

APPROACH MOTIVATION AND ATTENTIONAL BREADTH:  
ROLE OF CONSTRUAL LEVELS

A Thesis

by

RAYMOND NICHOLAS SERRA

Submitted to the Office of Graduate Studies of  
Texas A&M University  
in partial fulfillment of the requirements for the degree of  
MASTER OF SCIENCE

December 2010

Major Subject: Psychology

Approach Motivation and Attentional Breadth: Role of Construal Levels

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Approved by:

Chair of Committee,	Brandon J. Schmeichel
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## ABSTRACT

Approach Motivation and Attentional Breadth:

Role of Construal Levels. (December 2010)

Raymond Nicholas Serra, B.S., Western Illinois University

Chair of Advisory Committee: Dr. Brandon J. Schmeichel

Previous research has observed that approach motivation can both increase and decrease attentional breadth. How does the same motivation have these seemingly divergent effects? Three studies tested the hypothesis that mental construal levels help to determine the breadth of approach-motivated attention. In all studies, construal levels were manipulated to be high or low and breadth of attention was assessed in the context of high approach motivation.

Study 1 recruited 30 undergraduate students, each of which entered a laboratory room individually and completed a measure of trait approach motivation. Participants were then randomly assigned to write either abstractly (high-level construal) or concretely (low-level construal) about a personal value. They then completed a measure of attentional breadth that indicates a tendency to see either broadly or narrowly. Study 1 found that higher trait approach motivation predicts increased attentional breadth, but only following the induction of a high-level (versus low-level) mental construals.

Study 2 consisted of 32 undergraduate students, each of whom was randomly assigned to the same high-level or low-level construal conditions used in Study 1.

Participants then completed a version of the same attentional breadth task that interspersed approach motivating stimuli among attention trials. Study 2 found that, while viewing images of appetitive objects (i.e., desserts), high-level construals increased attentional breadth relative to low-level construals.

Study 3 had 105 undergraduate students participate each of whom individually reported to the laboratory. They began by filling out the same trait approach motivation measure, followed by the same construal level manipulation as Study 1. Next, participants completed the same attention task as Study 2 except while some of them saw the same approach motivating stimuli, others saw neutral stimuli. Study 3 found little evidence that high (versus low) construal levels influenced attentional breadth while viewing images of appetitive or neutral objects.

These results help to reconcile divergent past findings regarding approach motivation and breadth of attention, but the results fall short of providing definitive evidence for the hypothesized role of mental construal levels in approach-motivated attentional breadth.

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## TABLE OF CONTENTS

	Page
ABSTRACT .....	iii
ACKNOWLEDGEMENTS .....	v
TABLE OF CONTENTS .....	vi
LIST OF FIGURES.....	viii
CHAPTER	
I INTRODUCTION AND LITERATURE REVIEW .....	1
Construal Level and Attentional Breadth.....	4
II STUDY 1.....	6
Method .....	6
Results .....	8
Discussion .....	9
III STUDY 2.....	10
Method .....	10
Results .....	11
Discussion .....	12
IV STUDY 3.....	13
Method .....	13
Results .....	14
Discussion .....	15
V LIMITATIONS AND FUTURE RESEARCH.....	16
VI CONCLUSION .....	18

	Page
REFERENCES .....	19
APPENDIX .....	23
VITA .....	26



## LIST OF FIGURES

	Page
Figure 1 Construal-level X BAS Interaction Effect on Global Attentional Bias ....	23
Figure 2 Global Attentional Bias as a Function of Condition .....	24
Figure 3 Motivation-level X Construal-level X BAS Interaction Effect on Global Attentional Bias .....	25

CHAPTER I  
INTRODUCTION AND  
LITERATURE REVIEW

Approach motivation refers to the urge or penchant to go toward something. Approach motivation influences diverse behaviors ranging from eating and aggression to risk-taking and attitude change (Berridge, 1996; Carver & Harmon-Jones, 2009; Foster, Shenese, & Goff, 2009; Harmon-Jones, Harmon-Jones, Fearn, Sigelman, & Johnson, 2008; Paquet et al., 2010). The current investigation examined the relationship between approach motivation and breadth of attention, or whether a person focuses narrowly or broadly on stimuli. Past research has produced conflicting results. Approach motivation has been found both to reduce the breadth of attention (Gable & Harmon-Jones, 2008a) and to increase it (Förster, Friedman, Özelsel, & Densler, 2006). What determines whether approach motivation narrows or broadens attention? It is proposed here that a person's current level of mental construal helps to determine whether attention narrows or broadens in the context of approach motivation.

Research has established that happiness broadens attention (e.g., Basso, Scheff, Ris, & Dember, 1996; Gasper & Clore, 2002; Gasper, 2004). For example, one experiment induced happiness or sadness by asking participants to write about a personal life event that made them feel "happy and positive" or "sad and negative," respectively

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This thesis follows the style of *Journal of Experimental Social Psychology*.

(Gasper & Clore, 2002, Study 2). Participants then performed a visual processing task that is thought to assess local versus global preferences in attention (Kimchi & Palmer, 1982). The results indicated that, compared to participants in the sad condition, participants in the happy condition exhibited a stronger preference for global stimulus features. Along these same lines, Isen and Daubman (1984) observed that positive affective states support particularly expansive or generous mental categorization, consistent with broadened attention. Indeed, a core postulate of Fredrickson's (2001) influential broaden-and-build theory is that positive emotions (e.g. happiness/joy) expand an individual's awareness and attentional focus. Given that positive affect is linked to approach motivation (Carver, Sutton, & Scheier, 2000; Higgins, 2000; Roseman, 1984), research on positive affect provides indirect support for the view that approach motivation broadens attention.

Förster and colleagues (2006) conducted a series of experiments to test directly the hypothesis that approach motivation broadens attention. In one representative experiment, they manipulated approach versus avoidance motivation by asking participants to help a hypothetical cartoon mouse navigate a maze. In the approach motivation condition, participants imagined helping the cartoon mouse navigate the maze to obtain cheese. In the avoidance motivation condition, participants imagined helping the cartoon mouse navigate a maze to escape a lurking owl. Subsequent performance on Navon's (1977) local/global visual processing task revealed that participants who had imagined an approach-motivated mouse responded faster to global

stimuli than to local stimuli, relative to participants who had imagined an avoidance-motivated mouse. These results linked approach motivation to broadened attention.

But approach motivation has also been found to reduce attentional breadth. Gable and Harmon-Jones (2008a) proposed that biologically-based approach-motivated states, such as those associated with sexual behavior or the consumption of food and water, may narrow attention as organisms focus on obtaining the appetitive object. Based on this reasoning, Gable and Harmon-Jones conducted a series of experiments testing the hypothesis that approach motivation reduces the breadth of attention. In one experiment, they manipulated high or low approach motivation by having participants view pictures. Participants in the approach motivation condition viewed a series of appetitive object pictures (i.e., desserts) whereas participants in the low-approach group viewed neutral object pictures (i.e., rocks). All participants then completed Navon's (1977) local/global visual processing task as a measure of attentional breadth. The results indicated that viewing appetitive dessert pictures (compared to neutral rock pictures) reduces the preference for global stimulus features on the local/global task. These findings were subsequently replicated in research examining neural activations associated with approach motivation (Harmon-Jones & Gable, 2009). In another experiment of theirs, they manipulated high approach motivation by having participants watch a film that depicted delicious desserts. To measure attentional breadth, participants were then given Kimchi and Palmer's (1982) local/global visualization task. Results indicated that participant's attention was narrower after viewing the desserts compared to a low approach motivation condition.

Thus, previous research has found that approach motivation may reduce or increase the breadth of attention. How does the same motivation (i.e., approach) produce seemingly divergent effects? Construal level theory may provide one answer. It is hypothesized that the person's current level of mental construal influences whether attention is broadened or narrowed under approach motivation.

#### *Construal Level and Attentional Breadth*

According to construal level theory (CLT; Liberman & Trope, 2008; Liberman, Trope, & Stephan, 2007; Trope & Liberman, 2003), high levels of mental construal promote an abstract perspective that is associated with psychological distance. People who adopt high-level construals tend to perceive, judge, and predict target stimuli to be psychologically distal. Likewise, events that are psychologically distal, such as future events or hypothetical events, tend to be construed in high-level, abstract terms. Conversely, low levels of mental construal promote a more concrete, detailed perspective. People who adopt low-level construals tend to perceive, judge, and predict target stimuli to be psychologically proximal, and events that are psychologically proximal, such as real (as opposed to hypothetical) events, tend to be construed in low-level, concrete terms.

Previous research on approach motivation and attentional breadth may have observed conflicting patterns of results (i.e., that approach both increases and reduces attentional breadth) because the previous research inadvertently varied participants' level of mental construal. Förster and colleagues' (2006) manipulated approach motivation in a manner that was likely to induce in participants a relatively high-level mindset. As

described previously, participants in that research performed a cartoon mouse task that relied on hypothetical, abstract forms of thought that are typically associated with psychological distance and high-level construals (Trope & Liberman, 2003). By contrast, Gable and Harmon-Jones (2008a) used pictures of appetitive stimuli (desserts) to induce approach motivation. The pictures were likely to induce in participants a ruminative focus on the appetitive qualities of the desserts, consistent with psychological proximity and low-level construals (e.g., Mischel & Baker, 1975).

Thus this paper proposes that construal levels have played an underappreciated role in previous research relating approach motivation to breadth of attention. Accordingly, three studies were conducted to test directly the hypothesis that high-level construals increase the breadth of approach-motivated attention relative to low-level construals. Construal levels were manipulated in the context of individual differences in approach motivation (Study 1) and in the context of appetitive picture stimuli (Study 2), respectively, and in each study attentional breadth was assessed with a local/global visual processing task borrowed from Kimchi and Palmer (1982; see also Gable & Harmon-Jones, 2008a; Gasper & Clore, 2002). In Study 3, both construal level and approach motivation were manipulated to assess their interactive effects on attentional breadth.

## CHAPTER II

### STUDY 1

Study 1 tested the hypothesis that construal levels alter breadth of approach-motivated attention. Participants first completed a questionnaire measure of trait approach motivation. Then they completed a task designed to induce higher versus lower levels of mental construal and performed a local/global processing task. An interaction between the construal level manipulation and trait approach motivation was predicted, resulting in a more pronounced global processing bias—indicative of increased attentional breadth—following the high-level-construal induction among participants higher (versus lower) in approach motivation.

#### *Method*

*Participants and Design.* Thirty undergraduate students (11 women, 19 men) reported individually to a laboratory experiment described as an investigation of personality and object perception. Participants were randomly assigned to either a high-level construal condition or a low-level construal condition.

*Procedure.* The experiment began with two questionnaires. Participants completed a brief demographic information form and Carver and White's (1994) behavioral inhibition and behavioral activation scales (BIS/BAS). The BAS subscale was most relevant for present purposes as it is a well-validated measure of individual differences in approach motivation. The BAS subscale assesses desire for rewards, positive responses to real or anticipated rewards, and persistence in pursuing desired

rewards. Sample items from the BAS scale include “I go out of my way to get things I want” and “I often act on the spur of the moment.” In the current study, the average score on the BAS scale (combining the drive, fun-seeking, and reward responsiveness subscales) was  $M = 39.07$  ( $SD = 4.84$ ) ( $\alpha = .76$ ).

Participants then reviewed a list of values and characteristics and ranked them in order of personal importance. After ranking the values, they completed the construal level manipulation (adapted from Freitas, Gollwitzer, & Trope, 2004; see also Schmeichel & Vohs, 2009). Participants in the *high-level construal condition* wrote their most important value from the value-ranking form in a box printed at the bottom of a sheet of paper. They were then asked to indicate why they pursue this particular value in four subsequent boxes moving vertically up the sheet of paper as they answered. Participants in the *low-level construal condition* wrote their most important value in a box printed at the top of a sheet of paper. They were then asked to indicate how they pursue this particular value in four subsequent boxes moving down the sheet of paper.

Immediately after the construal level manipulation, participants completed a variant of Kimchi and Palmer’s (1982, Experiment 2) local/global attentional task. This task presents participants with pictures of three geometric figures constructed of local, smaller shapes arranged to form a broader, larger shape. Participants were asked to compare two of the figures to a third standard figure; the standard figure shared local elements with one comparison figure and a global element with the other comparison figure. Choosing comparison figures that share local elements with the standard is



thought to reflect relatively narrowed attention, whereas choosing comparison figures that share the overall global shape reflects attentional breadth.

The geometric figures for the local/global task appeared onscreen one at a time for 5 s each. Participants were prompted to circle on a response sheet which of the two comparison figures they believed was most similar to the standard figure. They were asked to respond quickly with the first impression that came to mind. Participants made 16 choices in total on the local/global task.

### *Results*

Our hypothesis was that attention would be broadened among participants higher (versus lower) in BAS following the high-level-construal induction. It was. Global attentional bias (i.e. the number of global comparison figures chosen on the local/global task) was regressed on construal-level condition, BAS scores (centered), and the condition X BAS interaction. The main effect of construal-level condition was not statistically significant,  $B = 0.40$ ,  $p = .80$ . More importantly, the predicted construal level X BAS interaction was statistically significant and in line with predictions,  $B = 0.69$ ,  $p < .05$ . Figure 1 displays the results.

Simple effects analysis indicated that among participants in the high-level-construal condition, those with higher BAS scores exhibited greater global focus on the visual processing task compared to those with lower BAS scores,  $p < .05$ . Among participants in the low-level-construal condition, global attentional bias was not influenced by BAS. Analysis of simple slopes revealed a non-significant increase in global bias among those higher in BAS following the high-level (versus low-level)

construal induction,  $p = .09$ , and a non-significant decrease in global bias among those lower in BAS following the high-level (versus low-level) construal induction,  $p = .18$ .

### *Discussion*

The results from Study 1 revealed that construal levels influence the breadth of approach-motivated attention. Specifically, following a manipulation to induce high-level construals, individuals higher in trait approach motivation exhibited a stronger preference for global stimulus elements compared to individuals lower in trait approach motivation. Following a manipulation to induce low-level construals, however, trait approach motivation did not relate to global processing bias. These results support the hypothesis that approach motivation is associated with broadened attention under high-level mental construals. Study 2 again tested the hypothesis that mental construals influence breadth of attention in the context of approach motivation. Whereas Study 1 examined the effects of mental construal on attentional breadth among individuals higher versus lower in trait approach motivation, Study 2 examined the effects of construal level on attentional breadth among participants viewing appetitive pictures that induce high approach motivation.

## CHAPTER III

### STUDY 2

As in Study 1, participants first completed a task inducing higher versus lower levels of mental construal and then performed Kimchi and Palmer's (1982) local/global processing task. Unlike Study 1, however, participants in Study 2 viewed pictures of appetitive stimuli (desserts) interspersed with the local/global task. Viewing the dessert pictures has been shown to increase approach motivation (e.g., Gable & Harmon-Jones, 2008a, 2008b), so the results in Study 2 were expected to replicate the results from those high in trait approach motivation in Study 1. Specifically, a more pronounced global bias was predicted, indicative of broadened attention, when participants viewed appetitive pictures in a high-level construal mindset relative to a low-level construal mindset.

#### *Method*

*Participants and Design.* Thirty-two undergraduate students (21 women, 11 men) reported individually to a laboratory experiment described as an investigation of personality and object perception. Participants were randomly assigned to either a high-level construal condition or a low-level construal condition.

*Procedure.* The experiment was identical to Study 1 with one key difference: Images of desserts appeared onscreen in-between trials of the local/global processing task. More precisely, following Gable and Harmon-Jones (2008a, Study 2), participants viewed pictures of appetitive stimuli during the local/global task. A picture of a dessert (e.g., ice cream sundae, chocolate chip cookies) appeared onscreen for 6 seconds. Then

the geometric figures for the local/global task appeared onscreen for 5 seconds, and participants were prompted to circle on a response sheet which of the two comparison figures they believed was most similar to the standard figure. Participants were asked to respond quickly with the first impression that came to mind. Then another dessert picture appeared, followed by another local/global trial, and so on. In total, participants viewed 16 dessert pictures and made 16 choices on the local/global task.

At the end of the study, participants were asked to indicate a) how appealing the appetitive dessert pictures were and b) how much they like desserts (using a scale from 1 = *not at all* to 7 = *a lot*). Last, participants were debriefed and dismissed. In the current study, the average score on the BAS scale was  $M = 41.59$  ( $SD = 4.74$ ) ( $\alpha = .76$ ).

### *Results*

*Attentional Breadth.* Our hypothesis was that a higher level of construal would broaden attentional focus compared to a lower level of construal. It did. Using level of construal (high versus low) as the independent variable and global attentional bias as the dependent variable, results indicate that participants in the high-level-construal condition ( $M = 11.59$ ,  $SD = 4.30$ ) selected more global comparison figures on the local/global task compared to participants in the low-level-construal condition ( $M = 8.80$ ,  $SD = 3.05$ ),  $t(30) = 2.09$ ,  $p < .05$ . Figure 2 illustrates this difference.

*Individual Differences in BAS.* Trait BAS did not moderate the attentional findings. A linear regression with level of construal and BAS scores (centered) entered in the first step and the construal X BAS interaction entered in the second step revealed no significant changes in attentional bias associated with BAS,  $ps > .48$ .

*Ratings of Dessert Pictures.* At the end of the study, participants reported how appealing they found the dessert pictures to be. The high-level construal group ( $M = 5.41, SD = 1.80$ ) and the low-level group ( $M = 5.60, SD = 1.55$ ) did not differ from each other,  $t(30) = 0.31, p = .76$ . Participants also responded to a question of how much they like desserts. Here again, the high-level construal group ( $M = 6.29, SD = 1.31$ ) and the low-level construal group ( $M = 6.07, SD = 1.58$ ) did not differ,  $t(30) = 0.45, p = .66$ . The construal level manipulation altered attentional breadth even when controlling for subjective appeal of the dessert pictures,  $p = .05$ , and liking for desserts,  $p < .05$ .

### *Discussion*

The results from Study 2 revealed that, while viewing images of appetitive objects, high-level construals increased attentional broadening relative to low-level construals. The effect of the construal level manipulation remained significant after accounting for trait approach motivation, the subjective appeal of the dessert pictures, and self-reported liking of desserts in general. These results support the view that, in an approach-motivational context, breadth of attention is influenced by the person's current level of mental construal. These results also represent a conceptual replication of our initial experiment, substituting high levels of trait approach motivation in Study 1 with an approach-motivating situational context in Study 2.

## CHAPTER IV

### STUDY 3

Study 3 attempted to replicate effects from the previous two studies and to better test the interaction effects of construal level and approach motivation on attentional breadth. This study replicated Study 2 with the inclusion of a neutral control condition in addition to the appetitive dessert pictures conditions. Construal manipulations remained the same as Studies 1 and 2. Construal level was hypothesized to influence attentional breadth consistent with the previous two studies (i.e., with high level construal leading to broadened attention compared to low level construal) but only among individuals induced to feel approach-motivated. An additional goal of Study 3 was to find narrowing effects of low level construal among approach-motivated participants, consistent with previous work by Harmon-Jones and Gable (2009).

#### *Method*

*Participants and Design.* One hundred and five participants (69 women, 36 men) were recruited to participate through the Texas A&M University psychology subject pool. Participants were randomly assigned to condition in a 2 (Construal Level: High or Low) X 2 (Motivation: Approach or Neutral) between-subjects factorial design.

*Procedure.* Participants completed a short questionnaire packet consisting of demographics and Carver and White's (1994) BIS/BAS. Participants then completed the construal level manipulation in which they either wrote about how or why they pursue their top-ranked value (as in the previous studies). Next participants performed the

Kimchi and Palmer (1982) local/global attentional task while either in the approach motivated condition (i.e., dessert pictures interspersed) or the neutral condition (i.e., rock pictures interspersed). Finally, participants completed a post-experiment questionnaire, were debriefed about the purpose of the study, and allowed to leave.

### *Results*

The hypothesis states that participants who are induced to adopt a high-level of construal will exhibit broadened attention whereas participants in the low-level construal condition will exhibit narrowed attention. These effects were only expected among individuals who were approach motivated (i.e., viewed the dessert pictures). A 2 (level of construal) X 2 (level of approach motivation) between-groups ANOVA failed to find the predicted interaction effect between construal level and motivation on attentional breadth,  $F(1, 101) = 0.40, p = .51$ . Additionally, neither the main effect for construal level nor for motivation level was significant,  $ps = .59$ .

To further investigate the interaction between construal level and motivation, trait motivation was included as a predictor variable (as in Study 1). Thus, global attentional bias was regressed on construal-level condition, motivation-level condition, BAS scores (centered), each of their interactions, and the construal X motivation X BAS interaction. Neither the 3-way interaction nor any of the two way interactions approached significance,  $ps > .25$ . These results are illustrated in Figure 3. Thus, trait approach motivation did not play a role in shaping attentional breadth, unlike the results found in Study 1.

*Discussion*

Study 3 was designed to integrate and expand the methods from the previous studies conducted. This new study was expected to replicate and reinforce the results from Study 1 and Study 2 by showing that high-level construals (but not low-level construals) induce greater attentional breadth among participants higher (versus lower) in trait approach motivation. More importantly, Study 3 was expected to provide direct support that mental construal levels influence the breadth of approach-motivated attention specifically. Unfortunately, Study 3 provided no such evidence. The interaction between level of construal and motivation was not statistically significant, nor were any trait motivation effects discovered. While the possibility still exists that construal level played a role in past divergent effects of approach motivation and broadening vs. narrowing of attention, the current Study 3 was unable to find any clear indication of such effects.



## CHAPTER V

### LIMITATIONS AND FUTURE RESEARCH

Why did Study 3 fail to produce the predicted results? One possible explanation concerns the dependent variable. The Kimchi and Palmer (1982) local/global attentional task may not be sufficiently sensitive to be able to detect effects of motivation. Indeed, both Study 1 and Study 2 were unable to find evidence of approach-motivated attentional narrowing using this measure of attentional breadth. We are aware of one published study that found evidence for the lack of sensitivity of this task (Gasper & Clore, 2002). After their first study suggested that positive, relative to negative, mood states produced a global bias, their second study failed to produce similar results when comparing a positive state to a neutral state. Other measures have also been used to assess the effects of approach motivation on attention (e.g., Navon's local/global task; Gable and Harmon-Jones 2008a), and it is possible that such measures may yield evidence for the construal level effects predicted here.

Conversely, Gable and Harmon-Jones (2008a, Study 1) did find narrowing effects using the Kimchi and Palmer (1982) local/global visualization task when they manipulated motivation by presenting an appetitive-object movie prior to the task. In the present research appetitive object pictures were interspersed with the attention task. Thus another limitation of this research could be the result of needing a more extended, uninterrupted method of inducing approach motivation which may be crucial for the narrowed-attention effect. Other studies have found narrowing effects using the same

method of inducing approach motivation as was used here; however those studies used a different measure of attentional breadth (Harmon-Jones & Gable, 2009).

Additionally, Förster and colleagues (2006) observed global attention biases when comparing an approach-motivating condition to a withdrawal-motivating condition. The current Study 3 included a neutral comparison condition rather than a withdrawal-motivating comparison condition, thus our results may not have produced similar effects to Förster's because the neutral comparison represents a more stringent comparison. Future research crossing high versus low levels of mental construal with approach vs. withdrawal motivation may yield a different pattern of results than the non-significant pattern observed in Study 3.

Taking the possible limitations of this study into account, the following suggestions may provide future research a better chance of observing the predicted results: using a more sensitive measure of attentional breadth may aid in detecting the effects of construal level and motivation level; the Navon (1977) local/global visual processing task is one reasonable candidate. Additionally, inducing approach motivation with a longer, uninterrupted series of appetitive images may be desirable. Finally, comparing approach motivation to withdrawal motivation may give a more exact replication of previous studies.

## CHAPTER VI

### CONCLUSION

In conclusion, findings from Study 1 and Study 2 suggested potential resolution of divergent past findings regarding approach motivation and attention. Whereas previous evidence indicates that approach motivation both broadens and narrows attention, these studies suggest a possible explanation for both outcomes. It was the goal of Study 3 to conclusively show such an effect in a more integrated and complete way, but ultimately was unable to do so.

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## APPENDIX

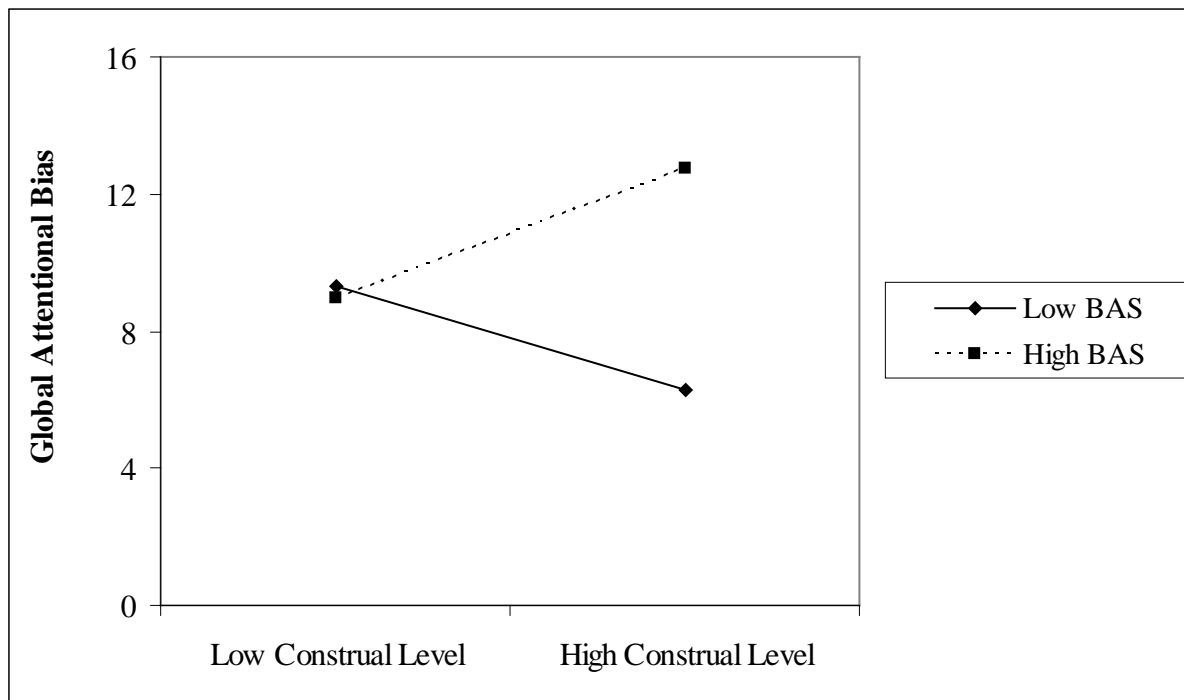


Fig. 1. Construal-level X BAS Interaction Effect on Global Attentional Bias.



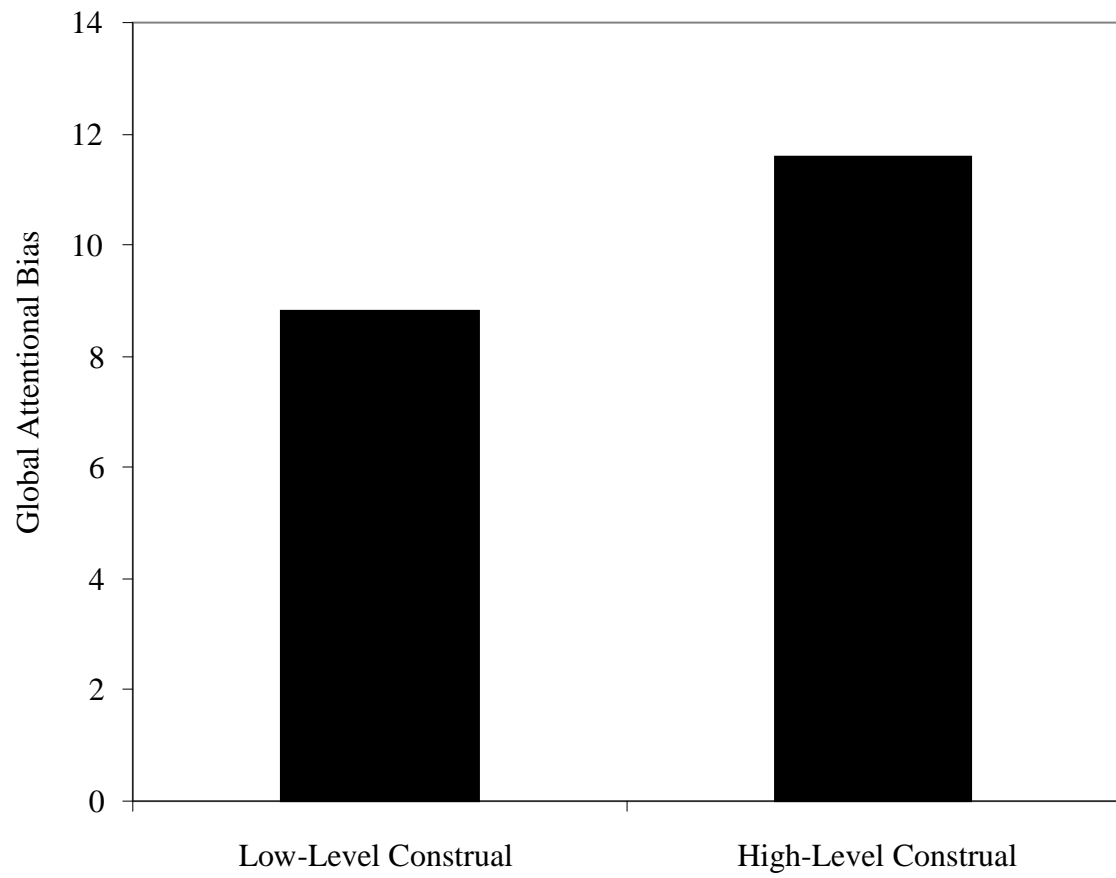


Fig. 2. Global Attentional Bias as a Function of Condition.

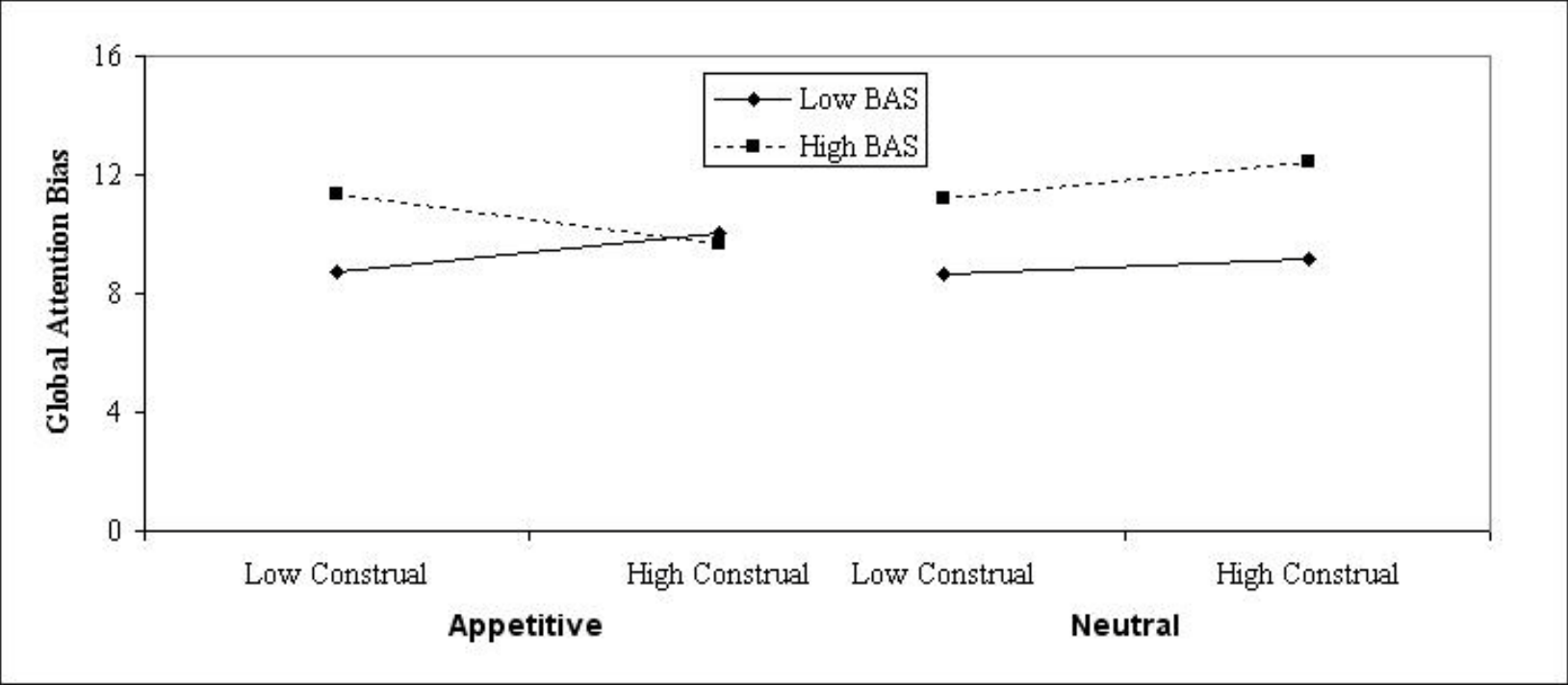


Fig. 3. Motivation-level X Construal-level X BAS Interaction Effect on Global Attentional Bias

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