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Reports

Keeping one's options open: The detrimental consequences of decision reversibility

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ABSTRACT

People generally prefer to have the opportunity to revise their decisions. Surprisingly however, research has shown that keeping one's options open yields lower satisfaction with the decision outcome (Gilbert & Ebert, 2002). Two studies aimed to gain more insight into the detrimental consequences of decision reversibility and the cognitive processes underlying decision reversibility. Building upon literature on goal fulfillment we hypothesized and found in a first experiment that as long as decisions are still open to change, accessibility of decision-related constructs is increased compared to neutral constructs. A second experiment demonstrated that decision reversibility undermines working memory capacity. Moreover participants experienced higher regret after having made a reversible decision, an effect that was mediated by decreased working memory capacity. The study set implies that reversible decisions yield lower working memory capacity because people continue to think about the, still relevant, choice options. In the end this might increase dissatisfaction with the decision and regret.

People generally prefer decisions that can be revised at a later point in time (Gilbert & Ebert, 2002). Many individuals, for instance, tend to live together with their romantic partner for years before getting married, favor shops where they get the opportunity to return their goods, and give temporary contracts to new employees. All those examples may reflect peoples' proclivity to keep their options open rather than to make a final decision. Interestingly though, an experiment by Gilbert and Ebert (2002) showed that the opportunity to revise actually leads to lower levels of post-choice satisfaction. Accordingly, people have a preference for reversible decisions, but do not seem able to forecast its negative outcomes (Bullens, Förster, van Harreveld, & Liberman, in press). In the present research we will further examine the detrimental consequences of decision reversibility and try to gain more insight in what happens in people's minds when making reversible versus irreversible decisions. More specifically, we link decision reversibility to existing literature on goal fulfillment and demonstrate that reversible decisions put an extra strain upon peoples' cognitive resources as individuals appear to remain occupied with decisions until they become final and irreversible.

Decisions as goals

In many situations, people *want* or *need* to decide, and thus decisions can be conceptualized as goals that one attains (Liberman & Förster, 2006). From research on goals it is known that they stay active until they are attained. More specifically, theories in both social and cognitive psychology propose that motivational states, such as needs, goals, and intentions are characterized by increased accessibility of motivation-related constructs relative to constructs unrelated to the focal goal (Goschke & Kuhl, 1993; Förster, Liberman, & Higgins, 2005). Such relative enhancement of goal-related accessibility is thought to prepare the individual to efficiently detect goal-relevant cues in the environment, which, in turn, supports ultimate goal attainment (Ach, 1935; Bargh, 1997; Gollwitzer, 1999; Kuhl, 1983).

The accessibility of goal-related constructs has been found to persist as long as the goal is active (Bargh, 1997). When one, for instance, has 'reading' as a goal, constructs related to reading, such as 'book', remain relatively accessible until the goal is fulfilled. Upon goal fulfillment the accessibility is reduced or inhibited (Liberman & Förster, 2000; Marsh, Hicks, & Bink, 1998; Marsh, Hicks, & Bryan, 1999; Moskowitz, Gollwitzer, Wasel, & Schaal, 1999; Zeigarnik, 1927). Presumably, this is the case because upon goal fulfillment (e.g., reading), accessibility of goal-related constructs would only interfere with subsequent important tasks (e.g., cooking) (Förster et al., 2005; Förster, Liberman, & Friedman, 2007). In their studies, Förster et al. (2005), for instance, asked participants to search through a series of pictures with the goal of finding a picture of glasses followed by a picture of scissors. Four blocks of pictures were offered with the target combination presented in the third block. After each block of pictures, lexical decision times were assessed for words related to glasses (i.e., goal-related) and unrelated to glasses. Relative to a non-goal control group, reading times for goal-related words compared to unrelated words increased over time. However, after participants had found the combination of glasses and scissors in the third set, reading times for goal-related words slowed down compared to the pre-goal conditions, showing inhibition upon goal fulfillment (Zeigarnik, 1927).

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Inasmuch as decisions can be conceptualized as goals to attain, one could argue that reversible decisions are akin to unfulfilled goals; when a decision can still be revised, the goal to make a decision is not yet completely fulfilled. For this reason, decision-related constructs should remain relatively accessible as long as the decision is reversible, shielding the goal against conflicting goals and distractions (Shah, Friedman, & Kruglanski, 2002). Once the decision changes from reversible to irreversible (e.g. the return period has expired), however, other formerly de-activated concepts may become accessible to peoples' mind and cognitive resources are free to be applied to other goals or tasks.

Hence, on the basis of research on goal fulfillment, it is to be expected that people remain more occupied with reversible than irreversible decisions, as it is likely that constructs related to reversible decisions remain relatively more accessible. Previous research, however, could not establish any differences in strength of decisional engagement after reversible versus irreversible decision-making. Gilbert and Ebert (2002) manipulated decision reversibility and (using self-report measures) found that participants were as occupied with reversible decisions as they were with irreversible ones. This in contrast with extant research on goal fulfillment, which would suggest higher decisional engagement after making reversible decisions as the relative accessibility of unfulfilled goals (i.e., reversible decisions) is higher than the relative accessibility of fulfilled goals (i.e., irreversible decisions). The fact that Gilbert and Ebert did not find any differences in the amount of thoughts participants reported about the decision could imply that people are unaware of their decisional engagement or that the measures were for other reasons not sensitive enough to capture differences in accessibility — which are typically found using more implicit measurements (see for a similar perspective Fazio, 2001).

Indeed, there is some evidence demonstrating that decisions or thought processes can occur outside of awareness (Fitzsimons et al., 2002). Therefore, in order to see whether decision-makers do remain more occupied with reversible decisions, in Study 1 we used an implicit classic measurement of accessibility i.e. a lexical decision time task containing words related versus unrelated to the decision.

Study 1

The goal of the first study was to examine whether reversible decisions operate similar to unfulfilled goals with respect to accessibility. As we discussed before, research on goal activation (Förster, et al., 2005) shows that 1) relative accessibility of goal-related constructs increases until the goal is fulfilled and 2) decreases upon goal fulfillment. Similarly, constructs related to a reversible decision should be relatively active until the decision becomes irreversible — and should be less so upon final decision-making.

Method

Participants and design

Eighty-one students (26 males and 55 females; $M_{age} = 20.85$, $SD_{age} = 4.20$) participated in the study. This experiment was the first in a testing session with various unrelated experiments. Participants received course credit for their participation. The study was a one factor (irreversible, reversible) between subjects design with the difference between reaction times for decision-related versus unrelated lexical decisions as a measure for relative accessibility (Denzler, Förster, & Liberman, 2009).

Materials and procedure

Upon entering the lab, participants were seated in individual cubicles and were randomly assigned to one of two experimental conditions. All tasks were presented on a computer.

The experiment was introduced as a study on decision-making in lotteries. Participants were informed that draws were going to be held for two different prizes (an iPod and a portable DVD-player). They could only enter one of the draws, hence, participants were asked to decide which draw they wanted to enter. This decision was either irreversible or reversible. Those in the irreversible decision condition were told that they would not be able to revise their decision at a later point in time. Participants in the reversible decision condition were told that the decision would only be preliminary and that they would have the opportunity to revise their decision right before the end of the experimental hour. Participants were given unlimited time to read the prize descriptions and to make their decision.

Immediately after having made their decision, participants were introduced to an ostensibly unrelated task on "speed of word recognition": the lexical decision task (Block 1). Participants were told that letter strings would appear at the center of the screen and were instructed to press as accurately and quickly as possible the "Z"-key if the string was a word and the "/"-key if the string was a non-word. They were instructed to put their right and left index fingers on the response keys before the start of the experiment and to keep them there throughout the experimental trials. In each trial, an uppercase letter string (font size 16, Arial) was presented at the center of the computer screen and remained there until the response. The next letter string appeared immediately after the response. In random order, 23 words related to the decision (e.g., music), 20 words unrelated to the decision (e.g., plant), and 40 non-words (e.g., pesfen) were presented. Decision-related and -unrelated words did not differ in length or word frequency.

After finishing the lexical decision task, all participants continued with the next part of the experimental session that was outside the focus of the current study. At the end of the experimental hour, they returned to the lottery experiment and were asked, as a manipulation check, to indicate on a 7-point Likert scale the extent to which they thought the decision had been a final one (on a scale ranging from *not at all* (1) to *very much* (7)). Subsequently, participants in the reversible decision condition were told that they could revise their prior decision if they wished to do so. At this point their decision thus became final. Furthermore, this group of participants was asked to again perform the lexical decision task (Block 2) in order to establish whether the relative accessibility of decision-related words reduces after decisions change from reversible to irreversible. Finally, all participants were thanked for their participation and debriefed.

Results and discussion

Manipulation check

Results revealed that those in the irreversible decision condition considered the decision to be more final ($M = 1.44$, $SD = .88$) than those in the reversible decision condition ($M = 3.60$, $SD = 1.95$), $t\ (79) = -6.333$, $p < .001$. None of the participants in the reversible condition changed their preliminary decision.

Accessibility of the decision

As suggested by Fazio (1990), we conducted logarithmic transformations (ln) of the reaction times to reduce the skewness of the response distribution. In order to assess relative accessibility of decision-related words, for each block of the LDT we computed difference scores between the log-transformed mean reaction times to words unrelated and to words related to the decision. A higher score on that index indicates higher relative accessibility of decision-related words. We excluded incorrect responses (4.7% of the responses). The number of incorrect responses did not differ across conditions. Although transformed reaction times were used for the analysis, for a clear interpretation of the results, we only report non-transformed reaction times throughout this results section.

Relative accessibility Block 1

We first tested whether the relative accessibility of decision-related words was indeed contingent upon decision reversibility. It was hypothesized that words related to the decision would be relatively more accessible for those in the reversible decision condition than for those in the irreversible decision condition. As expected, in Block 1, the mean difference of reaction times between words related and unrelated to the decision was indeed larger in the reversible decision condition ($M = 78$ ms, $SD = 66$ ms) than in the irreversible decision condition ($M = 43$ ms, $SD = 40$), $t\ (79) = -2.586$, $p < .05$. Accordingly, when the goal to make a decision is not yet fulfilled, words related to the decision remain relatively more accessible (see also Table 1).

Goal-accessibility is generally assumed to be a relative phenomenon, in the sense that one construct is relatively more on top of one's mind than others. The mental system can achieve such differences by activating goal-related constructs or by deactivating goal-unrelated constructs. Hence, the use of difference scores in this type of literature seems to be appropriate (see also for instance Gollwitzer & Denzler, 2009). Nonetheless, we wanted to gain more insight into the nature of the relative difference. Therefore, mean reaction times to words related and unrelated to the decision were subjected to a 2 (related, unrelated constructs) by 2 (reversible, irreversible decision) mixed-factorial ANOVA. The significant main effect of relatedness demonstrates that decision-related words were more accessible than decision-unrelated words, $F\ (1, 79) = 179.001$, $p < .001$. There was no main effect of decision reversibility, $F\ (1, 79) = 2.241$, $p = .138$. Mirroring the aforementioned results of the difference scores, the significant interaction, $F\ (1, 79) = 6.686$, $p < .05$, reveals that the difference between related and unrelated words was more pronounced in the reversible condition. This difference, as can be seen in Table 1, was mostly due to a stronger deactivation of decision-irrelevant constructs [$t\ (79) = -1.898$, $p = .061$] rather than to a stronger activation of decision-relevant constructs [$t\ (79) = -.947$, $p = .347$].

Relative accessibility between Block 1 and Block 2 (reversible condition)

In order to test our prediction that the relative accessibility of decision-related words would decrease after decisions change from reversible to irreversible, we performed pairwise comparisons of the difference scores between Block 1 and Block 2 for participants in the reversible decision condition. Consistent with our prediction, relative accessibility of decision-related words decreased from Block 1 to Block 2 [$M = -21$ ms, $SD = 68$ ms; $t\ (41) = 2.178$, $p < .05$].

Analyses using mean reaction times for related versus unrelated words instead of difference scores showed a significant main effect of relatedness, demonstrating that decision-related words were more accessible than decision-unrelated words [$F\ (1, 41) = 145.723$, $p < .001$]. Furthermore, a significant main effect of Block showed that lexical decisions were generally faster in Block 2 [$F\ (1, 41) = 29.218$, $p < .001$], reflecting a learning effect which is a common observation when participants perform the same task twice within the course of one session (Forster & Davis, 1984). However, these main effects were qualified by a significant interaction, $F\ (1, 41) = 4.744$, $p < .05$, indicating that the increase in accessibility was more pronounced for neutral words [$t\ (41) = 5.053$, $p < .001$] than for decision-related words [$t\ (41) = 4.870$, $p < .001$] (see Table 1).

Thus, consistent with our prediction, when decisions changed from reversible to irreversible, the relative accessibility of decision-related constructs decreased. This effect can hardly be explained by simply forgetting about the decision due to time, because reaction times to goal-related words even decreased from Block 1 to Block 2. To more elegantly rule out alternative explanations (e.g., forgetting, decay due to time, etc.), however, one may consider adding a lexical decision task for the irreversible condition at the time of Block 2.

In sum, in both a within (comparisons between Block 1 and Block 2) and a between (comparisons within Block 1) participants' design we showed a relative decrease in decision-related accessibility after decisions become irreversible. In contrast to Gilbert and Ebert's (2002) finding, the results of Study 1 thus suggest that as long as people are able to change their minds, they remain occupied with the decision, at least on an implicit level. Interestingly, the effects seem to have occurred more on the neutral rather than the decision-related words. One may thus conclude that the mental occupation in the reversible condition resulted from some sort of goal shielding, a possibility that we will discuss in the General Discussion.

Table 1
Mean response latencies on a lexical decision task by Decision reversibility and Word type (Study 1, N = 81. Standard deviations are in parentheses).

	Irreversible decision	Reversible decision Block 1	Reversible decision Block 2
Advantage of words related to the decision	43 (40)	78 (66)	57 (51)
Words related to the decision	570 (70)	584 (78)	552 (61)
Words unrelated to the decision	613 (78)	662 (121)	608 (86)

Note. The advantage of words related to the decision is the difference in response latencies between words unrelated to the decision and words related to the decision. A larger value represents greater accessibility of words related to the decision relative to words unrelated to the decision.

Study 2

Although the results of Study 1 provide us with more insight in what happens in people's minds when having made a reversible decision, uncertainty remains about the ramifications of this decisional engagement. If this engagement is strong and decision-makers are truly occupied, this should impair performance on other cognitively demanding tasks because cognitive resources are limited. The goal of our second study was to test this assumption, by examining whether reversible decision-making and its related decisional engagement affects working memory capacity. According to Engle (2001), working memory capacity is the ability to focus one's attention on a given task while keeping task-irrelevant thoughts at bay. People with lower working memory capacity are less able to focus their attention on a task than people with higher working memory capacity. We propose that decision-makers who have just made a reversible decision have lower working memory capacity than decision-makers for whom the decision is final.

As argued earlier, Gilbert and Ebert (2002) found people to be less satisfied after reversible than irreversible decisions. In the second study we therefore also included a measurement of post-decisional regret with the aim to provide further support for the assumption that keeping one's options open can be detrimental to the decision-maker.

Method

Participants and design

Ninety-five students (18 males and 77 females; $M_{age} = 20.49$, $SD_{age} = 2.38$) participated in the present study. Two outliers were excluded from the analysis, leaving a final sample of ninety-three. The experiment was the first one in a longer session with various unrelated experiments. Participants received course credit or a monetary reward for their participation. The study was a one factor (irreversible, reversible) between subjects design with working memory capacity and regret as the main dependent variables.

Materials and procedure

Decision reversibility was manipulated in the exact same way as in the first experiment: participants were asked to either make an irreversible or reversible decision for entering one of two prize draws.

After having made their decision, participants were introduced to an ostensibly unrelated task on analytical performance. This task was initiated in order to assess working memory capacity.

We used an adapted version of the operation-span task (Schmader & Johns, 2003) that was originally developed by Engle and his colleagues (La Pointe & Engle, 1990; Turner & Engle, 1989). In this task, participants evaluated mathematical equations while memorizing words for later recall. On each trial, an equation appeared on the screen together with an answer. Participants had to indicate whether the presented answer was correct or incorrect [e.g., Is $(7\times7)-12=36$?]. After each mathematical equation a word was presented that participants should remember (e.g., rhythm), as at the end of a series of equation/word combinations (i.e., a set) they were asked to recall as many words from the preceding set as possible. Working memory capacity was indexed as the number of words that participants recalled correctly from each set. The test included 18 sets, consisting of three to five equation/word combinations. Participants were instructed to press as accurately and as quickly as they could the "1"-key if the presented answer was correct and the "2"-key if the presented answer was incorrect.

After reading the instructions and before starting the task, participants were asked to indicate on a 7-point Likert scale their motivation to perform the task and the extent to which they valued performing well on the task (both on a scale ranging from *not at all* (1) to *very much* (7)) in order to rule out the possibility that our manipulation of reversibility influenced motivation to perform the task. The working memory capacity task took approximately 15 min to complete. All participants then returned to the lottery experiment and were asked to indicate on a 7-point Likert scale how much they regretted their decision and, as a manipulation check, to report the extent to which they thought that the decision was a final one (both on a scale ranging from *not at all* (1) to *very much* (7)). For those in the irreversible decision condition the experiment then ended. Those in the reversible decision condition were told that they would now be able to revise their decision if they wished to do so. In other words, their decision at this point changed from a reversible to an irreversible one. At the end of the experimental session, all participants were thanked and debriefed.

Results and discussion

Manipulation check

Results revealed that those in the irreversible decision condition considered the decision to be more final ($M=1.31$, $SD=.67$) than those in the reversible decision condition ($M=3.52$, $SD=2.07$), $t\ (91)=-6.824$, $p<.001$. Only two of the participants in the reversible condition changed their preliminary decision.

Working memory capacity

Working memory capacity was assessed by calculating the total number of words participants recalled correctly (La Pointe & Engle, 1990). Results revealed that, as predicted, those in the reversible condition performed worse on the working memory task ($M=62$, $SD=5.54$) than those in the irreversible decision condition ($M=64.42$, $SD=4.22$), $t\ (91)=2.362$, $p<.05$. This pattern of results supports our prediction that reversible decisions lower one's working memory capacity.

Although we did not expect to find an effect of our manipulation of decision reversibility on participants' performance on the basic mathematical equations as being used in this experiment (Schmader & Johns, 2003), we did analyze participants' mathematical ability. As expected, decision reversibility did not affect math ability ($Fs<1.5$). Furthermore, no significant differences were found for the average amount of time spent on the task, for participant's motivation to perform the task, and for the extent to which they valued performing well on the task at hand ($Fs<1.5$). Thus, higher working memory capacity of those in the irreversible decision condition cannot be explained by an elevated motivation to perform well.

Regret

Finally, we also analyzed the effect of decision reversibility on regret and found that levels of regret differed marginally significant between conditions, $t\ (91)=-1.794$, $p=.076$. Participants assigned to the reversible decision condition experienced more regret in comparison to participants assigned to the irreversible decision condition ($M=2.27$, $SD=1.32$; $M=1.84$, $SD=.93$ respectively).

Additional analysis

Although we did not have any specific hypotheses on possible indirect effects, we found that the effect of decision reversibility on regret is carried indirectly through working memory capacity. In other words, the strain experienced when working memory is low accounts at least in part for the association between decision reversibility and feelings of regret. More specifically, results revealed a significant main effect of decision reversibility on working memory capacity. Subsequently, results also showed that working memory capacity affects regret ($\beta=-.237$, $p<.05$). But most importantly, the marginal effect of decision reversibility on feelings of regret was considerably lowered when working memory capacity was controlled for ($\beta=-.204$, $p=.198$). As recommended by Shrout and Bolger (2002), a bootstrapping analysis was performed to test the mediation effect, demonstrating that the estimation of the mediation effect parameter was significantly different from zero, $p<.05$, two-tailed. Thus, the (marginal) effect of decision reversibility on regret was carried indirectly through working memory capacity.

In sum, it appears that reversible decision-making affects working memory capacity. As expected, people having made a reversible decision have lower working memory capacity than those having made an irreversible decision. These results are in line with the findings from Study 1 which showed that people are more engaged in reversible decisions. Presumably, such decisional engagement puts a strain upon people's cognitive resources and consequently curtails performance on other tasks.

This study also showed that decision reversibility affects regret. Moreover, exploratory analyses demonstrated that this effect is carried indirectly through working memory capacity: reversible decision-making hampers working memory capacity, which in turn augments feelings of regret. Taken together, from the findings of both studies one may conclude that making reversible decisions yields lower working memory capacity because people continue to think about the, still relevant, choice options.

General discussion

In the two studies we demonstrated that, in line with research on accessibility from goals, constructs related to reversible decisions remain relatively more accessible than constructs related to irreversible decisions. Furthermore, we showed that decision reversibility puts a strain upon people's cognitive resources as participants who made a reversible decision had lower working memory capacity as compared to those who had made a decision that could not be revised. Finally, working memory capacity seems to mediate the relation between decision reversibility and feelings of regret.

A closer look at our data indicates that for reversible decisions deactivation of irrelevant constructs took place, rather than activation of relevant constructs. This effect seems similar to what is known as goal shielding (Shah et al., 2002). That is, people making a reversible decision appear to shield their goal to make a decision against interference from constructs unrelated to the goal at hand. This deactivation, like the activation of decision-related constructs supports our general functional model, predicting that people still making a decision hold decision-related concepts on top of their minds relative to

unrelated thoughts. This interpretation fits well with the results of Study 2 showing reduced working memory capacity in reversible decision conditions, as working memory capacity is usually defined as inhibition (Feldman Barrett, Tugade, & Engle, 2004; Hoffman, Friese, & Strack, 2009).

Although decision reversibility may, in certain situations, be something positive (e.g., when a purchase turns out to be malfunctioning), apparently, there are also drawbacks. Not only do these types of decisions negatively influence satisfaction (Gilbert & Ebert, 2002), they also seem to hinder decision-makers from successfully performing other tasks and augment feelings of regret. These findings are especially interesting in light of the fact that people often do not change their minds (Gilbert & Ebert, 2002), an effect that we also found in our studies. This common reluctance to change is probably due to decision-makers already experiencing a sense of ownership of the preliminary chosen object (i.e., endowment effect; Kahneman, Knetsch, & Thaler, 1990; Thaler, 1980; Bar-Hillel & Neter, 1996). Changing this object for another one will then feel as a loss, which people generally try to avoid as losses loom larger than gains (Kahneman & Tversky, 1979; Tversky & Kahneman, 1991). To summarize then, even though reversible decisions consume resources, the cognitive business involved in them does not lead to better decisions which is reflected in the fact that people do not change their minds and in the fact that they are not more satisfied with them as shown in Gilbert and Ebert's (2002) research on satisfaction and our findings on regret (Study 2).

The current studies can be viewed as a starting point learning more about the cognitive processes underlying decision reversibility. On the basis of the present research we believe that people's minds remain occupied with a changeable decision and that the cognitive processes activated by decision reversibility eventually result in lower levels of satisfaction and stronger feelings of regret. Gilbert and Ebert (2002) ascribed the lower levels of satisfaction after reversible decision-making to the inability of the psychological immune system to start operating. The psychological immune system involves people's propensity to restructure their views of outcomes in such a way that these outcomes are experienced more positively. As the authors argue: "human beings are famous for seeking, attending to, interpreting, and remembering information in ways that allow them to feel satisfied with themselves and their lots" (p.503). Cognitive dissonance theory (Brehm, 1956; Festinger, 1957) is one of the most prominent theories that depict this general tendency within the decision-making domain. Research on cognitive dissonance theory has persuasively shown that, after people have made a difficult decision, they increase the attractiveness of the chosen alternative and decrease the attractiveness of the rejected alternative(s) (i.e., the desirability ratings of the chosen and rejected alternatives spread apart).

According to Gilbert and Ebert (2002), the psychological immune system is activated after making irreversible decisions, and thus, decisional conflict can be resolved. It is, however, not activated after making reversible decisions because for these types of decisions each alternative is still relevant to the decision-maker. Hence, possible conflicting thoughts about the reversible decision (i.e., thinking about the positive aspects of the rejected alternatives and the negative aspects of the chosen alternative) are not being resolved, resulting in lower levels of satisfaction. Consistently, the exploratory results of our second study show that whatever people are occupied with during their changeable decision leads them to experience regret. The findings of the first study at least suggest that they are occupied with the decision. Future research should demonstrate which aspects of an irreversible versus reversible decision exactly remain accessible. One may suggest that for irreversible decisions, the positive aspects of the *chosen alternative* (and perhaps the negative aspects of the rejected alternative) remain particularly accessible, as this would be an efficient mean to reduce potential dissonant feelings about the decision. For reversible decisions, on the other hand, the positive aspects of the *rejected alternative* (and perhaps the negative aspects of the chosen alternative) may remain accessible, because in this situation, the rejected alternative is still relevant and so are its positive aspects (Liberman & Förster, 2006). Hence, accessibility of choice alternatives, especially thinking about positive aspects of the rejected alternative, could further fuel counterfactual thinking which could in the end provoke regret and dissatisfaction (Epstude & Roese, 2008).

We suggested goal-related processes to be involved in the process of decision-making, and it is interesting to speculate about boundary conditions that follow from a motivational analysis. Since value and expectancy play an important role in the accessibility of goal-related thoughts (Förster et al., 2005) one may suggest that decision-related accessibility in reversible decision situations should be especially increased before the final decision is made and it should be especially decreased or even inhibited upon goal fulfillment when the decision is important and when there is a high likelihood of actually receiving the chosen alternative. To illustrate, in the aforementioned studies by Förster et al. (2005) when participants had to search for a combination of glasses and scissors presented within a series of pictures, glasses related words were more accessible when participants were rewarded for finding the combination and when they had high expectancy that the combination would actually occur. Following this reasoning, we would expect even stronger results for reversible decisions when people know that they eventually will get the prize and when they value it highly.

Furthermore, it is possible that decision difficulty serves as a basis for decision importance. Difficult decisions usually signal to the individual that the decision is relevant and important (Schwarz & Clore, 2007) and recent research shows that difficulty during decision-making, even if caused by a different source (e.g., a distracting tape) is misattributed to the importance of the decision, increasing dissonance effects (Liberman & Förster, 2006). Thus, one may expect stronger accessibility effects when decisions are difficult. In the end we hope that our goal account of decision-making (Epstude & Roese, 2008) may open doors to new research questions.

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