

# Attainment versus maintenance goals: Perceived difficulty and impact on goal choice<sup>☆</sup>



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## ABSTRACT

We argue that individuals monitor and evaluate attainment and maintenance goals differently. Attainment goals feature a salient current-end state *discrepancy* that is processed more than the corresponding *match* for maintenance goals. For maintenance goals, for which a salient discrepancy is absent, contextual influences on goal success/failure receive more processing than for attainment goals. Thus, objectively more difficult attainment goals may be judged as easier than maintenance goals, when they feature sufficiently small discrepancies, or when context information is unfavorable. Study 1 establishes this core effect. Study 2 shows that thought listings capturing the relative processing of the current-end state discrepancy (match) and context information mediate perceived goal difficulty. Study 3 shows that the favorability of context information moderates the effect. Study 4 establishes joint difficulty evaluations as a boundary condition. Studies 5 and 6 (and Appendix B) show that such goal difficulty judgments affect consequential goal choices in real-world financial, workplace, and shopping situations.

Τὸ φυλάξασθαι τὰγαθὰ χαλεπώτερον τοῦ κτήσασθαι ἐστίν.  
(Maintaining possessions is more difficult than acquiring them.) –  
Demosthenes

## 1. Introduction

Individuals are often assigned various types of goals. Some goals involve attaining a better state (an *attainment* goal). Thus, managers may ask workers to target higher performance levels (Greve, 1998), banks promote higher account balances, and dieting programs set weight loss goals. In contrast, other goals focus on maintaining a desirable current state (a *maintenance* goal). For example, a sales supervisor may exhort salespeople to maintain a current sales level and banks (e.g., HSBC's "Premier Savings" account) stipulate maintaining a minimum balance. Even the famous Atkins diet has an explicit weight "maintenance" phase.

The discrepancy (gap) between the current and the desired end states distinguishes attainment and maintenance goals (Austin & Vancouver, 1996; Yang, Stamatogiannakis, & Chattopadhyay, 2015). Attainment goals feature a current-desired state discrepancy (e.g., sell

\$100 more next month) and one must "reach" to attain the desired state. For maintenance goals, the current and desired states match and must remain matched (e.g., maintain sales next month). The match need not be exact – the maintenance goal is met as long as sales are the same (or higher) next month. Also, for both goal types, success is achieved as long as the desired state is attained at the goal deadline (even if performance slips in the interim).

Attainment goals may be modest or ambitious, as measured by the size of the current-end state discrepancy. Firms setting attainment goals for their employees or customers can choose the discrepancy size. Thus, they may set modest attainment goals, believing that these goals will be seen as easier and thus be chosen more often than more ambitious attainment goals (e.g., Lee & Ariely, 2006).

If goals are judged jointly, evaluations may focus mostly on the readily comparable current-end state discrepancy. Lay intuition then suggests that modest (small discrepancy) attainment goals would be evaluated as more difficult than maintenance (zero discrepancy) goals. However, goals frequently are evaluated separately. This is the case of employees judging a goal that a manager set for them, or of a customer evaluating a promotion based on achieving a goal. Such separate goal

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evaluations may rest on aspects of the goal and the goal context other than discrepancy (Kanfer & Chen, 2016; Carver & Scheier, 1982; Powers, 1973a). In such situations, we make a contrary prediction: *modest* attainment goals may be judged as easier than maintenance goals, even though they feature an objectively larger discrepancy.

In this paper, we empirically show this effect in multiple domains including financial, shopping, and work situations. We extend theory on how goal types are monitored in assessing goal difficulty by examining the process underlying this counterintuitive prediction, and show how it influences consequential goal choices. Compared to a baseline option (goal-free), options featuring modest attainment goals (i.e., a small discrepancy) are judged as easier and thus are chosen more often than those featuring objectively easier maintenance goals. We also establish the important boundary condition that the effect holds for separate goal evaluations (e.g., if individuals are assigned a goal), but reverses direction when the two goal types are evaluated jointly (e.g., if individuals are selecting a goal).

## 2. Conceptual background

Goals are internal representations of desired states in a domain (Austin & Vancouver, 1996). Goal-related judgments and behaviors are affected by factors such as the current-desired state gap, as well as environmental and/or contextual influences (Kanfer & Chen, 2016). Traditionally, the current-desired state discrepancy is a defining feature of a goal (Miller, Galanter, & Pribram, 1960) and an important early focus of goal monitoring processes (Vohs, Baumeister, & Tice, 2008). However, not all goals embed a discrepancy (Austin & Vancouver, 1996; Carver & Scheier, 1982; Powers, 1973a, 1973b). For maintenance goals, the current and desired states match, and people strive to hold on to an already achieved desired state.

Extant literature comparing attainment and maintenance goals is sparse (e.g., Haugtvedt, Herr, & Kardes, 2008). Two recent papers cover some of this gap. First, Brodscholl, Kober, and Higgins (2007) show that matching attainment (maintenance) goals with promotion (prevention) focus enhances outcome value. Second, Yang et al. (2015) find that attainment (vs. maintenance) goals motivate more when an independent (interdependent) self-construal is active. These findings underscore the need for research contrasting attainment and maintenance goals. In the present paper we posit that goal monitoring processes, goal difficulty judgments, and goal choices will differ between the two goal types. Next, we develop our arguments for when and why *modest* (small discrepancy) attainment goals may be judged as easier than objectively easier maintenance goals, and thus drive surprising goal choice behaviors.

### 2.1. Goal types and goal monitoring

Traditional theories argue that goals are monitored via a negative feedback loop (Carver & Scheier, 1982; Miller et al., 1960; Powers, 1973a, 1973b; Vancouver, Thompson, & Williams, 2001). This mechanism performs two related tasks. First (and more importantly) it identifies any negative discrepancy between the current and desired states, and directs action to reduce it (Carver & Scheier 1982; Miller et al., 1960; Powers, 1973a, 1973b). Hence, discrepancy is an important early focus in goal monitoring (Vohs et al., 2008) and points to the direction and magnitude of needed actions (Moskowitz, 2014; Liberman & Dar, 2009).

However, merely monitoring the current-desired state discrepancy may not assure goal success. Even if discrepancy is reduced, ignoring relevant situational influences can lead to failure (e.g., social or situational distractions can lead to a failed academic goal). Hence, individuals need to appraise the goal environment for situational forces that make goal achievement more/less difficult (Kanfer & Chen, 2016), and accordingly alter behavior. Thus, the negative feedback loop performs a second key task: assessing the goal context for factors that may

affect goal pursuit (positively or negatively). This assessment guides how behavior is adjusted to achieve the goal (Carver & Scheier, 1982; Powers, 1973a, 1973b).

We offer two sets of propositions regarding how attainment and maintenance goals are monitored when they are assigned externally and thus evaluated separately. For attainment goals, the current-desired state discrepancy is a key focus of the negative feedback loop. It attracts early processing (Carver & Scheier, 1982; Miller et al., 1960; Powers, 1973b; Vohs et al., 2008) and generates tension (Lewin, 1951) that keeps the goal active. For maintenance goals, the current and desired states match, and there is no discrepancy to create the initial tension (Martin & Tesser, 2009).<sup>1</sup> Hence, the *discrepancy* (small or large) for attainment goals should receive more processing and have more influence on difficulty judgments and goal choices than the *match* for maintenance goals (Moskowitz, 2014).

**PIA:** For attainment goals, the current-desired state discrepancy receives more processing than the current-desired state match for maintenance goals.

For attainment goals, the discrepancy size (small or large) is a strong initial cue (Liberman & Dar, 2009). Although contextual factors may play a role, they are less prominent and receive less processing in goal-related judgments and behaviors.

**PIB:** For attainment goals, the current-desired state discrepancy receives more processing than contextual factors.

Unlike attainment goals, the current-end state match for maintenance goals receives less processing. The negative feedback loop naturally turns to monitoring the goal context (Carver & Scheier, 1982; Powers, 1973a, 1973b) for information on situational forces that may make goal achievement more/less difficult (Liberman & Dar, 2009). For example, like the student pursuing an academic goal, a dieter must closely monitor situational influences such as temptations, or the body's resistance to change, in order to succeed at a dieting goal (Polivy & Herman, 2002). Thus:

**P2A:** For maintenance goals, contextual factors receive more processing than they receive for attainment goals.

**P2B:** For maintenance goals, contextual factors receive more processing than the current-desired state match.

### 2.2. Goal types and difficulty predictions

We use goal difficulty judgments as our main dependent measure because it is an important driver of goal attractiveness (Brehm, Wright, Solomon, Silka, & Greenberg, 1983), goal choice and commitment (Dalton & Spiller, 2012; Kruglanski et al., 2002), effort allocation (Vancouver, More, & Yoder, 2008), and goal performance (Locke & Latham, 1990). The size of the current-desired state discrepancy is an objective basis for judging goal difficulty (e.g., losing 10 lbs. is easier than losing 15 lbs.). Controlling for factors such as self-efficacy, objective and subjective difficulty should correlate positively (Locke & Latham, 1990). Since the initial discrepancy is always non-zero (zero) for attainment (maintenance) goals, lay intuition and logic imply that a maintenance goal should be perceived as easier than *any* attainment goal.

However, taken together, our propositions imply that difficulty

<sup>1</sup> A concern for slippage and relapses may make discrepancies salient during goal pursuit for maintenance goals that involve re-attaining an already attained state (e.g., maintaining a 30-minute exercise regimen each day). Slippage and relapses during the pursuit of maintenance goals are considered in more detail in the General Discussion.

judgments for attainment (maintenance) goals will be affected mainly by the evaluative implications of the discrepancy (context) information. Specifically, perceived difficulty of attainment goals will increase as discrepancy size gets bigger; whereas perceived difficulty of maintenance goals will increase as goal context becomes unfavorable. Moreover, for attainment (maintenance) goals, the context (match) information will have less impact on difficulty judgments. Thus, the judged difficulty of the two goal types will differ depending on the relative impact of discrepancy size and the available context information.

Negative feedback loop models (e.g., Powers, 1973a; 1973b) state that available contextual factors (both favorable and unfavorable) are monitored. The availability of context information may vary across situations. Even when context information is limited, it may still be self-generated. Research suggests that negative (versus positive) information is naturally more salient in judgment (e.g., Fiske, 1980; Pratto & John, 1991) and selectively retrieved in tasks involving memory recall (Finkenauer & Rimé, 1998; Klein, 1992) and thought listing (Klinger, Barta, & Maxeiner, 1980). Thus, self-generated context information during goal monitoring may be more *unfavorable* (vs. favorable). Because such context information is processed more for maintenance goals (P2A and 2B), they may be perceived as more difficult, if judged in isolation.

In contrast, context factors receive less processing for attainment goals (P1B). Hence, difficulty judgments may be less susceptible to the unfavorable context information. Also, more processing would be devoted to the positive implications of the *small* discrepancy for a modest attainment goal versus the *less salient* match for a maintenance goal (P1A). Together, when information is sparse, these processing factors can make modest attainment goals look easier than maintenance goals. These processes should be captured in thought listings. Thus, success and failure thoughts related to (a) the discrepancy (match) and (b) the generated contextual information should mediate differences in judged difficulty between the two goal types.

Our propositions also imply that when context information is available, the valence (favorable or unfavorable) of this information will have more influence on difficulty judgments for maintenance (vs. modest attainment) goals. In contrast, for modest attainment goals, the positive implications of the small discrepancy will have more impact on judged difficulty relative to that of the less salient match for maintenance goals. Hence, when the available contextual information has unfavorable (vs. favorable) implications, modest attainment goals may be judged as easier (vs. more difficult) than maintenance goals.

### 2.3. Joint goal evaluations as a boundary condition

The above predictions about goal difficulty judgments relate to situations where the goals (either modest attainment or maintenance) are evaluated separately. These are situations in which, for instance, an employee is evaluating a goal assigned by a manager, or a consumer is evaluating a wellness goal set by a health specialist. However, there are other situations in which goals are evaluated jointly (e.g., a salesperson selecting among alternative sales target levels, or a consumer evaluating whether to increase or maintain a monthly savings rate). The comparative nature of joint goal evaluation settings may reverse the above prediction. Specifically, research suggests that joint evaluations are heavily influenced by important alignable attributes of the two options (González-Vallejo & Moran, 2001), and favor direct comparisons on these attributes (Hsee, 1996). Because the current-desired state discrepancy (match) is an important goal attribute (Carver & Scheier, 1982; Miller et al., 1960; Powers, 1973a, 1973b; Vohs et al., 2008), joint evaluations of modest attainment and maintenance goals would favor direct comparisons of discrepancy size. Consequently, because modest attainment goals always feature a discrepancy larger than the zero discrepancy of maintenance goals, they should be perceived as more difficult in joint evaluations. This reverses our core prediction.

### 2.4. Goal types and goal choices

Are our predictions about difficulty judgments in separate evaluations settings consequential for actual behavior? The literature (Dalton & Spiller, 2012; Kruglanski et al., 2002) suggests that for a given level of goal value, goal choice and commitment are influenced by its perceived ease and achievement likelihood. Thus, goal type may have an indirect effect on goal choice, mediated by goal difficulty judgments. Specifically, when goals are evaluated separately, a modest attainment goal may be perceived as easier than a maintenance goal. Hence, it should be chosen more often than the latter, relative to a baseline, goal-free option.

### 2.5. Logic of the empirical tests

We report seven empirical studies (six in the text and one in Appendix B), each with procedural controls for factors such as goal situation, time horizon, starting states, and possibility of relapses. The first four studies focus on the psychological effects of the goals themselves (vs. associated rewards or personal involvement with the goals). Hence, we followed established methods (e.g., Heath, Larrick, & Wu, 1999) to create goal situations in various settings. Studies 1, 2, and 4 were sparse on context information. Study 3 provided some context information embedding a valence manipulation (favorable vs. unfavorable).

Study 1 shows that, consistent with logic and current motivational theories (e.g., Locke & Latham, 1990), the judged difficulty of attainment goals declines with the size of the discrepancy: Attainment goals with larger discrepancies are judged as more difficult than both attainment goals with modest discrepancies and maintenance goals. More importantly, this study shows a counterintuitive local effect: a *sufficiently modest* attainment goal, though objectively more difficult, is evaluated as easier than a maintenance goal when the goals are evaluated separately. Study 2 examines the processes underlying difficulty judgments in separate goal evaluations. We find that generated thoughts mediate goal type effects on perceived difficulty. For attainment goals, significantly more thoughts relate to the small discrepancy, and drive judgments of lower goal difficulty. For maintenance goals, significantly more thoughts relate to contextual factors. The latter thoughts are mostly unfavorable (reflecting a negativity bias) and drive judgments of greater goal difficulty.

Study 3 explores our processing premises by providing context information that embeds a valence manipulation. As predicted, the perceived difficulty of maintenance (vs. attainment) goals is more sensitive to available context information. The core effect obtains (reverses) when the goal context is unfavorable (favorable). Study 4 establishes a boundary condition for the core effect. We show that in joint evaluations, modest attainment goals, which feature discrepancies larger than zero, are perceived as more difficult than maintenance goals (zero discrepancies). This reverses the core effect observed in separate evaluations.

Studies 5 and 6 demonstrate the practical implications of our findings. Both studies show that, when goal value is kept constant, goal difficulty judgments mediate downstream choices. Options involving modest attainment goals (judged as easier) are chosen more frequently than options involving maintenance goals (relative to a goal-free baseline options). Study 5 shows this indirect effect for financial decisions in a scenario adapted from a real-world case. Study 6 shows the core effect in judgments and choices involving actual work goals (and Appendix B features a study showing this indirect effect in simulated consumer shopping tasks). We conclude with discussions of the theoretical and managerial implications of the findings, their relevance in other domains of behavior, and future research directions.

### 3. Study 1: Perceived difficulty of attainment and maintenance goals

Study 1 demonstrates the core effect. A *modest* attainment goal is perceived as easier than a maintenance goal, even though the latter is objectively easier. The study also examines how the effect is moderated, and eventually reversed, by the size of the current-desired state discrepancy. No context information other than the goal setting is presented.

#### 3.1. Method

Three hundred and twenty participants from Amazon's Mechanical Turk online platform completed the study for monetary compensation. We had 305 (151 male;  $M_{Age} = 34$ ,  $SD_{Age} = 11.2$ ) usable responses - 15 were incomplete. These were randomly distributed across five study conditions that manipulated discrepancy size: a zero discrepancy maintenance goal ( $n = 65$ ) and four attainment goals with discrepancy sizes that were, respectively, small ( $n = 64$ ), moderate ( $n = 64$ ), large ( $n = 64$ ), and very large ( $n = 63$ ). Each participant judged goals in three domains (GPA, personal savings, and tennis goals) presented in random order (see Appendix A). This within-participant manipulation increased statistical power (Keren, 2014), allowing smaller sample size. Goal success was defined as at least (not exactly) reaching a threshold value at the end of a given time horizon. Current states and time horizons were kept identical for both goal types in all goal domains. Similar methodology was used in studies 2 through 4.

Following prior research (Austin & Vancouver, 1996; Brehm et al., 1983), we used two measures of perceived goal difficulty: a direct difficulty rating (7-point scale: "Very easy/hard") and a reverse scored success likelihood rating (7-point scale "Very unlikely/likely"). The average of the two ratings was our dependent measure (Cronbach  $\alpha$  for the three domains: 0.71, 0.72, 0.66).

#### 3.2. Results

We performed a  $3 \times 5 \times 6$  ANOVA. Goal domain (GPA, savings, and tennis) was within participant and goal type (maintenance: zero; and attainment: small, moderate, large, and very large discrepancies) and goal domain presentation order were between participant factors. We found a significant main effect of goal type ( $F(4, 275) = 17.04$ ,  $p < .001$ ,  $partial \eta^2 = 0.199$ ).<sup>2</sup>

Fig. 1 plots mean difficulty ratings for each goal. Pairwise contrasts show that, as expected, the judged difficulty of attainment goals declined monotonically with discrepancy size ( $M_{Very\ large} = 4.01$ ;  $M_{Large} = 3.87$ ;  $M_{Moderate} = 3.49$ ;  $M_{Small} = 2.82$ ). The very large discrepancy goal was directionally more difficult than the large discrepancy goal ( $F(1,275) = 0.76$ ,  $p > .3$ ,  $partial \eta^2 = 0.003$ ). The latter was judged as more difficult than the moderate discrepancy goal ( $F(1,275) = 4.65$ ,  $p < .04$ ,  $partial \eta^2 = 0.017$ ), which, in turn, was rated as more difficult than the small discrepancy goal ( $F(1,275) = 14.99$ ,  $p < .001$ ,  $partial \eta^2 = 0.052$ ).

However, this monotonic decline in judged difficulty with decreasing current-end state discrepancy sizes was disrupted for the maintenance goal (zero discrepancy;  $M_{Maint} = 3.23$ ), which was rated as *more* difficult than the small discrepancy attainment goal ( $F(1,275) = 6.3$ ,  $p < .02$ ,  $partial \eta^2 = 0.022$ ), and equal in difficulty to the moderate discrepancy one ( $F(1,275) = 2.19$ ,  $p > .1$ ,  $partial \eta^2 = 0.007$ ).

<sup>2</sup> Unrelated to our theory, goal domain ( $F(2, 550) = 34.00$ ,  $p < .001$ ,  $partial \eta^2 = 0.109$ ) and the goal domain  $\times$  presentation order interaction effects ( $F(10, 550) = 2.67$ ,  $p < .003$ ,  $partial \eta^2 = 0.046$ ) were significant. The goal domain  $\times$  goal type interaction was marginally significant ( $F(8, 550) = 1.79$ ,  $p = 0.08$ ,  $partial \eta^2 = 0.028$ ). However, goal type was statistically significant (all  $p$ 's  $< 0.001$ ) for all goal domains.

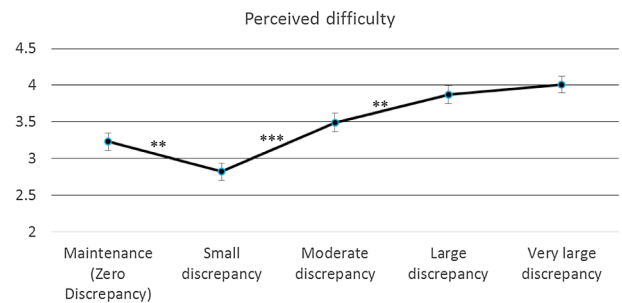


Fig. 1. Study 1: Perceived difficulty for maintenance and attainment goals. (\*\* $p < .001$ ; \*\* $p < .05$ ; Bars represent standard errors of the mean).

$\eta^2 = 0.008$ ). These counterintuitive results violate traditional goal setting theory (Locke & Latham, 1990), but are consistent with our prediction that *modest* attainment goals may be perceived as easier than maintenance goals. However, we note that, consistent with traditional theory, maintenance goals were rated as *easier* than attainment goals with large ( $F(1,275) = 14.4$ ,  $p < .001$ ,  $partial \eta^2 = 0.050$ ) and very large ( $F(1,275) = 22.5$ ,  $p < .001$ ,  $partial \eta^2 = 0.076$ ) discrepancies.

#### 3.3. Discussion

These results show that attainment goal difficulty judgments are sensitive to the current-end state discrepancy size. This is consistent with goal setting theory (Locke & Latham, 1990). However, for a sufficiently small discrepancy the pattern reverses, refining traditional theories: When judged in isolation, maintenance goals are rated as more difficult than modest attainment goals. What is perceived as a "modest" attainment goal in given goal setting situations can be readily calibrated using procedures identical to study 1. Organizations could then use these "modest" attainment goals to set attractive promotional and work targets (e.g., Lee & Ariely, 2006). We show this possibility in studies 5–6.

## 4. Study 2: Monitoring processes in goal pursuit

Study 1 showed that when evaluated separately, modest attainment goals are judged as easier than objectively easier maintenance goals. In study 2, participants not only judged goal difficulty, but also listed the reasons for their judgments. These thought listings (Pham, 2013) were used to examine our propositions regarding the asymmetric nature of self-generated thoughts related to goal pursuit and depict the process underpinnings of the core goal type effect. As in study 1, no context information was provided.

#### 4.1. Method

##### 4.1.1. Procedure

We used three goal domains (savings, charity, and weekly sales) with identical current states and time horizons for attainment and maintenance goals (Appendix A). The 58 US-based participants (46 female;  $M_{Age} = 37$ ,  $SD_{Age} = 12$ ) were recruited from Amazon's M-turk platform for a small monetary compensation. They were randomly assigned to the attainment ( $n = 33$ ) and maintenance ( $n = 25$ ) goal conditions. Goal domains were presented in two different orders. First, perceived difficulty was measured as in Study 1. Then, participants listed in designated text boxes on the next page the reasons they believed would make goal success more or less likely. They also indicated (as a comprehension check) which one of three different goal descriptions was correct. They then completed a demographics questionnaire and were debriefed and paid.

4.1.2. Coding

The listed reasons were coded into content and valence categories. These measures were used to test the operational implications of (a) P1A – those judging modest attainment (maintenance) goals will list a higher (lower) proportion of success reasons related to the small current-desired state *discrepancy (match)*; and (b) P2A – those judging maintenance (attainment) goals will list a higher (lower) proportion of failure reasons related to goal context. We also tested the implications of (c) P1B – those judging attainment goals will list more thoughts relating to the discrepancy versus goal context, and (d) P2B – those judging maintenance goals will list more thoughts about the goal context (vs. the current-desired state match). Finally, we tested if these measures mediate the goal type effect on perceived difficulty.

Classic motivation theories (Carver & Scheier, 1982; Powers, 1973a, 1973b) postulate a negative feedback loop to describe goal directed behavior and highlight two key influences – current-desired state discrepancy and goal context. Our propositions concern the relative processing of information on these two factors during goal judgments. Hence, we used two code categories: “discrepancy-related/match-related” (for attainment and maintenance goals, respectively) and “context-related”. Four other code categories reflected thoughts about other relevant factors during goal pursuit (Latham & Locke, 1991): the absolute goal level, actor characteristics and ability, likely effort, and specific goal-related action plans.

Each thought was coded for its valence regarding goal achievement: a success reason (favorable), a failure reason (unfavorable), or neutral (no specific valence). Table 1 lists the eighteen (6 content × 3 valence) code categories along with exemplar phrases. Two of the authors, blind to study conditions, coded both the content and valence of the listed (open-ended) thoughts. Inter-coder agreement rate was 75.9%; disagreements were resolved by discussion. A vast majority of statements were tagged by a single code category, but some were assigned to multiple categories based on content (e.g., “Mr. X should be able to make an additional \$10.00 in weekly sales,” includes a success reason related to both the discrepancy and the person).

**Table 1**  
Study 2: Coding of open-ended responses.

Code Category	Valence	Example 1	Example 2
Current-desired state discrepancy/ match	Success	Increase is small.	100 dollars is not a large sum of money.
	Failure	No responses	No responses
	Neutral	It depends on the effort/success needed to increase sales by \$10.	Mr. W will need to add at least an extra \$5 in donations.
Contextual factors	Success	A public servant's pay is fairly consistent so he should be able to donate at least \$160.	She will earn interest on her money in the account.
	Failure	An emergency that requires the use of her fund.	Less likely given the current state of the economy.
	Neutral	...changes in the broader economy could increase/decrease the ease with which she could achieve the goal.	This really depends on his luck with clients.
Absolute goal level	Success	This is a very easy goal.	His goal is realistic.
	Failure	It would be hard to make sales this high several weeks in a row.	No responses
	Neutral	He averages the amount he wants to sell so he has a 50/50 chance...	His goal is his current baseline at a minimum
Actor effort related to goal	Success	He is motivated to continue budgeting for charities.	He has the desire to do so.
	Failure	No responses	No responses
	Neutral	He might say he wants to do this... will he put forth the extra effort?	How bad he wants it.
Actor characteristics and ability	Success	He's an established salesman so has an idea of his abilities so he might make it.	She appears to know what she can afford; makes it likely.
	Failure	He's more used to sucking money ...than giving more so may be a goal hindrance.	Personal issues may require his finances more than his ability to donate.
	Neutral	He has a track record of \$2,000 in weekly sales.	Mr. X's marketing skill.
Goal related action plans	Success	He could put away funds every month in order to achieve his goal.	Mr. W could forgo... a movie or a couple of coffees, to save the...\$5.
	Failure	She may take her money and put it elsewhere (under... mattress, buried in ... yard, savings bonds, etc.).	Less likely... just setting a number without a sales plan.
	Neutral	As long as she does not touch the principal \$35,000, the interest will ensure that she has at least that amount.	If Ms. E maintains her \$35,000 account it should be relatively easy if she manages her expenses.

4.2. Results

In a comprehension test, participants chose the correct goal description 89.7% of the time (savings: 98%; charity: 83%; and weekly sales: 88%, respectively). We analyzed data only from the 44 participants whose answers were correct for all three domains. Using data from all the participants does not change the substantive results. The goal difficulty measure was reliable (Cronbach  $\alpha = 0.78$ ; 0.81 and 0.81 for savings, charity, and weekly sales, respectively).

The core analysis was a  $3 \times 2 \times 2$  mixed MANOVA. Goal domain (savings, charity, and sales) was a within participant factor, and goal type (maintenance or attainment) and domain order were between participants factors. Consistent with study 1 results, attainment goals were judged as easier than maintenance goals ( $M_{Att} = 1.76$  vs.  $M_{Maint} = 3.04$ ;  $F(1,40) = 26.89$ ,  $p < .001$ , *partial*  $\eta^2 = 0.402$ ). Unrelated to our theory, the three goal domains differed on difficulty ( $F(2,80) = 10.3$ ,  $p < .001$ , *partial*  $\eta^2 = 0.205$ ) and there was a significant domain × domain order effect ( $F(2,80) = 4.9$ ,  $p < .01$ , *partial*  $\eta^2 = 0.109$ ). No other significant interactions emerged.

4.2.1. Open ended responses

Goal type did not affect any of the six neutral valence categories. For each of the other twelve (6 content × 2 valence) codes, we created an index reflecting its influence on participants' judgments. The code count was divided by the total number of success plus failure thoughts for the domain. If a category had no success or failure reasons, the index (undefined) was set to zero. This index represents the relative (versus absolute) extent to which each thought category was featured during processing, and also removes the effects of unrelated factors (e.g., differences in articulation skills). The total number of thoughts did not vary by goal type ( $M_{Att} = 2.14$  vs.  $M_{Maint} = 2.13$ ;  $p > .9$ ) and using raw counts does not change the results (Table 2 shows the code category counts and mean index values).

Each of the twelve category indices was analyzed separately, using the above  $3 \times 2 \times 2$  mixed MANOVA (involving goal domain, goal type and domain order). Goal type had a significant effect on success

**Table 2**  
Study 2: Mean index values and counts for success/failure thought categories, by goal type.

Content	Valence	Index Values		Counts	
		Attainment	Maintenance	Attainment	Maintenance
Discrepancy/Match	Success <sup>***</sup>	0.417	0.073	0.864	0.192
	Failure	0.000	0.000	0.000	0.000
Context	Success <sup>*</sup>	0.010	0.067	0.024	0.180
	Failure <sup>*</sup>	0.053	0.182	0.114	0.586
Effort	Success	0.056	0.045	0.140	0.109
	Failure	0.000	0.008	0.000	0.030
Goal level	Success	0.120	0.086	0.305	0.165
	Failure	0.000	0.008	0.000	0.03
Person	Success <sup>*</sup>	0.129	0.240	0.383	0.609
	Failure	0.004	0.019	0.017	0.052
Plan	Success	0.093	0.074	0.283	0.150
	Failure	0.006	0.003	0.012	0.030

Comparisons involve the index values of Attainment versus Maintenance goals.

NOTE: The indices do not add to 1. If neither success nor failure thoughts were stated, the index (undefined) was set to zero to reflect that the categories did not feature in the participant’s thinking.

\*\*\*  $p < .001$ .

\*  $p < .05$ .

thoughts related to the current-desired state discrepancy/match. Consistent with P1A, more discrepancy related thoughts were listed for attainment goals than were match related thoughts for maintenance goals ( $M_{Att} = 0.417$  vs.  $M_{Maint} = 0.073$ ;  $F(1,40) = 32.13$ ,  $p < .001$ , *partial*  $\eta^2 = 0.445$ ). As implied by P2A, there were more thoughts about context related success reasons ( $M_{Att} = 0.01$  vs.  $M_{Maint} = 0.067$ ;  $F(1,40) = 4.89$ ,  $p < .04$ , *partial*  $\eta^2 = 0.109$ ) and failure reasons ( $M_{Att} = 0.053$  vs.  $M_{Maint} = 0.182$ ;  $F(1,40) = 6.59$ ,  $p < .02$ , *partial*  $\eta^2 = 0.142$ ) for maintenance versus attainment goals. Unfavorable context thoughts exceeded favorable ones, reflecting the anticipated negativity bias ( $p < .05$ ). Unexpectedly, there were more person related success thoughts for maintenance versus attainment goals ( $M_{Att} = 0.129$  vs.  $M_{Maint} = 0.240$ ;  $F(1,40) = 4.79$ ,  $p < .04$ , *partial*  $\eta^2 = 0.107$ ). Goal type did not affect any other code.<sup>3</sup>

We next tested the implications of P1B (more discrepancy vs. context thoughts for attainment goals) and P2B (more context vs. match thoughts for maintenance goals). We ran a  $3 \times 2 \times 2$  mixed ANOVA (goal domain and thought type as within participant factors, and goal type as a between participants factor) on thought indices. The thought type  $\times$  goal type interaction ( $F(1,42) = 37.79$ ,  $p < .001$ , *partial*  $\eta^2 = 0.474$ ) was significant. As implied by P1B, attainment goal participants listed more discrepancy than context thoughts ( $M_{Discrepancy/Match} = 0.417$  vs.  $M_{Context} = 0.063$ ;  $F(1,42) = 37.93$ ,  $p < .001$ , *partial*  $\eta^2 = 0.574$ ). As implied by P2B, maintenance goal participants listed more context than match thoughts ( $M_{Discrepancy/Match} = 0.073$  vs.  $M_{Context} = 0.249$ ;  $F(1,42) = 7.30$ ,  $p < .01$ , *partial*  $\eta^2 = 0.346$ ).<sup>4</sup>

<sup>3</sup> Unrelated to our theory, the three goal domains differed on the proportion of success ( $F(2,80) = 3.69$ ,  $p < .03$ , *partial*  $\eta^2 = 0.084$ ) and failure ( $F(2,80) = 3.86$ ,  $p < .03$ , *partial*  $\eta^2 = 0.088$ ) reasons related to goal context, as well as success ( $F(2,80) = 3.46$ ,  $p < .04$ , *partial*  $\eta^2 = 0.080$ ) and failure ( $F(2,80) = 3.15$ ,  $p < .05$ , *partial*  $\eta^2 = 0.073$ ) reasons related to the person. Also, the domain  $\times$  domain order interaction affected the proportion of success reasons related to the desired goal ( $F(2,80) = 5.77$ ,  $p < .01$ , *partial*  $\eta^2 = 0.126$ ) and goal context ( $F(2,80) = 6.38$ ,  $p < .01$ , *partial*  $\eta^2 = 0.137$ ), respectively. Lastly, the 3-way interaction of goal type, domain, and domain order affected the proportion of person related failure reasons ( $F(2,80) = 4.59$ ,  $p < .02$ , *partial*  $\eta^2 = 0.103$ ). The results related to context and discrepancy reasons were unaffected by this interaction.

<sup>4</sup> Unrelated to our theory, we found a significant thought type main effect with more discrepancy thoughts overall than context thoughts ( $M_{Discrepancy} = 0.25$  vs.  $M_{Context} = 0.16$ ;  $F(1,84) = 4.65$ ,  $p < .04$ , *partial*

#### 4.2.2. Mediation analyses

We tested for significant indirect effects (Zhao, Lynch, & Chen (2010) using PROCESS for SPSS (Hayes, 2013, model 4, 5000 bootstrap samples). Goal type (maintenance = 0; attainment = 1) was the independent variable, and perceived difficulty was the dependent variable. Correlations among spontaneous thoughts (e.g., balancing unfavorable reasons with favorable ones) may compromise a multiple mediators model (Preacher & Hayes, 2008), so we ran four separate ones, using each of the four thought categories affected by goal type (success reasons related to discrepancy/match, goal context, and person; and failure reasons related to goal context) as mediators. A single multiple mediator model shows similar results.

We found support only for the three indirect goal type effects via the mediators we had proposed (Fig. 2: panels A-D). First (Fig. 2A), attainment goals evoke more (small) discrepancy related success reasons than maintenance goals evoked match related success reasons ( $B = 0.35$ ,  $t(42) = 5.8$ ,  $p < .001$ ). In turn, more such success reasons lower perceived difficulty ( $B = -1.43$ ,  $t(41) = 2.4$ ,  $p < .02$ ). The 95% confidence interval (CI) for this indirect effect excludes zero ( $-0.91$  to  $-0.12$ ). Controlling for this indirect effect, the direct effect of goal type remains negative and significant ( $B = -0.82$ ,  $t(41) = 2.6$ ,  $p < .02$ ).

Second (Fig. 2B), attainment goals evoke less context related success reasons than maintenance goals ( $B = -0.06$ ,  $t(42) = 2.2$ ,  $p < .04$ ). In turn, more such success reasons lower perceived difficulty ( $\beta B = -2.88$ ,  $t(41) = 1.98$ ,  $p < .054$ ). The 95% CI for this indirect effect excludes zero ( $0.02$  to  $0.42$ ). Controlling for this indirect effect, the direct effect of goal type is negative and significant ( $B = -1.48$ ,  $t(41) = 5.9$ ,  $p < .001$ ).

Third (Fig. 2C), attainment goals evoke less context related failure reasons than maintenance goals ( $B = -0.13$ ,  $t(42) = 2.7$ ,  $p < .01$ ). In turn, more such failure reasons increase perceived difficulty ( $B = 1.68$ ,  $t(41) = 2.27$ ,  $p < .03$ ). The 95% CI for this indirect effect excludes zero ( $-0.51$  to  $-0.04$ ). Controlling for this indirect effect, the goal type direct effect remains negative and significant ( $B = -1.1$ ,  $t(41) = 4.4$ ,  $p < .001$ ).

Finally (Fig. 2D), although attainment goals evoke less person

(footnote continued)

$\eta^2 = 0.100$ ). Also, attainment goals produced more (discrepancy plus context) thoughts than did maintenance goals ( $M_{Att} = 0.25$  vs.  $M_{Maint} = 0.16$ ;  $F(1,42) = 5.67$ ,  $p < .03$ , *partial*  $\eta^2 = 0.119$ ).

## A: Via discrepancy related success thoughts



## B: Via goal context related success thoughts



## C: Via goal context related failure thoughts



## D: Via person related success thoughts

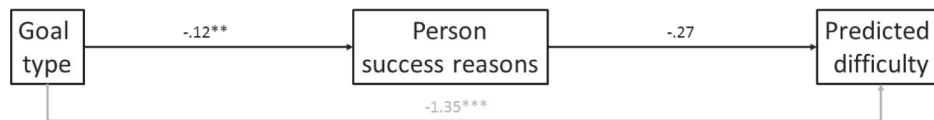


Fig. 2. Study 2: Indirect effects of goal type on predicted difficulty. (\*\* $p < .001$ ; \* $p < .05$ ;  $p < .055$ ).

related success reasons than maintenance goals ( $B = -0.12$ ,  $t(42) = 2.4$ ,  $p < .03$ ), more such success reasons do not impact perceived difficulty ( $B = -0.27$ ,  $t(41) = 0.37$ ,  $p > .7$ ). The 95% CI for this indirect effect includes zero ( $-0.17$  to  $0.35$ ). We discuss the implications of these mediation paths below.

#### 4.3. Discussion

Study 2 replicates the core finding that modest attainment goals are perceived as easier than objectively easier maintenance goals. The thought protocols and mediation analyses provide insights into the underlying processes. Consistent with P1A, discrepancy thoughts for attainment goals were weighted more than thoughts about the corresponding match for maintenance goals. Also, as implied by P2A, context related success and failure reasons had more influence for maintenance (vs. attainment goals). These differences mediated the goal type effect on perceived goal difficulty. Finally, consistent with P1B and P2B, for attainment goals, participants focused more on discrepancy versus context thoughts, but for maintenance goals participants focused more on context versus match thoughts.

Informal checks on participants' thoughts revealed another interesting finding. Even participants evaluating maintenance goals occasionally mentioned counterfactual discrepancies. Such mentions were usually related to specific unfavorable contextual factors that could create a discrepancy. For example, financial "emergencies" could deplete savings and create a negative discrepancy for the savings maintenance goal.

The results of study 2 are hard to reconcile with potential influences of regulatory focus. If maintenance goals activated a prevention focus

and attainment goals a promotion focus, one would expect that attainment (maintenance) goals would result in more *favorable* (unfavorable) context related thoughts. However, our results show otherwise: maintenance goals drive more *favorable* and *unfavorable* context related thoughts than modest attainment goals.

In another lay intuition regarding the core effect, participants may infer that those who pursue maintenance (versus attainment) goals have less ability or plan to spend less effort. Such thoughts had no differential impact on goal difficulty judgments. We address this issue further in studies 5 and 6, where participants consider goals for themselves. In summary, as theorized, study 2 shows that goal type influences goal-related thoughts. These, in turn, mediate effects on goal difficulty judgments. With simple goal situations and sparse information, modest attainment goals, evaluated separately, are seen as easier than (objectively easier) maintenance goals.

#### 5. Study 3: The impact of contextual information

Studies 1 and 2 used simple goal situations with sparse context information and subjects self-generated judgment relevant thoughts. In study 3, we examine separate goal difficulty evaluations when context information embedding a valence manipulation is provided to the participants.

##### 5.1. Method

The 97 participants (48 female;  $M_{Age} = 32$ ,  $SD_{Age} = 10.7$ ) were recruited from Amazon's M-turk panel for monetary compensation and were randomly assigned to a  $2 \times 2$  between participant design with

goal type (modest attainment vs. maintenance) and context information (favorable vs. unfavorable) as factors. Each participant rated the savings and tennis wins goal domains from study 1, enriched with five new information items. Three neutral items were common for all participants. Two other items provided either favorable or unfavorable context information (e.g., for savings, a positive vs. negative economic environment) manipulated between participants (Appendix A). Domain presentation order (counterbalanced) had no effect. Perceived difficulty was measured as in studies 1 and 2 (Cronbach  $\alpha = 0.87$  and  $0.82$  for the two domains, respectively).

## 5.2. Results

The data were analyzed using a  $2 \times 2 \times 2$  ANOVA. Unrelated to our core hypotheses, the goal domain ( $F(1,93) = 24.8, p < .001, \text{partial } \eta^2 = 0.211$ ) main effect and the goal domain  $\times$  goal context interaction significantly affected perceived difficulty ( $F(1,93) = 4.88, p < .03, \text{partial } \eta^2 = 0.050$ ). A significant main effect of goal context (favorable/unfavorable) served as a manipulation check ( $F(1,93) = 68.18, p < .001, \text{partial } \eta^2 = 0.423; M_{Fav} = 2.2$  vs.  $M_{Unfav} = 3.7$ ).

The goal type  $\times$  goal context interaction influenced perceived difficulty ( $F(1,93) = 8.63, p < .005, \text{partial } \eta^2 = 0.085$ ), suggesting that goal context is monitored differently for the two goal types. Context information affected difficulty judgments for both goal types, but more so for maintenance goals ( $F(1,93) = 62.04, p < .001, \text{partial } \eta^2 = 0.400; M_{FavMaint} = 1.98$  vs.  $M_{UnfavMaint} = 3.93$ ) than for attainment goals ( $F(1,93) = 14.3, p < .001, \text{partial } \eta^2 = 0.133; M_{FavAtt} = 2.46$  vs.  $M_{UnfavAtt} = 3.39$ ) goals. Thus, as implied by P2A, maintenance (versus attainment) goal judgments are more sensitive to context information.

The data also show that modest attainment goals are judged as significantly less difficult than maintenance goals in unfavorable contexts ( $M_{UnfavAtt} = 3.39$  vs.  $M_{UnfavMaint} = 3.93; F(1,93) = 4.8, p < .03, \text{partial } \eta^2 = 0.049$ ). However, when the context is favorable, modest attainment goals are judged as more difficult than maintenance goals. This effect approached significance ( $M_{FavAtt} = 2.46$  vs.  $M_{FavMaint} = 1.98; F(1,93) = 3.86, p = .053, \text{partial } \eta^2 = 0.040$ ).

## 5.3. Discussion

Study 3 shows the asymmetric effects of manipulating the valence of contextual information. With favorable context information, maintenance goals are judged as easier than modest attainment goals. However, consistent with P1B and P2A, unfavorable context information has greater influence on the judged difficulty of maintenance (vs. attainment) goals. This produces the core effect in the unfavorable context condition – objectively easier maintenance goals are judged as more difficult than modest attainment goals.

## 6. Study 4: Joint evaluations of attainment and maintenance goals

Studies 1 through 3 showed that, when evaluated separately, modest attainment goals are judged as easier than objectively easier maintenance goals. Beyond the reversal of this core effect with favorable context information (study 3), we predicted another boundary condition: that it would reverse when the two goals are evaluated jointly. Such head to head evaluations should readily show that for any attainment goal, however modest, the non-zero discrepancy is larger than the zero discrepancy for a maintenance goal. The latter, then, would be rated as easier. Study 4 tests this prediction.

This joint evaluations setting also supported the basic premise of our work: people ordinarily believe that achieving zero change is easier than a small, positive change. Thus, study 4 also assesses if maintenance goals appear inherently more difficult than modest attainment goals, even in joint evaluations. Such an effect could stem from a belief that, following initial attainment, maintenance can be difficult due to possible relapses (Polivy & Herman, 2002). Alternatively, people may

believe that maintenance requires special actions and processes with which they are unfamiliar (Ecker & Gilead, 2018). If maintenance goals seem inherently more difficult, their achievement may also yield greater satisfaction. Hence, they should be chosen more often than modest attainment goals in both joint and separate evaluations. Such a finding would be inconsistent with our expectation of a boundary condition on our core effect.

## 6.1. Method

We calculated power and required sample size based on a pilot study. This analysis revealed that with goal domain manipulated between-participants, studies should have 27 participants per domain (corresponding to  $d = 0.72$ ), in order to capture effects on difficulty, in joint goal evaluations. As this study included additional measures (goal choice, satisfaction) we collected  $> 60$  responses per goal domain.

We used Amazon's M-turk online survey platform to recruit 261 participants (167 male;  $M_{Age} = 34, SD_{Age} = 11.5$ ) who completed the study for monetary compensation. They were assigned randomly to one of four goal domains. Two domains related to GPA ( $n = 63$ ) and exercise ( $n = 63$ ) respectively. The remaining two domains involved work goals on the M-turk platform: number of tasks performed weekly ( $n = 66$ ) and daily working time ( $n = 69$ ).

For the GPA and exercise domains, participants considered an actor evaluating two potential goals s/he could set in the assigned domain: a modest attainment goal and a maintenance goal. For the two M-turk platform goal domains, participants first indicated either how many tasks they typically perform per week (weekly tasks) or how many minutes they worked daily (daily working time) on this platform. They then evaluated two potential goals in their assigned domain: a modest attainment goal and a maintenance goal (presented in random order). As in previous studies, success was defined as at least reaching a target value, and the current state and goal time horizons were the same for both goal types (see Appendix A).

Participants first directly indicated which of the two goals they considered more difficult (1 = definitely maintenance, 7 = definitely modest attainment). Next, for each goal (maintenance and modest attainment, respectively) they gave two 7-point ratings assessing difficulty and success likelihood (reverse scored). These were averaged to create the perceived difficulty measure (Cronbach  $\alpha = 0.69$ ). Next, participants indicated which of the two goals was more likely to be chosen (0 = maintenance, 1 = modest attainment). They also provided a direct comparison of the goal they considered more valuable (1 = definitely maintenance, 7 = definitely modest attainment). Next, tracking prior research (Fishbach & Trope, 2005; Trope & Fishbach, 2000), they indicated the value placed on the two goals: how satisfied they would be upon achieving success on each goal (1 = not satisfied at all, 7 = extremely satisfied). Finally, they answered a set of demographics questions, were paid, and debriefed.

## 6.2. Results

### 6.2.1. Difficulty judgments

The perceived difficulty judgments were analyzed using a  $2 \times 4$  ANOVA with goal type (maintenance, attainment) as a within participants factor and goal domain (GPA, Exercise, Weekly tasks, and Daily working time) as a between participants factor. Goal domain had a significant main effect ( $F(3, 257) = 4.21, p < .006, \text{partial } \eta^2 = 0.047$ ). More importantly, there was a significant effect of goal type ( $F(1, 257) = 43.34, p < .001, \text{partial } \eta^2 = 0.144$ ): modest attainment goals were rated as more difficult than maintenance goals ( $M_{Att} = 3.02$  vs.  $M_{Maint} = 2.43$ ). The goal type  $\times$  goal domain interaction was not significant ( $F(3, 257) = 0.16, p > .9, \text{partial } \eta^2 = 0.002$ ). Results for the relative difficulty ratings are corroborative (details available from the authors). The findings are consistent with goal-setting theory (Locke & Latham, 1990): when evaluated jointly, modest attainment goals are



judged as more difficult than maintenance goals. They also rule out the possibility that maintenance goals are perceived as inherently harder than modest attainment goals.

### 6.2.2. Goal choice and goal value

Next, we examined whether modest attainment or maintenance goals are preferred in direct choices. Binomial tests showed that the modest attainment goals were preferred in all domains (Choice Shares: GPA = 85.7%,  $p < .001$ ; Exercise = 63.5%,  $p < .03$ ; Tasks = 71.2%,  $p < .001$ ; Work time = 69.6%,  $p < .001$ ). Notably, although attainment goals were rated as more difficult, they were also more likely to be chosen. We explored if these choices tracked concomitant differences in goal value.

The perceived value data were analyzed via a  $2 \times 4$  ANOVA similar to that for the difficulty judgments. Since the goal type  $\times$  goal domain interaction was significant ( $F(3, 257) = 4.35$ ,  $p < .005$ , *partial*  $\eta^2 = 0.048$ ), we conducted a one-factor ANOVA for each goal domain with goal type (maintenance, attainment) as a within-participant factor. Participants placed greater value (i.e., anticipated greater satisfaction from success) on modest attainment (vs. maintenance) goals in every domain: (GPA:  $M_{Att} = 6.64$  vs.  $M_{Maint} = 4.70$ ,  $F(1, 62) = 2726.52$ ,  $p < .001$ , *partial*  $\eta^2 = 0.978$ ; Exercise:  $M_{Att} = 6.14$  vs.  $M_{Maint} = 4.89$ ,  $F(1, 62) = 42.09$ ,  $p < .001$ , *partial*  $\eta^2 = 0.404$ ; Weekly tasks:  $M_{Att} = 6.18$  vs.  $M_{Maint} = 5.12$ ,  $F(1, 65) = 34.53$ ,  $p < .001$ , *partial*  $\eta^2 = 0.347$ ; and Daily work time:  $M_{Att} = 6.14$  vs.  $M_{Maint} = 4.97$ ,  $F(1, 68) = 35.16$ ,  $p < .001$ , *partial*  $\eta^2 = 0.341$ ). Thus, even though modest attainment goals were rated as more difficult than maintenance goals, they were also valued more and preferred in choice. The results based on comparative value ratings (details available from the authors) were consistent with these findings.

### 6.3. Discussion

Study 4 shows that in joint evaluations, modest attainment goals are rated as more difficult than maintenance goals, confirming that the current-desired state discrepancy is a strong (perhaps sufficient) cue for difficulty judgments. The core effect observed in studies 1 through 3 (for separate evaluations) reverses when the two goal types are compared head to head. This establishes a boundary condition that aids understanding of our core effect. Moreover, study 4 shows that maintenance goals are *not* seen as inherently more difficult than attainment goals.

## 7. Study 5: Goal type effects in financial decision making

Does the surprising finding of the previous studies have pragmatic implications for how individuals may behave in real world goal setting situations? A recent promotion offered by a bank in Europe speaks to this question in a real financial decision setting. In a negative economic environment, the bank offers higher interest rates on accounts if customers increase their account balance by a mere €1 each month. How will the banks customers respond to this promotion? Our core finding implies that, judged in isolation, the modest €1 attainment goal may appear easier and more attractive than an account balance maintenance goal. The latter may seem harder because the match (zero discrepancy) is less salient and the goal evokes thoughts about the negative economic environment. Study 5 tests this prediction in a setting adapted from this real world situation.

### 7.1. Method

We recruited 233 US-based participants (105 female)<sup>5</sup> from Amazon M-turk for a two-part study (an ostensible reading comprehension task

followed by a simulated spending and savings task). The first task primed an unfavorable economic environment, matching the situation that the real bank was facing when it created the promotion. We edited press reports about a bad economic environment to create an “excerpt from an article written by a business journalist describing the economic situation in a particular country.” Participants read and rated four statements about the excerpt (e.g., “The GDP of the economy described is likely to fall”).

Next, participants were presented a savings and spending simulation task. They were asked to indicate their average monthly income (11-point scale with \$1000 increments) and also consider the type (e.g., food) and amount of their monthly expenses. Participants then learned that they would make a series of spending decisions. The amount spent would be subtracted from their stated monthly income. If income was higher (lower) than expenses, the surplus (deficit) would be deposited to (withdrawn from) a bank account of their choice. Deposits and debits would occur at month-end and the account carried no other transactions.

Participants were told that the interest rate of the account would vary based on their decisions. Their objective was to choose a bank account that would get them the highest possible interest rate. Higher interest rates were reflected in higher bonus earnings for the study (ranging from \$0.01 to \$ 0.40). A control “no goal account” (from the same bank) was available to all participants (interest rate: 1%, corresponding guaranteed bonus: \$ 0.20).

The second account embedded the goal manipulation. The attainment goal ( $n = 119$ ) account offered a 2% interest rate (\$0.40 bonus) if the participant increased the balance by at least \$1 during a month. Other than the currency (\$ vs. €) these terms match those offered by the real bank. The maintenance goal ( $n = 114$ ) account offered a 2% interest rate (\$ 0.40 bonus) if the balance was at least maintained relative to the start of the month. In case of failure, the interest rate fell to 0.05% (\$ 0.01 bonus) for both goal accounts. In summary, each participant chose between two accounts: the “goal-free” control account always offered the same bonus (\$0.20) whereas the goal-type accounts paid double bonus (\$0.40) if they achieved their assigned (attainment or maintenance) goal, but virtually no bonus (\$0.01) if they failed.

Participants then selected one of these bank accounts. We used this choice measure as our primary dependent variable because it is less susceptible to response language effects than a corresponding rating task (Lynch, Chakravarti, & Mitra, 1991). Participants also rated their assigned goal (attainment or maintenance) on three 7-point scales: a direct difficulty measure (“Very difficult/easy”), the extent they agreed they could succeed at the assigned goal (“Strongly disagree/agree”) and the likelihood they would achieve it (“Very unlikely/likely”). The ratings were reverse scored and averaged to form the perceived difficulty measure (Cronbach  $\alpha = 0.95$ ).

Finally, participants answered a set of demographics questions and were paid and debriefed. The simulation game was not played and all participants were paid the full bonus. However, when participants chose the bank account, they did believe that they would actually play. Hence, their choices reflected their assessment of goal difficulty. Each participant received \$1.00 (\$0.60 base fee plus \$0.40 bonus) for participation in the study. Thus, the bonus was a very significant part of the total study earnings.

### 7.2. Results

We first ran a logit analysis with goal choice as a function of goal type. Participants in the maintenance goal condition were more likely to choose the goal-free option (30.7%) than their counterparts in the attainment goal condition (19.3%), even though, objectively, the latter goal was more demanding ( $B = 0.61$ ,  $z = 1.98$ ,  $p < .05$ ). Next, we examined whether this effect of goal type on bank account choice was mediated by perceived goal difficulty. We expected that participants in the modest attainment (vs. maintenance) goal condition would judge

<sup>5</sup> Age in this study was not recorded because of a procedural mistake.

## A: Study 5 – Financial Decision Making



## B: Study 6 – Work Goals



Fig. 3. Studies 5 and 6: Indirect effects of goal type on choice mediated by perceived difficulty (\*\*\*  $p < .001$ ; \*\*  $p < .005$ ).

their goal as easier, and would be more likely to choose the goal account.

We used the PROCESS macro in SPSS (Hayes, 2013, model 4, 5000 bootstrap resamples) to test our predictions. The dependent variable was coded 0 (1) for the goal-free (goal) account choice. The independent variable was coded 0 (1) for maintenance (attainment) goal. The modest attainment goal was rated easier than the maintenance goal ( $B = -1.44$ ,  $t(231) = -6.96$ ,  $p < .001$ ;  $M_{\text{Maint}} = 3.66$  vs.  $M_{\text{Att}} = 2.22$ ). In turn, for goals rated as easier, the goal account was chosen more often than the control account ( $B = -1.15$ ,  $z = -7.38$ ,  $p < .001$ ;  $M_{\text{GoalFree}} = 4.78$  vs.  $M_{\text{Goal}} = 2.32$ ). The 95% CI for this indirect effect excluded 0 (1.06 to 2.37; Fig. 3A). Controlling for this indirect effect, the attainment goal account was chosen less frequently ( $B = -1.03$ ,  $z = -2.30$ ,  $p < .03$ ).

### 7.3. Discussion

Study 5 shows a managerial application of our core effect based on a promotion offered by a real bank. A bank account that set a modest attainment goal was judged as easier than one that set a maintenance goal. Hence, the former was chosen more often relative to the control (goal free) account. This goal type effect on choice was mediated by goal difficulty judgments, showing that the focal effect can drive consequential responses in a realistic financial decision setting. Interestingly, the real-world promotion on which this study is based utilized a small discrepancy (only €1) attainment goal. Since firms can freely set goals for their customers or employees, they can calibrate attainment goals to be as modest as needed to attract customers.

We ran a similar study testing this indirect effect in two common shopping goal domains: time and dollar budget. Participants first completed a round of a simulated shopping task. Then, they chose between a goal-free and a double-or-nothing, goal-based reward. The outcome of the latter depended on success in either improving or maintaining (manipulated between participants) their time or budget level (also manipulated between participants), compared to their own performance in the first shopping round. We found the same indirect effect as in study 5. Attainment goals were rated easier, and easier goals were more likely to be chosen over the goal free option. The study details are in Appendix B.

Together, these studies also rule out an alternative explanation that participants rated maintenance goals as more difficult because they construed that no slippage was permitted through the entire time horizon. Both of the above studies used one-off goals for which relapses were irrelevant.<sup>6</sup>

## 8. Study 6: Goal type effects in the workplace

Study 6 addresses five issues. First, it examines the indirect effect obtained in study 5 using real workplace goals and payoffs. Second, it explores an alternate phrasing of maintenance goals that explicitly emphasizes maintaining the current state. Third, it assesses the role of goal value judgments for attainment and maintenance goals evaluated separately. Fourth, it controls for the potential influence of differences in regulatory focus (Brodsholl et al., 2007) and self-construal (Yang et al., 2015). Finally, it checks if construing maintenance goals as permitting no interim slippage (i.e., maintain the current state over the entire goal horizon - not just at the end) affects the core finding.

### 8.1. Method

The context for Study 6 was setting work goals for Amazon M-Turk workers. The goals pertained to their own work, and were linked to real monetary payoffs. Participants judged the difficulty of either maintaining or increasing by 1 min their platform work-time on a given weekday, relative to the same day of the previous week. We screened and recruited 649 US and Canada based Amazon M-Turk workers for a compensation of \$0.70. Screening ensured that all recruited participants had worked normally during the last baseline weekday.<sup>7</sup> We excluded 21 workers who had problems viewing some of the questions and report results based on data from the remaining 628 participants (258 female;  $M_{\text{Age}} = 36$ ,  $SD_{\text{Age}} = 11.5$ ). The basic results hold with the unfiltered sample.

We recruited 344 (284) participants on a Thursday (Tuesday) and assigned them to a work-time goal for the following Tuesday (Thursday), benchmarked to their work-time for the previous Tuesday (Thursday). This natural manipulation of recruitment day allowed us to examine if maintenance goals were construed as requiring constant maintenance over the time horizon. If it were so, goals comparing work-time between Tuesdays should be perceived as more difficult than those comparing work-time between Thursdays, because the time to the deadline (a) is longer (5 vs. 2 days), and (b) includes the weekend when M-turk work-time levels drop (Ipeirotis, 2010).

Participants were told that we were studying work habits at Amazon

<sup>7</sup> A pilot study ( $n = 137$ ) showed that a key source of noise in the difficulty judgments of this study related to setting the baseline performance. Specifically, 20% of the participants in the pilot study ( $n = 29$ ) indicated that they either did not work at all, or worked irregularly, on the target workday of the previous week. Thus, participants for the main study were screened using these two measures (no, or irregular work). Also, a power analysis for the pilot (using SPSS and G\*Power) showed that we needed a sample size of 285 (corresponding to partial  $\eta^2 = 0.044$ ) to detect a significant goal type effect on perceived difficulty. Our interest in examining the moderating effects of the other two manipulations led us to use a much larger sample size.

<sup>6</sup> We thank a reviewer for noting this point.

M-Turk, and asked how many minutes they had worked on the platform ( $M_{\text{Work time}} = 114$  min,  $SD_{\text{Work time}} = 105$ ) during the last target-day, Tuesday or Thursday (based on the condition). Next, they were told that they would receive instructions on how to monitor and record their daily work-time on the platform. They needed to report back their work time for the next target day, and would receive a baseline \$0.20 bonus to compensate them for the extra work. Next, participants were told that they could choose to either keep their \$0.20 bonus, or participate in a work goal, in which case the bonus would increase to \$0.40, or drop to \$0, depending on goal success.

Two more manipulations were applied at this point. First, participants were assigned randomly to either an attainment or a maintenance goal: Increase work-time by 1 min ( $n = 317$ ) versus maintain work-time ( $n = 311$ ) between the previous and the next target day. Second, to probe further if a maintenance goal was construed as constant maintenance (no interim slippage), some ( $n = 315$ ) participants were reminded that only work time on the target-day matters, whereas others ( $n = 313$ ) were not. Thus, overall, the study used a 2 (goal type)  $\times$  2 (target day)  $\times$  2 (reminder) between participants design.

The main dependent measure was the proportion of participants that chose to keep their bonus versus risk it by attempting the assigned work goal. All bonuses were promised to be paid the day after the next target-day (i.e., next Wednesday, or next Friday, depending on condition). This controls for the impact of immediate versus delayed rewards. The perceived difficulty of the assigned goal was measured as in study 5 (Cronbach  $\alpha = 0.87$ ). We predicted a main effect of goal type on perceived difficulty that would then carry over to goal choice. We kept an open mind regarding the effects of the two moderators, but anticipated no significant effects.

Next, tracking prior research (Fishbach & Trope, 2005; Trope & Fishbach, 2000), the participants indicated perceived goal value by rating satisfaction upon goal achievement (1 = not satisfied at all, 7 = extremely satisfied). They then completed scales for regulatory focus (Higgins et al., 2001; promotion sub-scale  $\alpha = 0.67$ , prevention sub-scale  $\alpha = 0.83$ ) and self-construal (Singelis, 1994, extended, 30-items; independence sub-scale  $\alpha = 0.83$ , interdependence sub-scale  $\alpha = 0.84$ ). As in past research (e.g., Yang et al., 2015), the relevant subscales were combined to form two composite scores reflecting promotion-prevention and independence-interdependence, respectively. Finally, participants answered a set of demographics questions and were debriefed and paid. They were not asked to follow through on the performance tracking task. All participants received the promised base fee (\$0.70) and the full (\$0.40) bonus.

## 8.2. Results

We first ran a logit analysis with goal choice as a function of the three manipulations and their interactions. Benchmark work time, regulatory focus, and self-construal were used as covariates. We used contrast coding (Irwin & McClelland, 2001) to assess the main effect of each manipulation averaged across the levels of the others. Consistent with our core finding, maintenance goal participants were more likely to choose the goal-free option (36%) than attainment goal ones (27%), although, objectively, the latter required more effort ( $B = 0.20$ ,  $z = 2.23$ ,  $p < .03$ ). Predictably, the goal-based option was chosen more often for lower benchmark work-times ( $B = -0.002$ ,  $z = -2.29$ ,  $p < .03$ ). No other effects were significant.

Next, we ran an initial  $2 \times 2 \times 2$  ANCOVA, and found a significant main effect of goal type on perceived difficulty ( $F(1, 617) = 8.47$ ,  $p < .004$ , *partial*  $\eta^2 = 0.014$ ), not contingent on any other manipulation ( $ps > 0.3$ ). Hence, the data were pooled over the reminder and target-day conditions for subsequent mediation analysis.

We tested for mediation using PROCESS for SPSS (Hayes, 2013, model 4, 5000 bootstrap resamples). The dependent variable – choosing to keep (vs. try to double) the bonus was coded 0 (1). Goal type, the independent variable – maintenance (attainment) was coded –1 (1).

Perceived difficulty was the mediator. Baseline work time, chronic regulatory focus and self-construal were included as covariates. The modest attainment (vs. maintenance) goal was rated as easier ( $B = -0.16$ ,  $t(623) = -2.93$ ,  $p < .004$ ). In turn, goals rated as easier were more likely to be chosen ( $B = -1.28$ ,  $z = -12.23$ ,  $p < .001$ ;  $M_{\text{Keep}} = 3.61$  vs.  $M_{\text{Double}} = 1.83$ ). The 95% CI for this indirect effect did not include 0 (0.06 to 0.35; Fig. 3B). When controlling for this effect, goal type had no impact on choice ( $B = 0.1$ ,  $z = 0.86$ ,  $p > .3$ ). The covariate effects on perceived difficulty were significant or marginally significant: regulatory focus ( $B = -0.12$ ,  $t(623) = -2.12$ ,  $p < .04$ ), self-construal ( $B = -0.1$ ,  $t(623) = -1.71$ ,  $p < .09$ ), and baseline work time ( $B = 0.001$ ,  $t(623) = 2.17$ ,  $p < .04$ ). Controlling for difficulty, the covariates did not affect goal choice (all  $ps > 0.2$ ).<sup>8</sup>

## 8.3. Discussion

Study 6 contributes several insights. First, we replicate the core effect using real work goals with monetary payoffs. Judged difficulty differences between the two goal types mediate choices of real work goals, pointing to real world workplace applications. Note that the work context used in this study is self-monitored – results may vary in settings where supervisors monitor workers closely (perhaps depending on whether close monitoring is perceived as helping or hindering performance). Second, our effect holds even after controlling for differences in regulatory focus, self-construal, and baseline goal level. Third, the effects persist regardless whether or not goal achievement is construed as allowing interim slippage over the time horizon. Finally, the goal choice is driven by perceived differences in goal difficulty, but not goal value.

## 9. General discussion

### 9.1. Summary of findings

Individuals often pursue externally set attainment and maintenance goals in personal, consumption, and work situations. Yet, the literature comparing the properties and processes associated with these two goal types is sparse. The present article addresses this gap and makes several key contributions to the goals literature. Most notably, at odds with lay intuition and goal setting theory (Locke & Latham, 1990), we show that modest attainment goals may be perceived as easier than objectively easier maintenance goals. This effect is robust in simple goal situations (Heath et al., 1999), and in a range of personal, consumption, and work domains.

The effect stems from a key difference between the two goal types. An attainment goal features a current-desired state discrepancy, whereas a maintenance goal shows a corresponding match (zero discrepancy). In line with goal setting theory (Locke & Latham, 1990) the judged difficulty of attainment goals decreases with discrepancy size. However, study 1 documents a local disruption for modest attainment goals featuring a sufficiently small discrepancy. When judged in isolation, these seem easier than (zero discrepancy) maintenance goals.

We offer and test (study 2) four propositions about how the underlying goal monitoring processes differ for the two goal types. Using thought lists related to goal difficulty judgments, we show that the attainment goal discrepancy is processed more than the corresponding match for maintenance goals (P1A). Since the discrepancy is a strong cue for judgment, goal context information receives comparatively less

<sup>8</sup> A similar analysis with *goal value* as mediator showed only a significant regulatory focus effect ( $B = 0.17$ ,  $t(623) = 3.1$ ,  $p < .003$ ). Goal value was unaffected by goal type ( $p > .8$ ). Even though more valuable goals were more likely to be chosen ( $B = 0.63$ ,  $z = 8.71$ ,  $p < .001$ ;  $M_{\text{Keep}} = 5.02$  vs.  $M_{\text{Double}} = 6.1$ ), the 95% CI for this indirect effect via goal value includes 0 ( $-0.07$  to  $0.06$ ).

processing for attainment goals (P1B). For maintenance goals, context factors (favorable and unfavorable) receive more processing than for attainment goals (P2A) and than the current-desired state match (P2B). If the attainment goal discrepancy is sufficiently small, and context information (self-generated or supplied) sufficiently unfavorable, an attainment goal is judged as easier than an objectively easier maintenance goal. We test this mechanism indirectly (study 3) by supplying favorable versus unfavorable context information. In study 4 we show a boundary condition for the focal effect: It reverses in joint goal evaluations.

Three more studies address the practical relevance of our core findings for organizational and consumption settings. Study 5 (modeled on a promotion offered by a real bank) shows how these difficulty judgments impact financial decisions. Study 6 demonstrates similar results with work goals for Amazon M-turk workers. Another study (details in Appendix B) finds a similar effect in consumer shopping tasks. In each case, we find that the modest attainment goal is judged easier than a maintenance goal, and that options linked to goals that are perceived as easier are chosen more often against a goal-free option.

## 9.2. Theoretical implications

### 9.2.1. Goal monitoring

Our results have important implications for negative feedback loop theories of goal monitoring (Carver & Scheier, 1982; Miller et al., 1960; Powers, 1973a, 1973b; Vancouver et al., 2001; Vohs et al., 2008). We show that when the current and desired states match (maintenance goals), goal monitoring switches focus from discrepancy to goal context factors. This impacts the judged difficulty of the goal, which is contingent upon the extent to which discrepancy and context are processed for each goal type. Moreover, our results suggest that when goals are evaluated jointly, goal monitoring may naturally switch to assessing their discrepancy levels.

Such models also suggest that monitoring processes aim to reduce negative discrepancies. What about situations with positive discrepancies, where the current state is better than the desired state? One might infer that goal related processes would be weaker in such instances. Yet, in some situations (e.g., donations to charity), individual differences in self-construal (independent/ interdependent) or regulatory focus (promotion/prevention) may strengthen the influence of positive discrepancies in motivating behavior (Allen, Eilert, & Peloza, 2018).

### 9.2.2. Motivation and variations in goal discrepancy

We also contribute to research examining goal directed behaviors as a function of goal discrepancy. Research on this topic finds differences between goals with smaller and larger discrepancies (i.e., modest vs. ambitious attainment goals). Thus, Koo & Fishbach (2008) find that given goal commitment, a focus on the current-desired state discrepancy increases goal adherence. Taken together with our results, this suggests that adherence may be more likely for modest attainment versus maintenance goals (zero discrepancy). Our finding is also consistent with Koo & Fishbach (2012) in showing that focus on a small remaining discrepancy may increase a goal's attractiveness. Focusing on a less salient match (zero discrepancy) of maintenance goals may seem unattractive, in comparison.

We find an indirect effect of goal type on goal choice through perceived goal difficulty. This relationship may be attenuated if goal choice is driven by other factors, such as goal value. Whether goal value or difficulty drives goal attractiveness may depend on whether discrepancy is structured in sub-goals, or the means available for the focal goal (Huang & Zhang, 2013; Huang, Jin, & Zhang, 2017). We did not manipulate sub-goals, so participants may have created their own based on disposition and experiences. Systematic manipulations of value, sub-goals, and the availability of means may moderate our results by clarifying routes to achieving goals that may not be readily accessible or

understood (e.g., for maintenance goals).

Relatedly, in joint evaluations, modest attainment goals are rated as harder, more valuable, and are preferred more than maintenance goals (study 4). Thus, in achievement-related domains, (modest) attainment goals can be both more difficult and more valuable (cf. Atkinson, 1957; Kruglanski et al., 2002). However, this pattern may not obtain in separate evaluations (study 6), where perceived difficulty judgments mediate goal choice and options associated with goals perceived as less difficult are more likely to be chosen against goal-free (baseline) options.

### 9.2.3. Maintenance goals and potential relapses

We observe our effect for different types of maintenance goals, recently identified in the literature (Ecker & Gilead, 2018). Some maintenance goals involve preventing relapses from levels already achieved (e.g., maintaining a bank balance), and a discrepancy can rarely be salient. Others require repeated attainment of a level to be maintained (e.g., a daily 30-minute exercise regimen starts at 0 each day), and the discrepancy becomes salient as the maintenance goal is implemented. Both these types of maintenance goals differ from attainment goals that require surpassing the current level (bank balance or daily exercise time).

An informal check of the thoughts generated in study 2 for these two types of maintenance goals revealed an interesting point of difference. When evaluating maintenance goals where a discrepancy is rarely salient (e.g., maintaining a bank balance), no participant mentioned the possibility of potential relapses. However, when evaluating maintenance goals where discrepancies may be salient at implementation (e.g., annual charity donations), about 20% of the participants mentioned the possibility of relapses. Conceptually, the latter type of maintenance goal may be framed or construed as a recurring attainment goal. Future research could explore when and how such framing (or construal) differences may occur and potentially influence motivation, commitment, and performance for essentially the same goal.

### 9.2.4. Other motivation-related constructs

Over optimism about goal success is common (Dunning, 2007; Zhang & Fishbach, 2010). Perhaps the very nature of modest attainment goals (i.e., the small discrepancy) attracts attention (Dunning, 2007) and breeds excessive optimism regarding success by deflecting attention away from potential inhibitors. For maintenance goals, the zero discrepancy is less salient and attention is devoted to potential inhibitors. Thus, potentially, people are not overly optimistic regarding success despite the zero discrepancy.

Finally, in study 6 we found that regulatory focus affected perceived difficulty, although past research has not found similar effects (Brodsholl et al., 2007; Higgins, Chen Idson, Freitas, Spiegel, & Molden, 2003; Lee, Aaker, & Gardner, 2000). Perhaps regulatory focus effects on perceived difficulty are weak and detectable only with larger samples, as in study 6. However, beyond issues of statistical power, there is room for future research conceptualizing and testing for the substantive conditions under which regulatory focus effects on perceived difficulty may emerge.

## 9.3. Managerial and public policy issues

Managers can use attainment and maintenance goals strategically. Some prior findings suggest that using modest attainment goals (e.g., in conditional coupons) may lower spending (Lee & Ariely, 2006; study 2). We show the flipside: modest attainment goals can attract individuals to participate in promotions they may ignore otherwise (e.g., rather than requiring maintenance of an account balance, a bank may promote very small increases). Such subtle goal frames can exploit without adding substantive value. Research could inform regulatory scrutiny in such cases that may have adverse marketplace and workplace impact. On the other hand, attainment goal success is sometimes overestimated (e.g., a

salesperson targeting a modest sales increase may fail for insufficient effort). A maintenance goal could avoid this problem.

Our work can also serve as a basis for recommendations about the use of maintenance and attainment goals in settings involving joint versus separate evaluations. Conventional wisdom suggests that maintenance (vs. objectively harder attainment) goals are easier and thus can be chosen more often in challenging environments (e.g., a bearish economy). Our work shows that this intuition is true, but only when individuals evaluate goals jointly (e.g., *select* what goal to set for themselves). When individuals evaluate goals separately (e.g., a goal assigned by a seller or a supervisor), our results show that maintenance goals actually draw more attention to negative context information. Hence, modest attainment goals may be perceived as easier, and thus chosen more often in such contexts (as shown in our European bank study 5).

Similar to firms (e.g., banks) calibrating consumer goals to be attractively modest, organizations may calibrate and set attractive performance targets for employees. There are several caveats associated with this practice. First, modest attainment goals may be perceived as very easy, elicit low effort, and lower performance (Hinsz, Kalnbach, & Lorentz, 1997; Locke and Latham, 1990). Second, our core effect on difficulty judgments stems from a heuristic focus on the (small) current-desired state discrepancy for modest attainment goals. Higher stakes may engage a more deliberative process that considers context information even for attainment goals, removing the effect. Third, the effect may not hold in goal domains that mark progress in big steps (e.g., work targets with large steps between bonus levels). Finally, even attainment goals involving minor improvements may appear difficult if the initial state is already high (e.g., a modest sales increase is difficult when current sales are already very high).

#### 9.4. Future research

##### 9.4.1. When and how do goal discrepancies matter?

First, although the core effect is local and occurs for small discrepancies, its importance is underscored by recent research that finds different motivation processes for goals featuring smaller versus larger discrepancies (e.g., Huang & Zhang, 2013; Huang et al., 2017; Koo & Fishbach, 2008, 2012). More research is needed to identify when processing focus shifts to discrepancy, or to other goal features. For example, research manipulating relapses can study the saliency of discrepancies for maintenance goals that may never exhibit a discrepancy (e.g., maintain a bank balance), versus those that exhibit discrepancies during implementation (e.g., maintain last month's sales levels).

Second, we show substantive boundary conditions of our effect, related to discrepancy size (study 1) and judgment mode (separate vs. joint evaluation; study 4). Specifically, the effect obtains for separate evaluations, but reverses for joint evaluations that facilitate direct comparison of discrepancies. This comports with research showing that both joint (Hsee & Zhang, 2004) and separate (Pinder, 2014; Van Eerde & Thierry, 1996) evaluations can elicit biases that (as we show) can influence goal-related judgments. Perhaps self-chosen goals are more appropriately studied using joint evaluations (Lord, Diefendorff, Schmidt, & Hall, 2010; Vancouver, et al., 2001 – Study 1) whereas assigned goals are better understood in situations using separate evaluations (Vancouver et al., 2001 – Study 2).

##### 9.4.2. Goal difficulty and preference

On the methodology front, goal difficulty may be measured more reliably (e.g., with numerical probability scales). There is also debate in the literature regarding how goal difficulty relates to goal preference. Some argue that people like challenging goals over easier ones (e.g., Locke & Latham, 1990) whereas others show that moderate difficulty goals are preferred to low or high difficulty goals (Atkinson, 1957). One explanation is that difficult (vs. easier) goals are preferred because in achievement domains, success on the former leads to greater rewards

(Atkinson, 1957; Kruglanski et al., 2002). In other words, the goal is chosen not because it is more difficult, but because it is rewarded more.

In studies 5 and 6, which featured separate judgments and equivalent rewards for success at either goal, we found that options associated with the modest attainment goals (rated as easier than maintenance goals) were more likely to be chosen (vs. a goal-free option). With no difference in goal value, the easier goal was preferred. This is consistent with the literature (Atkinson, 1957; Kruglanski et al., 2002). Along similar lines, cultural differences in the propensity to process context (Masuda & Nisbett, 2001) and in the motivating properties of various goal types (Yang et al., 2015) may impact assessments of goal difficulty, and have subsequent effects on choice and effort allocation. These processes deserve more study.

##### 9.4.3. Relapses during goal pursuit

Relapses resulting from goal domain or individual characteristics are plausible for either goal type. Thus, with dieting, efforts to maintain or lose weight become difficult as the body tries to restore weight to the initial level (Polivy and Herman, 2002). With addiction, attaining a desired state requires different methods than long run maintenance (Baldwin et al., 2006). Research on aging shows that as people move toward adulthood, maintenance (vs. attainment) goals are set more often, and contribute more to well-being (Ebner, Freund, & Baltes, 2006). New research on how individual and domain differences interactively influence goal setting may provide insights on how relapses may be avoided.

Whether interim relapses are permitted, or they result to immediate goal failure may change the psychological experience and difficulty assessment for the two goal types. We did not examine this issue. Variations in permitted trajectories during goal pursuit are worth examining for effects on a-priori assessments of goal difficulty, goal commitment, and achievement motivation. Also, in field situations, goals may implicate complex paths. For example, individuals may set an attainment goal (e.g., raise output) and upon achieving it, set a maintenance goal (e.g., maintain output) primarily to prevent relapses. Intense initial effort can lead to fatigue, depletion, and relapses. These changes in mental and physiological states may also make maintenance goals appear more difficult than attainment goals.

##### 9.4.4. Goals and affective states

Future research can also explore how goal type may be related to affective states. For example, Louro, Pieters, & Zeelenberg (2007) propose (as we find) that perceived difficulty for attainment goals is a monotonic function of goal discrepancy. They also suggest that positive (versus negative) emotions stimulate more effort towards a goal when discrepancy is high (versus low). Future research could study the effects of emotional valence on effort for maintenance goals, which feature a match instead of a discrepancy.

Similarly, current theories (e.g., Carver and Scheier, 1990) suggest that affect during goal pursuit stems from monitoring discrepancy reduction and its speed. But then, how does affect emanate for maintenance goals that lack such an initial discrepancy? Maybe affect associations differ for maintenance goals that never realize a discrepancy versus those that require “recurring attainment.” Alternatively, maintenance goals' pursuit may generate little intrinsic affect, but be more likely to be attributed with incidental affect. Research on these issues may shed new light on the relationship between goal type and affective states.

Research is also needed to address affective outcomes stemming from success and failure at attainment and maintenance goals. Failing in a maintenance (vs. an attainment) goal may lead to greater dissatisfaction due to the “pull of the status quo,” and create a motivation to recover. In contrast, success in a maintenance (vs. an attainment) goal may result in little satisfaction and lower motivation to invest effort. Such asymmetries suggest an affective plateau for maintenance goals (Ecker & Gilead, 2018) and an imbalance that produces higher

negative emotions in failure, but lower positive emotions in success (relative to attainment goals).

Finally, research could study how people deal with attainment goals without specific desired states (e.g., “do your best” goals). Although such goals typically result in lower effort (Latham & Locke, 1991; Mento, Steel, & Karren, 1987) individual differences in emotional makeup as well as situational factors may influence commitment and effort devoted to such goals. Research can inform the use of such tools as motivational devices in marketplace and organizational contexts.

We close with an observation on the accumulated research on goal directed behavior. This research itself may have been a victim of the type of attention bias that drives our results. To date, research has

focused mainly on attainment goals where the current and the desired states are discrepant. Relatively less is known about situations in which these two states match. Simple extrapolations from attainment to maintenance goals may mislead and systematic comparisons of the two goal types should be a future research priority.

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## Appendix A

### Goal domains for all studies

Notes: All Studies:	Zero discrepancy Maintenance Goals in (parentheses); Small discrepancy (Modest) Attainment Goals in {curled brackets};
Study 1	Moderate discrepancy Attainment Goals in [square brackets]; Large discrepancy Attainment Goals in  vertical bars ; Very large discrepancy Attainment Goals in –hyphens–.
Study 3:	Goal facilitating environment in <i>italics</i> ; Goal inhibiting environment in ( <b>parentheses bold italics</b> )
Study 5:	Target-day Tuesday in  vertical bars ; Target-day Thursday in –hyphens–.

### Study 1 Domains

**GPA:** “Ms. V is a student in his junior year at college. Her current GPA is 3.2 on a 4-point scale. She wants to graduate with a GPA no less than (3.2) {3.3} [3.4] |3.5| –3.6–.”

**Savings:** “Mr. W is a retail clerk who tries to put away an average of \$150 on in savings each month. This month, his goal is to save no less than \$(150) {160} [170] |180| –190–.”

**Tennis:** “Mr. Y is a professional tennis player whose win percentage halfway through the season is 65%. He wants to end the season with a win percentage of at least (65%) {67%} [69%] |71%| –73%–.”

### Study 2 Domains

**Savings:** “Ms. E is a businesswoman who currently has \$ 35,000 in her bank account. In one year’s time, she wants to have at least \$ (35,000) {35,100}.”

**Charity:** “Mr. W is a public servant who tries to donate an average of \$160 to charities each year. This year, his goal is to donate no less than \$ (160) {165}.”

**Weekly Sales:** “Mr. X is a telephone salesperson who averages € 2,000 in weekly sales. In the coming month, she wants to average at least € (2,000) {2,010} in weekly sales.”

### Study 3 Domains

**Savings:** Mr. W is an *experienced (inexperienced)* retail clerk at a technology store near the city center. His salary, as well as his mortgage installments, is expected to remain relatively constant. As the economic environment in his country is *positive (negative)*, he expects to make a little *more (less)* on bonuses. He tries to put away an average of \$150 on in savings each month. This month, his goal is to save no less than \$(150) {160}.

**Tennis:** Mr. Y is a professional tennis player. At the moment, he feels he is in (*not so*) good shape. For the remaining matches of the season, which are as many as those he had already played, he expects to have moderate support from his fans. In addition, his next competitors are of the same level as those he already competed with. Many of the remaining matches will be held on a grass court, which *favours (does not favor)* his playing style. His win percentage halfway through the season is 65%. He wants to end the season with a win percentage of at least (65%) {67%}.

### Study 4 domains (Joint evaluations. Presentation order of goal types was randomized)

**GPA:** “Mr. V is a student starting his junior year in college, currently considering two potential goals he could set for his graduation GPA. Right now, he has a GPA of 3.1 on a 4 point scale, which can fluctuate in the following years of his studies.

(One goal he could pursue is to try to maintain his current GPA, so that he graduates with at least 3.1.)”

{A second goal he could pursue is to try to slightly improve his current GPA, so that he graduates with at least 3.2.}

**Exercise:** “Ms. D is a computer programmer who does daily aerobic exercises at home. She is currently considering two potential goals she could set for her exercising. Right now, she exercises on average for 30 min daily, time that can fluctuate from day to day.

(One goal she could pursue is to try to maintain her daily exercising to 30 min per day, on average, over the next month.)”

{A second goal she could pursue is to try to slightly increase her daily exercising to 35 min per day, on average, over the next month.}

**Weekly work tasks:** “You indicated before that you complete on average about < number indicated by participant > tasks on Amazon Mechanical Turk each week.

Now, please consider a typical week during which you have the usual time available to work on Amazon Mechanical Turk. There are two potential goals that you could set regarding the number of tasks that you complete that week.

(One goal you could pursue is to maintain the number of tasks you complete on Amazon Mechanical Turk, and complete at least  $< \textit{number indicated by participant} >$  .”)

{A second goal you could pursue is to increase the number of tasks you complete on Amazon Mechanical Turk, and complete at least 10 tasks more than  $< \textit{number indicated by participant} >$  .}

*Weekly working time:* “You indicated before that, you work about  $< \textit{number indicated by participant} >$  minutes on Amazon Mechanical Turk, during a typical day that you work on this platform.

Now, please consider a typical day during which you have the usual time available to work on Amazon Mechanical Turk. There are two potential goals that you could set regarding the time that you work on this platform that day.

(One goal you could pursue is to maintain time that you work on Amazon Mechanical Turk, work for at least  $< \textit{number indicated by participant} >$  , and make the same money as usual.”)

{A second goal you could pursue is to increase the time that you work on Amazon Mechanical Turk, work for at least 10 min more than  $< \textit{number indicated by participant} >$  , and make some more money.}

#### Study 5 (Financial decision Making)

“Your objective should be choose the bank account that will give you the highest possible interest rate for your money. This interest rate, however, may depend on your spending decisions for the forthcoming month.

In order to reward your efforts for this task, we will give you a bonus payment of \$0.2 for every 1% of interest rate that you are able to secure. For example, for a 1% interest rate you will be given a bonus of \$0.2, for a 2% interest rate you will be given a bonus of \$0.4, and for a 0.05% interest rate you will be given a bonus of \$0.01.

Here are the terms of these two accounts.

- Account ABC offers a 2% interest rate (if at the end of the month the balance is at least maintained, compared to the beginning of the month) {if you manage to increase the account balance even by a single dollar during a month}. Otherwise, it offers a 0.05% interest rate.
- Account XYZ offers a 1% interest rate in any case.”

#### Study 6 (Work)

“As part of this study, you will receive a bonus to compensate you for the work required to monitor the amount of time that you will work on M-turk next [Tuesday] –Thursday–. You have two options regarding this bonus.

In the first option, you will receive a bonus of 20 cents to compensate you for the effort required to monitor the amount of time that you work.

In the second option, you can try to double the amount of your bonus, and receive 40 cents. To do that, in addition to monitoring the amount of time, you will have to successfully (maintain the amount of time that you will work on Amazon Mechanical Turk next [Tuesday] –Thursday–, to at least  $< \textit{baseline time, as indicated by participant} >$  minutes, the time you spent working on Amazon Mechanical Turk last [Tuesday] –Thursday–)

{increase the amount of time that you will work next [Tuesday] –Thursday– by at least 1 min, compared to the  $< \textit{baseline time, as indicated by participant} >$  minutes you spent working on Amazon Mechanical Turk last [Tuesday] –Thursday–}.

However, if you fail in this goal, you will receive no bonus.

All eligible bonuses will be paid next Wednesday.

What do you want to do?

- I want to try to (maintain my work to at least  $< \textit{baseline time, as indicated by participant} >$  minutes next [Tuesday] –Thursday–) {work at least 1 min more than  $< \textit{baseline time, as indicated by participant} >$  next [Tuesday] –Thursday–}, so that I increase my bonus to 40 cents.
- I Want to receive a 20 cents bonus.

## Appendix B

### Goal type effects in consumer shopping

This appendix reports a study that examines whether the focal effect can be used by firms to design attractive promotions in a consumer shopping contexts by using attainment and maintenance goals (e.g., Lee & Ariely, 2006). For generalizability, we manipulated goal type (maintenance vs. modest attainment) in two common shopping tasks (dollar or time budget). Each participant was randomly assigned only to one of the two tasks, to avoid fatigue. The task goals (with real study bonus payoffs) were set for the participants. We predicted a main effect of goal type such that modest attainment goals would be rated easier than maintenance goals and that these difficulty ratings would influence goal choice.

### Method

We recruited 500 US-based participants from Amazon’s M-turk panel. We screened out participants who rarely shopped at supermarkets or lacked equipment that did not allow a proper view of stimulus images. Data from 92 participants were unusable (80 did not follow instructions and 12 did not finish the study). The filtered data are from 408 participants (156 female;  $M_{Age} = 30$ ,  $SD_{Age} = 7.7$ ). The basic results reported below hold with the unfiltered sample. Participants were promised a base fee of \$0.60 that could rise to \$1 with bonuses.

We developed a computer-based shopping task using a visual image of a supermarket shelf planogram. Participants were assigned randomly to a 2 (goal type: attainment ( $n = 205$ )/maintenance)  $\times$  2 (shopping goal: dollar ( $n = 220$ )/time budget) between participants design. We chose attainment goals, keeping in mind that firms would want consumers to find these goals easy and attractive. We used fictitious non-word brand names and prices that were averages for similar products at an on-line supermarket. Participants could search the screen for target items and click on the product image to indicate purchase.

Participants were asked to imagine doing their weekly shopping and played a practice round. For the actual task, participants in the dollar budget

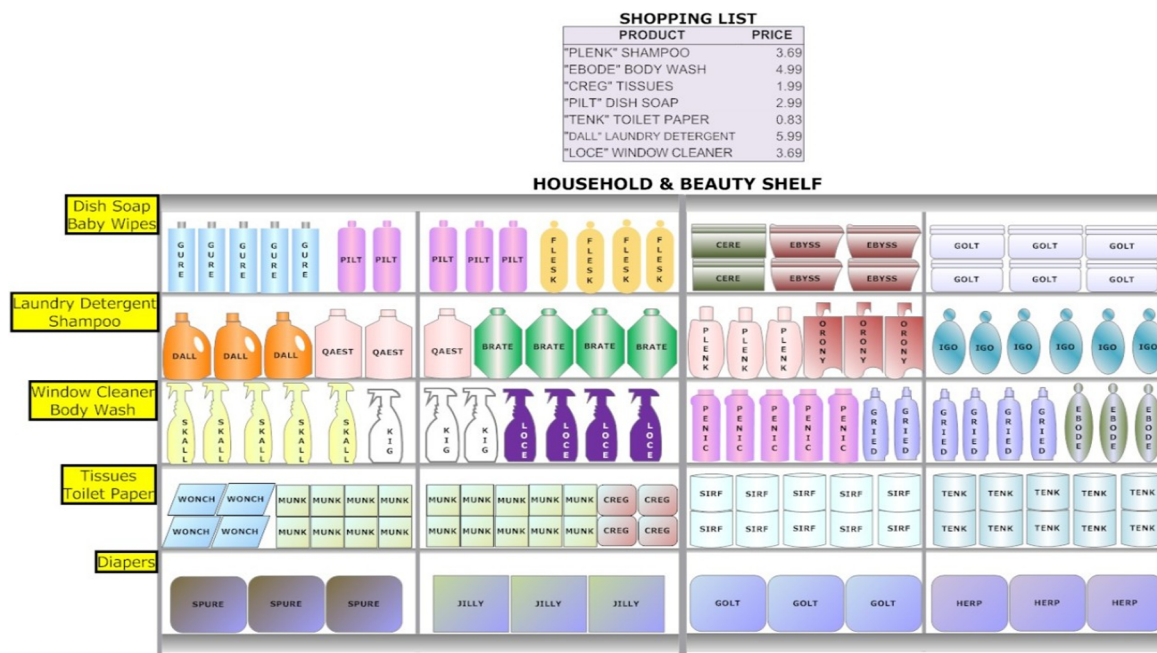


Fig. B.1. Consumer Shopping Study. Actual Task List and Store Shelf.

goal condition saw a seven-item shopping list and a supermarket shelf planogram (see Fig. B.1). Those in the *time budget* goal condition saw the same screen, but with a running clock on top. After they finished shopping, participants moved to the next screen and learned that their performance so far had earned them a bonus of \$0.20. They were then presented with the choice to either keep this bonus, or participate in a second shopping task in which they could double (forfeit) this bonus, if they succeeded (failed) at a goal benchmarked to their initial performance.

Participants in the shopping *dollar budget* condition were told that they had spent \$24.17 during their first trip and that the second trip would involve similarly priced items. They would see all product prices and could *freely choose* the brands they wanted (i.e., cheaper or more expensive items). They would double their bonus if, relative to the first trip they spent: attainment goal – at least 5 cents less (i.e., \$24.12); maintenance goal – at most the same (\$24.17). Those in the shopping *time budget* condition were told that the second trip would involve a similar shopping list and a shelf of identical complexity and reminded of the time they took for the first trip. They would double their bonus if, relative to the first trip, they finished in: attainment goal – at least one second less; maintenance goal – at most the same time.

All participants then chose if they wanted to keep the bonus or try doubling it on the second task. The main dependent measure was the proportion of participants in each goal type and domain that chose to try to double their bonus. This choice measure minimized response language effects (Lynch et al., 1991). Next, participants rated the difficulty of their assigned goal on three 7-point scales (identical to those in study 5). These were averaged (Cronbach  $\alpha = 0.80$ ) and reverse scored to create the perceived difficulty measure. Finally, they answered questions on demographics and were debriefed and paid. They did not perform the second shopping task. All participants were paid \$1.00 (\$0.60 base plus the \$0.40 bonus).

**Results**

We first ran a logit analysis with goal choice as a function of goal type, shopping goal, and their interaction. We used contrast coding (Irwin & McClelland, 2001) to assess the main effect of each manipulation averaged across the levels of the others. The likelihood of choosing the goal-free option was not statistically different between participants in the maintenance goal (18%) and attainment goal (25%) conditions ( $B = -0.482, z = -1.65, p > .1$ ). The only significant effect of this analysis was that participants in the dollar budget (31%) condition were significantly more likely to select the goal-free option than participants in the time budget (12%) condition ( $B = 0.35, z = -3.48, p < .001$ ). No other effects were significant.

We predicted an indirect effect such that (a) modest attainment goals would be perceived as easier than maintenance goals and (b) goals perceived as easier would be more likely to be chosen. Shopping goal (dollar vs. time) did not moderate the goal type effect on either choice or perceived difficulty ( $p$ 's  $> 0.15$ ) so the data were pooled over the two goals. Given our binary choice dependent measure, we tested our predictions using the PROCESS macro in SPSS (Hayes, 2013, model 4, 5000 bootstrap resamples). The dependent variable was coded 0 (1) for those choosing to keep (vs. risk) their bonus. The independent variable was goal type with maintenance (attainment) goal coded 0 (1). Perceived difficulty served as the mediator.

The modest attainment goal was rated as easier than the maintenance goal ( $B = -0.21, t(406) = -2.03, p < .05; M_{Maint} = 3.21$  vs.  $M_{Att} = 2.99$ ). In turn, for a goal perceived as easier, participants were more likely to try to increase (versus keep) their earned bonus ( $B = -0.40, z = -3.39, p < .001; M_{Keep} = 3.42$  vs.  $M_{Increase} = 3.00$ ). The 95% CI for this indirect effect did not include 0 (0.01 to 0.22; Fig. B.2). Controlling for this effect, attainment goals were less likely to be chosen ( $B = -0.54, z = -2.19, p < .03$ ).

**Discussion**

The study reported in this appendix shows the core goal type effect on judged difficulty in a task emulating common consumer shopping situations. The difficulty judgment mediated the goal type effect on real choices in which participants risked a certain financial bonus that was



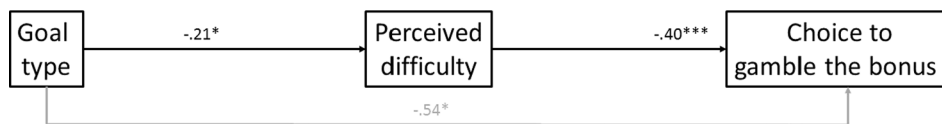


Fig. B.2. Consumer Shopping Study. Indirect effects of goal type on choice mediated by perceived difficulty (\*\* $p < .001$ ; \* $p < .05$ ).

significant relative to their study earnings. In other words, participants' goal choice decisions reflected their assessment of likely success at a modest attainment goal (that was judged as easier than a maintenance goal).

#### Appendix B domains (Maintenance goals in (parentheses); modest attainment goals in {curled brackets}):

**Dollar budget:** “The cost of your household shopping for this week was \$ 24.17. Based on your performance in the first task, we have decided to give you a bonus of 20 cents. Moreover, we would like to offer you the opportunity to double your bonus.

Imagine that a week later, you are about to go shopping for your household again. Although the specific items included in the list may be different than the first week, they have an identical overall price level. In addition, you will see all product prices and be able to choose the products you want.

As you would like to spend little money, you want to spend at a maximum (\$ 24.17– the same amount of money as first week) {\$ 24.12–5 cents less than first week}.

If you want to try to double your bonus, you will receive double the amount, i.e., 40 cents, (if you are able to spend no more than you spent in the first week) (if you are able to spend at least 5 cents less than the first week). If you spend more, you will receive no bonus. Of course, you can choose not to try and double your bonus and simply choose to take your 20 cent bonus.

What do you want to do?

- (I want to try to try to maintain my spending) {I want to try to try to spend 5 cents less}, and increase my bonus to 40 cents.
- I want to keep my 20 cents bonus.

**Time budget:** “You took < time spent during the first round > seconds to complete your shopping task this week. Based on your performance in the first task, we have decided to give you a bonus of 20 cents. Moreover, we would like to offer you the opportunity to double your bonus.

Imagine that a week later, you are about to go shopping for yourself again. Although the specific items included in your list may be different from the first week, the number of items you want to purchase is exactly the same. As in the previous week, all the items on this week's list are on a single shelf similar to the one you shopped from last week.

As you want to be fast, you want to finish at least (as fast as < time spent during the first round > , which is the same as the time you took last week) {1 s faster than < time spent during the first round > , which is the time you took last week}.

If you want to try to double your bonus, you will receive double the amount, i.e., 40 cents, if you complete the shopping task (as fast as the time you did in the first task (< time spent during the first round > seconds), or faster) {at least 1 s faster than the time you did in the first task (< time spent during the first round > seconds)}. If you are not able to complete the task (faster than) {at least 1 s faster than} < time spent during the first round > seconds, you will not receive the 20 cents bonus. Of course, you can choose not to try and double your bonus and simply choose to take your 20 cent bonus.

What do you want to do?

- (I want to try to try to maintain my shopping time) {I want to try to improve my shopping time by 1 s}, and increase my bonus to 40 cents.
- I want to keep my 20 cents bonus.

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