ps < .001, but not from each other, p = .57. Finally, the Adverse and Final conditions differed from each other, p < .001.

These results show that people view a less impactful action (score one point) more attractive than a more impactful action (score two points) if the former is close to the end of the game. This late-action bias becomes even more pronounced when people are told that the outcome will be favorable but is eliminated when they are told it will be unfavorable. Somewhat unexpected, the Favorable condition showed results extremely similar to the Explicit condition, with a very large majority of participants choosing the lesser impactful action, even though its impact is arguably higher in the latter condition.

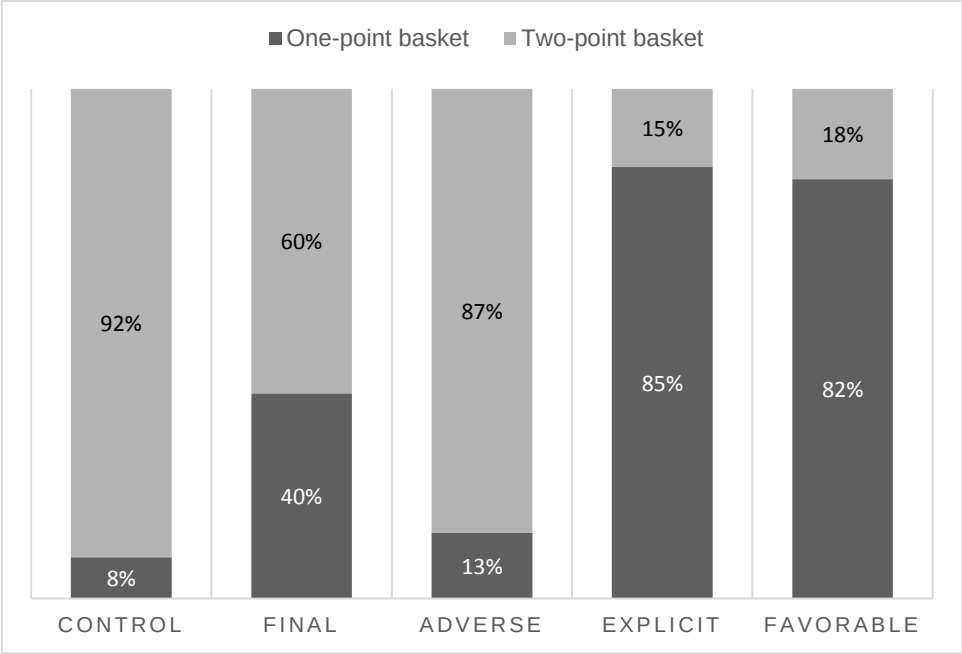

Figure 2.1. Results of Study 3. The shaded part of the bars is the proportion of respondents choosing the dominated action.

2.4. Study 4

In this study, we test if evaluations of individual contribution towards an outcome cause action closer to temporal endpoints to be chosen more often than better actions far from temporal endpoints.

2.4.1. Method

We recruited 329 participants on Mechanical Turk (134 males, 195 females, average age=36.9, modal education=Bachelor's degree, 100% residing in USA). They were randomly assigned to one of three conditions that were also used in Study 3: Control, Final, or Favorable. In addition to choosing between a one-point basket and a two-point basket, participants were asked two questions: "How much would you have contributed to the final outcome if you had chosen to score a **one-point** basket as presented in the previous question?", and "How much would you have contributed to the final outcome if you had

chosen to score a **two-point** basket as presented in the previous question?", both on 1-7 Likert items anchored at 1=Not at all and 7=Very much.

2.4.2. Results

Choice results. A logistic regression using Condition as IV and Choice as DV showed a significant effect of Condition, Wald χ^2 (2) =84.30, p<.001. The Control condition, where 10/110 participants (9%) chose the one-point basket, was significantly different from the Final condition, where 35 out of 109 participants (32%) chose the one-point basket, Wald χ^2 (1)=15.88, p<.001, and from the Favorable condition, where 84/110 participants (76%) chose it, Wald χ^2 (1)=75.31, p<.001. The Favorable and the Final condition also differed from each other, Wald χ^2 (1) =39.93, p<.001.

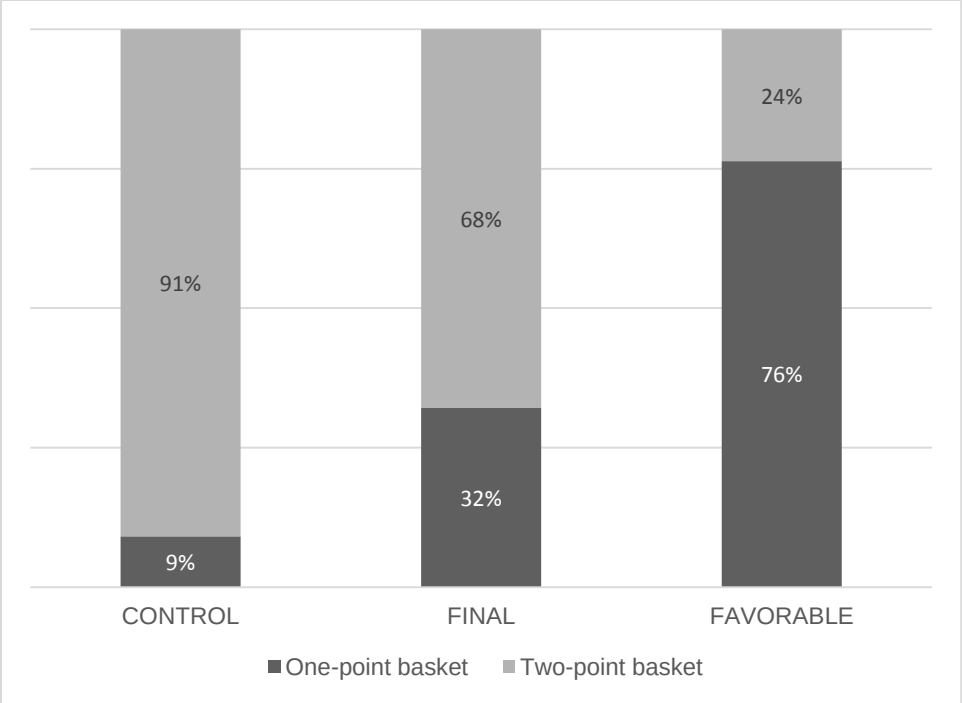

Figure 2.2. Results of Study 4. The shaded part of the bars is the proportion of respondents choosing the dominated action.

Contribution results. We analyzed the perceived contribution to the final outcome for the actions with a mixed-model ANOVA with Action (one-point vs. two points) as within-participants factor and Condition as between-subjects factor. The analysis revealed a significant Action effect, $F(1,326)=7.00$, $p=.009$, that was qualified by an interaction with Condition, $F(2,326)=16.10$, $p<.001$. In the Control condition, scoring the two-point basket ($M=4.85$; $SD=1.58$) was considered a bigger contribution than scoring the one-point basket ($M=3.90$; $SD=1.74$), $t(109)= -8.58$, $p<.001$. In the Final condition, this difference was reduced (two-point basket: $M=4.95$, $SD =1.49$; one-point basket: $M=4.72$; $SD=1.73$), $t(108)=-1.35$, $p=.18$. In the Favorable condition, the one-point basket ($M=4.76$; $SD=1.60$) was even considered a bigger individual contribution to the final outcome than the two-point basket ($M=4.35$; $SD= 1.58$), $t(109)=1.99$, $p=.05$.

Mediation analysis. We conducted a parallel mediation analysis using the PROCESS macro for SPSS v2.16 (Hayes and Preacher 2013), with Condition as the multi-categorical independent variable, importance of the one-point basket and of the two-point basket as the two parallel mediators and choice of the one-point or two-point basket as the dependent variable. We expected that the effect of Condition on Choice would be mediated by perceived importance of the one-point basket rather than by perceived importance of the two-point basket, since time information would be attached to the one-point basket only. We found a stronger relative indirect effect of one-point importance, b(SE)=-.025 (.016), 95% CI [-.063; -.004] than of two-point basket importance, b(SE)=.012 (.012), 95% CI [-.001; .038]. These two confidence intervals are significantly different from each other since they do not overlap (Gelman and Stern 2006). In fact, the indirect effect is significant for the one-point basket importance only. These results support our contention that people prefer engaging in a less impactful action rather than a more impactful option when a cue suggests that the former is

close to a final outcome, because people think– mistakenly – that it has more impact on the final outcome.

3. General discussion

People are motivated to believe their behavior has impact, even when it does not, and so are likely to uphold an illusion of control (Langer 1975; Fernbach et al. 2013). Despite the importance of perceiving one's actions have impact, little to no research has examined factors that determine these perceptions. The present paper focuses on one such factor, timing, and shows that later actions are perceived to be more impactful than earlier ones. In fact, timing looms so large in impact judgments that people view later actions as more attractive than objectively more impactful actions that occur earlier.

Our research is different from, yet extends, research on retrospective evaluation. That research shows that near-end experiences typically have a stronger effect on retrospective evaluations of an overall experience (Diener et al. 2001; O'Brien and Ellsworth 2012). We similarly find that actions that occur late in an event are considered more impactful. However, our research differs from the research in retrospective evaluation in focus and process. In terms of focus, we do not ask participants to retrospectively reflect on a sequence of actions but rather to choose between two actions that are simultaneously presented to them. Relatedly, in terms of process, the late-action bias does not occur due to the advantage in recollection for more recent experiences but rather because people appear to be myopic in judging impact as they seem to ignore the actions that precede a focal action.

The late-action bias that we document in this paper may affect various everyday life judgments. For instance, in basketball, players that are considered 'clutch' are the ones that seem to have the ability of deciding close games in their favor. Yet, statistical analysis shows that most of the 'clutch' performance can be explained by previous skill, is highly affected by sheer luck (Solomonov, Avugos, and Bar-Eli 2015) and may even be worse than normal (Bar-

Eli and Tractinsky 2000; Solomonov et al. 2015), indicating an overvaluation of ‘clutch’ players. Similarly, in collective decision processes (e.g., brainstorms), suggestions close to a final decision may be viewed as more consequential to reach that decision. Having “the last word” is a commonly used rhetorical figure to signify deciding or putting an end to a discussion. Our paper explains the reverence of ‘closers’ in sports or business in terms of a biased perception of the impact of late actions on favorable outcomes.

A late-action bias may not only affect judgments of other people’s performance but may also guide one’s own behavior. Specifically, people may differ in the extent to which they exhibit this bias, and this may explain differences in observed behavior. While Kobe Bryant was famous for always wanting the last shot, no matter how difficult, LeBron James has been observed deferring to other players if they can take a better shot (Parker 2009; Parchmann 2017). Although numerous factors may contribute to this difference, perhaps these players also differ in how much they associate late actions with superior impact. Future research may thus investigate if people differ in their tendency to exhibit a late-action bias and how that guides their own behavior. One particularly interesting avenue may pertain to our understanding of procrastination. Previous explanations of procrastination have hinged on people’s poor organization (Ariely and Wertenbroch 2002), but possibly some people may underestimate the value of early actions and overestimate the value of actions much closer to a deadline. Finally, one may wonder whether people may be more likely to exhibit a late-action bias when they operate at a concrete (rather an abstract) level of thinking.

In our studies, we found a remarkably robust late-action bias. However, its effect size seems to depend on the domain investigated. In particular, we find stronger effects in sports-related scenarios. Still, the effect appears robust even in non-sports related scenarios. We leave it to future research to investigate boundary conditions that may eliminate or even reverse the late-action bias.

CHAPTER III: STATUS, FAST AND SLOW

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1. Introduction

Response time is a ubiquitous cue in everyday life (emails, texts and letters are usually time-stamped and allow communicators to know about response time in quantitative terms), it influences judgment and decision-making and expectations (Calseyde et al. 2014; Evans and van de Calseyde 2017), and is considered a norm by laypeople (Kooti et al. 2015). Recent literature has shown that faster response times are liked better (Calseyde et al. 2014; Evans et al. 2015; Rand et al. 2016), implying that individuals should respond faster if they want to look good and to cooperate successfully. We challenge this view by showing that slower respondents are seen of higher status. Past literature has not focused on the social signaling meaning of response time: we fill this gap by exploring the link between speed of response and status perceptions. Through six experiments, we show that individuals and institutions can generate inferences of high status by slower responding.

When people communicate they use both verbal and nonverbal cues. Verbal cues communicate content, but non-verbal cues can convey subtle information that lends a tone and manner to the content. Response time is a non-verbal cue that might be worthy of study given its increasing importance (general sentiment being faster is better) and accessibility (digital devices make it easy to track response times) in our fast-paced digital environment. Previous literature (Calseyde et al. 2014; Rand 2016) has shown that faster decisions are liked better – they signal less doubt and more commitment. Indeed, people who respond fast, even too fast, appear to be making an effort to please. Consistently, social pressure favors faster responses: over time, people expect faster and faster response time (Kooti et al. 2015). Fast response times have thus become a social norm, making slower response times a form of norm violation that typically is frowned upon (Miller and Anderson 1979).

In the current research, we argue that there is a silver lining to slower responses: enhanced status perceptions. Individuals often infer status information about other people and institutions (Ireland 1994; Nelissen and Meijers 2011a) from the information they have access to. For instance, people often look at how people are dressed (Nelissen and Meijers 2011a; Bellezza, Gino, and Keinan 2014), how much they smile (Deutsch 1990)and carry themselves (Cashdan 1998)and how they behave to infer their status (Bellezza et al. 2014).

We make the argument that in the absence of accessible status information, individuals are perceived to be higher in terms of social hierarchy by responding slower to a request. Two streams of literature support this notion. The first stream stems directly from the power literature, which deems power to be a function of one's access and availability of resources. Higher status people have more resources available *and* use more resources than lower status people (Dubois, Rucker, and Galinsky 2012; Dubois and Ordabayeva 2015). We propose therefore that since high status is associated with greater resource utilization, individuals also make the opposite inference, greater resource utilization is a signal of high status. In our case, time is the resource at hand – a finite one – so higher status entities should be more liberal with using other people's time – having them wait longer before they give them a response. Based on this stream of research, longer response times might be perceived as a signal of status.

A second stream of literature shows that norm violators – although often disliked - are also often assigned status and power (Van Kleef et al. 2011b; Bellezza et al. 2014). Prior research shows that high-status entities are afforded more freedom towards formal and informal rules and are more likely to break them (Hollander 1958; Feshbach 1967; Keltner, Gruenfeld, and Anderson 2003). Since individuals expect that higher-status entities are less likely to respect formal and informal rules, again they make the symmetric inference: since faster responses are the norm, slower responses may be disliked, but also interpreted as a signal of status. Not

all norm violations are created equal. When people are given a norm in terms of responses time (e.g., the national average is 2 hours) the will not tend to punish positive violators (faster than average) in the same way that they punish negative violators (slower than average). The same will go for status perceptions: it will be increased by slower response time. Since faster and faster responses are the norm, a slower speed of response is seen as a norm violation. While norm violators are disliked, they are also ascribed higher status.

Taken together, these literatures converge to suggest that slower response times confer greater status on the responder when no other status information is accessible. We theorize that slower response times constitute a *dominance* pathway to status (Cheng et al. 2013) leading slower responders to be evaluated as high in status, but low on likeability. We also show that this effect diminishes when status information is accessible such that the dependence of status information on status cues depends on the situation: when people already have status information, response time ceases to be a status cue. In some situation, they may not automatically be thinking of status in order to make a decision. However, when they have the chance to think about it, they are more likely to favor slower respondent parties.

We contribute to the literature in three ways. First, while faster response time has typically been considered a positive feature in interpersonal communication, we show that slower response times can have a silver lining – higher status perceptions. Second, while previous literature has typically considered cues that communicate competence and status at the same time, we show that these two dimensions can be decoupled – by response time information. Finally, we show that decision time is used as a cue when needed (i.e., when people do not have status information) and that is not intuitive.

We present six experiments. In Studies 1A and 1B, we show that both people and institutions who are slower to respond are perceived of higher status. In Study 2, we investigate when people use response time as a status cue: by manipulating whether the context already

transmits Status-related information, we find that people only find slower respondents of higher status if they do not have other Status information. In Study 3, we test how the connection between slower response time and status can affect choice: people choose faster responders intuitively, but if they have the possibility to reflect on Status, they are more likely to choose slower respondents. In Studies 4A and 4B, we explore the mediating role of Self Attention. We show that slower responders are perceived of higher Status because slow responses signal Self-Attention – a feature that observers associate with High-Status entities – and this spills over to associated parties as well (e.g., a college and its students)

2. Theoretical Background

2.1. Response time

We constantly interact with other people. Many of the channels that we use to communicate (e.g., email, texts) allow us to easily detect and compare response time. People use response time information to judge other people and to make decisions. Faster decision times are preferred by counterparts in different kinds of interaction - such as negotiations, job offers, and client-customer relationships (Van de Calseyde, Keren, and Zeelenberg 2014). Faster response and decision times signal a lower degree of doubt (Van de Calseyde et al. 2014; Evans et al. 2015). People dislike being doubted - that is why they prefer to interact with faster respondents. The reverse is true as well: decisions become more likely to be doubted when they are voluntarily postponed (van de Ven et al. 2010; Mead and Patrick 2015). People may have good reason to eschew slower responses in interpersonal settings – they seem to lead to selfish and strategic decisions in economic games (Rand 2016). Similarly, people seem to intuitively collaborate when they decide quickly, but when they are given the chance of reflecting on their decision, they are more likely to behave selfishly and strategically (Evans

et al. 2015; Jordan et al. 2016). Finally, cooperative decisions in economic games, where participants decide to contribute to a common good, are about 12.5% quicker than defection decisions, where participants decide not to contribute (Nishi et al. 2016).

Response time need not to be taken as an unequivocal positive signal. Doubt is only disliked when it is directed towards a positive outcome (e.g., when people are waiting for the results of a job interview) (Critcher et al. 2013; Evans and van de Calseyde 2017). Response time is considered more diagnostic of internal states and dispositions. Therefore, when morally objectionable decisions are taken faster, harsher moral judgment is passed onto the decision-maker (Critcher et al. 2013). A similar mechanisms is at play in expectations of collaboration: people expect faster decider to either be extremely collaborative or extremely hostile (Evans and van de Calseyde 2017). Reciprocal decisions – where the decision-maker mirrors the counterpart actions, either cooperative or hostile - are quicker than non-reciprocal ones: cooperation is faster than defection in cooperative environments, and defection is faster than cooperation in non-cooperative environments (Nishi et al. 2016). Again, this effect seems to be driven by subjective feelings of decision difficulty: it is easier to mirror other people's behavior than not.

In this work, we conceptually replicate previous work about the preference for faster decision times (Van de Calseyde et al. 2014; Evans and van de Calseyde 2017). Our participants found slower respondents less competent and less warm than faster ones. We argue that slower response times are part of a dominance pathway to status (Henrich and Gil-White 2001; Cheng et al. 2013). That is, being at least an inconvenience for those who have to wait extra-long times, it is bound to ruffle some feathers. It is a soft form of the intimidation and the dominance that humans and other animals use in less refined, but more direct contexts: a tool to impose your will and to clarify hierarchy through coercive means.

2.2. Status-signaling

Status is the fabric of society, allowing social organization, conflict resolution, and resource allocation (Slater 1955; Berger, Rosenholtz, and Zelditch 1980). People and entities of high status earn material resources and benevolence. High-status individuals earn the ability to influence decisional processes regarding both resources and society as a whole (Fiske 1993). Giving the impression of being a high-status individual has therefore undeniable benefits in interpersonal interaction (Nelissen and Meijers 2011). Symmetrically, being able to decode status from subtle signals is important, since high-status individuals often command different treatment and behavior than lower-status one (Bourdieu 1984; Lizardo 2006). This is why people and institutions try to both signal status to each other and to infer status from conspicuous and inconspicuous cues. But status is a complex and mutable concept that can be signaled through a host of different cues, which change from culture to culture and society to society. One common status signal across societies is conspicuous consumption (Veblen n.d.; Bagwell and Bernheim 1996; Ordabayeva and Chandon 2011), the purchasing of costly yet useless products in order to signal wealth and status. There are, however, more subtle signals of status, such as brand logo size (Berger and Ward 2010; Han, Nunes, and Drèze 2010) and nonconforming behavior (Bellezza et al. 2014). These signals communicate status to those that have the means to understand it, i.e., to people that know the rule and the norms around status in the particular community (Wilson, Eckhardt, and Belk 2013). Response time is a subtle signals of status, i.e., it needs to be interpreted in the context of the social norms that sanction and regulate response time (Kooti et al. 2015). Similarly to conspicuous consumption or rule-breaking behavior, we argue that response time is used by higher-status parties to signal their position in social hierarchy.

2.3. Dominance and prestige paths to status

Slower decisions are disliked by the people who receive them, who are willing to forgo better offers for faster ones (Van de Calseyde et al. 2014). This is in direct contrast with the

Competence-based account of Hierarchy differentiation, which posits that social rank is given to individuals that demonstrates valued features such as intelligence and prosocial behavior (Anderson and Kilduff 2009) such as experts (Bottger 1984; Littlepage and Mueller 1997) and group contributors (Willer 2009). It is, however, in accordance with a stream of literature characterizing Status as a byproduct of social conflict: social rank is often associated with toughness, coercion, and different forms of intimidation, for which there is ample anthropological (Mazur 1973; Chagnon 1983) and psychological evidence (Lord, De Vader, and Alliger 1986; Buss et al. 1987; Griskevicius et al. 2009). Cheng and colleagues (2013), and Henrich and Gil-White (2001) reconcile conflicting findings by showing that both Prestige (attained by competence, sharing, and prosociality) and Dominance are viable and common strategies to attain status among humans. Prestige strategies center on helping behavior, inspiring contact with other people, and sharing of knowledge. Prestigious individuals attain status because they possess features valued by the group (Anderson and Kilduff 2009). Dominance strategies, on the other hand, aim at intimidating others through force and coercion, and building social hierarchies through distance and coldness. Instead of inspiring and helping other people, these strategies aim at increasing social distance and clarifying hierarchical position with little regard to one's own likeability or other people's reactions. In experiments considering gaze direction – a signal of ascribed status – both people considered high in competence and people high in dominance received more attention and status (Cheng et al. 2013). Our results suggest that the reverse also holds true. We argue that slower response time is a signal of a dominance pathway to status: slow response times show high and already attained Status and little regard for the counterpart and their needs. People have experience with higher-status entities taking advantage of their position, in ways that are inconvenient for them. Consistent with this perspective, we find that people dislike slower respondents, yet ascribe higher status to them.

2.4. Process evidence: why self vs. other orientation signals status

People associate higher status people and entities with more attention towards themselves and less attention towards others (Piff et al. 2010; Kraus, Piff, and Keltner 2011; Piff and Stancato 2012; Capozzi et al. 2016). We argue that slower response time signals less attention to others and more to oneself – and this is why it is a signal of status. The reason why a signal of higher attention to oneself is interpreted as a signal of status originates in how status modifies interpersonal relationships. Status changes how people think about interactions, by making high-status people less caring and less inclined towards empathizing with lower-status individuals (Piff and Stancato 2012). Higher-status people are less likely to donate to charity (as a percentage of their salaries), and less likely to trust others (Piff et al. 2010). Power and status often go together (Joe C Magee and Galinsky 2008; Joe C. Magee and Galinsky 2008; Fast, Halevy, and Galinsky 2012; Smith and Magee 2015). High social power - similar to status- leads to less reciprocity and empathizing in interpersonal interactions (Keltner et al. 2003). Empathy and reciprocity are social norms (Gladstein 1983) that higher-status parties are less likely to respect. In general, higher-status parties enjoy more freedom from social norms (Hollander 1958; Feshbach 1967; Peterson and Kern 1996; Phillips and Zuckerman 2001). The association between status and nonconformity should therefore lead people to infer status from nonconforming behavior (Van Kleef et al. 2011b; Bellezza et al. 2014). Responding slower than normal is considered a norm violation (Kooti et al. 2015). We show that it also signals higher self-orientation – a feature typical of high status entities. In sum, responding slower is a signal of orientation because it signals that the counterpart cares more about itself than you, and it is willing to take advantage of the opportunity of causing you a waste of time.

Similarly to how high-status individuals are more concerned about themselves than low-status individuals, high-status firms are sometimes less customer-oriented than low-status ones. People can be drawn to high-status brand even more if they are met with rejection at the point of sale (Ward and Dahl 2014). High-status firms are symbolic of aspirational groups for lower status people who desire to own high-status goods (Berger and Ward 2010). These are groups featured by low rates of acceptance that inspire fear of rejection. Social rejection and fear of social rejection serve important means. They motivate people to conform to the expectations of the group (Miller and Anderson 1979; Mead et al. 2011) therefore initiating and accelerating aspirations of social mobility. If having access to the social group symbolized by the high status brand is too easy – and features such as warmth and likeability make it easier and more likeable - it may be interpreted as a signal of low status (Ward and Dahl 2014). A similar mechanism should be observed for both people and institutions. Institutions that treat their aspirant members too well – especially in the initial phases of the interaction – may be signaling too much willingness to accept new members and too little attitude at maintaining exclusivity and higher status. Decision time serve as a one of these signals, by showing that the institution is not exceedingly interested in applicants, because it already has high status. Slower decision times signal higher self-orientation in both cases, which in turn signals status for both people and institutions.

It is important to show that Slower Response times are not connected with Status because of inference of Busyness. Previous research shows that people that signal busyness are more likely to be perceived of higher status (Bellezza, Anat Keinan, and Paharia 2017). In our studies, we keep Busyness constant by informing the participants directly and by measuring perceived busyness. We find that even when busyness does not differ across Fast and Slow Decision times, we still observer that slower respondents are perceived of higher status.

In most of the status literature, status and valued personal features such as competence and warmth (Fiske, Cuddy, and Glick 2007) go hand-in-hand (Anderson and Kilduff 2009). Manipulations that cause an increase in perceptions of status often also cause an increase in perception of competence. Strikingly, we find that competence and status can move independently: competence is lower for slower respondents and status is higher. This is logical if viewed through the lens of dominance (Cheng et al. 2013) . Dominance does not imply the signaling of desirable qualities in order to signal status, but simply the willingness and the attitude to use coercion. We find results in line with this perspective: slower Decision time makes people think that you are less competent and less warm, yet of higher status.

In sum, we contribute to research regarding nonverbal and subtle signals of status, by showing that slower Decision time is considered a signal of higher status despite being associated with unfavorable responses. This research helps to shed light on Decision time – a ubiquitous, yet under-investigated cue. In terms of everyday implication, this research underscores the silver lining of a disliked strategy that may, however, help people safeguard their time: slower decision times.

3. Methods and Results

We present six experiments. In study 1A and 1B, we show that both people and institutions that are slower to respond are perceived of higher status. In study 2, we investigate the importance of status information availability: when consumers already know about the respondent status, Speed of Response ceases to be a Status cue. In study 3, we show the reflecting on Status makes people more likely to favor the slower respondent. In Study 4A we show mediating evidence that the effect of Speed of Response on Status is driven by lower

Other-orientation to the self that Slower respondents signal, and in Study 4B we show that Status spills over to parties related to the respondent.

3.1. Study 1A

In this study, we test whether slower respondents are perceived of higher status. We employ a common scenario – a request for a letter of recommendation – and we keep the outcome of the interaction constant.

3.1.1. Methods

In this study, 211 participants (87 males, 117 females, 12 unspecified, Average age=38, Average years of education=15) were recruited on Mechanical Turk. They were asked to imagine a scenario in which they asked two College professors to write them recommendation letters for a job they were applying for. Response time was manipulated by the time it took each professor to accept the invitation to write the letter after the email was sent. Based on previous data on email response times (Kooti et al. 2015), the majority of emails are responded to within 2 hours, guiding us to use the following manipulation.

> Imagine you are a student at the end of your College studies. You need a letter of recommendation from a professor to attach to your CV. You send an email to two professors (Prof. Johnson and Prof. Darland), asking for a letter of recommendation.
>
> Professor Johnson accepts to write you a letter of recommendation, after 1 hour.
>
> Professor Darland accepts to write you a letter of recommendation, after 24 hours.

After participants read the scenario, they were asked to evaluate both professors on 7-item Likert scales anchored to 1=Not at all and 7=Very much on the following dimensions: Powerful, Rich, Busy, Competent, Warm, Friendly, and Intelligent. The key dependent measure in this study was the status index (Powerful and Rich; α_{Fast}=.83; α_{Slow}=.77). The other measures were included in order to control for perceived busyness, and the warm and

competence dimensions of persons perception (Fiske et al. 2007). We further combined Competent and Intelligent in a Competence index (α_{Fast} =.82; α_{Slow} =.85), and Warm and Friendly in a Warmth index (α_{Fast} =.92; α_{Slow} =.91).

3.1.2. Results and discussion

Consistent with our hypothesis, the slower-responding (after 24 hours) professor (Prof. Darland) was evaluated to be of higher status, $M_{fast}(SD)$=4.49 (1.15), $M_{slow}(SD)$=4.73 (1.10), p=.003, t(210)=-2.96, d=.20) and busier, M_{fast} (SD)=3.76 (1.53), M_{slow} (SD)=5.55 (1.22), p<.001, t(210)=-13.50, d=.93), than the professor who responded fast, after 1 hour (prof. Johnson).

Despite his high status, the slower-responding professor was rated as both less Warm, M_{fast} (SD)=5.51 (1.09), M_{slow} (SD)=4.59 (1.14), p<.001, t(210)= -9.81, d=.68) and less Competent, $M_{fast}(SD)$ =5.48 (1.07), M_{slow} (SD)=5.32 (1.06), p=.03, t(210)=-2.16, d=.20) than the professor who responded fast, after 1 hour (prof. Johnson).

This study demonstrates that, while eliciting negative reactions on fundamental dimensions of personal evaluation such as Competence and Warmth, a slower responder was perceived of higher status. In study 1B, we aim to show the same effect with an institution.

3.2. Study 1B

In study 1B we manipulated response time around what we presented as a norm, the national average. Thus, a fast response would be seen as a positive norm violation while a slow response would be seen as a negative norm violation.

3.2.1. Methods

We recruited 289 participants on Mechanical Turk for this study (122 males, 167 females, Average age =35.5, Average years of education =14.8). In the scenario we presented to the participants, we included information related to busyness and impressions of efficiency in

order to keep them constant. We kept the number of yearly applications and acceptance rates constant, and we gave participants explicit information on the efficiency of each College's application review process.

Participants were shown this scenario (we counterbalanced the names in case they independently generated Status inferences):

> Nelson University and Dolder University are two small universities located in the South-East of the USA. They both receive about 2500 applications per year, of which they accept around 30%. They both have very efficient administrative personnel.
>
> Nelson takes 42 days, 11 more than the national average of 30 days, to reply to applicants and let them know whether they are accepted or not.
> Dolder takes 21 days, 11 less than the national average of 30 days, to reply to applicants and let them know whether they are accepted or not.

Participants were subsequently asked, on 7-points Likert items anchored at 1="Not at all" and 7="Very much", to rate how Fast the schools were in replying, and to evaluate each school on how Selective, Rich, and Powerful, Efficient, and Caring they were. The items Selective, Rich, and Powerful showed satisfactory reliability for both universities (Cronbach's α Fast=.81; Cronbach's α Slow=.83) and were used to reflect the status of the schools.

3.2.2. Results

Manipulation check. A paired-sample t-test showed a significant effect of the manipulation on the perceived speed, $M_{slow}(SD)$=2.36 (1.23), $M_{fast}(SD)$=5.46 (1.23), $t(288)=-25.32$, $p<.001$, $d=1.49$.

Status. A paired-sample t-test showed that the slower school, $M(SD)$=4.18 (1.25) was considered of higher Status than the faster school, M (SD) =3.74 (1.27), $t(288)=5.75$, $p<.001$, $d=.34$.

Competence and warmth. Similarly to Study 1A, participants rated the slower College $M(SD)$=3.02 (1.58) as less efficient than the faster College, $M(SD)$=4.93 (1.49), $t(288)$=-

14.17, $p<.001$, $d=.83$. Further, they rated the slower College $M(SD)=3.54$ (1.47), as less caring than the faster College, $M(SD)=4.40$ (1.46), $t(288)=-6.94$, $p<.001$, $d=.40$. Similar to study 1A, slower-responding institutions were judged worse on these two fundamental dimensions, yet were perceived to be higher in Status.

In studies 1A and 1B, we show that response time can serve as a cue for status of individuals (1A) and institutions (1B). Specifically, in the absence of any other cues, slower respondents are perceived of higher status. This therefore implies that when individuals have information about status, response time should cease to serve as a status cue. In Study 2 that follows, we test this proposition: we vary the ease of inferring Status from the interaction. We expect that when status can be inferred by more overt and readily available cues, response time is no longer relied on as a status cue.

3.3. Study 2

3.3.1. Methods

In Study 2, we test how Status inferences are moderated when people already have Status information. When the request is already perceived to be highly related to Status motives (e.g., selection to enter an exclusive club), people will cease to be on the lookout for Status-signaling cues. As such, we propose that people will interpret response time as a Status-signaling cue, but only, ironically, when the situation is *not* highly linked to Status (e.g., a book loan).

We recruited 338 participants on Mechanical Turk (152 Females, 186 Males, Average age=36, Average years of education=15). We manipulated two between-participants factors. The first one was the situation in which the interaction took place: either obviously Status-laden or not Status-laden. The second one was the speed of response (Slow vs. Fast). The

participants were thus randomly assigned to one of four conditions. They were presented the following scenario (in bold, the fast condition; in italics, the high-Status condition). We kept busyness constant by telling every participant that the responder was a “busy manager”.

> Leon is a busy manager.
>
> You email him to ask him for a recommendation about a book he mentioned and you want to read (*to enter in an exclusive club*).
>
> After about one hour (**one week**), he replies to your email, saying yes to your request.

We asked participants “How important was Status in your request to Leon”, in order to test how easy it was for the participants to link the situation to Status-signaling motives, on a 1-7 Likert item anchored at 1=Not at all and 7=Very much (if not otherwise specified, all other items in this study followed this construction), as a manipulation check.

Afterwards, participants had to rate Leon on three items: Important, Rich, Powerful, which showed high Cronbach’s α (.86) and were thus averaged in a Status index.

In order to test whether slower responses evoke avers responses, we then asked “How would you take Leon’s response?” (1=Very badly, 7=Very well), and “Is Leon’s response appropriate” (1=Not at all, 7=Very much). These two items showed high Cronbach’s α (.87) and were thus averaged in a Response Evaluation index.

3.3.2. Results

Manipulation check. A t-test showed that Status was significantly less important than in the Book condition, $M(SD)$=4.05 (1.98) than in the Exclusive Club condition, $M(SD)$=5.00 (1.57), $t(336)= -4.86$, $p<.001$, $d=.52$.

Responder Status. A two-way ANOVA with the Status index as DV, and Speed and Status importance as between-participants factors showed a significant main effect of Status Importance, $F(1,334)=21.90$, $p<.001$), a significant main effect of Speed, $F(1,334)=4.46$, $p=.035$, and a significant interaction between Status Importance and Speed, $F(1,334)=7.32$, $p=.007$.

In the Book condition, slower response times boosted the perceived Status of the responder compared to faster times, $M_{slow}(SD)=4.86$ (1.39), $M_{fast}(SD)=4.20$ (1.22), $t(167)= 3.24$, $p=.001$, $d=.50$).

In the Club condition, a t-test did not detect differences between slow and fast response times, $M_{slow}(SD)=5.13$ (1.25), $M_{fast}(SD)=5.21$ (1.13), $t(167)= -.44$, $p=.66$, $d=.07$.

Response Evaluation. A two-way ANOVA with the Response Evaluation (RE) index as DV, and Speed and Status importance as between-participants factors showed a significant main effect of Status importance, $F(1,334)=6.78$, $p=.01$, $d=.30$, a significant main effect of Speed, $F(1,334)=10.06$, $p=.002$, $d=.36$, and no significant interaction between Status importance and Speed, $F(1,334)=.004$, $p=.95$. Slower responses and Status-related responses had worse evaluations ad were considered less appropriate.

3.3.3. Conclusion

In this study, we gave participants busyness information in order to exclude its effect on Status. Still, only when Status was easy to infer from the situation, slower responders were rated as of higher Status. Their responses, however, were not taken as more acceptable or evaluated better. Slower responses were evaluated worse than faster responses (in line with previous literature (Van de Calseyde et al. 2014)). When the situation was not obviously Status-laden, slower responses conveyed higher Status than faster responses. When the

situation was already charged with Status, and thus people did not need to infer it from unrelated cues, slower response times ceased to be interpreted as Status signals.

The next study builds on this one to implicate status inferences in driving choice. Many intuitive choices are made based on the likeability of the counterpart: faster response times are considered more sincere and likeable (Calseyde et al. 2014; Evans and Calseyde 2017). However, in many decisions, status is - or ought to be - a valued feature of the chosen option, yet it may be overlooked if its consideration is not salient. We therefore propose that, when people are provided the opportunity to consider status in a decision pertaining to response times, their preferences will shift towards the slower responding party. This salience of status in decision-making is what we test in the study that follows in which participants have to make a decision based on response time either with or without a prompt to consider status.

3.4. Study 3

3.4.1. Methods

We recruited 340 participants (163 males, 177 females, Average age=36, Average years of education=15) on Mechanical Turk for this study. All participants were first shown the following scenario:

> Kenant University and Bolfer College are mid-size Colleges in the US, which receive about 1000 applications per academic year and accept about 25% of the applications.
>
> The average time that Colleges in the USA take from the moment the College receives the application to the moment the College sends and acceptance letter is 41 days.
>
> Kenant University typically takes **82 days** (about double the national average) to send an acceptance letter.
>
> Bolfer University typically takes **20 days** (about half the national average) to send an acceptance letter.

Both universities administrative staff are highly efficient. This is a deliberate policy.

Participants were then randomly assigned to one of two conditions (Choice First and Status First), which differed only for the sequence in which Choice and Status judgments were given. In the Choice First condition, participants first were asked which College they would choose to go to if accepted by both, and then were asked to rate both Colleges on Status, on the following items anchored at 1=Not at all and 7=Very much: Rich, Powerful, Important, High Status, Prestigious. In the Status First condition, the block order of Choice and Status was reversed. Participants had to first rate College Status on the same measures as in the Choice First condition, and then choose which College they would prefer. For both Colleges, Status measures showed high reliability (Slow, α =.94; Fast, α =.93) and were thus averaged in two Status indices.

3.4.2. Results

In the Choice condition, 28% of participants (49 out of 177) chose the slower College. In the Status condition, this proportion was reversed, with 56% (92 out of 163) of participants choosing the slower College, $\chi^2(1)=28.91$, $p<.001$, $\varphi=.29$, $d=.60$. A mixed-model ANOVA with Speed as a within-participants factor and Condition as a between-subjects factor and Status as the dependent variable indicated a significant effect of speed on Status, $F(1,338)=76.43$, $p<.001$: the Slow College, M (SD)=4.86 (1.22) was considered of higher Status than the Fast College, M (SD)= 4.13 (1.14). We also found a significant Condition by Speed interaction, $F(1,338)=7.78$, p=.006. In both Choice and Status conditions, however, the slower College was considered of significantly higher Status than the faster College. We computed a Status difference index by subtracting the High Status scores from the Low Status scores, per each participant. Further, we conducted a mediation analysis using Sequence as the independent variable, the Status difference index as the mediating variable and Choice as

the dependent variable, using model 4 of the PROCESS macro for SPSS. While the mediation index was significant, *ab*(*SE*)=-.25 (.10), 95% CI [-.47; -.08], we still observed a significant and sizeable direct effect of Sequence on Choice, *B*(*SE*)= -1.11 (.24), *z*= -4.53, *p*<.001. We surmise that participants considered Status prior to Choice in the Status condition, while choosing intuitively and then evaluating Status in the Choice condition. In sum, simply considering Status dramatically impacted the effect of response speed on acceptance, doubling the proportion of participants that chose the slower respondent.

In the following two studies (4A and 4B), we investigate the mediating mechanism of Other-orientation on perceptions of Status caused by slower Speed of response. In previous studies, we showed that slower Speed of Responses elicit overall negative reactions, yet they signal Status. This suggests that responding slower is a dominance-based (as opposed to prestige-based) pathway to Status. In comparing these two fundamental pathways to power, Cheng et al (2013) argue that both these pathways lead to greater influence and result in the concentration of available resources in the hands of the individual with higher-Status, however dominance-based strategies are not driven by popularity and individual who adopted a dominance strategy were not liked as their counterparts who adopted a prestige-based strategy. While a Prestige strategy involves showing competence and likeability and helping others, dominance strategies involve showing little concern about others. Tactics such as intimidation and use of force, which cause negative outcomes for lower-status parties. In this way, higher-status parties become feared and generally disliked .Yet, they acquire status by for. We propose that Speed of Response follows a similar, if subdued, pattern of results. Slower Speed of Response is a cause of inconvenience for the lower-Status party. Therefore, the higher-status party will both be more disliked and perceived of higher status. People and institutions using dominance strategies to gain status show more attention to their own needs than to those of the abused (or inconvenienced) party. For instance, coercion is used to satisfy

one's own needs, but it ignores the damages caused to the abused party. Similarly, slower Speed of Response forces the requesting party (i.e., the one waiting for a response) to neglect its needs, for instance by postponing important activities. At the same time, it displays relative indifference towards the requesting party from the responding party (i.e., the one giving the response). Based on this argument, we surmise that slower response times lead to lower perceptions of Other-orientation. In study 4A and 4B, we investigate this mechanisms and its spillover to related parties (e.g., a College and its students).

3.5. Study 4A

In this study we tested the impact of speed of response on Other-orientation, and ultimately, Status perception. Through experimental and mediation analyses, we show that slower response speed is an effective technique to ingenerate perceptions of Status. These perceptions are mediated by lower impressions of Other-orientation, higher for *faster* respondents. In the scenario we presented to the participants, we strived to keep busyness and impressions of efficiency constant, by keeping number of applications and acceptance rates constant, and by giving participants explicit information on the efficiency of each College's application review process in order to avoid that slower response times generated impressions of sloppiness and poor organization.

3.5.1. Methods

We recruited 403 participants on Mechanical Turk for this study (164 males, 239 females, Average age=35.6, average years of education=15.2). Participants were randomly assigned to one of two condition, Fast and Slow. They were shown the following scenario (in bold the Long condition):

> Kenant University is a mid-size College in the US, which receives about 1000 applications per academic year and accepts about 25% of the applications.

> The average time that Colleges in the USA take from the moment the College receives the application to the moment the College sends and acceptance letter is 41 days.
> Kenant University typically takes **82 days** (about double the national average) [**20 days (about half the national average)]** to send an acceptance letter.
> Kenant University's administrative staff is highly efficient. This is a deliberate policy.

We decided to keep the Selectiveness and the efficiency of the staff explicitly constant in order to control, experimentally, for Competence and Exclusivity of the College.

Further, participants responded to several questions. First they were asked two questions regarding their tendency to appease students, on a scale from 1 to 7 anchored at 1=Not at all and 7=Very much: "Do you think Kenant University would try to make their students happy, in general?", and "Do you think Kenant University would try to appease their students, in general?". These two items showed high reliability (α =.85) and were then averaged in Other-orientation index. Participants were then asked to judge the Status of the College on three items, also anchored at 1=Not at all and 7=Very much: Powerful, Rich, and Selective. These items showed high reliability (α =.75) and were thus averaged in a Status index. Finally, participants were asked about the College's perceived autonomy on an item adapted from Bellezza et al. (2014), "How much can Kenant afford to do what they want?", , also anchored at 1=Not at all and 7=Very much. In the end, participants were asked to complete a manipulation check by answering the following questions: "How fast is Kenant in responding to applications?", anchored at 1="Extremely slow" and at 7="Extremely fast".

3.5.1. Results

Manipulation Check. The manipulation worked as intended: participants perceived faster responses in the Fast condition compared to the Slow condition, $t(401)= -28.85$, $p<.001$, $d=2.88$.

Competence and Warmth. The items "Efficient" and Competent showed high reliability (α =.83) and were averaged in a Competence index. In the Slow condition, M(SD) =4.72 (1.57)

the University was considered less Competent than in the Fast condition, M(SD)=6.00 (1.08), t(401)= -9.52, p<.001, d=.94 The items Warm and Friendly showed high reliability and were averaged in a Warmth index (α =.94). In the Slow condition, M(SD)=3.77 (1.57) the University was considered less Warm than in the Fast condition, M(SD)=5.05 (1.14), t(401)= -10.29, p<.001, d=1.02. The index of Warmth and Self-Orientation were highly correlated (r=.71, p<.001 in Study 4A, r=.73, p<.001 in Study 4B), yet we maintain they are theoretically distinct concepts, the first describing a personal feature and the second an interpersonal one.

Other-orientation and Status. The College was perceived as less oriented towards its students when slower than average, *M*(*SD*)=4.46 (1.44), rather than when faster than average, *M* (*SD*)=5.46 (1.00), *t*(401)=-8.04, *p*<.001, *d*=.80. Finally, it was perceived of higher Status when Slow, *M* (*SD*)=5.30 (1.17), rather than when it was faster than average, *M* (*SD*)=4.91 (1.12), *t*(401)=3.39, *p*<.001, *d*=.34.

Mediation analysis. We ran a mediation analysis using model 4 of the PROCESS SPSS macro, using Speed as independent variable, Other-orientation as the mediator, and Status as the dependent variable. The results were in line with our reasoning, since the indirect effect was significant, ab (SE) =.26 (.06), 95% CI [.15; .38].

Previous research shows that deviating from the rules generates perceptions of power and Status (Van Kleef et al. 2011a). In this study, we compared both the Slow and the Fast response to a norm (the national average). Both conditions deviate from the norm from a factor of 2 (half; double), thus both of them are deviations. Yet, we observe a significant difference in Status perceptions. We do not therefore attribute the effect of slower speed of response on perceptions of Status to deviation itself, but rather as a unique effect that speed of response generates. Slower response times communicate lower Other-orientation which functions as a dominance signal of Status.

3.6. Study 4B

In this study, we investigated whether speed response by itself can explain the Status premium given to slower respondents. In order to do so, we manipulated response time. Further, we tested whether the Status premium can extend to parties affiliated to the respondent. We measured perceived Status of the University (respondent) and the students studying at the University (affiliated party)

3.6.1. Methods

Demographics. We recruited 303 participants on Mechanical Turk (191 females, Average age=36, Average years of education=15).

Procedure. Participants were randomly assigned to two conditions, Slow and Fast. They saw a scenario related to responses to College admissions (in bold, the Fast condition):

> Margon University is a mid-size College in the US, which receives about 2000 applications per academic year and accepts about 20% of the applications.
> The average time that Colleges in the USA take from the moment the College receives the application to the moment the College sends and acceptance letter is 36 days.
> Margon University typically takes 72 days (about double the national average) **[18 days (about half the national average)]** to send an acceptance letter.
> Margon University's administrative staff is highly efficient. This is a deliberate policy.

After reading the scenario, participants were asked to rate their impressions about Margon University related to College Status on four items anchored at 1=”Not at all” and 7=”Very much”: Powerful, Rich, Selective and Important. These items showed high reliability (α =.84) and were averaged in a College Status index.

We then asked people questions about Other-orientation on two items anchored at 1=”Not at all” and 7=”Very much”: “Do you think Margon University would try to make their students happy, in general?” And “Do you think Margon University would try to appease their

students, in general?". These items showed high reliability (α =.85) and were averaged in an Other-orientation index.

We then asked participants their impressions regarding Students' Status on seven items anchored at 1="Not at all" and 7="Very much": Rich, Privileged, Get a good education, Drive nice cars, Wear designer clothes, From wealthy families, Have visited exotic places. These items showed high reliability (α =.94) and were averaged in a Students' Status index.

We then asked participants how likeable the universities were on two items anchored at 1="Not at all" and 7="Very much": Warm and Friendly. These last two items showed high reliability (α =.96) and were averaged in a Warmth index.

Since both Busyness and competence are associated to Status, we then asked participants how competent the universities were on two items anchored at 1="Not at all" and 7="Very much": Competent and Efficient. These items showed high reliability (α =.96) and were averaged in a Competence index.

We also asked participants to rate how Busy they thought the university was, 1="Not at all" and 7="Very much".

As a manipulation check: participants were asked to "How fast is Margon College in responding to applications?" on a scale from 1=Very slow to 7=Very fast.

3.6.2. Results

Manipulation check. Participants considered the University faster in responding in the Fast condition, M(SD)=6.17 (1.01) compared to the Slow condition, M(SD)= 2.46 (1.45), $t(301)= -25.93$, $p<.001$, $d=2.97$.

Warmth and Competence. In line with expectation, the University in the Slow conditions was considered less Warm, M(SD)= 3.64 (1.41) compared to the Fast condition, 4.97 (1.20), $t(301)= -8.83$, $p<.001$, $d=1.07$. The University was considered less Competent in the Slow

condition, M(SD)= 4.92 (1.37) compared to the Fast condition, M(SD)=6.10 (.96), *t*(301)=-8.64, *d*=.99.

Status and Self-other orientation. Results were in line with predictions. College Status was higher in the Slow condition, *M(SD)*= 5.26 (1.08), compared to the Fast condition, *M* (*SD*)=4.99 (1.07) *t*(301)=2.21, *p*=.03, *d*=.25. Student Status followed a similar pattern, higher in the Slow condition, M(SD)= 4.86 (1.19) compared to the Fast condition, M(SD)= 4.56 (1.17), *p*=.03, *d*=.25. Finally Other-orientation was lower in the Slow, M(SD)= 4.23 (1.43) than in the Fast condition 5.63 (1.17), t(301)= -9.31, p<.001, d=1.13. Busyness did not significantly differ among the Slow condition, M(SD)= 4.92 (1.34), and the Fast condition, M(SD)= 5.13 (1.30), *p*=.21, *d*=.12.

In this study we show that slower response speeds produce adverse reactions but lead to higher Status perceptions of both institutions and students associated with them. This is driven by perception of Other-orientation.

Mediation analyses. We ran a mediation analysis using model 4 of the PROCESS SPSS macro, using Speed as Independent Variable, Other-orientation as the mediator and College Status as the Dependent Variable. The indirect effect was significant, *ab* (SE)=.40 (.09), 95% CI [.25; .59]. In order to test whether the same mechanism had an effect on Student status, we ran another mediation analysis using model 4 of the PROCESS SPSS macro, using Speed as Independent Variable, Other-orientation as the mediator and Student Status as the Dependent Variable. The indirect effect was significant, *ab* (SE)=.35 (.09), 95% CI [.19; .54]. The lower Other-orientation that Speed of Response communicated caused both the College and the Student Status to increase.

4. General discussion

In this paper, through within-participants and between-participants experiments, we explored the role of decision time in a variety of situations, involving parties (people and institutions) of different status.

In study 1A, we show people that are slower in responding to requests are liked less, yet considered of higher status. In study 1B, we replicate the results of study 1A using institutions as the signaling parties, and we control for Busyness perceptions. In study 2 we show that decision time is only used as a status cue if status is not apparent: if the status motive is already highly present in the situation surrounding the interaction between the parties, response time does not lead to higher status, while, when status motives are not so obvious, participants made inferences of higher status from slower response times. Ironically, then, response time is not a useful cue in status-laden situations. In study 3, we explore the role of intuition on the interplay between decision time and status perception: people intuitively prefer faster decision-makers, but when given the opportunity to reflect on the respondents' Status, they are more likely to favor the slower respondent. In study 4A and 4B, by keeping busyness constant, we explore the mediating role of self-orientation in generating impressions of and status, and the spillover to related parties.

We contribute to several streams of research. Research in social psychology (van de Calseyde et al, 2014) has considered the role of decision time in judgment and decision making. We introduce signaling motives in this literature, by showing that response times may have hidden motives, related to status. Research on status-signaling has mostly considered signal that are *qualitatively* different than non-status-signaling cues (e.g. a Rolex signals high status, while a Swatch signals low status). We show that people understand response times as both a positive signal of status and expect higher status institutions, exclusively basing on *quantitative* differences in response times (e.g., 1 hour vs. 24 hours). This notion is separated from the notion of busyness (Bellezza et al. 2017). Our results fit nicely with those of Dubois,

Rucker, & Galinsky, (2012) and Dubois & Ordabayeva (2015) if we consider that, in hierarchical societies, not only higher-status members have access to more resources *in general*, but they have access to the resources *of lower-status members* in particular (e.g.: generals have priority in access to food compared to foot soldiers, and in scarcity times they take their food; secretaries are more likely to cheat on their partners with their bosses). We introduce the notion of time as a negotiable, status-dependent resource in this discourse, and show the motives and consequences of response times as strategic status-signaling device.

In most of the status literature, status and valued personal features such as competence and warmth (Fiske et al. 2007) go hand-in-hand (Anderson and Kilduff 2009). Manipulations that cause an increase in perceptions of completeness often also cause an increase in perception of competence. Strikingly, we find that competence and status can move independently: competence is lower for slower respondents and status is higher. This is logical if viewed through the lens of dominance (Cheng et al. 2013): dominance does not imply the signaling of desirable qualities in order to signal status, but simply the willingness and the attitude to use coercion. We find results in line with this perspective: slower Decision time makes people think that you are less competent and less warm, yet of higher status.

Our results are relevant for the theory and practice of management. Theoretically, we deepen the understanding of the role of nonverbal communication, by showing that it can be effective even in long-distance communication such as email. In doing so, we deepen the understanding of speed of response in interpersonal communication, in two ways. First, we show that, while previous literature demonstrated the positive effects of speed of response (the faster=the better), we show an opposite one (the *slower* = the better). Second, we introduce in the literature the notion that speed of response has an effect on perceived status of both people and institution. Third, by exploring the reactions to slower responses, we show that response

time is a dominance-based status-gaining strategy (Cheng et al. 2013), of the type “better be feared than be loved”.

Managerially, our results have several different implications. First, people may be tempted to slow down responses if they have status signaling motives. This may have different negative consequences, both by annoying coworkers and by negatively impacting the information flow and the company’s efficiency. Second, we show that, in relationship with a status imbalance (such as the one between manager and employee, but also between bigger, more prestigious client and smaller, less prestigious supplier), there is a different approach to time: the part that is higher in status is going to take longer to respond, and the part that is lower in status is going to take shorter. This relationship with time reverses when it comes to time given (for example, time given to accept a scholarship offer from a college of high vs. moderate prestige to the same, high-achieving student): high-status parties give less time, and low-status ones give more time. This needs to be taken into account by the interested parties, who need to have a clear picture of the degrees of status involved in the relationship in order to a) correctly interpret response-time signals; b) anticipate it in order to avoid time-related issues (e.g., expiring products, variation in productions times).

CHAPTER IV: NEGATIVE EMOTIONAL EFFECTS OF EFFORT INFORMATION

CHAPTER IV: NEGATIVE EMOTIONAL EFFECTS OF EFFORT INFORMATION

1. Introduction

The Guardian's film blog (Child 2016) lists several cases of "method acting gone too far". Some of them are painful, yet quick – such as Nicholas Cage pulling a baby tooth out while shooting *Birdy*. Others are longer. Daniel Day-Lewis spent the whole shooting period of *My Left Foot* on a wheelchair – refusing to stand up even when the cameras were shut off. This undoubtedly caused him (and the crew) a great inconvenience: the character he was playing was born with cerebral palsy, so Day-Lewis had to be spoon-fed at mealtimes and carried around the set and his lodgings. The article's author – after each case of method acting – also evaluates two factors. The first is the effort expended in the method acting– on a 1-10 scale. The second one is "Was it worth it?" in which the author gives his judgment of whether the effort produced a positive, or even memorable, acting performance. The judgment on the second factor is overwhelmingly positive: higher effort leads to higher acting quality, prizes and accolades. In this paper, we question that the strategy that *The Guardian* article proposes is effective. Highlighting the production effort – and especially the emotional state of mind connected with it – may in fact backfire: effort is associated with negative mood (Inzlicht, Shenhav, and Olivola 2017), and negative mood reduces product attractiveness (Kahn and Isen 1993). In the remainder of this Chapter, we will argue that anticipated mood, effort, and quality are interconnected – and that higher production effort leads to inferences about the author's mood, the consumer's mood, and the product quality that go against the intention of those pointing out production effort.

Consumers often decide based on their *anticipated* mood. Consumers thus try to forecast how they would feel after a purchase and if this maps on to their expectations, they decide to buy. For instance, anticipated regret (Zeelenberg and Pieters 2004) and anticipated satisfaction (Shiv and Huber 2000) are drivers of consumers decision – making. Mood valence – the extent to which someone feels positive or negative – is often present in consumer decisions (Kahn and Isen 1993; Raghunathan and Pham 1999). Consumers also decide based on how the product is going to make them feel, compared to their current status, and they are more likely to buy if the product is going to make them feel better. This process is called "affective forecasting" (Wilson and Gilbert 2005; Macinnis, Patrick, and Whan Park 2006) and is among the main drivers of consumer behavior. It is enacted during the pre-purchase phase, when consumer gather and evaluate information about products in order to make choices.

Consumers have an ambiguous relationship with effort (Inzlicht et al. 2017): while they tend to avoid it, they prize its products, both after exerting it and after observing it. Other consequences of perceived effort information in consumer behavior have been studied (Kruger et al. 2004; Cho and Schwarz 2008; Olivola and Shafir 2011), the mood valence originated by different amounts of effort in the production process has not. While there are a host of factors that influence people's attitudes towards product depending on how the product was made (Fuchs, Schreier, & Van Osselaer, 2015) past research has neglected factors influencing how the production process influences the consumer's anticipated emotional state. One common signal and measure of the production process is the effort expended in it.

In this research we suggest that effort information used to describe a product – higher effort information in particular- has harmful effects on consumer's anticipated mood. In our case however, mood contagion is not driven by the author's intention, but rather by inferences made by the consumers regarding the author's mood during the productive process. The

author's mood then infects the anticipated consumer's mood through product mood. We uncover systematic inferences of author mood derived from effort information, showing it is a mood cue, and we explore its impact on consumer's own forecasts of their own mood.

This research connects three streams of literature. First, it contributes to the understanding of effort information in marketing: while previous literature showed a generally positive influence, we show a negative one. Second, it deepens the understanding of emotional valence that consumers attribute to products and productive processes. Third, it investigates which cues consumers consider when they make mental forecasts of their mood.

We fill a gap in the literature by showing that inferences about the production process affect producer and product mood. These inferences in turn lead to consumers' anticipations of mood. In sum, we show that consumer affective forecasting can be triggered by effort information through consumers' inferences.

2. Theoretical background

2.1. Product mood and consumer mood

A host of findings suggest that consumers feel that product attributes transform them at a personal level, or anticipate such transformation. Consumers perceive themselves to acquire the features of the products they use (Park and John 2010), and mere contact with products can enhance consumers' performance in competitive tasks (Park and John 2014). Merely owning a product further increases domain-specific self-efficacy: consumers believe that they are better at an effortful task just because they get possession of an article that may help them complete the effortful task (Yeung et al. 2017). Consumers are more likely to assume features of products they own compared to features of products they do not own (Weiss and Johar 2016), and owning products changes how consumers view products features, because consumers use the self as a comparison benchmark (Weiss and Johar 2013). While advertising theory predicts that brands will acquire traits of endorsers, the reverse can happen as well: endorsers may become more similar to brands, especially when pre-existing knowledge about them is non-existent or weak (Arsena, Silvera, and Pandelaere 2014).

Products can transmit different mood valence independent of their features (e.g., an otherwise happy song can remind of an ex-lover, and so being associated with a negative mood). Moreover, products - and especially cultural ones – can inherently possess differences in mood based on content. A book's content can be sad or happy, but a product can have specific mood associated with it *independently* of content considerations. In our case, the association with negative author's mood may generate negative product mood in consumer's eyes. We propose that consumers make inferences about product mood through inferences about productive processes.

While no research to date has examined how product mood may affect consumer anticipated mood, the idea that consumers anticipate that product features may rub off on them may apply

to product mood as well. As such, a product's assumed mood may serve as a cue as to how one would feel after consumption of that product. Next, we develop how mood may be connected to production effort.

2.2. Mood and effort

Effort is "the subjective intensification of mental and/or physical activity in the service of meeting some goal" (Eisenberger 1992). In everyday life, expending more effort (e.g., foraging for longer or exercising for longer) produces objectively better outcomes (Apps et al. 2015) and a good deal of research has documented the appreciation of effort. When people expend more effort – and get to reap its rewards - they tend to value products more and to feel better (Mochon, Norton, and Ariely 2012; Norton, Mochon, and Ariely 2012). When firms show effort in displaying products, they are rewarded for it by consumers (Morales 2005): the more effort in the presentation, the higher the willingness to pay. Handmade products are prized over machine-made ones (Fuchs et al. 2015), because consumers believe that producers have put more effort and love into them. Giving the illusion of labor makes longer waits more tolerable (Buell and Norton 2011), and showing how something is made boosts product value and perceived quality (Buell et al. 2016). In general, highlighting effort and giving effort information about the production process increases positive feelings associated with the producer and product, its perceived quality, and increases consumers' willingness to pay.

Although consumers tend to appreciate the fruit of effort, people actively avoid effort (Kool et al. 2010), and will forego bigger rewards if they can avoid effort (Apps et al. 2015). Unrewarded effort leaves people unsatisfied (Norton et al. 2012), and people are unwilling to exert effort without a reward (Wang, Zheng, and Meng 2017). When rewards are not proportionate to effort, people's sense of fairness is threatened (Bazerman, White, and Loewenstein 1995). Effort implies spending valuable and finite resources, such as time,

money, and energy. Since people tend to conserve resources, they should not expend effort if they can avoid it. From this perspective – saving precious energy - it makes sense that people not only avoid effort, but experience it negatively, in the same way that other sensations linked to energy management – i.e., hunger - are experienced as distinctively negative. Effortful actions are indeed associated with negative affect: harder laboratory tasks (conflicting Stroop tasks) prime faster recognition of negatively valenced stimuli (Dreisbach and Fischer 2012). People are also more likely to self-report negative emotions such as anxiety, frustration and fatigue after their own cognitive effort (Inzlicht and Al-Khindi 2012; Spunt et al. 2012; Saunders, Milyavskaya, and Inzlicht 2015).

So, while people appreciate the outcome of effort, they may not like the process of exerting effort themselves. Several streams of research indicate that people often project their opinions and emotions onto other people (Ross, Greene, and House 1977; Huntsinger et al. 2009). Similarly, consumers may assume that other people also tend to dislike spending effort. As such, consumers may assume that the creator of a cultural product may be in a worse mood when the creative process was effortful rather than easy. Finally, in the same way products may acquire aspects from celebrities endorsing these products (McCracken 1989), we propose that cultural products may acquire the mood of their creators.

In sum, the present research suggests that, in the same way that consumers perceive their own emotions as negative during effort, they will consider other people's emotions as more negative when associated with more effort. In addition, we propose that products resulting from higher-effort production processes will also be associated with negative mood. Moreover, we propose that the mood of their creator may affect the products' mood. Consequently, consumers may infer product mood from information about the effort involved in its creation.

Formally, we predict

H1: Higher Author effort information will lead consumers to imagine themselves in a more negative post-consumption mood, because of similar inferences regarding the author mood valence during the production process and the product mood valence. This will lead consumers to stop relying on the effort heuristic

One easily understandable way to communicate effort information is to convert it into time spent. All else equal, a student will have spent more effort by studying three hours rather than one. As a result, people will infer effort from production time information and so, we predict

H2: Higher duration will cause expectations of higher effort, lower producers' mood, lower product mood, and lower forecasts of consumer's mood

3. Study overview

In this paper, we investigate how effort information shapes post-consumption mood anticipation through eight experiments. In study 1, we vary the sequence in which participants either choose products, evaluate their own mood, and the author's mood. In study 2, we vary the time spent by the author in the producing process to communicate effort, as in Kruger et al, (2003). In study 3A to 3C, we vary product length and use it as a proxy for effort. We find evidence for the proposed causal mechanism both with a between and within subjects methodology and through mediation analysis.

In studies 1 and 2, we communicate effort in the same way that Kruger et al., (2004) do: time spent for production. We further employ cultural products that we believe are more apt – compared to non-cultural products - at communicating emotions. Cultural products are different than others because they can also differ in length: a book can have a variable number of pages and a movie can be of different duration.

In studies 3A to 3C, we argue that cultural product length is a signal of effort: longer products are more effortful. Length triggers inferences about the productive process, in particular by increasing perceptions of increased effort. In studies 3A to 3C, we establish Length as a proxy for Perceived Effort and test its impact on Mood Valence.

Regarding our measures, we started by following the advice of Fordyce (1988) that recommends the use of one-item measures in order to keep participants' fatigue low. In several of the experiments, however, we use multiple items to measure mood valence (e.g., Study 1 - measures used by Pronin and Wegner 2006). This was driven by the necessity of controlling for noise and potential unreliability of one-item measures. We note that we find similar results with one-item measures and multiple-item measures, and specular results for positive and negative mood.

Study	N	Design	Products	IV	DV	Mediator(s)	Moderator
1	598	Mixed	Books	Effort	Choice	1) Author's mood 2) Consumer mood 3) Quality	Sequence of consideration
2	289	Mixed	Books	Time spent (effort)	Consumer's anticipate mood valence	1) Author's mood 2) Product's mood	Product type (unsuccessful)
3A	332	Within-subjects	Books	Length	Consumer's anticipate mood valence	Product mood valence	-
3B	76	Within-subjects	Books, Songs, Movies	Length	Consumer's anticipate mood valence	Effort	-
3C	402	Between-subjects	Movie	Length	Consumer's anticipate mood valence	1)Effort 2) Author's mood 3) Product's mood	-

Table 4.1. Study overview, Chapter IV

4. Methods and Results

4.1. Study 1

This study aims to answer three questions. First, it is not clear what impact the purported effect of effort on mood has on marketing-related variables. Our reasoning suggests that, in contrast to prior literature, Author's effort should have a negative impact on marketing-relevant DVs such as Quality, WTB, and product choice. Second, it is not clear which step of the causal chain is crucial in either inferences of mood or their impact on marketing-related variables. In this study, we vary which element participants consider first among the following: a) their own post-consumption mood; b) product choice; c) the author's mood. Third, previous research has shown that the same manipulations can affect positive mood but not negative mood. Therefore, we use measures of both positive and negative mood (taken from Pronin and Wegner 2008) to inspect whether Effort has a bigger impact on either positive or negative mood.

4.1.1. Methods

We recruited 598 participants on MTurk for study 5 (266 males, 332 females, Mean age=35.3). They first read the following scenario, where two fantasy books from the same author and with similar features were presented as ostensibly different, uniquely regarding the amount of effort (time) that the author spent composing the first one (1 year) and the second one (3 years):

> You are undecided between two adventure novels by the same author, Nathan McCoy, an experienced novelist that has written 15 fantasy books.
>
> They both have around 400 pages and cost $18.
>
> The first novel's title is "Colton", and the second novel's title is "Rayvhan".
>
> They are not part of the same timeline or universe.
>
> The first novel ("Colton") took the author about 1 year of work.
>
> The second novel ("Rayvhan") took the author about 3 years of work.

Then participants were randomly assigned to three conditions. In the Choice condition, participants first had to indicate which one of the books they would rather choose, then their

expectations of quality for each book (1=Very Low, 7=Very high) and their WTB for each book (1=Not at all likely 7= Very likely). In the next screen, participants had to rate what they expected of the mood of the author while composing the opera on 6 items used by Pronin et al 2008 on 1-9 items (labeled at 1=”Very slightly”, 3=”A little”, 5=”Moderately”, 7=”Quite a bit”, 9=”Extremely”), of which three were positive (Excited, Enthusiastic, Happy) and three were negative (Distressed, Hostile, Irritable). We also measured their expectations regarding the content and the characters’ negative mood (“Contains sad characters”, “Contains sad episodes”, anchored at 1-7, Not at all-Very much), their expectation of the effort required on the consumer side (“Takes a lot of effort to be read”, “Takes a lot of time to be read”, anchored 1-7 Not at all-Very much) and their expectations regarding their own mood on the 6 items adapted from Pronin et al (20080 described above. In the Author condition, the first thing that participants had to rate was the Author’s mood, followed in the next screens by the other measures; in the Consumer condition, participants had to rate first their own anticipated mood. The sequence in which participants completed their ratings is summarized in Table 4.2.

Condition →	**Choice First**	**Author First**	**Consumer First**
1	Choice	Author’s mood	Consumer mood anticipation
2	WTB	Choice	Choice
3	Quality	WTB	WTB
4	Author’s mood	Quality	Quality
5	Content anticipation Consumer Effort	Content anticipation Consumer Effort	Author’s mood
6	Consumer mood anticipation	Consumers mood anticipation	Content anticipation Consumer Effort

Table 4.2. Ratings sequence in Study 1.

4.1.2. Results

Choice. The high-effort product was more likely to be chosen in the Choice (71/210 participants) and in the Consumer condition (75/194 participants) rather than in the Author condition (98/194 participants), $\chi^2(2)=12.20$, p=.002. The Author condition was significantly

different from both the Choice and the Consumer condition ($\chi^2(1)=11.56$, p=.001, φ=.17 and $\chi^2(1)=5.52$, p=.02, φ=.12 respectively). The Choice and the Consumer condition were not significantly different from each other, $\chi^2(1)=1.03$, p=.31.

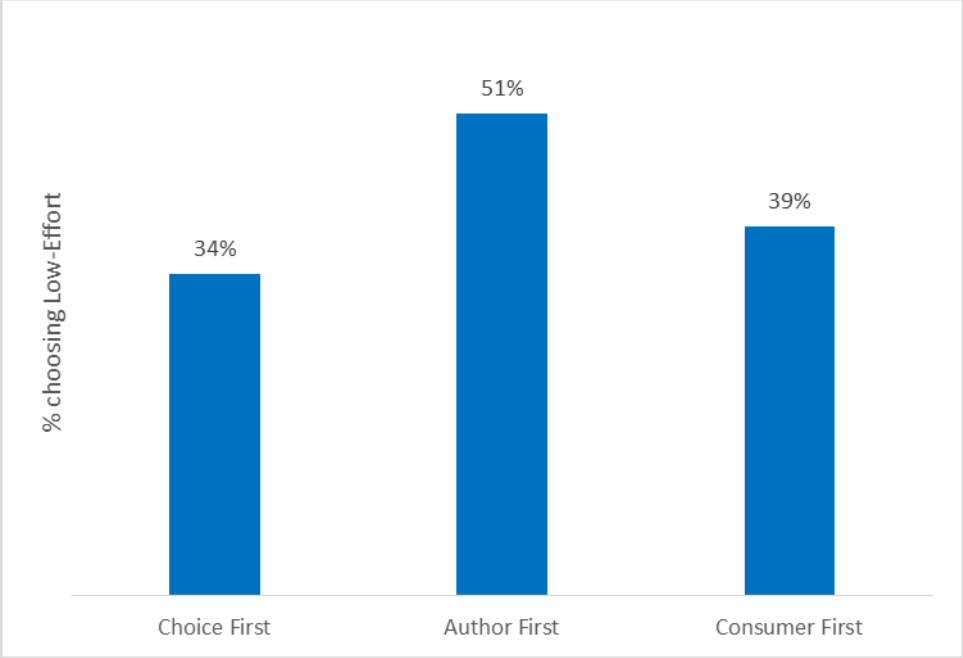

Fig. 4.1. Effect of mood consideration sequence on choice, Study 1.

WTB. A mixed-model ANOVA with product (Low effort vs. High effort) as a within-subjects factor and Condition as a between-subjects factor found a significant effect of Effort F(1,595)=31.40, p<.001 and a significant mixed interaction on WTB, *F*(2,595)=6.51, p=.002. No significant between-subjects effect of Condition was found, *F*(2,595)=.83, p=.44. In both the Choice and the Consumer condition, WTB was higher for the High-Effort product compared to the Low-Effort product, but this difference was reduced in the Author condition.

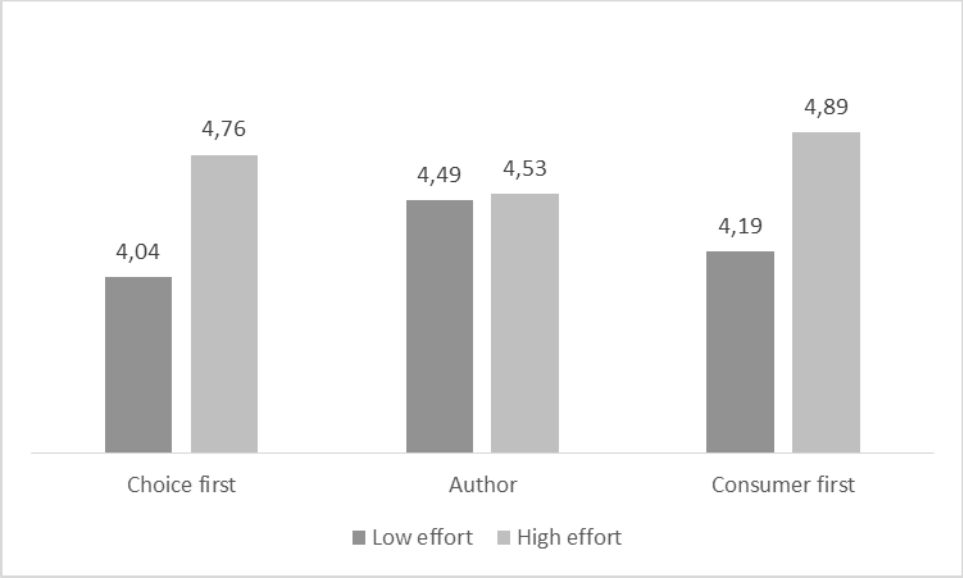

Figure. 4.2. Effect of mood consideration on WTB, Study 1.

Quality. A mixed-model ANOVA with product (Low effort vs. High effort) as a within-subjects factor and Condition as a between-subjects factor found a significant effect of Effort $F(1,595)=103.29$, $p<.001$, and a significant mixed interaction on Quality perceptions $F(2,595)=5.04$, $p=.007$. No significant between-subjects effect of Condition was found, $F(2,595)=.26$, $p=.77$. The High- Effort product was considered of higher quality in all conditions, but this difference was smaller in the Author condition.

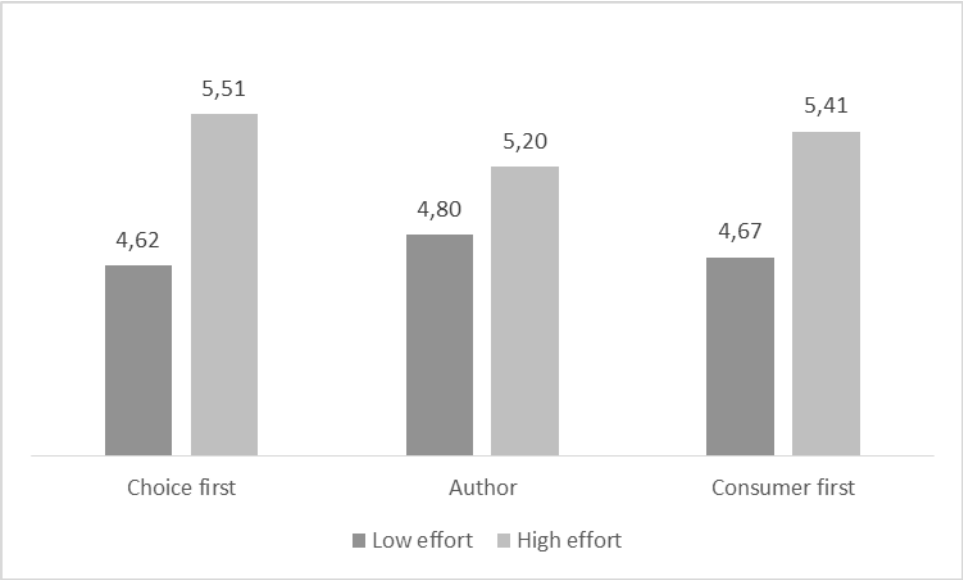

Figure 4.3. Effect of mood consideration on Quality, Study 1.

Reliabilities of Mood Measures. The measures yielded 8 indices of mood, one per valence (Negative vs. Positive), one per Product (Low vs. High Effort) and per Object (Author vs. Consumer). In the appendix we report reliabilities for each one of them (all were >. α=.85)

Authors' mood- positive. A mixed-model ANOVA with product (Low effort vs. High effort) as a within-subjects factor and Condition as a between-subjects factor found no significant effect of Effort, F(1,595)=1.82, p=.18 and a significant mixed interaction on Author's anticipated positive mood F(2,595)= 9.21, p<.001. The difference between the Low and the High effort products were smaller or favoring the High effort book in the Choice and the Consumer condition (6.03 vs. 6.10 and 6.23 vs. 6.44 respectively) compared to the Author condition (6.39 vs. 5.78).

Authors' mood- negative. A mixed-model ANOVA with product (Low effort vs. High effort) as a within-subjects factor and Condition as a between-subjects factor found a significant effect of Effort *F*(1,595)=76.67, p<.001 and a significant mixed interaction F(2,595)= 12.09, p<.001 on Author's anticipated negative mood. The differences in positive mood were smaller in the Choice and in the Consumer condition (2.99 vs. 3.50 and 2.90 vs 3.22) than in the Author condition (2.70 vs. 3.94).

Author's mood – total. A mixed-model ANOVA with Effort (Low vs. High) as the first within-subjects factor, Mood Type (positive vs. negative) as a second within-subjects factor, and Condition as a between-subjects factor yielded a significant three-way mixed interaction of Mood Valence, Product Effort and Condition, F(2,595)=14.22, p<.001.

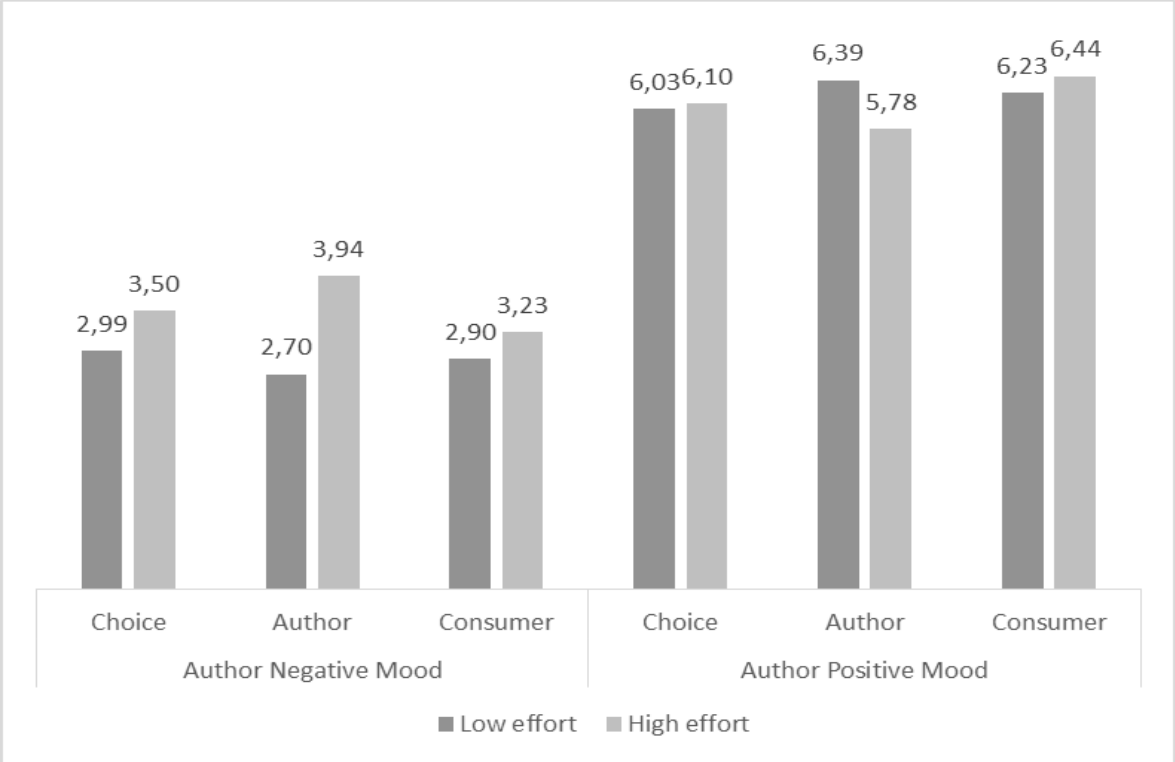

Figure 4.4. Effect of mood consideration on Author's mood

Consumer's mood- positive. A mixed-model ANOVA with product (Low effort vs. High effort) as a within-subjects factor and Condition as a between-subjects factor found a significant effect of Effort, F(1,595)=27.09, P<.001 and a significant mixed interaction on Consumer anticipated positive mood, F(2,595)=5.00, p=.007. Differences were favoring the High effort book in the Choice and the Consumer condition (5.13 vs. 5.64 and 5.55 vs. 6.16) compared to the Author condition (5.39 vs. 5.44).

Consumer's mood- negative. A mixed-model ANOVA with product (Low effort vs. High effort) as a within-subjects factor and Condition as a between-subjects factor found a significant effect of Effort, F(1,595)=15.26, p<.001 and a significant mixed interaction on Consumer anticipated negative mood F(2,595)=3.86, p=.022. Differences were favoring the high effort product in the Choice and Consumer condition (2.50 vs 2.75 and 2.10 vs 2.13) but went in the opposing direction for the Author's condition (2.62 vs 3.09).

Consumer mood- total. A mixed-model ANOVA with Effort (Low vs. High) as the first within-subjects factor, Mood Type (positive vs. negative) as a second within-subjects factor, and Condition as a between-subjects factor yielded a significant three-way mixed interaction of Mood Valence, Product Effort and Condition, F(2,595)=5.87, p=.003.

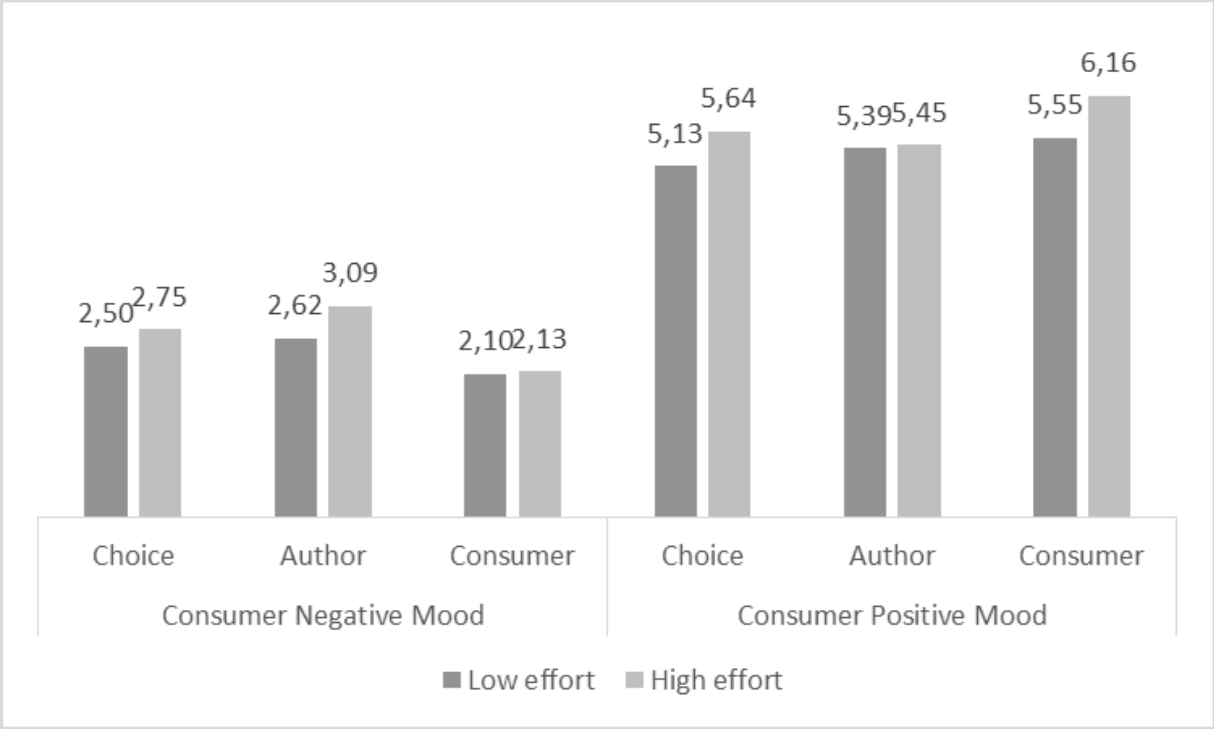

Figure 4.5. Effect of mood consideration on Consumer anticipated mood.

Content and effort expectations. A mixed-model ANOVA with Content expectation as the DV, Condition as the between-subject factor did not find effects of the interaction between condition and effort on the expectations of content $F(2,595)=.82$, $p=.44$, finding however a within-subject effect of Effort, $F(1,595)= 94.14$, $p<.001$, and a non-significant between-subjects effect of Condition, $F(2,595)=2.31$, $p=.10$. More effortful books were anticipated containing more sad episodes and characters, independent of Condition.

Consumer Effort. A mixed-model ANOVA with the effort requested to the consumer as DV, Condition as between-subjects factor, Product as within-subjects factor found a significant within-subjects effect of Product, $F(1,595)=212.98$, $p<.001$, no mixed interaction, $F(2,595)=2.12$, $p=.12$, and no significant between-subjects effect, $F(2,595)=6.59$, $p=.08$. These results make it unlikely that consumer effort is the explanation of mood, since we successfully decoupled them by varying the order in which they consider either their own or other people's mood (which affects author and consumer mood but not consumer effort).

Serial Mediation – Willingness-To-Buy (WTB). In order to perform mediation analysis, we first grouped the Choice and the Consumer condition as they showed no difference. Then, we calculated a difference-in-difference index for both Author's mood and Consumer's mood, by subtracting the Negative mood index from the Positive mood per Product, and then subtracting the obtained Mood Difference index of the Low Effort following this formula:

((Lowpositive-Lownegative) – (Highpositive-Highnegative)). This method is recommended by Judd, Kenny, and McClelland (2001), and Kenny, Korchmaros, and Bolger (2003). We calculated simple Difference indices for Product Quality, and WTB by subtracting the score of the High-Effort Product from the score of the Low-Effort. Finally, we used PROCESS model 6 to perform a serial mediation analysis with Condition as the Independent Variable, Author Mood Difference as the first Mediator, Consumer Mood Difference as the second Mediator, Quality Difference as the third mediator and Willingness-To-Buy difference as the DV. The bootstrap interval did not include zero, ab(SE)=-.12 (.04), 95% CI [-.22; -.05].

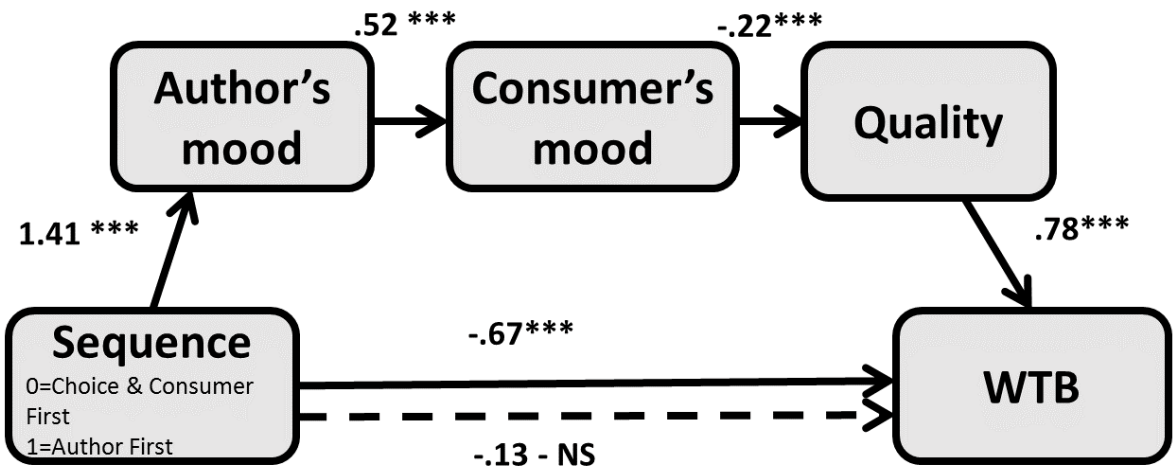

Figure 4.6. Serial mediating effect of Sequence, Author's Mood, Consumer's Mood, and Product Quality on WTB, Study 1. The first two mediating variables (Author's mood and Consumer's mood) are Difference-in-Difference scores. Quality is a Difference score (High Effort-Low Effort Quality).

Serial Mediation - Choice. We used PROCESS model 6 to perform a serial mediation analysis with Condition as the Independent Variable, Author Mood Difference as the first Mediator, Consumer Mood Difference as the second Mediator, Quality Difference as the third mediator and Choice as the DV. The bootstrap interval did not include zero, ab(SE)=-.26 (.09), 95% CI [-.47; -.13].

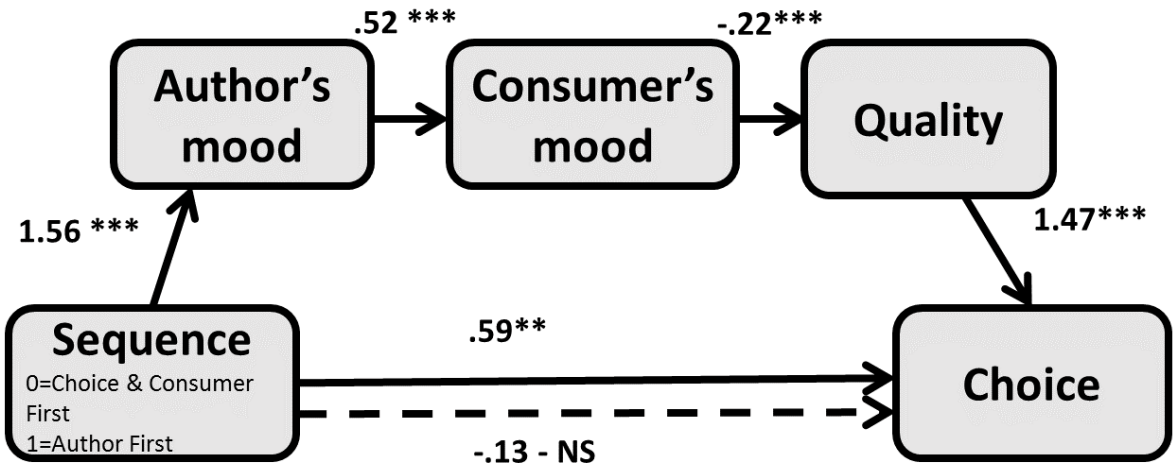

Figure 4.7. Serial mediating effect of Sequence, Author's Mood, Consumer's Mood, and Product Quality on Choice, Study 1. The first two mediating variables (Author's mood and Consumer's mood) are Difference-in-Difference scores. Quality is a Difference score (High Effort-Low Effort Quality).

4.1.3. Discussion

Study 1 yields three major results. First, we show that considering Author's mood first has a considerable impact on product evaluation (Quality), WTB, and product choice. This clarifies and extends the potential marketing implications of this work, by showing when Production Effort and Mood have an impact on marketing-relevant consequences. Second, we find that only considering Author's mood first moderated the mood differential but content considerations and one's own mood consideration were not affected by the Sequence in which participants considered the different variables. This nuances the conclusion presented earlier in this chapter, and sheds light on the psychological process connecting production effort and consumer mood. Only if consumers have the chance of thinking of another person exerting effort, then they will think themselves in a lower mood post-consumption. This, in conjunction with the absence of a moderation effect of Condition on Content Expectation and Consumer Effort, clarifies the impact of Production Effort on Author and Consumer Mood. That is, the sequential effect of Effort on Consumer mood does not appear to be driven by either Content expectations (that are always more negative for the high-effort product) or by

expectations of Consumer Effort (more negative for the high-effort product in all conditions). Third, we show that the impact of effort on consumer mood is driven by both an increase in negative mood, and a decrease in relative mood. This is not an obvious finding as they often move independently (e.g., Pronin, Jacobs, and Wegner 2008 find a positive effect of thought speed on positive mood – but not on negative mood).

In this and other studies, we measure – at the same time – author mood valence and consumer mood valence. This begs the question of whether they are indeed the same construct. Study 1 immediately tackles the problem – by changing the sequence in which participants consider their own post-consumption mood or the author's mood. If they were treated by participants as the same concept, we should see different patterns of results. In particular, we should see very similar patterns of results for Negative Consumer Mood and Negative Author Mood on one hand, and Positive Consumer Mood and Positive Author Mood on the other hand. However, we find different patterns of results. Authors are thought of having largely more negative mood (in all conditions) during the production of the High-Effort book, but this different is only significant in the Author First condition for Consumer Negative mood. For Positive mood, again we observe a different pattern of results. Specifically, in both the Choice First and the Consumer First condition, Author positive mood is not significantly different between the High and Low-Effort product, while there is a significant difference – favoring the Low-Effort book – in the Author First condition. However, Consumer Positive Mood favors the High-Effort book – while showing no significant difference in the Author First condition. It is clear that Author's Mood and Consumer's Mood are related variables. Yet, we argue that our manipulation of Sequence has manipulated Author's Mood specifically – which then influences Consumer's anticipated mood and moves Marketing-relevant DVs. This approach - manipulating one of the two variables directly - is likely superior to testing discriminant validity, and it also speaks to the causal chain we are investigating: only when

Author Mood is considered first – i.e., manipulated – does Effort influences Consumer Mood through more Negative Consumer Mood.

4.5. Study 2

Study 2 has two purposes. The first one is to extend the findings of Study 1 to an antecedent of product mood valence - author mood valence during production, and to a consequence of product mood valence – anticipated consumer mood valence. The second purpose is to test whether the effect of Effort on Mood Valence is moderated by the suitability of the product to transmit emotions. We are successful with regard to the first purpose, and unsuccessful with regard to the second one.

4.5.1. Methods

We recruited 289 American participants on Mechanical Turk for this study (122 males, 167 females, Average age=36, Average years of education=15). They were assigned to one of two Book Type condition (Manual – unsuitable to transmit emotions - and Novel – suitable to transmit emotions), where they read the following text, in which we presented two books of diverging Production Effort (we counterbalanced for titles):

> "The Garden" is a gardening manual **(novel)**, about 250 pages long. It costs $15. It took its author 1 year to write.
>
> "Forking Paths" is a gardening manual **(novel)**, about 250 pages long. It costs $15. It took its author 2 years to write.

Participants further had to evaluate, each on two items (Happy, Sad) anchored at 1=Not at all and 7=Very Much, what they thought of a) the writer's mood was during the writing; b) the general mood of the book; c) their anticipated mood after they read each book.

We reverse-coded each Sad item and averaged them with the Happy item after each reliability was satisfactory (conventionally at >.7; we report the Cronbach αs: Writer High effort=.86;

Writer low effort=.80; Book high effort=.87; Book Low effort=.80 Anticipated Consumer's mood High effort= .77; Anticipated Consumer's mood Low Effort=.71). We wish to clarify why we chose to calculate different Cronbach's αs per condition. High and Low effort are within-subjects conditions. They refer to different stimuli: that is why they have two different αs. Potentially, the reliability of the two items could be different depending on the condition, but while we observe a lower α in the Low effort condition, in all cases it is above the acceptable .70.

4.5.2. Results

Mood valence analysis. The mood of the writer during the production process was considered more negative for the High Effort book than for the Low Effort mood, as were the mood of the High Effort book itself, and the Anticipated Mood that subjects reported. Within-subjects Cohen's *d* in this and following studies has been calculated following Lakens (Lakens 2013). Participant rated the Writer's mood valence in the High Effort condition M(SD)= 3.74 (1.60) more negatively than in the Low Effort condition, M(SD)= 4.19 (1.38), $t(288)= -5.31$, $p<.001$, $d=.31$. Similarly, the rated the Book's mood valence in the High Effort condition M(SD)= 3.92 (1.67) more negatively than in the Low Effort condition, M(SD)= 4.19 (1.53), $p=.004$, $t(288)= -2.90$, $d=.17$. Participants rated their own Anticipated Consumer's Mood Valence in the High Effort condition, M(SD)= 3.88 (1.63) more negatively than in the Low Effort condition, M(SD)= 4.20 (1.46), $p=.001$, $t(288)= -3.45$, $d=.20$. Finally, we did not find a main effect of Book Type on any item (all *p*s>.10).

Contrary to expectations, we did not find a mixed interaction between Effort and Book Type on Writer's or Book's mood (respectively F(1,287)=1.69, p=.20, and F(1,287)=1.27, p=.26), although we found it on Anticipated Consumer mood, F(1,287)=9.42, p=.002. Therefore, we report the results collapsing across the Book Type condition.

We ran a serial within-subjects mediation analysis with Effort as the pseudo-Independent Variable, Producer's Mood valence as the first mediator, Book Mood valence as the second mediator, and Anticipated Consumer's Mood Valence as the Dependent Variable, using the MEMORE macro for SPSS (Montoya 2016). We found evidence for sequential mediation, as the indirect effect did not include zero, *ab* (SE)=-.18 (.05), 95% CI[-.29;-.10].

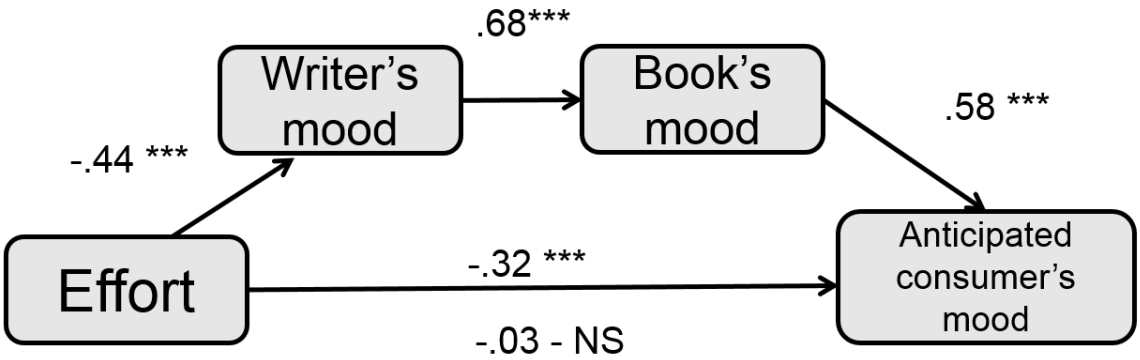

Figure 4.8. Sequential mediation analysis, Study 2. Coefficients are unstandardized regression weights. *** p<*.001; NS= Not Significant*

4.5.3. Conclusion

This study shows that Effort information, in within-subjects presentation, has a negative effect on Producer's (Writer's) Mood Valence, Product (Book) Mood Valence, and Anticipated Consumer's Mood Valence. We failed to find the expected Effort by Book Type interaction on Product Mood, while we did find one on Anticipated Consumer's Mood Valence. It is hard to interpret null results, and it is harder to interpret unexpected results without HARKing (Kerr 1998). Yet, we consider two possible explanations for these results. The first explanation allows for the results to be reflective of the underlying true effect. That is, there is no interaction between Effort and Book Type on Book Mood Valence, but there is one on Anticipated Consumer's Mood but this Study does not have enough statistical power to detect

it. Due to the high demands – in terms of sample size and statistical – of both mediation (Pieters 2017) and moderation (Simonsohn 2015), a study like this, which aims at *both*, would need an even bigger sample size. The second explanation instead considers the results of Study 2 reflective of the true effect. In that case, we should change our theorization. We speculate that indeed even non-cultural products can be imbued by mood generated by higher effort, by association with the author. Yet, likely due to the specificity of their content – possibly impersonal and not emotional – they fail to transmit emotional meaning to the consumer.

4.6. Study 3A-3C

In previous research (e.g., Kruger et al. 2004), and in studies 1 and 2, effort information has been operationalized with production time. In studies 3A through 3C, we aim to show that a) product length is associated with higher perceived production effort, and b) that product length is itself a proxy for effort. In study 3A, 3B, and 3C, we first establish the validity of length as an effort proxy, and subsequently examine its impact on inferences of effort, author's mood, product mood, and consumer anticipated mood.

4.7. Study 3A

4.7.1. Methods and results

76 participants (40 males, Average age =37, Average years of education =15) were asked how they would consider two books of different length (76 pages vs 822 pages), two movies of differing length (1 hours and 20 minutes vs. 3 hours and 40 minutes), and two songs of differing length (3 minutes versus 12 minutes). They rated them on two 7-point items, one measuring Mood (1=Very sad, 7= Very happy), and one measuring Effort (1=Took almost no effort, 7=Took a lot of effort).

Product	M_{long}(SD)	M_{short}(SD)	*t*(75)	*p-value*	*Cohen's d*
Book	4.24 (1.31)	4.79 (1.33)	2.82	.006	.32
Song	3.76 (1.57)	4.80 (1.33)	4.65	<.001	.53
Movie	3.70 (1.58)	4.61 (1.44)	4.81	<.001	.55

Table 4.3. Perceived Mood valence of cultural products, Study 3A

Product	M_{long}(SD)	M_{short}(SD)	*t*(75)	*p-value*	*Cohen's d*
Book	6.16 (1.18)	3.79 (1.73)	10.77	< .001	1.23
Song	5.68 (1.57)	4.16 (1.71)	6.30	< .001	.72
Movie	6.17 (1.26)	5.22 (1.52)	5.59	< .001	.64

Table 4.4. Perceived production effort of cultural products, Study 3A.

As shown in Tables 4.3. and 4.4., longer cultural products both had more negative mood and higher effort. In both cases, we ran within-subjects mediations (5000 bootstrap samples), with Length as the "pseudo"-Independent Variable, Perceived Effort as the mediator and Mood Valence as the dependent variable. For both songs and movies, the bootstrap interval did not include zero, Song, ab(SE)=.53 (.23), 95% CI[.11; 1.02]; Movie: ab(SE)=.51 (.18), 95% CI [.19; .90]. For books, the bootstrap interval did include zero, ab(SE)=.23 (.36), 95% CI [-.45; .95].

4.7.1. Discussion

As expected, longer length was considered a signal of effort and negative mood. The relationship between length and mood was mediated by inferences of effort for movies and

for songs, but not for books. While it is difficult to interpret a null results, there are several reasons why this exclusion could happen. We advance two reasons, one speculative and one statistical. The speculative reason assumes that really there is no indirect effect of length on mood valence through perceived effort. What is specific of books that could break the link between length, perceived effort, and anticipated mood valence? We surmise that books are generally longer –as a consuming experience - than both movies and songs. Since they are longer, books may contain a wider range of elements – characters, subplots, sceneries – that make its emotional imagery more complex than a happy-sad continuum and reduce the impact of length on mood valence. There is, however, a second explanation, a statistical one, that allows for the possibility that there is an indirect, true effect of length on mood valence through perceived effort, even if we do not reach conventional statistical significance in this particular experiment. This explanation is itself divided in two parts. 1) It may be that – even for books – there is a sizeable indirect effect of length on perceived mood valence through, but it is much smaller compared to the other stimuli we sampled in this study. Therefore, our study may not have enough statistical power to detect it. 2) Again, it may be that –even for books – there is, in fact, the effect we are looking for, and it is comparable – in size – to the effect we observe for movies and songs in this study. However, due to sampling error – i.e., statistical noise – in this particular sample, the *observed* effect is much smaller, but it is not indicative of the *true* effect. In any case, it is hard to draw strong conclusions from null results. Further, we wish to point out that, while the indirect effect was not statistically significant, Length has the intended effect both on Effort and on Mood Valence.

With this study, we extend our results to different cultural products than books (songs, movies). These results suggest that length is both a predictor and a reasonable proxy for effort.

4.8. Study 3B

In study 3B, we test whether the effect of length on product mood extends to anticipated consumer's mood. 332 participants were recruited on Mechanical Turk (174 males, Average age=39, Average years of education=15). They were all shown the same scenario:

> The novel "Arcadia" is **822** pages long.
>
> The novel "Bithinia" is **76** pages long.

Afterwards, they were asked to rate both how they anticipated their mood after reading each novel, on four 7-points Likert items anchored at 1=Not at all and 7=Very much (Happy, Cheerful, Sad, Gloomy), and rate how they anticipated each novel to be (Happy, Cheerful, Sad, Gloomy), for a total of sixteen items.

4.8.1. Results

Reliability. We reverse-coded the eight items with a negative connotation (Sad, Gloomy) so that higher values always indicate positive mood. All the measures showed satisfying reliability, Arcadiaproduct α=.82, Arcadiaconsumer α=.84, Bithiniaproduct α=.84, Bithiniaconsumer α=.77.

Mood. Participants considered the mood of the shorter book, M(SD)=4.76 (1.15), more positive than the mood of the longer book M=4.15 (1.30), $t(331)=-7.05$, $p<.001$, $d=.39$, and their anticipated mood after reading the shorter book, M(SD)=4.89 (1.08) , more positive than after reading the longer book, M=4.44 (1.32), $t(331)=-6.11$, $p<.001$, $d=.34$.

Mediation analysis. We ran a within-subjects mediation with 5000 bootstrap samples (Montoya and Hayes 2017), with Length as pseudo-Independent Variable, Book Mood Valence as mediator and Expected Consumer Mood Valence as Dependent Variable, which

yielded a confidence interval which did not include zero, *ab*(SE)= -.35 (.06), 95% CI [-.48; -.24].

4.8.2. Conclusion

This study shows that longer duration is associated with negative induced mood and this is caused by anticipated product mood. As length of a book is a proxy for effort, we conclude that higher effort causes anticipated product mood to be more negative, and anticipated consumer mood to be more negative. These results may seem to contradict those of Study 3A, where we did not find a significant indirect effect – but only simple effects - of Length on Product Mood Valence through Perceived Effort. These results, however, corroborate the notion that the non-significant mediation analysis relative to books in Study 3B is a false negative – i.e., due sampling error, low statistic power, stimuli selection, or an addition of two or more of these reasons.

4.9. Study 3C

The objective of this study is to test the effect of Effort on Mood Valence in a between-subjects experimental design. We do so by manipulating Product Length as an antecedent of Effort.

4.9.1. Methods

We recruited 403 participants on Mechanical Turk for this study (164 males, 239 females, Average age=36, Average years of education=15). We manipulated one factor (length) between-subjects. They were shown the following scenario (in bold the Long condition):

> An art exhibition is taking place at the National Museum. Many artists are invited to create a movie especially for the art exhibition, one year in advance.

On the day of the exhibition, you notice that one of the movies, called "Terraces", is about 40 minutes **(2 hours 40 minutes)** long. It seems to be one of the shortest **(longest)** among the movies in the exhibition.

Further, participants were asked a manipulation check questions: (“How long is "Terraces"?”) on a 7-point item anchored at 1=”Very short”, and 7=”Very long”. After the manipulation check, they were asked three questions related to the happiness/sadness of their mood after they watched the movie (“How do you think your mood would be after you watch "Terraces"?), their inferences about the movie’s mood (“How do you think is likely to be the mood of "Terraces" as a movie?), and their inferences about the author’s mood (“What do you think of the likely mood of "Terraces" 's author while he was making the movie?), all on 1-7 Likert items anchored at 1=”Very sad” and 7=”Very happy”. Finally, participants were asked to estimate the amount of Effort that the author put in the movie (“How much effort do you think the author expended in the production of "Terraces"?) on a 1-7 item anchored at 1=”Very little” and 7=”A whole lot”.

4.9.1. Results

Results were in line with expectations. The manipulation check confirmed that the longer movie was considered longer than the short one, M_{short}(SD)=2.84 (1.26), M_{long}(SD)=6.41 (.74), t(401)= -34.63, p<.001, d=3.45. The longer movie was also judged as to have had more effort expended in it, M_{short}(SD)=5.03 (1.42), M_{long}(SD)=6.08 (1.07), t(401)= -8.36, p<.001, d=.83 and the author’s mood, M_{short}(SD)=4.35 (1.15), M_{long}(SD)=4.00 (1.31), t(401)= 2.90, p=.004, d=.29, the product’s mood, M_{short}(SD)=4.01 (1.07), M_{long}(SD)=3.47 (1.15), t(401)= 4.93, p<.001, d=.49, and the anticipated consumer’s mood M_{short}(SD)=4.14 (.94), M_{long}(SD)=3.57 (1.05), t(401)= 5.81, p<.001, d=.57, were more negative in the Long condition compared than in the Short condition.

Sequential mediation analysis. We ran a mediation analysis using model 6 of the PROCESS macro of SPSS, where Length (categorical) was the Independent Variable, Effort the first mediator, Author mood valence the second mediator, Product mood valence the third mediator and anticipated Consumer mood valence the Dependent Variable. The 95% CI of the bootstrap interval did not include zero, ab(SE)=.03 (.02), 95% CI [.01; .07].

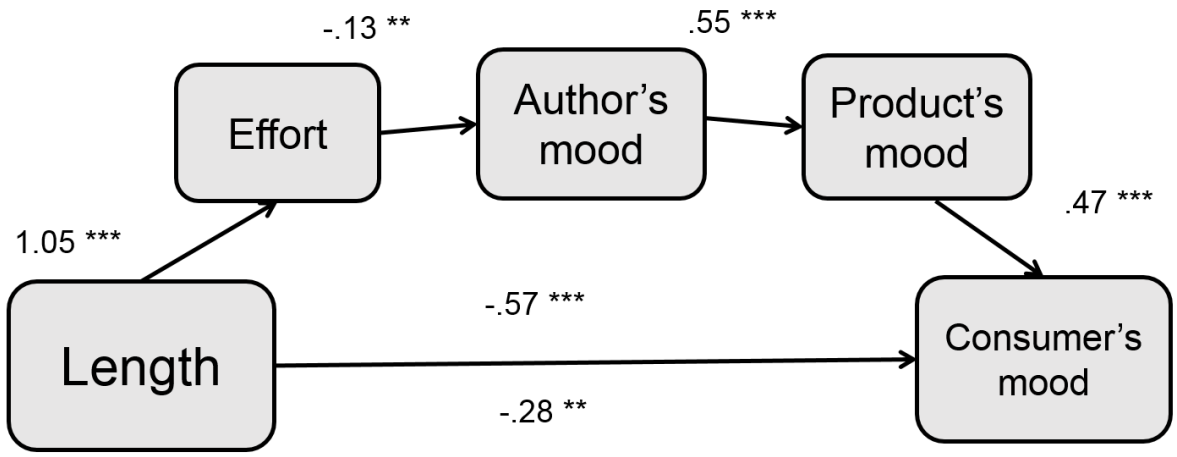

*Figure 4.9. Sequential mediation, Study 3C. Coefficients are unstandardized regression weights. *** p<.001; **p<.01*

Study 3C shows that consumers think that longer movies a) took more effort, b) caused a more negative mood valence to their Author, c) are sadder, and d) will cause them to be sadder post-consumption. The effect of Length on Perceived Effort is sizeable, *d*=.83 (a large effect following Cohen, 1992). The mediation analysis shows that the direct effect of Length on Consumer Anticipated Mood Valence is smaller compared to the Indirect effect through Effort, Author's Mood and Product's Mood, yet still statistically significant. This may be due to the fact that Length is a reasonable, yet not perfect proxy for Effort. The remaining effect could be due to fatigue – sitting in a movie theatre for longer would generate negative mood valence - or maybe to perception of increased complexity of Longer movies, which

consumers take to be more negative on different aspects than just mood valence. However, this study did not aim to test this explanation. We maintain that these results are consistent with what hypothesized in H2.

5. General discussion

In this paper, we showed that consumers associate effort information with negative mood valence. In eight experiments, we manipulated effort information either by changing the amount of time spent in producing the product and the length of the cultural product. We found that consumers believe that higher-effort products caused more negative mood to a) their producer during the creation process; b) to the product mood; and c) to their own anticipated post-consumption mood. In Study 1, we show that focusing on the Author's effort makes consumers less likely to connect Effort and Quality. In Study 2, we show that this is caused by producer mood perceptions and spills over to consumer's anticipated mood. In Studies 3A to 3C, we establish and employ Product Length as an antecedent of Effort, finding similar results and extending our operationalization of effort.

People often try to predict how an outcome of a certain decision will make them feel, in order to make decisions between alternative courses of action (Gilbert et al. 1998). In fact, anticipated mood is often the reason why people buy products (Shiv and Huber 2000) and anticipating pleasure steers consumer decision-making (Mellers and McGraw 2001). Clearly, people anticipate a negative mood for negative outcomes and a positive mood for positive ones (Gilbert et al. 1998; Wilson and Gilbert 2005) , but it is unclear what other factors affect anticipated mood. We find that consumers may attribute a specific mood to products, which may serve as a cue to predict one's mood after consumption of the product.

It is important to note that the prediction that consumption of high-effort goods lead to a more negative mood is not trivial. First of all, high-effort goods are assumed to be of higher quality (Kruger et al. 2004), and positive affect is a consequence of high-quality purchases (Ratner,

Kahn, and Kahneman 1999). In addition, if the consumption of high-effort goods causes the consumers to exert more effort, this may positively affect their consumption experience (Olivola and Shafir 2011; Mochon et al. 2012; Inzlicht et al. 2017). In contrast with this perspective, we find that high-effort products color the consumption experience with a negative mood, nuancing the impact of effort information on consumer mood and well-being.

In this research we argue that consumers make inferences of product mood valence based on their evaluation of the producer mood during the production stage. In particular, we find that consumers believe that producers are sadder when they exert effort. This work contributes to the burgeoning stream of research about consumer-producer relation (Maira n.d.; Fuchs, Prandelli, and Schreier 2010; Fuchs et al. 2015; Maira, Fuchs, and Puntoni 2016), and specifically sheds light on what consumer think of producers based on production effort. Moreover, consistently with other research (Kruger et al. 2004; Cho and Schwarz 2008) we find that consumers have beliefs and perceptions about production processes which, in this case, involve effort perceptions and mood anticipation.

Our practical contribution is twofold. First, managers may want to think twice before they give effort information. Affective forecasting is an important driver of decision-making and this kind of inferences that people make may affect purchasing decisions. While adding effort information definitely has a positive marketing impact, managers concerned should at least experiment with adding or subtracting effort information to their products. In particular, managers should be wary of the "free PR" exemplified by *The Guardian's* film blog in the introduction of this Chapter. Such movie descriptions may actually backfire instead of increasing consumer's expectations of quality. When consumers have to think about the Author's mood in connection with the Author's effort, this has a negative impact on product quality. Second, consumers make these inferences based on their experience. Therefore,

managers concerned with their customers' well-being may wish to calibrate the way in which they present effort information.

Limitations and future research concern both our independent and our dependent variable. Regarding the independent variable, our operationalization of effort is not the only possible one. For instance, effort could be intended as intensity instead of duration. Different intensity in effort could be linked to additional - and different- consumer inference. For instance, when observing extremely intense effort, consumers may be swayed into thinking that the producer is possessed by the Muses – and thus concluded that a masterpiece is more likely. Regarding our dependent variable, we have only investigated mood valence – a rather general construct. Future research may understand whether there are other discrete emotions triggered by effort (Raghunathan and Pham 1999). For example, effort may trigger inferences about arousal, which in turn could color the affective experience that consumers expect from consumption.

6. Appendix

Reliabilities - Study 1.

Author's Positive mood. Low effort product. The items Excited, Enthusiastic, and Happy showed high internal reliability (α=.92) and were averaged in an Author Positive Mood index for the Low Effort product.

Author's Positive mood. High effort product. The items Excited, Enthusiastic, and Happy showed high internal reliability (α=.93) and were averaged in an Author Positive Mood index for the High Effort product.

Author's Negative mood. Low effort product. The items Distressed, Hostile, and Irritable showed high internal reliability (α=.89) and were averaged in an Author Negative Mood index for the Low Effort product.

Author's Negative mood. High effort product. The items Distressed, Hostile, and Irritable showed high internal reliability (α=.90) and were averaged in an Author Negative Mood index for the High Effort product.

Consumer's Positive mood. Low effort product. The items Excited, Enthusiastic, and Happy showed high internal reliability (α=.95) and were averaged in a Consumer Positive Mood index for the Low Effort product.

Consumer's Positive mood. High effort product. The items Excited, Enthusiastic, and Happy showed high internal reliability (α=.96) and were averaged in a Consumer Positive Mood index for the High Effort product.

Consumer's Negative mood. Low effort product. The items Distressed, Hostile, and Irritable showed high internal reliability (α=.93) and were averaged in a Consumer Negative Mood index for the Low Effort product.

Consumer's Negative mood. High effort product. The items Distressed, Hostile, and Irritable showed high internal reliability (α=.92) and were averaged in a Consumer Negative Mood index for the High Effort product.

Content expectations. Low effort product. The two items about content expectations showed high reliability for the Low Effort product (α=.92) and were averaged in a Content Expectation index for the Low Effort product.

Content expectations. High effort product. The two items about content expectations showed high reliability for the Low Effort product (α=.95) and were averaged in a Content Expectation index for the High Effort product.

Consumer effort. Low effort product. The two items about Consumer Effort showed high reliability for the Low Effort product (α=.86) and were averaged in a Consumer Effort index for the Low Effort product.

Consumer effort. High effort product. The two items about Consumer Effort showed high reliability for the Low Effort product (α=.85) and were averaged in a Consumer Effort index for the Low Effort product.

Manual - Dimension	**High effort M (SD)**	**Low effort M (SD)**	**t (147)**	**p-value**	**Cohen's d**
Writer's mood	3.87 (1.82)	4.20 (1.58)	3.41	.001	.28
Book's mood	4.01 (1.94)	4.21 (1.84)	2.07	.04	.17
Anticipated mood	4.02 (1.83)	4.07 (1.73)	.51	.61	.04

Table 4.5. Results of Study 2- Manual condition. Higher values indicate positive (happier) mood. Within-subjects t-tests. Within-subjects Cohen's d *has been calculated following Lakens (2013).*

Novel -Dimension	**High effort M (SD)**	**Low effort M (SD)**	**t (142)**	**p-value**	**Cohen's d**
Writer's mood	3.61 (1.33)	4.17 (1.15)	4.09	<.001	.34
Book's mood	3.82 (1.34)	4.17 (1.35)	2.12	.035	.18
Anticipated mood	3.74 (1.39)	4.35 (1.11)	3.72	<.001	.31

Table 4.6. Results of Study 2 – Novel condition. Higher values indicate positive (happier) mood. Within-subjects t-tests. Within-subjects Cohen's d *has been calculated following Lakens (2013).*

CHAPTER V: CONCLUSION, CONTRIBUTIONS, AND FUTURE RESEARCH

CHAPTER V: CONCLUSION, CONTRIBUTIONS, AND FUTURE RESEARCH

The objective of this dissertation is to understand how time information drives people's inferences and judgments. While previous research has typically looked at the subjective feeling of time (for a review, see Mogilner et al., 2018), the body of work regarding how people process and judge time information is somewhat limited (but see Kruger et al. 2004; Eidelman, Pattershall, and Crandall 2010). Using insights from social psychology, consumer behavior, and judgment and decision making, this dissertation aims to understand how people use time information to make sense of actions, other people, and products. In three essays, I aim to advance knowledge of how people make evaluations of themselves, others, and products based on time information. In the following sections, I provide a recapitulation of the findings in this dissertation, and I discuss both theoretical and practical implications. I end by discussing the limitations of this research and by identifying directions for future research.

1. Recapitulation of findings

In Chapter II, "Late-action bias", I focus on how people evaluate actions. While there is evidence assuming that earlier actions are valued better, across four studies I show that later actions- i.e., actions closer to an endpoint – are preferred. This is driven by the illusion that later actions have a bigger impact on the final outcome. In Studies 1 and 2, I find that later actions, spanning across diverse domains – sports, business, everyday life – are more likely to be chosen when they are closer to an endpoint. In Study 3, I show that this is not solely due to impressions of higher total impact in the game nor exclusively by personal responsibility. In

study 4, I find evidence- through mediation analysis – that people believe that their personal contribution to the final outcome is bigger when they are acting later.

In chapter III, “Status fast and slow” I focus on Decision time as a Status signal. While previous literature shows that people prefer and like faster decision more than slower decisions, in six experiments, I show that slower decisions can signal higher status. In Study 1A and 1B I show that both people and institutions that make slower decisions are considered of higher status. In Study 2, I show that when Status is already conveyed by the situation, decision time ceases to be a Status cue. In Study 3, I show that preference for faster decision-makers is intuitive: compared to making a decision right away, people are more likely to choose a faster responder when they have the possibility to think about Status. In Studies 4A and 4B, I provide evidence that the positive effect of Slower decision times on Status perceptions is driven by the higher Self-orientation communicated by Slower decision times – and this spills over to related entities

In Chapter IV, “Negative emotional effects of effort information”, I examine how effort information influences consumer’s inferences regarding the production process, the product mood valence and their own mood forecasting. Previous literature assumes that attaching effort information to products has positive marketing consequences, increasing perceptions of quality, positive feelings and willingness to pay. In this Chapter, I challenge this view by showing that effort information leads to inferences of negative mood valence. In studies 1A through 1D, I show that consumers believe that products that took longer to be made are going to be sadder in general. In Study 2 I show that this is driven by the perception that the author was in a more negative mood state during the productive process, and leads consumers to forecast more negative mood valence post-consumption. In studies 3A to 3C, I first establish product length as an antecedent for Perceived Effort in cultural products, and then show that Longer products lead consumers to a) think that the producer was in a negative

mood when authoring the product; b) think that the product is more negative in terms of mood valence; c) think that they themselves are going to be in a more negative mood post-consumption.

2. Theoretical implication

In this dissertation, I make a number of theoretical contributions. Most importantly, I show that people take into account time information to evaluate and understand themselves, other people, and products

In Chapter II, I show that people are motivated to believe that their behavior has a bigger impact towards the end of a time-period, even when it is dominated by an earlier possible action. People are motivated to consider that their behavior has an impact when it does not, and so are likely to uphold an illusion of control (Langer 1975; Fernbach et al. 2013). The understanding of the factors that determine such an illusion of control, however, is limited or non-existent. In this chapter I focused on one such factor, timing. I showed that later actions are perceived to be more impactful than earlier ones. In fact, timing looms so large in impact judgments that people view later actions as more attractive than objectively more impactful actions that occur earlier.

This research extends the stream of literature on retrospective evaluation. I find that actions that occur late in an event are considered more impactful. When evaluating experiences, people overweigh the impact of near-end events on the overall evaluation of the experience. (Diener et al. 2001; O'Brien and Ellsworth 2012). The research presented in Chapter II is different from research on retrospective evaluation of experiences, for two reasons. First, we do not ask participants to retrospectively reflect on a sequence of actions but rather to choose between two actions that are simultaneously presented to them. Second, the process

explanation regarding near-end experiences is different from the process I propose regarding late-action bias. The late-action bias does not happen because of recency– i.e., because more recent information is more vivid in memory (Estes 1976) - but rather because people overestimate the impact of near-end actions towards the overall goal. This research is, however, different from the research about overall evaluation: while previous research on experience evaluations has considered overall experience evaluation (e.g., the experience of a meal in retrospect is shaped by a particular course), in this chapter I considered discrete events within the same experience, finding that they are of difference relative and absolute importance.

In Chapter III, I contribute to the literature about Status signaling from subtle cues. In particular, I explore response time as a Status signal. While previous literature has shown that slower decision times provoke adverse reactions, I show that slower respondents are perceived of higher status. I also contribute, in a broader sense, to the burgeoning literature about response time, which has received considerable attention recently (Calseyde et al. 2014; Evans et al. 2015; Jordan et al. 2016; Nishi et al. 2016; Evans and Calseyde 2017). In terms of status signaling, I show that response time is a dominance signal of status: while it provokes adverse reactions in terms of Competence and Warmth – two fundamental dimensions of person perception – it leads people to conclude that slower decision-makers are of higher status. This is due to the peculiar nature of a dominance pathway to status, where people attain status through coercion and intimidation, causing even damage to other people rather than showing features that are valuable to the group (Anderson and Kilduff 2009; Cheng et al. 2013).

In Chapter IV, I contribute to the literature about effort information and consumer mood forecasting. While previous literature by and large considers effort information a positive marketing action (Kruger et al. 2004; Buell and Norton 2011; Fuchs et al. 2015), I show that it

may backfire in how consumers forecast their own post-consumption mood valence. My contribution is twofold. First, I expand on the effects of effort information as a marketing action, by showing that it can have negative consequences for the consumer, especially regarding consumer's own affective forecasting. Second, while previous research has focused on fixed events able to trigger a mental process of affective forecasting (Gilbert et al. 1998; Wilson and Gilbert 2005), I focus instead on which information can trigger affective forecasting. Specifically, effort information – without being mood information itself – affects how consumers think they will feel in the future.

3. Practical contribution

In this dissertation, I make a host of practical contributions. They are intended as advice to managers, practitioners, and consumers. However, they are intended as suggestions rather than normative prescriptions. I recommend that those who wish to apply them in a practical setting exercise good judgment, by first carefully considering potential harmful effects on the people and organization that would be influenced.

The practical contribution of Chapter II is about the understanding of when people would rather act and why. I find that people prefer action that come later in a sequence and closer to an endpoint. This finding is relevant to understand "clutch performance" – the (mistaken) that some people raise their performance in decisive moments belief (Bar-Eli and Tractinsky 2000; Solomonov et al. 2015). In many environments, actions that are closer to the end-point are often mistakenly perceived to be more important than actions that preceded it. These actions, however, would not be possible without the essential contribution of actions that happened before. Managers could therefore be wary of including or highlighting time information that could skew evaluations towards final end-points. A similar contribution is

relative to the evaluation of people: managers should account time information in a way that is consistent with the real contribution, because the perceived contribution is going to loom larger towards the end. Finally, people with intuitive knowledge of the Late-action bias may be strategically highlighting their actions as closer to an endpoint in order to skew evaluations – without a necessary correspondence with actual contribution.

In Chapter IV, I investigated decision time and its impact on status inferences. Responding slower has both positive and negative implications, which people should know before they decide how to act. First, it can function as a protection strategy against insistent time requests from people who we do not wish to impress in terms of likeability. In this case, slow respondents and decision-makers may actually be seen of higher status. Second, it can be used strategically by respondents that may not be aware of the negative impressions that it generates – but want to convey status. Decision time is thus a double-edged sword, which can have positive and negative consequences. The results I present in this dissertation arm ordinary people in everyday situation with an understanding of the impact of decision time on how other people view them.

I identify two main practical contributions of Chapter IV. First, managers may want to think twice before they give effort information. Affective forecasting is an important driver of decision-making and this kind of inferences that people make may affect purchasing decisions. While adding effort information definitely has a positive marketing impact, managers concerned should at least experiment with adding or subtracting effort information to their products. Second, consumers make these inferences based on their experience. Therefore, managers concerned with their customers' well-being may wish to calibrate the way in which they present effort information.

4. Limitations and future research

The first limitation in this dissertation concerns the extensive use of Mechanical Turk samples. Mechanical Turk samples have similar or better data quality compared to undergraduate samples (a staple of the social sciences) (Paolacci, Chandler, and Ipeirotis 2010; Peer, Vosgerau, and Acquisti 2013; Paolacci and Chandler 2014) and they map rather closely to American nationally representative samples (Berinsky, Huber, and Lenz 2012; Huff and Tingley 2015; Coppock 2017). However, the use of one sample from one country (the USA) should give pause regarding the generalizability of these findings. Future research may therefore extend these results to different samples, from different continents (e.g., European, Asian) or different social strata.

A second limitation is the intensive use in this dissertation of vignette and scenario-based stimuli. While there is research showing that people report attitudes that are consistent with their actual actions (a general finding called attitude-behavior consistency) (Ajzen and Fishbein 1977; Fazio et al. 1982), this is not a necessary correspondence: any individual finding could be an exception, see e.g., attitudes and behaviors in the eco-friendly domain (Hines, Hungerford, and Tomera 1987; but see Kaiser, Wölfing, and Urs Führer 1999). Therefore, further research is needed on the behavioral consequences of the findings reported in this dissertation – either through the inspection of secondary data or through different experimental paradigms involving real behavior in the laboratory.

In this dissertation, I only used a subset of all the possible stimuli that one could think of when operationalizing time information. This problem is common in psychological and behavioral research and it is called “non-random stimuli sampling” (Judd, Westfall, and Kenny 2012, 2017). It is therefore desirable that future research will focus on the generalizability of my findings with different stimuli – both relative to the same

operationalization (e.g., time spent doing something to operationalize effort) and with a different operationalization of the same concept (e.g., intensity of production effort to operationalize effort). For instance, future research could focus on intensity to induce perceptions of effort; speed of speech rather than speeds of response; frequency of event instead of sequence of events, and finally comparing many different events in a sequence instead of having people choosing among two options.

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