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# Regulatory Fit as Input for Stop Rules

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Running head: REGULATORY FIT AS INPUT

Regulatory fit as input for stop rules

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## Abstract

Three experiments show that the motivational effects of regulatory fit (consistency between regulatory state and strategic means) are context-dependent. With no explicit decision rule about when to stop (Experiment 1) or an explicit enjoyment stop rule (Experiments 2 and 3), participants exerted more effort on tasks when experiencing regulatory fit than when experiencing regulatory nonfit. With an explicit sufficiency stop rule (Experiments 2 and 3), participants exerted less effort when experiencing regulatory fit than when experiencing regulatory nonfit. The interactive effect of regulatory fit and stop rules can be explained by misattribution of rightness feelings from regulatory fit: the effect was eliminated by drawing participants' attention to an earlier event as a source of rightness feelings (Experiments 1 and 3).

Keywords: regulatory focus, fit, motivation, input, stop rules

## Regulatory fit as input for stop rules

Every day, we engage in various activities that are more or less enjoyable or boring, intrinsically or extrinsically motivating, task-orienting or performance-orienting, and along the way we make decisions about how much effort to put into them. Sometimes our focus is simply on engaging in a task. In such cases, we might be doing something that is interesting and enjoyable in its own right, unconcerned about evaluation, or in a situation that conveys the impression that ability is malleable and can improve with interest and effort (e.g., Deci & Ryan, 2000, Dweck & Leggett, 1988; Elliott & Dweck, 1988; Utman, 1997). For example, one might be teaching one's self how to play the piano, doing a crossword puzzle that is not too difficult or too easy, running for the fun of it, or coming up with ideas for a new business venture. When our focus is on the task, we may continue it as long as it is enjoyable, in part because the situation allows us to (e.g., Hirt, Melton, McDonald, & Harackiewicz, 1996; Martin, Wyer, Achee & Ward, 1993).

Other times, our focus is more on meeting a standard or criterion of performance. We might be thinking about rewards or punishments (such as how our performance will make others feel about us), concerned about how we compare with others, aware that a certain level of performance is expected or required, or in a situation that conveys the impression that ability is fixed (e.g., Deci & Ryan, 2000, Dweck & Leggett, 1988; Elliott & Dweck, 1988; Hirt et al., 1996; Martin et al., 1993; Nicholls, 1984; Utman, 1997). For example, one might be practicing the piano because one needs to get a good grade in a course, practicing word problems to get a good verbal score on the GRE, running to do well enough to stay on a track team, or trying to sell a sufficient amount of goods or services to ensure a profit. When our focus is on

performance, we may put effort into a task until we feel that we have done at least an adequate job, in part because the situation requires it (e.g., Hirt et al., 1996; Martin et al., 1993).

The effort we put into a task is important to our optimal enjoyment or performance at it. For example, a crossword puzzle that is not interesting probably is not worth doing, and if playing the piano, running, thinking about a new business venture, or any other task-oriented activity is not enjoyable today, perhaps it is best to stop early and try more tomorrow. If one is trying to meet a performance goal, however, it is important to do as much as it takes to achieve an adequate level of performance in the current situation, whether one's goal is doing well in a course, getting a good score on the GRE, staying on the track team, or making a profit.

What affects how much effort we put into an activity when we are either task or performance focused? Research suggests that feelings can serve as input for stop rules: decision rules about when to stop working on a task (Hirt et al., 1996; Martin & Stoner, 1996; Martin et al., 1993; Martin & Whittaker, 2000; Sanna, Parks, & Chang, 2003; Sanna, Turley & Mark, 1996; Startup & Davey, 2001). Task-focusing situations appear to lend themselves to enjoyment stop rules: decision rules such as "Am I enjoying this task?" and "Do I feel like continuing?" that promote stopping when the task is no longer enjoyable (e.g., Hirt et al., 1996; Martin et al., 1993; Sanna et al., 1996). When we are focused on doing a task for its own sake, desirable feelings appear to indicate that the task is going well and that we enjoy it, making it more likely that we will continue than when we experience undesirable feelings. By contrast, performance-focusing situations appear to lend themselves to sufficiency stop rules: decision rules such as "Have I reached my goal?" and "Have I done all I can?" that promote stopping when we have attained an adequate level of performance (e.g., Hirt et al., 1996; Martin et al., 1993; Sanna et al., 1996). When we are focused on achieving a particular criterion or standard of performance, desirable

feelings appear to indicate that we have met our goal, making it less likely that we will continue than when we experience undesirable feelings.

A type of subjective experience that may serve effectively as input for stop rules is a feeling of rightness or wrongness. When we are focused on doing a task for its own sake, rightness feelings might indicate that the task is going well and that we enjoy it, making it more likely that we will continue than when we experience wrongness feelings. By contrast, when we are focused on achieving a particular criterion or standard of performance, rightness feelings might indicate that we have met our goal, making it less likely that we will continue than when we experience wrongness feelings.

#### *Regulatory focus and regulatory fit*

One source of rightness or wrongness feelings is experiencing a good or a poor fit between one's regulatory focus and one's goal pursuit strategies. Regulatory focus theory (Higgins, 1997, 1998) distinguishes between two self-regulatory states. Promotion focus is a state concerned with ideals, hopes, and aspirations (and more generally with the presence or absence of positive outcomes). Prevention focus is a state concerned with oughts, duties, and obligations (and more generally with the absence or presence of negative outcomes). Promotion-focused people prefer to use eagerness-related strategies of goal pursuit (e.g., doing extra reading for a class), which naturally fit a concern with aspirations and accomplishment. By contrast, prevention-focused people prefer to use vigilance-related strategies of goal pursuit (e.g., avoiding distractions while studying), which naturally fit a concern with responsibilities and protection (Crowe & Higgins, 1997; for reviews, see Higgins, 2000, 2005; Higgins & Spiegel, 2004).

People experience regulatory fit when their goal pursuit strategy fits and sustains their regulatory focus. There is evidence that experiencing regulatory fit produces feelings of rightness

and importance (Camacho, Higgins & Luger, 2003, Higgins, Idson, Freitas, Spiegel, & Molden, 2003), enjoyableness and excitement (Freitas & Higgins, 2002; Freitas, Liberman & Higgins, 2002), processing fluency and ease (Lee & Aaker, 2004), and confidence in one's judgments (Cesario, Grant & Higgins, 2004). As is the case with other subjective experiences (e.g., Clore, 1992; Schwarz & Clore, 1983, 1996), people can use regulatory fit feelings as information for judgments as long as they attribute those feelings to the judgment task (Cesario et al., 2004). For example, evaluative judgments tend to be more positive when one's strategy of goal pursuit is congruent with one's regulatory focus (and thus feels right) than when it is incongruent (and thus feels wrong) (Camacho et al., 2003; Cesario et al., 2004; Freitas & Higgins, 2002; Higgins et al., 2003; Lee & Aaker, 2004). However, when regulatory fit is manipulated in an initial task and participants' attention is drawn to that task as the source of those feelings, the regulatory fit effect on later judgments is eliminated (Cesario et al., 2004). Attributing the feelings to the earlier source renders them irrelevant for the later judgments (also see Clore, 1992; Schwarz & Clore, 1983, 1996).

Regulatory fit theory proposes that regulatory fit increases the personal value of a goal pursuit relative to regulatory nonfit (Higgins, 2000, 2005; Higgins & Spiegel, 2004). A postulate of regulatory fit theory that is strongly supported by existing research is that the more regulatory fit people experience, the higher their motivation during actual or imagined goal pursuit (Forster et al., 1998; Freitas et al., 2002; Higgins et al., 2003; Idson, Liberman & Higgins, 2004; Shah et al., 1998; Spiegel, Grant-Pillow & Higgins, 2004). This effect of regulatory fit on motivational intensity appears to be independent of the valence of the outcome, mood, perceived effectiveness of the goal pursuit strategy, and recalled expectations of success (Forster et al., 1998; Higgins et al., 2003; Idson et al., 2004; Shah et al., 1998; Spiegel et al., 2004). Furthermore, it appears that

feelings associated with regulatory fit might mediate the positive effect of regulatory fit on motivation (Freitas et al., 2002; Higgins, 2000).

The possibility that regulatory fit could diminish motivation relative to regulatory nonfit under any circumstances is neither mentioned by regulatory fit theory nor evident in the results of currently published research. However, if people can use regulatory fit feelings as information for evaluative judgments, they should be able to use them as input for stop rules as well. We therefore should see that the effect of regulatory fit on motivation depends on the context. When people are in task focusing situations, they should tend to use enjoyment stop rules, in which case regulatory fit (which feels right) should indicate that the task is enjoyable and be more motivating than regulatory nonfit (which feels wrong). Such task-focusing situations might include those in which regulatory fit has been found to enhance motivation or enjoyment relative to regulatory nonfit: doing solvable anagrams (Forster et al., 1998; Shah, Higgins & Friedman, 1998), decrypting messages or doing simple arithmetic problems (Freitas et al., 2002), generating strategies for improving experiences in middle school (Higgins et al., 2003), writing and turning in a report about how one spent a Saturday (Spiegel et al., 2004), and eating more fruits and vegetables (Spiegel et al., 2004).

When people are in a context where they have a sufficiency stop rule, however, we should see a reversal of the typical pattern of higher motivational intensity under regulatory fit than under regulatory nonfit. For example, when generating words from the letters of longer words under a sufficiency stop rule (e.g., “Continue until you cannot think of any more”), feelings of rightness from regulatory fit should suggest that the goal is successfully attained, while feelings of wrongness from regulatory nonfit should suggest that it is not. People

experiencing regulatory nonfit in this situation should generate more words than those experiencing regulatory fit.

These predictions are quite similar to what we would predict for positive and negative mood: greater motivation with positive mood under an enjoyment stop rule, and greater motivation with negative mood under a sufficiency stop rule (Hirt et al., 1996; Martin & Stoner, 1996; Martin et al., 1993; Sanna et al., 2003; Sanna et al., 1996; Startup & Davey, 2001). However, although positive mood and feeling right from regulatory fit are more desirable feelings than negative mood and feeling wrong from regulatory nonfit, mood is not the same thing as regulatory fit (Higgins, 2000). In previous research, mood has not accounted for regulatory fit effects on evaluative judgments or on motivation (Camacho et al., 2003; Cesario et al., 2004; Forster et al., 1998; Higgins et al., 2003; Shah et al., 1998; Vaughn et al., in press). Thus, mood should not account for the motivational effects of using regulatory fit feelings as input for stop rules.

Additional evidence for the context-dependency of regulatory fit effects on motivation would emerge if drawing attention to an earlier event a source of rightness feelings eliminated regulatory fit effects on motivation in a subsequent task. Research suggests that feelings can serve as information for judgments if (a) one explicitly or implicitly asks, “How do I feel about it?”, (b) one cannot distinguish between preexisting feelings and reactions to the judgment target, (c) the feelings seem appropriate to the judgment, and (d) one cannot attribute the feelings to another source (e.g., Cesario et al., 2004; Schwarz & Clore, 1983, 1996). If regulatory fit is varied in an initial task and people are confused about the source of their regulatory fit feelings, this source confusion should allow them to use the feelings from the initial task as input for decisions about when to stop working on a subsequent task. However, if we draw participants’

attention to the regulatory fit manipulation as a cause of those feelings, it should reduce source confusion and eliminate the motivational impact of regulatory fit feelings in the later task. The regulatory fit experience would no longer be relevant, because its source was an initial event independent of the current activity.

### *The Current Research*

In the three experiments we present below, we seek to demonstrate that the effect of regulatory fit on motivation is malleable depending on the stop rule presented, and that this effect is attributable to use of regulatory fit feelings as information for the stop rule. In Experiment 1, we show that when no decision rule is presented to participants, the typical positive effect of regulatory fit on motivation is replicated in a word listing task (Martin et al., 1993). Additionally, we show that drawing participants' attention to an initial event as a source of regulatory fit feelings eliminates this effect, supporting a feelings-as-information interpretation. In Experiment 2, we show that when participants receive an enjoyment stop rule, they list more examples of objects if they experience regulatory fit rather than nonfit, and that the effect reverses when participants receive a sufficiency stop rule. In Experiment 3, we replicate the findings of Experiment 2 with a word generation task. Additionally, we show that drawing participants' attention to an initial event as a source of regulatory fit feelings eliminates this effect, again supporting a feelings-as-information interpretation. Together, the results of these experiments provide support for a general model that extends the implications of regulatory fit theory to motivation in performance-focusing situations, and predicts when regulatory fit will be less motivating than regulatory nonfit.

## Experiment 1

We had several goals in this experiment. One was to examine whether the typical positive effect of regulatory fit on motivation replicates with a word generation task in the absence of an explicit stop rule. We expected that that Martin et al.'s (1993) bird-listing activity would be task-focusing enough to activate an implicit enjoyment stop rule, as it appears to have been in their research. Another goal was to test the hypothesis that drawing participants' attention to an earlier event as a source of regulatory fit feelings eliminates the regulatory fit effect on motivation. Additionally, we sought evidence for the hypothesis that mood would not account for the anticipated effect of regulatory fit on motivation (Forster et al., 1998; Shah et al., 1998).

To test these hypotheses, we set up a multi-task study in which we manipulated regulatory fit and measured mood in an initial task. Then we drew some participants' attention to the regulatory fit manipulation as a source of rightness feelings. Finally, we assessed motivation in a subsequent word generation task.

## Method

### *Participants and Design*

Ninety-eight undergraduate students participated in the study for extra credit in their psychology courses. They were randomly assigned to Regulatory Fit (fit vs. nonfit) X Attention (attention drawn to the true source of rightness feelings vs. no attention) conditions. We excluded an outlier (in the fit/no attention condition) who was more than 6 standard deviations above the mean of listed birds. The final sample size thus was 97 (22 male, 55 female, 20 with gender unrecorded due to a programming error).

*Procedure*

Students participated in groups of 2 to 15 in a computer lab, with at least one seat separating each student from the next. Participants learned that they would complete several different tasks on the Web.

*Regulatory fit manipulation.* The first section of the questionnaire was titled “Hopes and Aspirations” (or “Duties and Obligations”). After reading a brief introduction stating that this part of the questionnaire was about students’ goals at this time of the semester, and after answering two questions about their year in college and their age, participants completed a regulatory fit manipulation developed by Freitas and Higgins (2002). Regulatory fit conditions paired prevention focused goals with vigilant strategies, or promotion focused goals with eager strategies. Regulatory nonfit conditions paired prevention focused goals with eager strategies, or promotion focused goals with vigilant strategies. The promotion orientation version (titled “Hopes and Aspirations”) asked participants to “Please think about something you ideally would like to do. In other words, please think about a hope or aspiration you currently have. Please list the hope or aspiration in the space below.” The prevention orientation version (titled “Duties and Obligations”) asked participants to “Please think about something you believe you ought to do. In other words, please think about a duty or obligation you currently have. Please list the duty or obligation in the space below.” Then we asked participants to list 5 strategies for achieving that goal. Specifically, in the eager strategies condition, we asked participants to “Please list some strategies you could use to make sure everything goes right and helps you realize your hope or aspiration [duty or obligation].” In the vigilant strategies condition, we asked participants to “Please list some strategies you could use to avoid anything that could go wrong and stop you

from realizing your duty or obligation [hope or aspiration].” Participants completed the task twice for two different goals, keeping the orientation and strategy type consistent.

*Mood measures.* After participants reported their first goal and five strategies to attain it, they completed the first set of mood measures. Participants read that we were interested in learning more about the current duty or obligation (or hope or aspiration) they had just listed (i.e., not the individual strategies, but the duty or obligation [or hope or aspiration] itself). Then they were asked to report how happy, relaxed and good they felt when pursuing that goal, on scales ranging from 1 (*not at all*) to 7 (*extremely*). We repeated the instructions and mood measures after the second goal and strategy list. In other words, we assessed participants’ mood between the regulatory fit manipulation and the focal bird listing task. To avoid raising suspicion, we did not ask a more direct question about mood (e.g., “What is your current mood?”) after each goal and strategy list.

*Attention manipulation.* Next, we directed some participants’ attention to the true source of their feelings of rightness with attention instructions developed by Cesario et al. (2004). Participants read that “Sometimes thinking about using the right means to attain each goal can make people ‘feel right’ about their goal pursuit. On the following scale, indicate how much you ‘feel right’ about your goal pursuit.” The scale ranged from 1 (*not at all*) to 6 (*extremely*). Participants in the no attention condition went straight from the regulatory fit manipulation to the filler task.

*Filler task.* In a 3-minute “Consumer Survey”, participants reported their favorite brand of various types of products (toothpaste, shampoo, fast food, soft drinks), and why they preferred that brand (price, quality or other; Vaughn & Weary, 2003). The purpose of this task was to put some time between the regulatory fit manipulation and the target judgments. Pilot studies

indicated that, possibly because all questions were presented on a single questionnaire via the Web, participants discounted their regulatory fit experience if the regulatory fit manipulation immediately preceded the judgment task (also see Martin, Abend, Sedikides & Green, 1997; Martin et al., 1993; McFarland & Buehler, 1998; McFarland, White & Newth, 2003).

*Bird listing task.* Participants then completed a section entitled “Information That Comes to Mind”, which contained a bird listing task similar to that used by Martin et al. (1993). Participants read that in this task our interest was in learning about things that come to people’s minds; specifically, types of birds that come to mind. The dependent variable was the number of birds participants listed, defined broadly as any general or specific type of birds participants wrote in the text box we provided (e.g., penguin, robin red breast, songbird).

### Results

We expected to find that the typical effect of regulatory fit on motivation would replicate with the listing task we used. Specifically, we predicted that participants who experienced regulatory fit in an earlier task would list more birds than participants experiencing regulatory nonfit. Furthermore, we predicted that if the positive effect of regulatory fit on motivation is caused by using rightness feelings as input for an enjoyment stop rule, then drawing people’s attention to an earlier task as a source of regulatory fit feelings should eliminate the regulatory fit effect on motivation. As shown in Figure 1, results supported predictions.

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Insert Figure 1 about here

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A 2 (regulatory fit vs. nonfit) X 2 (attention drawn to the true source of regulatory fit feelings vs. no attention) ANOVA revealed a significant Regulatory Fit X Attention interaction

on the number of birds listed,  $F(1, 93) = 6.85, p = .01$ . Simple effects analyses explored the nature of this interaction. Participants whose attention was not drawn to an earlier event as a source of regulatory fit feelings showed the typical positive effect of regulatory fit on motivation, with those experiencing regulatory fit listing more birds ( $M = 12.42, SD = 5.92$ ) than those experiencing regulatory nonfit ( $M = 8.96, SD = 5.47$ ),  $F(1, 94) = 4.01, p = .05$ . Among participants whose attention was drawn to an earlier event as a source of regulatory fit feelings, those experiencing regulatory fit listed nonsignificantly fewer birds ( $M = 10.41, SD = 6.37$ ) than those experiencing regulatory nonfit ( $M = 13.27, SD = 5.96$ ),  $F(1, 94) = 2.97, p > .08$ .<sup>1, 2</sup>

These effects appear not to have been due to mood. Because the six mood items were highly related (Cronbach's alpha = .82), we averaged them to create an index of positive mood. A 2 (regulatory fit vs. nonfit) X 2 (attention drawn to the true source of regulatory fit feelings vs. no attention) ANOVA revealed no significant effects on the mood index, all  $ps > .23$ . Furthermore, treating mood as a covariate in the Regulatory Fit X Attention analysis of the number of birds listed revealed no significant effect for mood ( $F(1, 92) = 2.74, p > .10$ ), and no change in the effects of regulatory fit, the attention manipulation, or their interaction (interaction  $F(1, 92) = 6.71, p = .01$ ). Overall, participants reported feeling good ( $M = 4.82, SD = 1.03$ , on the 7-point scale).<sup>3</sup>

## Discussion

As predicted, the typical positive effect of regulatory fit on motivation (Forster et al., 1998; Freitas et al., 2002; Higgins et al., 2003; Idson et al., 2004; Shah et al., 1998; Spiegel et al., 2004) replicated with a word generation task in the absence of an explicit stop rule. This finding is consistent with the hypothesis that the bird-listing activity is task-focusing enough to activate an implicit enjoyment stop rule (Martin et al., 1993). As expected, drawing participants'

attention to an initial regulatory fit manipulation as a source of rightness feelings eliminated this effect. This finding is consistent with the hypothesis that the effect of regulatory fit on motivation can be explained by use of rightness feelings from regulatory fit as information for decisions about when to stop working on a task. Additionally, we found that mood did not account for this pattern of effects, which is consistent with prior regulatory fit research showing that mood does not account for regulatory fit effects on evaluative judgments or on motivation (Camacho et al., 2003; Cesario et al., 2004; Forster et al., 1998; Higgins et al., 2003; Shah et al., 1998; Vaughn et al., in press).

Our next objective was to examine whether the typical positive effect of regulatory fit on motivation would replicate if we focused people explicitly on a task by presenting them with an enjoyment stop rule. Additionally, we examined whether this pattern would reverse if we focused people explicitly on performance by presenting them with a sufficiency stop rule.

## Experiment 2

The primary goal of Experiment 2 was to test the hypothesis that the effect of regulatory fit on motivation depends on the stop rule they receive. When participants explicitly receive an enjoyment stop rule, those experiencing regulatory fit should expend more effort on an idea generation task than those experiencing regulatory nonfit. By contrast, when participants explicitly receive a sufficiency stop rule, those experiencing regulatory fit should expend less effort on an idea generation task than those experiencing regulatory nonfit.

In Experiment 2 we used an idea generation task that would permit varying regulatory fit within the task itself, rather than entirely in an initial task. (In many real-world situations, the experience of regulatory fit probably would come from the process of working on a task itself, rather than carry over from an earlier event). Participants in Experiment 2 generated ideas about

types of food one could eat more of in order to achieve good health (consistent with a promotion focus on attaining gains) or that one could avoid to prevent poor health (consistent with a prevention focus on preventing losses). We varied stop rules by asking some participants to continue as long as they felt like it (enjoyment stop rule; Sanna et al., 1996, 2003; Startup & Davey, 2001), or until they could not think of any more examples (sufficiency stop rule; Sanna et al., 1996, 2003; Startup & Davey, 2001).

## Method

### *Participants and Design*

One hundred twenty-nine students participated in the study for extra credit in their psychology courses. They were randomly assigned to Regulatory Fit (fit vs. nonfit) X Stop Rule (enjoyment vs. sufficiency) conditions. Data from two participants were excluded for not following instructions (e.g., listing non-food items like “rocks, glass...”). Additionally, we excluded three outliers (2 in nonfit/enjoyment, and 1 in fit/sufficiency conditions) who were 3-5 standard deviations above the mean of foods listed. This resulted in a final sample of 124 participants (33 male, 91 female).

### *Procedure*

Participants were run in sessions of 1 – 15 people in a computer lab where they were seated with at least one computer separating each participant from the next. Participants learned that they would be completing two different tasks on the Web. The parts were a regulatory focus prime and a food listing task. Regulatory fit conditions consisted of either a promotion prime paired with listing of foods to eat more of, or a prevention prime paired with listing of foods to avoid. Regulatory nonfit conditions consisted of either a promotion prime paired with listing of

foods to avoid, or a prevention prime paired with listing of foods to eat more of. The stop rules manipulation occurred within the instructions for the food listing task.

*Regulatory focus prime.* The first section of the questionnaire was titled “Hopes and Aspirations” (or “Duties and Obligations”). After reading a brief introduction stating that this part of the questionnaire was about students’ goals at this time of the semester, and after answering two questions about their year in college and their age, participants were asked to list five hopes and aspirations (or duties and obligations) they had. Then they rated how much they ideally would like to achieve (or believed they ought to achieve) each of the five hopes and aspirations (or duties and obligations) they listed, using a 1 (*not at all*) to 7 (*very much*) scale for each rating.

*Food listing task.* Next, participants received a section of the questionnaire entitled, “Information that Comes to Mind”. The introduction to that section stated that students at their college tend to be very health conscious, and “In this task we are interested in learning about foods you can think of. *Do not pay attention to what other people are doing, because they are getting different instructions from you.* We would like to find out what examples you bring to mind of...” The remainder of the sentence was printed on its own line, in large font, and constituted the manipulation of the type of food to list. In the promotion-fitting condition, participants were asked to list “examples of foods one can eat more of to attain good health.” In the prevention-fitting condition, they were asked to list “examples of foods one could avoid to prevent poor health.”

On the next line, also in large font, participants received either an enjoyment stop rule or a sufficiency stop rule. In the sufficiency stop rule condition, they received the following instructions:

As you are making your list of foods, ask yourself, “Have I listed as many as I can?” As long as the answer is “no”, continue listing. When the answer becomes “yes,” then stop. There is no objectively best or worst time to stop. Stop when you feel that you have listed as many foods that one can avoid eating in order to prevent poor health [eat more of to attain good health] as you can.

In the enjoyment stop rule condition, they received the following instructions:

As you are making your list of foods, ask yourself, “Do I feel like continuing with this task?” As long as the answer is “yes”, continue listing. When the answer becomes “no,” then stop. There is no objectively best or worst time to stop. Stop when you feel that you no longer enjoy listing foods that one can avoid eating in order to prevent poor health [can eat more of in order to attain good health].

We provided a text box for participants to list their examples. The dependent variable was operationally defined fairly broadly. We counted specifically mentioned ingredients, and superordinate and subordinate categories of foods as separate items (e.g., “chemicals – fake sugar, processed, or preserved foods, anything in excess” counted as 5 items) as long as the specifically mentioned ingredient was sufficient to put that food in the category of foods requested (e.g., “popcorn with butter” was only counted as one food to avoid, not two).

## Results

We expected to find that the motivational effect of regulatory fit would differ depending on the stop rule in mind. Regulatory fit should be more motivating than regulatory nonfit under an enjoyment stop rule, but less motivating than regulatory nonfit under a sufficiency stop rule. As Figure 2 shows, that is what we found.

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Insert Figure 2 about here  
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A 2 (regulatory fit vs. nonfit) X 2 (enjoyment vs. sufficiency stop rule) ANOVA revealed the predicted Regulatory Fit X Stop Rule interaction on the number of foods brought to mind,  $F(1, 120) = 9.73, p = .002$ . Analyses of simple effects explored the nature of this interaction. With an enjoyment stop rule, participants experiencing regulatory fit listed significantly more foods ( $M = 10.15, SD = 4.71$ ) than those experiencing regulatory nonfit ( $M = 7.57, SD = 3.63$ ),  $F(1, 121) = 5.58, p = .02$ . With a sufficiency stop rule, participants experiencing regulatory fit generated significantly fewer words ( $M = 7.93, SD = 3.59$ ) than those experiencing regulatory nonfit ( $M = 10.22, SD = 5.14$ ),  $F(1, 121) = 4.30, p = .04$ .<sup>4,5</sup>

### Discussion

Results show that the effect of regulatory fit on task effort differs according to stop rule. Regulatory fit appears to be more motivating than regulatory nonfit with an enjoyment stop rule, but less motivating than regulatory nonfit with a sufficiency stop rule. These results are consistent with the hypothesis that regulatory fit feelings can serve as input for decisions about when to stop working on a task. However, because our procedure did not permit assessment of mood before presentation of the stop rule, it is possible that mood could account for these effects. Additionally, if use of feelings of rightness from regulatory fit is a process underlying these effects, we should see that these effects are eliminated by drawing participants' attention to an earlier regulatory fit manipulation as a source of rightness feelings.

### Experiment 3

The goal of this experiment was to test the hypothesis that use of regulatory fit feelings as input for stop rules can account for the interactive effects of stop rules and regulatory fit on motivation. If so, those effects should disappear when participants' attention is drawn to an earlier task as a source of rightness feelings. Additionally, this experiment tested the hypothesis that mood does not account for regulatory fit effects on motivation (Forster et al., 1998; Shah et al., 1998). As in Study 1, we manipulated regulatory fit and measured mood in an initial task, and then drew some participants' attention to that event as a source of rightness feelings. In a later task, we gave participants either an enjoyment or a sufficiency stop rule to use as they generated shorter words from the letters of longer words. We used a different task from Studies 1 and 2 to provide participants with an activity that pilot testing revealed to be highly interesting and meaningful to many participants, and to show that our findings can be applied to several different tasks.

## Method

### *Participants and Design*

One hundred eighty-seven students participated in the study for extra credit in their psychology courses. They were randomly assigned to Regulatory Fit (fit vs. nonfit) X Attention (attention drawn to the true source of rightness feelings vs. no attention) X Stop Rule (enjoyment vs. sufficiency) conditions. We excluded the data from three participants because of equipment problems. Additionally, we excluded an outlier (in the attention/nonfit/sufficiency condition) who was more than 6 standard deviations above the mean of generated words. The final sample consisted of 183 participants (43 male, 140 female).

*Procedure*

The procedure was identical to that in Study 1, except for two differences. One was that we explicitly gave participants either an enjoyment or a sufficiency stop rule, and the other was that we used a word generation task rather than a bird listing task.

After the regulatory fit manipulation, mood measures, attention manipulation, and “Consumer Preferences” filler task, participants completed a section of the questionnaire entitled “Words That Come to Mind” that contained the stop rules manipulation and word generation task. The word generation task is similar to a distraction task used by McFarland and Buehler (1998; McFarland et al., 2003), and the stop rules were similar to those used in Experiment 2 (Martin et al., 2003; Sanna et al., 1996, 2003; Startup & Davey, 2001). Upon reaching the section entitled “Words That Come to Mind”, participants read the following introduction:

In this task we are interested in learning about things that come to people’s mind. *Do not pay attention to what other people are doing, because they are getting different instructions from you.* We would like to find out what words people generate from the letters of each of the longer words below. For example, from the letters of the word: Starboard, one could generate words like “star”, “a”, or “dart”.

After this introduction, participants received the stop rule. So that participants would read it, the stop rule was displayed in large, bold font, on its own line. Participants read, “As you are generating words, ask yourself...” Then in the sufficiency stop rule condition, they received the following instructions:

“Have I generated as many words as I can?”

If the answer is “yes”, then stop. If the answer is “no,” then continue listing. There is no best or worst time to stop. Stop when you feel that you have generated as many words as you can.

In the enjoyment stop rule condition, they received the following instructions:

“Do I feel like continuing with this task?”

As long as the answer is “yes”, continue listing. When the answer becomes “no,” then stop. There is no best or worst time to stop. Stop when you feel that you no longer enjoy generating words.

Participants generated sets of shorter words from the letters of each of the following words: artichoke, archaeology, insurance, introduction, and topographic. We provided a text box beside each word for that purpose. The dependent variable was the number of words generated, defined broadly to include incorrectly spelled words (e.g., “nuse”), but not explanations (e.g., “none”, or “I can’t think of any more”).

### Results

We expected to find that the effect of regulatory fit on motivation would differ depending on the stop rule, as in Experiment 2. Additionally, we expected that drawing participants’ attention to an earlier task as a source of regulatory fit feelings would cause the interactive effect of regulatory fit and stop rules to disappear. As Figure 3 shows, this is what we found.

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Insert Figure 3 about here

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A 2 (regulatory fit vs. nonfit) X 2 (enjoyment vs. sufficiency stop rule) X 2 (attention to the true source of regulatory fit feelings vs. no attention) ANOVA revealed a significant main

effect for stop rule, indicating that participants generated more words under the sufficiency stop rule ( $M = 42.27$ ,  $SD = 24.33$ ) than under the enjoyment stop rule ( $M = 25.81$ ,  $SD = 15.59$ ),  $F(1, 175) = 37.71$ ,  $p < .001$ . As expected, however, the ANOVA also revealed a significant Regulatory Fit X Stop Rule X Attention interaction on the number of words generated,  $F(1, 175) = 10.87$ ,  $p = .001$ .

Among participants who received an enjoyment stop rule and whose attention was not drawn to the true source their regulatory fit feelings, those experiencing regulatory fit generated significantly more words ( $M = 31.48$ ,  $SD = 14.10$ ) than those experiencing regulatory nonfit ( $M = 23.00$ ,  $SD = 14.77$ ),  $t(45) = -2.01$ ,  $p = .05$ . By contrast, when participants' attention was drawn to the true source their regulatory fit feelings, this pattern was not significant: those experiencing regulatory fit generated nonsignificantly fewer words ( $M = 22.55$ ,  $SD = 15.41$ ) than those experiencing regulatory nonfit ( $M = 26.17$ ,  $SD = 17.23$ ),  $t(44) = 0.75$ ,  $p > .45$ .

Among participants who received a sufficiency stop rule and whose attention was not drawn to the true source of their regulatory fit feelings, those experiencing regulatory fit generated significantly fewer words ( $M = 36.67$ ,  $SD = 21.04$ ) than those experiencing regulatory nonfit ( $M = 51.79$ ,  $SD = 22.09$ ),  $t(46) = 2.43$ ,  $p = .02$ . By contrast, when participants' attention was drawn to the true source their regulatory fit feelings, this pattern was not significant: those experiencing regulatory fit generated nonsignificantly more words ( $M = 44.38$ ,  $SD = 21.62$ ) than those experiencing regulatory nonfit ( $M = 36.24$ ,  $SD = 16.54$ ),  $t(40) = -1.37$ ,  $p > .17$ .<sup>6,7</sup>

#### *Analyses of Mood*

These effects appear not to have been due to participants using their mood as input for stop rules. Because the six mood items were highly related (Cronbach's alpha = .75), we averaged them to form an index of positive mood. A 2 (regulatory fit vs. nonfit) X 2 (enjoyment

vs. sufficiency stop rule) X 2 (attention drawn to the true source of regulatory fit feelings vs. no attention) ANOVA revealed no significant effects on the mood index, all  $p$ s > .27. Additionally, treating mood as a covariate in the Regulatory Fit X Stop Rules X Attention analysis of the number of words generated revealed no significant effect for mood ( $F(1, 174) = 0.74, p > .39$ ), and no change in the effects of regulatory fit, attention, or their interaction (stop rule main effect  $F(1, 174) = 38.24, p < .001$ , interaction  $F(1, 174) = 11.25, p = .001$ ). Overall, participants reported feeling good ( $M = 4.60, SD = 1.00$ , on the 7-point scale).<sup>8</sup>

### Discussion

Results supported the hypothesis that regulatory fit enhances motivation relative to regulatory nonfit when people have an enjoyment stop rule, but that it diminishes motivation relative to regulatory nonfit when people have a sufficiency stop rule. Moreover, the effects of regulatory fit under each stop rule were eliminated by drawing participants' attention to an earlier task as a source of regulatory fit feelings, which rendered them irrelevant for use as input for stop rules.

This study also supported the hypothesis that mood does not account for this pattern of effects, replicating what we found in Experiment 1. This finding is consistent with prior research, which has shown that mood (measured in various ways) does not account for regulatory fit effects on evaluative judgments or motivation (Camacho et al., 2003; Cesario et al., 2004; Forster et al., 1998; Higgins et al., 2003; Shah et al., 1998; Vaughn et al., in press).

### General Discussion

The goal of the current research was to examine how regulatory fit can influence motivation when people are focused on enjoying a task or on sufficiently meeting a performance criterion. When participants either received no stop rule (Experiment 1) or an enjoyment stop

rule (Experiments 2 and 3), they accomplished more in a task when they experienced regulatory fit than when they experienced regulatory nonfit. By contrast, when participants received a sufficiency stop rule, they accomplished less in a task when they experienced regulatory fit than when they experienced regulatory nonfit (Experiments 2 and 3). The process underlying these results appears to be use of regulatory fit feelings as information for decisions about whether to continue. Drawing participants' attention to an earlier regulatory fit manipulation as a source of those feelings eliminated the effects of regulatory fit on participants' productivity in a later task (Experiments 1 and 3). Apparently, the attention focusing procedure eliminated confusion about the source of those feelings and rendered them irrelevant for decisions about when to stop working on the task.

This research contributes to regulatory fit theory by providing evidence that the motivational effects of regulatory fit are context-dependent, and that they can be explained by use of regulatory fit feelings as input for stop rules. Together, the results of these experiments offer support for a general model that extends the implications of regulatory fit theory to motivation in explicitly performance-focusing situations, and predicts when regulatory fit will be more or less motivating than regulatory nonfit. If one is focused on task enjoyment, regulatory fit feelings of rightness can indicate that one is enjoying the task (Freitas & Higgins, 2002; Freitas et al., 2002) and enhance motivation relative to regulatory nonfit feelings of wrongness. By contrast, if one is focused on attaining a sufficiently adequate performance, regulatory fit feelings of rightness can indicate that one has done well enough and reduce motivation relative to regulatory nonfit feelings of wrongness.

Several caveats are in order. Although a sufficient explanation for the effect of regulatory fit on motivation is use of rightness feelings (from promotion or prevention regulatory fit) as

information for stop rules, the current research does not indicate that such a process is necessary for the effect of regulatory fit on motivation to occur. There are various other feelings associated with regulatory fit (in addition to feelings of rightness) that could be used as information for decisions about when to stop working on a task, including but not limited to importance (Camacho et al., 2003, Higgins et al., 2003), perceptual fluency (Lee & Aaker, 2004), and confidence (Cesario et al., 2004). It is possible that any feelings associated with regulatory fit could serve as input for stop rules. Additionally, fit between strategies of goal pursuit and other regulatory orientations or task instructions (besides prevention and promotion; Avnet & Higgins, 2003; Bianco, Higgins, & Klem, 2003) could serve as input for enjoyment or sufficiency stop rules, and produce similar results. Furthermore, although we neither set out to manipulate mood nor found that mood accounted for the current set of results, there could be times that mood and regulatory fit feelings have additive or interactive effects on motivation when used as input for stop rules. For example, if mood and regulatory fit are independently manipulated in the same study, mood might have more powerful effects on motivation when interpreted via mood-related stop rules (e.g., “Keep going until you feel good about stopping”) and regulatory fit might have more powerful effects on motivation when interpreted via regulatory fit-related stop rules (e.g., “Keep going until you feel right about stopping”). Moreover, and perhaps most importantly, it is possible that there are certain situations in which the regulatory fit effect on motivation is not based on use of feelings as information for decisions about when to stop or to continue. Future research would need to identify such situations and provide evidence for other processes underlying regulatory fit effects on motivation.

The current research also expands the “mood-as-input” extension of the feelings-as-information approach (e.g., Martin et al., 1997; Martin & Stoner, 1996; Martin et al., 1993;

Martin & Whitaker, 2000) by providing evidence that regulatory fit feelings can be used as input for stop rules. As is the case with mood (e.g., Martin et al., 1993) and accessibility experiences (Martin & Whitaker, 2000), regulatory fit feelings appear to have context-dependent implications. This finding is consistent with the apparent use of regulatory fit feelings as input for evaluative judgments of persuasive communications (Cesario et al., 2004). When Cesario et al. directed participants to evaluate the persuasiveness of the message they read, feelings of rightness from regulatory fit apparently validated the participants' positive or negative thoughts about the message. Participants experiencing regulatory fit were more persuaded when they had more positive thoughts about a message, and less persuaded when they had more negative thoughts about a message, relative to participants experiencing regulatory nonfit. In other words, the implications of regulatory fit feelings for persuasion depended in part on participants' spontaneous interpretations of their rightness feelings, in light of their positive or negative reactions to the message.

Cesario et al.'s (2004) research suggests that spontaneous interpretations of situations could also influence the effect of regulatory fit on decisions about when to stop working on a task (also see Bohner & Weinerth, 2001; George & Zhou, 2002; Startup & Davey, 2001). It appears that some tasks and situations lend themselves to enjoyment stop rules (Forster et al., 1998; Freitas et al., 2002; Higgins et al., 2003; Shah et al., 1998; Spiegel et al., 2004). Others might lend themselves to sufficiency stop rules. Even without an explicit stop rule, situations that enhance personal relevance or responsibility for one's judgments, or explicitly activate an accuracy goal, might be enough to elicit a performance focus and a sufficiency stop rule (e.g., "Are my judgments sufficiently accurate?"). If so, then compared with feelings of rightness from regulatory fit, feelings of wrongness from regulatory nonfit might suggest that judgments are

insufficiently accurate. That could enhance motivation to engage in careful information processing, which can reduce low-effort biases in judgment (e.g., Chaiken et al., 1989; Fiske & Neuberg, 1990; Petty & Cacioppo, 1996; Weary et al., 2001; Wegener & Petty, 1997; Wilson & Brekke, 1994).

For example, in a recent research program, Vaughn et al. (in press) found evidence that when asked to make sure their judgments are accurate and unbiased, people tend to show less biased judgments when they experienced regulatory nonfit than regulatory fit in a previous task. Vaughn et al. used a correction study procedure in which all participants rated the attractiveness of several highly attractive individuals (biasing context), then some participants received an accuracy motive induction, and then all participants rated the attractiveness of several moderately attractive targets (e.g., Petty & Wegener, 1993; Stapel, Martin & Schwarz, 1998; Vaughn & Weary, 2003; Wegener & Petty, 1995). When an accuracy motive is not activated, this procedure commonly results in a negative contrast effect on the moderate targets, making them seem worse than without a biasing context. Evidence for bias correction emerges in more positive target judgments.

When Vaughn et al. (in press) asked participants to make sure their judgments were accurate and unbiased, participants who had experienced regulatory nonfit in a previous task gave more positive judgments of moderately attractive targets. This pattern of target judgments is the opposite of the value transfer pattern typically seen when participants use regulatory fit feelings as information for evaluative judgments (namely, more positive judgments under regulatory fit than nonfit; Camacho et al., 2003; Cesario et al., 2004; Freitas & Higgins, 2002; Higgins et al., 2003; Lee & Aaker, 2004). However, it is consistent with more correction for a negative contrast effect under regulatory nonfit. Moreover, the effect of regulatory fit on target

judgments was eliminated when researchers drew participants' attention to an earlier regulatory fit manipulation as a source of rightness feelings. The results were consistent with the hypothesis that when considering whether one's judgments are sufficiently accurate, feelings of wrongness from regulatory nonfit can suggest that the answer is no and make correction of judgments for bias more likely.

More generally, the current research supports the hypothesis that the effect of regulatory fit on motivation is context-dependent. Implications of this finding could extend to a variety of endeavors. Every day, we engage in various task-oriented or performance-oriented activities; the current research suggests that the interplay of regulatory fit and stop rules can affect how much effort we put into them. Task-focused activities, such as teaching one's self how to play the piano, doing a crossword puzzle that is not too difficult or too easy, running for the fun of it, or coming up with ideas for a new business venture, might lend themselves to enjoyment stop rules. If so, then experiencing rightness feelings from regulatory fit should suggest that the task is enjoyable and it is worth continuing, while wrongness feelings from regulatory nonfit should suggest the opposite. By contrast, performance-focused activities, such as practicing piano to get a good grade in a class, practicing verbal problems to get a good verbal score on the GRE, running to do well enough to stay on a track team, or selling a sufficient amount of goods and services to ensure a profit, might lend themselves to sufficiency stop rules. If so, then experiencing wrongness feelings from regulatory nonfit should suggest that the task is not yet accomplished and that one needs to continue, while rightness feelings from regulatory fit should suggest the opposite.

*Conclusions*

The effect of regulatory fit on motivation depends on the context. When one has an enjoyment stop rule (e.g., “Continue as long as you feel like it”), regulatory fit appears to enhance motivation relative to regulatory nonfit, but when one has a sufficiency stop rule (e.g., “Continue until you cannot do any more”), regulatory fit appears to diminish motivation relative to regulatory nonfit. The current research also provides support for the hypothesis that these effects are due to use of regulatory fit feelings of rightness as input for stop rules, because drawing attention to an earlier experience as a source of rightness feelings eliminates these effects. In short, although prior research has shown that it is more enjoyable to do things in a way that feels right (Freitas & Higgins, 2002; Freitas et al., 2002), the current research suggests that there are performance-focusing situations in which one may achieve more by doing things in a way that feels wrong.

## References

- Avnet, T., & Higgins, E. T. (2003). Locomotion, assessment, and regulatory fit: Value transfer from “how” to “what”. *Journal of Experimental Social Psychology, 39*, 525-530.
- Bianco, A. T., Higgins, E. T., & Klem, A. (2003). How “fun/importance” fit affects performance: Relating implicit theories to instructions. *Personality and Social Psychology Bulletin, 29*, 1091-1103.
- Bohner, G., & Weinerth, T. (2001). Negative affect can increase or decrease message scrutiny: The affect interpretation hypothesis. *Personality and Social Psychology Bulletin, 27*, 1417-1428.
- Camacho, C. J., Higgins, E. T., & Luger, L. (2003). Moral value transfer from regulatory fit: What feels right *is* right and what feels wrong *is* wrong. *Journal of Personality and Social Psychology, 84*, 498-510.
- Cesario, J., Grant, H., & Higgins, E. T. (2004). Regulatory fit and persuasion: Transfer from “feeling right”. *Journal of Personality and Social Psychology, 86*, 388-404.
- Chaiken, S., Lilberman, A., & Eagly, A. (1989). Heuristic and systematic information processing within and beyond the persuasion context. In J. Uleman & J. Bargh (Eds.), *Unintended thought* (pp. 212-252). New York, NY: Guilford.
- Clore, G. L. (1992). Cognitive phenomenology: Feelings and the construction of judgment. In L. L. Martin & A. Tesser (Eds.), *The construction of social judgment* (pp. 133-163). Hillsdale, NJ: Erlbaum.
- Crowe, E., & Higgins, E. T. (1997). Regulatory focus and strategic inclinations: Promotion and prevention in decision-making. *Organizational Behavior and Human Decision Processes, 69*, 117-132.

- Deci, E. L., & Ryan, R. M. (2000). The “what” and “why” of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry, 11*, 227-268.
- Dweck, C. S., & Leggett, E. L. (1988). A social-cognitive approach to motivation and personality. *Psychological Review, 95*, 256-273.
- Elliott, E. S., & Dweck, C. S. (1988). Goals: An approach to motivation and achievement. *Journal of Personality and Social Psychology, 54*, 5-12.
- Fiske, S. T., & Neuberg, S. L. (1990). A continuum of impression formation, from category-based to individuating processes: Influences of information and motivation on attention and interpretation. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 23, pp. 1-74). New York: Academic Press.
- Forster, J., Higgins, E. T., & Idson, L. C. (1998). Approach and avoidance strength during goal attainment: Regulatory focus and the “goal looms larger” effect. *Journal of Personality and Social Psychology, 75*, 1115-1131.
- Freitas, A. L., & Higgins, E. T. (2002). Enjoying goal-directed action: The role of regulatory fit. *Psychological Science, 13*, 1-6.
- Freitas, A. L., Liberman, N., & Higgins, E. T. (2002). Regulatory fit and resisting temptation during goal pursuit. *Journal of Experimental Social Psychology, 38*, 291-298.
- George, J. M., & Zhou, J. (2002). Understanding when bad moods foster creativity and good ones don't: The role of context and clarity of feelings. *Journal of Applied Psychology, 87*, 687-697.
- Higgins, E. T. (1997). Beyond pleasure and pain. *American Psychologist, 52*, 1280-1300.
- Higgins, E. T. (1998). Promotion and prevention: Regulatory focus as a motivational principle. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol.

- 30, pp. 1-46). New York: Academic Press.
- Higgins, E. T. (2000). Making a good decision: Value from fit. *American Psychologist*, *55*, 1217-1230.
- Higgins, E. T. (2005). Value from regulatory fit. *Current Directions in Psychological Science*, *14*, 209-213.
- Higgins, E. T., Idson, L. C., Freitas, A. L., Spiegel, S., & Molden, D. C. (2003). Transfer of value from fit. *Journal of Personality and Social Psychology*, *84*, 1140-1153.
- Higgins, E. T., & Spiegel, S. (2004). Promotion and prevention strategies for self-regulation: A motivated cognition perspective. In R. F. Baumeister & K. D. Vohs (Eds.), *Handbook of self-regulation: Research, theory, and applications*. New York, NY: Guilford.
- Hirt, E. R., Melton, R. J., McDonald, H. E., & Harackiewicz, J. M. (1996). Processing goals, task interest, and the mood-performance relationship: A mediational analysis. *Journal of Personality and Social Psychology*, *71*, 245-261.
- Idson, L. C., Liberman, N., & Higgins, E. T. (2004). Imagining how you'd feel: The role of motivational experiences from regulatory fit. *Personality and Social Psychology Bulletin*, *30*, 926-937.
- Keppel, G. (1991). *Design and analysis: A researcher's handbook* (3<sup>rd</sup> ed.). Englewood Cliffs, NJ: Prentice Hall.
- Lee, A. Y., & Aaker, J. L. (2004). Bringing the frame into focus: The influence of regulatory fit on processing fluency and persuasion. *Journal of Personality and Social Psychology*, *86*, 205-218.

- Martin, L. L., Abend, T., Sedikides, C., & Green, J. D. (1997). How would I feel if...? Mood as input to a role fulfillment evaluation process. *Journal of Personality and Social Psychology, 73*, 242-253.
- Martin, L. L., & Stoner, P. (1996). Mood as input: What we think about how we feel determines how we think. In L. L. Martin & A. Tesser (Eds.), *Striving and feeling: Interactions among goals, affect, and self-regulation* (pp. 279-301). Mahwah, NJ: Erlbaum.
- Martin, L. L., Ward, D. W., Achee, J. W., & Wyer, R. S. (1993). Mood as input: People have to interpret the motivational implications of their moods. *Journal of Personality and Social Psychology, 64*, 317-326.
- Martin, L. L., & Whitaker (2000). Availability as input: The experience of cognitive effort can either strengthen or weaken evaluations. In H. Bless & J. P. Forgas (Eds.), *The message within: The role of subjective experience in social cognition and behavior*. (pp. 88-106). New York, NY: Psychology Press.
- McFarland, C., & Buehler, R. (1998). The impact of negative affect on autobiographical memory: The role of self-focused attention to moods. *Journal of Personality and Social Psychology, 75*, 1424-1440.
- McFarland, C., White, K., & Newth, S. (2003). Mood acknowledgement and correction for the mood-congruency bias in social judgment. *Journal of Experimental Social Psychology, 39*, 483-491.
- Nicholls, J. G. (1984). Achievement motivation: Conceptions of ability, subjective experience, task choice, and performance. *Psychological Review, 91*, 328-346.

- Petty, R. E., & Cacioppo, J. T. (1986). The elaboration likelihood model of persuasion. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 19, pp. 123-205). New York: Academic Press.
- Petty, R. E., & Wegener, D. T. (1993). Flexible correction processes in social judgment: Correcting for context-induced contrast. *Journal of Experimental Social Psychology, 29*, 137-165.
- Sanna, L. J., Parks, C. D., & Chang, E. C. (2003). Mixed-motive conflict in social dilemmas: Mood as input to competitive and cooperative goals. *Group Dynamics: Theory, Research, and Practice, 7*, 26-40.
- Sanna, L. J., Turley, K. J., & Mark, M. M. (1996). Expected evaluation, goals, and performance: Mood as input. *Personality and Social Psychology Bulletin, 22*, 323-335.
- Schwarz, N., & Clore, G. (1983). Mood, misattribution, and judgments of well-being: Informative and directive functions of affective states. *Journal of Personality and Social Psychology, 45*, 513-523.
- Schwarz, N., & Clore, G. L. (1996). Feelings and phenomenal experiences. In E. T. Higgins & A. Kruglanski (Eds.), *Social psychology: A handbook of basic principles*. New York, NY: Guilford.
- Shah, J., Higgins, E. T., & Friedman, R. S. (1998). Performance incentives and means: How regulatory focus influences goal attainment. *Journal of Personality and Social Psychology, 74*, 285-293.
- Spiegel, S., Grant-Pillow, H., & Higgins, E. T. (2004). How regulatory fit enhances motivational strength during goal pursuit. *European Journal of Social Psychology, 34*, 39-54.

- Stapel, D. A., Martin, L. L., & Schwarz, N. (1998). The smell of bias: What instigates correction processes in social judgments? *Personality and Social Psychology Bulletin*, *24*, 797-806.
- Startup, H. M., & Davey, G. C. L. (2001). Mood as input and catastrophic worrying. *Journal of Abnormal Psychology*, *110*, 83-96.
- Utman, C. H. (1997). Performance effects of motivational state: A meta-analysis. *Personality and Social Psychology Review*, *1*, 170-182.
- Vaughn, L. A., O'Rourke, T., Schwartz, S., Malik, J., Petkova, Z., & Trudeau, L. (in press). When two wrongs can make a right: Regulatory nonfit, bias, and correction of judgments. *Journal of Experimental Social Psychology*.
- Vaughn, L. A., & Weary, G. (2003). Causal uncertainty and correction of judgments. *Journal of Experimental Social Psychology*, *39*, 516-524.
- Weary, G., Jacobson, J. A., Edwards, J. A., & Tobin, S. J. (2001) Chronic and temporarily activated causal uncertainty beliefs and stereotype usage. *Journal of Personality and Social Psychology*, *81*, 206-219.
- Wegener, D. T., & Petty, R. E. (1995). Flexible correction processes in social judgment: The role of naïve theories in corrections for perceived bias. *Journal of Personality and Social Psychology*, *68*, 36-51.
- Wegener, D. T., & Petty, R. E. (1997). The flexible correction model: The role of naïve theories of bias in bias correction. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 29, pp. 141-208). New York, NY: Academic Press.
- Wilson, T. D., & Brekke, N. (1994). Mental contamination and mental correction: Unwanted influences on judgments and evaluations. *Psychological Bulletin*, *116*, 117-142.

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## Footnotes

<sup>1</sup>There was a nonsignificant reversal of the regulatory fit effect in the attention conditions of Experiment 1. Such nonsignificant reversals have occurred with this attention question before (e.g., Cesario et al., 2004), and might reflect overadjustment for regulatory fit feelings due to overestimation of their possible informational impact.

<sup>2</sup>A Prime X Strategy X Attention ANOVA on the number of birds generated revealed a significant three-way interaction,  $F(1, 89) = 4.83, p = .03$ . “No attention” participants showed a significant Prime X Strategy simple interaction,  $F(1, 94) = 4.01, p = .05$ : regulatory fit participants (i.e., prevention/vigilant,  $M = 12.71, SD = 7.52$ ; or promotion/eager,  $M = 12.08, SD = 3.55$ ) listed more birds than nonfit participants (i.e., prevention/eager,  $M = 10.25, SD = 6.18$ ; or promotion/vigilant,  $M = 8.27, SD = 5.13$ ). “Attention” participants showed no significant Prime X Strategy simple interaction,  $F(1, 94) = 2.97, p > .08$  (prevention/vigilant  $M = 9.31, SD = 6.14$ ; promotion/eager  $M = 12.00, SD = 6.73$ ; prevention/eager  $M = 9.73, SD = 5.08$ ; promotion/vigilant  $M = 15.87, SD = 5.29$ ).

The ANOVA also revealed an unexpected Attention X Prime interaction  $F(1, 89) = 5.66, p = .02$ . Simple contrasts showed that promotion/attention participants ( $M = 14.42, SD = 6.04$ ) listed significantly more words than either promotion/no attention participants ( $M = 9.96, SD = 4.82; F(1, 96) = 7.04, p = .009$ ), or prevention/attention participants ( $M = 9.50, SD = 5.56; F(1, 96) = 8.48, p = .004$ ). Neither simple contrast with prevention/no attention participants ( $M = 11.82, SD = 7.02$ ) was significant ( $ps > .17$ ).

<sup>3</sup>Additionally, we carried out separate sets of analyses for the index of the three mood measures from the first goal (Cronbach’s alpha = .83) and for the index of the three mood measures from the second goal (Cronbach’s alpha = .87). A pair of Attention X Regulatory Fit

ANOVAs revealed no significant effects on the mood index for the first goal (all  $ps > .58$ ) or on the mood index for the second goal (all  $ps > .35$ ). The ANCOVA with the index of mood measures from the first goal revealed that, although there was a significant covariate effect on the number of words generated ( $F(1, 92) = 9.42, p = .003$ ), the Attention X Fit interaction remained significant ( $F(1, 92) = 6.52, p = .01$ ). The ANCOVA with the index of mood measures from the second goal revealed no significant covariate effect on the number of words generated ( $F(1, 92) = 0.11, p > .74$ ); the Attention X Fit interaction remained significant ( $F(1, 92) = 6.44, p = .01$ ).

<sup>4</sup> Additionally, the means for the two regulatory fit groups differed significantly under sufficiency and enjoyment stop rules ( $F(1, 121) = 4.17, p = .04$ ), as did the means for the two regulatory nonfit groups ( $F(1, 121) = 5.76, p = .02$ ).

<sup>5</sup> A Prime X Strategy X Stop Rule ANOVA on the number of foods listed revealed only a significant three-way interaction,  $F(1, 116) = 10.07, p = .002$ . “Enjoyment” participants showed a significant Prime X Strategy simple interaction,  $F(1, 121) = 5.58, p = .02$ : regulatory fit participants (i.e., prevention/vigilant,  $M = 10.36, SD = 4.92$ ; or promotion/eager,  $M = 10.00, SD = 4.68$ ) listed more foods than nonfit participants (i.e., prevention/eager,  $M = 8.00, SD = 3.74$ ; or promotion/vigilant,  $M = 7.13, SD = 3.58$ ).

“Sufficiency” participants also showed a significant Prime X Strategy simple interaction,  $F(1, 121) = 4.30, p = .04$ : *nonfit* participants (i.e., prevention/eager,  $M = 11.62, SD = 5.85$ ; or promotion/vigilant,  $M = 9.22, SD = 4.47$ ) listed more foods than regulatory fit participants (i.e., prevention/vigilant,  $M = 8.33, SD = 3.58$ ; or promotion/eager,  $M = 7.67, SD = 3.68$ ).

<sup>6</sup> In Experiment 3 the within-group variances were heterogeneous. Therefore, we used independent samples  $t$ -tests to examine differences between pairs of means so that error terms

would only be based on the within-group variability of the observations being directly compared (Keppel, 1991).

<sup>7</sup> A Prime X Strategy X Attention X Stop Rule ANOVA on the number of words generated revealed a significant main effect for stop rule,  $F(1, 167) = 36.53, p < .001$ . The ANOVA also revealed a significant four-way interaction,  $F(1, 167) = 7.53, p = .007$ . We examined simple interactions within the sufficiency and enjoyment conditions, because scores were considerably higher and more variable in the sufficiency conditions (Keppel, 1991).

In the no attention/sufficiency conditions, the Regulatory Focus X Strategy simple interaction was significant,  $F(1, 87) = 6.53, p = .01$ : regulatory fit participants (i.e., prevention focused/vigilant,  $M = 47.56, SD = 28.09$ ; or promotion/eager,  $M = 30.13, SD = 12.43$ ) generated fewer words than nonfit participants (i.e., prevention/eager,  $M = 56.67, SD = 21.80$ ; or promotion/vigilant,  $M = 43.67, SD = 21.27$ ). In the attention/sufficiency conditions, this pattern did not approach significance,  $F(1, 87) = 1.66, p > .20$  (prevention/vigilant  $M = 39.64, SD = 10.80$ ; promotion/eager  $M = 49.60, SD = 29.17$ ; prevention/eager  $M = 34.46, SD = 12.87$ ; promotion/vigilant  $M = 39.13, SD = 21.96$ ).

In the no attention/enjoyment conditions, the Regulatory Focus X Strategy simple interaction was marginally significant,  $F(1, 90) = 3.50, p = .065$ : regulatory fit participants (i.e., prevention/vigilant,  $M = 31.07, SD = 16.65$ ; or promotion/eager,  $M = 32.25, SD = 8.31$ ) generated more words than nonfit participants (i.e., prevention/eager,  $M = 25.89, SD = 21.03$ ; or promotion/vigilant,  $M = 21.27, SD = 9.84$ ). In the attention/enjoyment conditions, this pattern did not approach significance,  $F(1, 90) = 0.59, p > .44$  (prevention/vigilant  $M = 21.80, SD = 15.26$ ; promotion/eager  $M = 24.14, SD = 16.83$ ; prevention/eager  $M = 27.80, SD = 19.28$ ; promotion/vigilant  $M = 23.44, SD = 13.78$ ).

The ANOVA also revealed an unexpected Attention X Prime interaction,  $F(1, 167) = 4.45, p = .04$ . Simple contrasts showed that prevention/no attention participants ( $M = 41.19, SD = 24.40$ ) generated more words than either promotion/no attention participants ( $M = 30.26, SD = 15.10$ ) ( $F(1, 181) = 5.62, p = .02$ ), or prevention/attention participants ( $M = 30.15, SD = 16.24$ ) ( $F(1, 181) = 3.34, p = .07$ ). Neither simple contrast with promotion/no attention participants ( $M = 34.97, SD = 23.71$ ) approached significance ( $ps > .19$ ). This interaction might seem to replicate the Attention X Prime interaction in Experiment 1 (see Footnote 2). However, in Experiment 1 the Attention X Prime interaction occurred within a default enjoyment stop rule, and in Experiment 3 an Attention X Prime interaction occurred when averaging across stop rules.

The ANOVA also revealed a significant Attention X Prime X Stop Rule interaction  $F(1, 167) = 3.92, p = .05$ . Among “enjoyment” conditions, there were no significant differences (promotion/no attention  $M = 25.09, SD = 10.59$ ; prevention/no attention  $M = 29.13, SD = 18.15$ ; promotion/attention  $M = 23.75, SD = 14.64$ ; prevention/attention  $M = 24.80, SD = 17.35$ ); (all  $ps > .32$ ). Among “sufficiency” conditions (promotion/no attention  $M = 35.21, SD = 17.21$ ; prevention/no attention  $M = 53.25, SD = 24.17$ ; promotion/attention  $M = 44.94, SD = 26.04$ ; prevention/attention  $M = 36.83, SD = 12.02$ ), prevention/no attention participants listed significantly more words than either promotion/no attention participants ( $t(46) = 2.98, p = .005$ ) or prevention/attention participants ( $t(46) = 2.98, p = .005$ ). No other differences reached significance ( $ps > .15$ ). It appears to be sufficiency/no attention/prevention participants who contributed most to the Attention X Prime interaction in Experiment 3.

Because the Attention X Prime interaction in Experiment 1 took place within a default enjoyment stop rule, the most appropriate comparison is between Experiment 1 and the enjoyment conditions of Experiment 3. In Experiment 1, promotion/attention participants

provided an anomalously large number of responses. There is no trace of such a pattern among promotion/attention/enjoyment participants in Experiment 3. These effects involving focus and attention remain theoretically unexplained.

<sup>8</sup> Additionally, we carried out separate sets of analyses for the index of the three mood measures from the first goal (Cronbach's alpha = .78) and for the index of the three mood measures from the second goal (Cronbach's alpha = .86). A pair of Attention X Regulatory Fit ANOVAs revealed no significant effects on the mood index for the first goal (all  $p$ s > .20) or on the mood index for the second goal (all  $p$ s > .17). The ANCOVA with the index of mood measures from the first goal revealed that there was no significant covariate effect on the number of words generated ( $F(1, 174) = 0.07, p > .78$ ); the stop rules main effect remained significant ( $F(1, 174) = 37.40, p < .001$ ) as did the Attention X Stop Rules X Fit interaction ( $F(1, 174) = 10.77, p = .001$ ). The ANCOVA with the index of mood measures from the second goal revealed no significant covariate effect on the number of words generated ( $F(1, 174) = 2.32, p > .12$ ); the stop rules main effect remained significant ( $F(1, 174) = 40.12, p < .001$ ) as did the Attention X Stop Rules X Fit interaction ( $F(1, 174) = 11.33, p = .001$ ).

Figure Captions

*Figure 1.* Number of birds listed as a function of regulatory fit condition and attention condition,

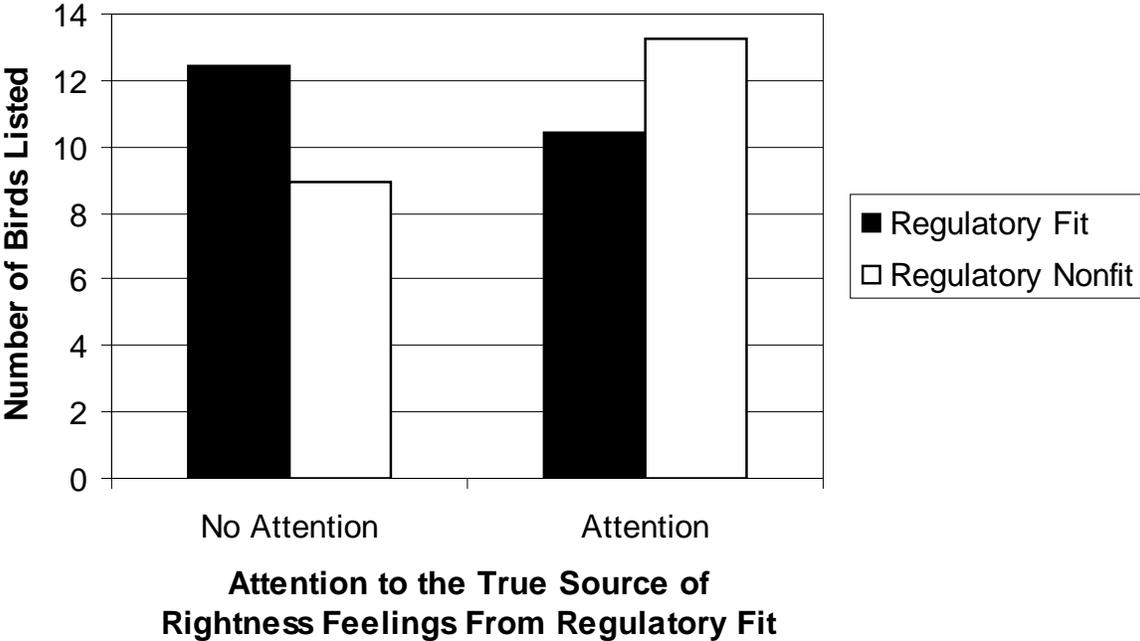
Experiment 1

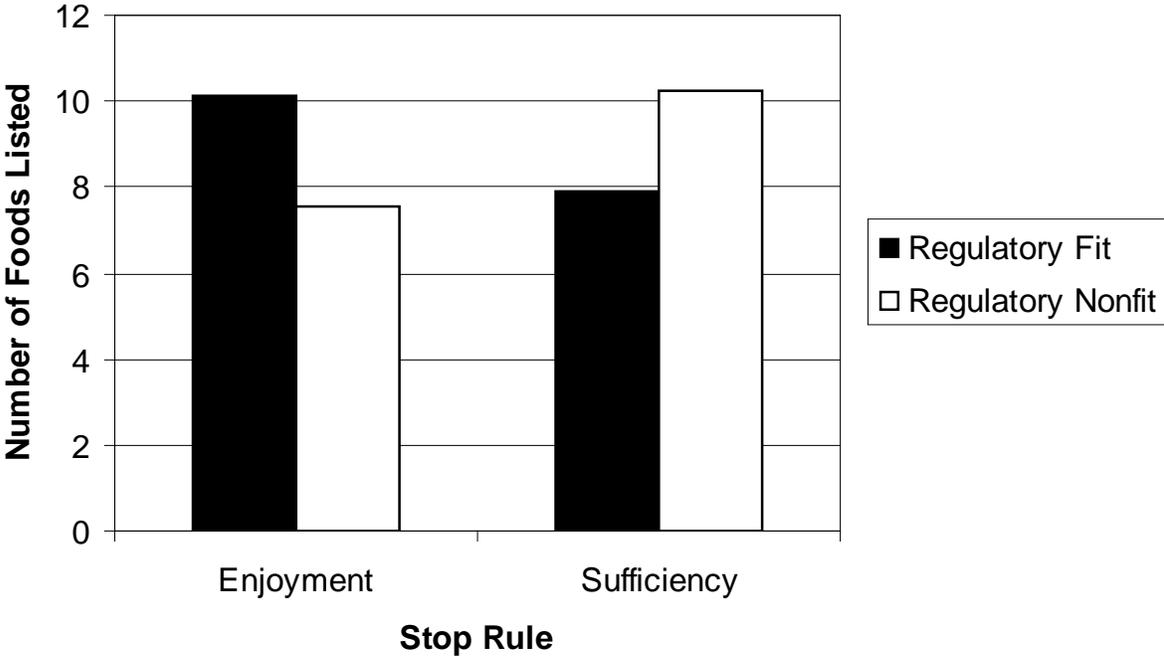
*Figure 2.* Number of foods listed as a function of regulatory fit condition and stop rule condition,

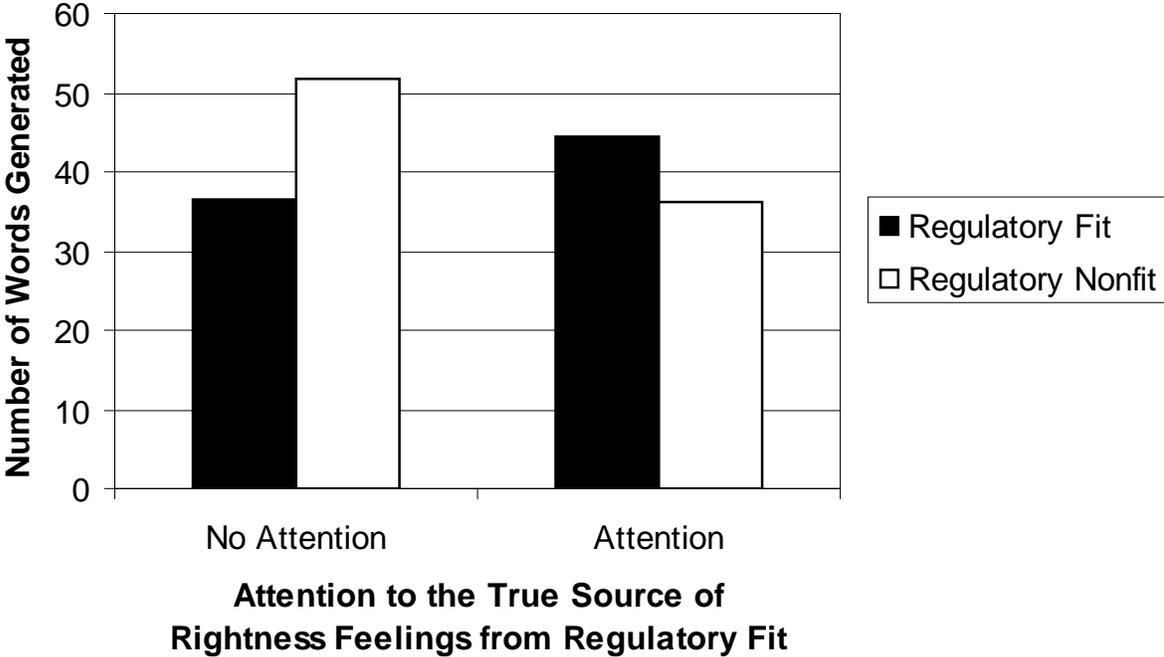
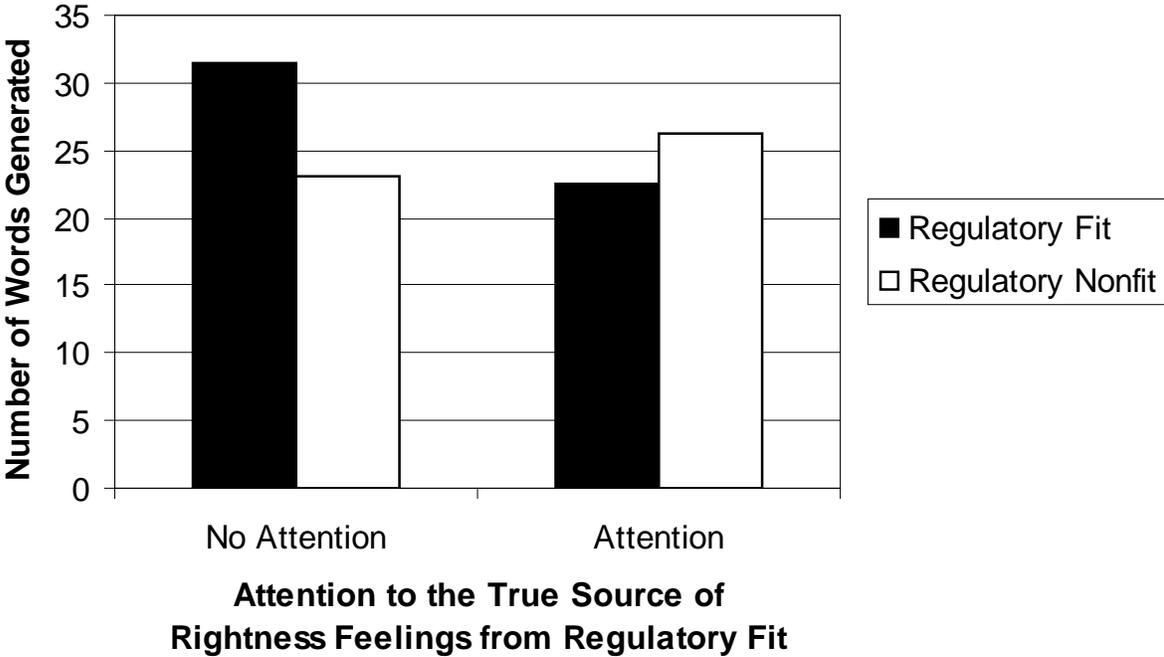
Experiment 2

*Figure 3.* Number of words generated as a function of regulatory fit condition, attention

condition, and stop rule condition, Experiment 3







Note. Upper panel = enjoyment stop rule conditions; lower panel = sufficiency stop rule conditions.