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In this article, we argue that nonconscious goal conflicts are accompanied by a mindset that has wide-ranging implications for reasoning and thinking in content areas that are not part of the conflict itself. Specifically, we propose that nonconscious goal conflicts induce a mode of processing information that increases the likelihood of approaching an issue from opposing perspectives. This hypothesis is examined by investigating the effects of nonconscious goal conflicts on confirmatory thinking, that is, a way of thinking that narrowly focuses on confirmation rather than on broader examination of information. In 5 experiments, we show that nonconscious goal conflicts significantly reduce confirmatory hypothesis testing (Experiments 1 through 3) and anchoring (Experiments 4 and 5). We further show that these effects result from a goal conflict by rejecting explanations based on priming of semantic opposites, and priming of multiple goals that do not conflict (Experiments 2 and 3), and by examining decision times as a conflict process variable (Experiment 5). Using various probes, we show that these changes in confirmatory judgments are not accompanied by changes in conflict phenomenology. Together, these results suggest that nonconscious goal conflicts attenuate the robust confirmatory thinking strategy that characterizes human thinking in numerous domains.

Keywords: goal conflicts, mindset, consciousness, decision making, confirmation bias

Do I contradict myself?
Very well then I contradict myself,
(I am large, I contain multitudes).—Whitman, *Song of Myself*

From the very mundane (stay at the library studying or go to a party?) to the extremely heavy (shall I help my dying mother terminate her life, or let her seek help somewhere else?), goal conflicts are pervasive in our lives (e.g., Emmons & King, 1988; Fishbach, Zhang, & Trope, 2010; Lee, Locke, & Latham, 1989). Recently it was proposed that given this multitude, on the one hand, and the severely limited amount of conscious resources available to humans, on the other, goal conflicts should—and do—occur nonconsciously (Kleiman & Hassin, 2011). Here we propose that the process underlying nonconscious goal conflicts modulates how humans think, reason, and process information, even in domains that are not related to the conflict itself.

We begin to examine this contention by exploring how nonconscious goal conflicts affect confirmatory thinking. To presage our conclusion, we show that nonconscious goal conflicts reduce (sometimes to the point of elimination) this robust human tendency. More specifically, we propose that nonconscious goal conflicts induce a mode of processing information that, appropriately,

increases the likelihood of approaching an issue (e.g., a problem or a decision) from multiple perspectives. We further suggest that this mode is not limited to the processing of conflict-related information. It is, rather, a mindset—a general mode of processing information that is not domain specific (e.g., Förster, Liberman, & Kuschel, 2008; Sassenberg & Moskowitz, 2005). Taken together, then, these contentions imply that a nonconscious goal conflict should broaden the scope of perspectives and the relevant information processed, even in domains that are not related to the conflict itself.

In this article, we test an important implication of this proposal: We examine the effects of nonconscious goal conflicts on confirmatory thinking, that is, a way of thinking that *narrowly* focuses on confirmation rather than on *broad* critical examination of alternative options and perspectives (Klayman & Ha, 1987; Snyder & Swann, 1978; Wason, 1960). On the basis of our argument above, we propose that nonconscious goal conflicts attenuate the robust human tendency for confirmatory thinking.

Nonconscious Goal Pursuits

Twenty-five years ago, nonconscious goal pursuit would have been considered a contradiction in terms. The traditional view held that conscious thought and intention are necessary requirements for goal pursuit (e.g., Ajzen, 1991; Bandura, 1986; Deci & Ryan, 1985; Locke & Latham, 1990). The 1990s brought about a change: Novel theories (Bargh, 1990; Kruglanski, 1996), followed by empirical data, made a convincing case for the existence of nonconscious goal pursuits. These theories postulated that goals are represented in networks of mental representations that contain means for attaining them, contexts in which they are habitually

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pursued, and other relevant goals and impediments. These views held that the activation of any component in this network (e.g., context) can activate the whole network, thereby leading to goal pursuit. Importantly, this process of spreading activation can occur outside conscious awareness; goal priming, then, may lead to nonconscious goal pursuit.

Subsequent research lent support to these theories by demonstrating that the subtle activation of various components in goal networks can lead to goal pursuit that is not accompanied by awareness of either the activation of the goal or its pursuit (for recent reviews, see Custers & Aarts, 2010; Dijksterhuis & Aarts, 2010; Fishbach & Ferguson, 2007). In a typical experiment, participants are told that they will take part in two unrelated tasks. In the first task, a goal is being primed (usually using words that are associated with the goal). In the second (allegedly unrelated) task, participants' goal pursuit is measured via relevant behaviors. Thus, for example, in one such experiment, participants were primed with a cooperation goal in a first phase and then continued to a social dilemma task in a second phase. Primed participants cooperated more than participants in the control condition, thus suggesting that the goal of cooperation has been activated. Crucially, these differences in behavior were not accompanied by differences in conscious goal commitment, goal importance, or perceived success, suggesting a dissociation between goal pursuit and phenomenology (Bargh, Gollwitzer, Lee-Chai, Barndollar, & Troetschel, 2001).

Nonconscious Goal Conflicts

Whereas the first decade of the empirical investigation of nonconscious goal pursuit focused on the relatively smooth pursuit of a single goal, subsequent work examined instances in which a focal goal pursuit encounters obstacles of various kinds (e.g., Marien, Custers, Hassin, & Aarts, 2012; Oettingen, Grant, Smith, Skinner, & Gollwitzer, 2006; Shah, Friedman, & Kruglanski, 2002).

Two lines of work are of special interest here. First, Shah and colleagues proposed that when an individual is committed to a certain task goal, she or he inhibits alternative goals, thereby shielding the focal goal pursuit from distractions (e.g., Shah et al., 2002). Applied to goal conflicts, these findings suggest that dominant goals may inhibit less dominant ones, a mechanism that may come in very handy once dominance has been established. Second, Fishbach and colleagues (e.g., Fishbach, Friedman, & Kruglanski, 2003; Fishbach et al., 2010) have shown that for those who are good self-controllers, the activation of a lower level goal (a momentary temptation, e.g., a chocolate) automatically activates the higher order goal (e.g., diet). Moreover, the activation of the higher order goal tends to inhibit the momentary temptation. These processes increase the likelihood that people act in ways that increase self-control.

Building on this work, researchers have recently suggested that goal conflicts can—and do—occur and persist nonconsciously (Kleiman & Hassin, 2011). In a series of experiments, participants had been first primed with a cooperation goal (or not) and then engaged in a social dilemma task in which the default goal is to compete (e.g., Fehr & Fischbacher, 2003). Participants had to make repeated decisions concerning resource allocation, determining the proportion of resources they are to keep to themselves versus the proportion they are to share with others (see Bargh et al., 2001). Because the dominant goal in this task is competition (Brewer & Kramer, 1986; Fehr & Fischbacher, 2003), and because the priming strengthens the nondominant goal of cooperation, priming should increase the conflict in this task. Indeed, conflict measurements showed a significant increase in four implicit markers of conflict: Primed participants were slower to make their decisions and had higher physiological arousal, they were more susceptible to environmental cues, and they were less consistent in their decisions. This increase in implicit markers of conflict was not accompanied by an increase in various measures of the conscious phenomenology of conflict.

The Conflict Mindset

The very nature of goal conflicts is such that people fluctuate between seeing the world through the eyes of one goal, and seeing it from the vantage point of another, conflicting goal (e.g., Fishbach & Shah, 2006; Fishbach et al., 2010; Kleiman & Hassin, 2011). "If I go to the party, I may hang out with John" proclaims happily one goal, "*BUT ALSO*" warns the conflicting goal, "I may be very tired in the exam tomorrow." This example illustrates the simple idea that goal conflicts are characterized by an *X but also Y* mindset, which we henceforth refer to as *the conflict mindset*. Naturally, the conflict mindset increases the likelihood that conflicting information or the vantage points of conflicting goals will be considered. Like other mindsets, once it is activated, it affects decisions and judgments, even if they are not related to the conflict that activated this mindset in the first place (e.g., Galinsky & Moskowitz, 2000).

It is important to note here that there are various ways in which goals can conflict with each other. Here, we use *goal conflict* to refer to a situation in which goals are directly conflicting. Namely, we deal with situations in which goals have opposing behavioral implications, and additional resources (or processes) *cannot* remedy the conflict. For example, the goal of becoming rich and that of doing good deeds with one's money are not in direct conflict. With additional monetary resources, substantial progress can be made toward meeting both ends. The goal of being faithful to one's spouse and the goal of having casual sex, however, are in *direct* conflict. No amount of additional resources can remedy this conflict.

The Current Research

Individuals' judgments and decisions are susceptible to confirmation biases. This set of biases is created by the heightened accessibility, search, consideration, and use of information that befits the currently held conception (e.g., hypothesis, belief, attitude), coupled with relative negligence of information that may disprove it (Klayman & Ha, 1987; Koehler, 1993; Koriat, Lichtenstein, & Fischhoff, 1980; Snyder & Swann, 1978; Wason, 1960). To use the terminology we introduced above, confirmation biases stem from focusing on *the X* (confirming information) and relatively neglecting *the Y* (disconfirming information).

We propose that the robust human tendency for confirmatory thinking should be attenuated by the conflict mindset. This is the case, we argue, because whereas confirmatory thinking is characterized by the focus on *the X* and a relative negligence of *the Y*, the

conflict mindset leads to a more cautious examination of both the X *and* the Y.[1]

To test this prediction, we use the "separate experiments" paradigm (e.g., Bargh et al., 2001). In the first phase of the experiment, we evoke (or not, for the control conditions) a nonconscious goal conflict by *simultaneously priming* two conflicting goals. In the second, allegedly unrelated experiment, participants engage in one of two tasks that have repeatedly and robustly yielded confirmation biases (trait hypothesis testing, Snyder & Swan, 1978, in Experiments 1 through 3, and anchoring, Tversky & Kahneman, 1974, in Experiments 4 and 5). We hypothesize that the induction of goal conflict will significantly reduce confirmation. As we move through the experiments, we isolate goal conflict as the most plausible cause for the effects we document. We show that mere semantic priming of opposites (Experiment 2) and direct priming and cognitive load (Experiment 3) cannot in and of themselves explain our results. We begin to address the process underlying our effects in Experiment 5; we look at decision duration as a marker of conflict and examine its relation to the reduction in confirmation tendencies when in a conflict mindset. We further show that the reduction in confirmatory tendencies is not accompanied by elevated experience of conflict. Put differently, we predict and show a dissociation between measures of performance and those of conflict phenomenology. A dissociation of this sort suggests that a conflict mindset attenuates confirmation tendencies in reasoning and judgment without reaching conscious awareness.

Experiment 1: Conflict Mindset Reduces Confirmation Bias in Hypothesis Testing

In the trait hypothesis-testing task (Snyder & Swann, 1978), participants are asked to test a hypothesis about a fellow participant (e.g., the hypothesis that John is an extrovert) by asking him a series of questions they choose from a given list. By and large, participants choose questions that tend to yield information that confirms (rather than disconfirms) the hypothesis (Lord, Lepper, & Preston, 1984; Snyder & Swann, 1978). Our analysis above suggests that a conflict mindset may significantly attenuate this confirmation tendency because it inherently leads people to consider both the X (in this case, the hypothesis that John is indeed an extrovert) and the Y (the complementary hypothesis—that he is not).

Method[2]

Participants. Thirty students (77% females; mean age = 22.43, SD = 1.63) from the Hebrew University participated in the experiment in exchange for course credit. They were randomly assigned to either the nonconscious goal conflict (henceforth conflict) or control conditions.

Priming manipulation. The priming manipulation was carried out via a lexical decision task. Letter strings appeared randomly on the computer screen, and participants had to indicate whether they were words or nonwords. In the conflict condition, seven (out of 20) words were related to pursuing an academic goal (university, lecture, class, study, library, papers, grades), another seven were related to pursuing a conflicting social goal (alcohol, going out, bar, club, party, pub, movie)[3,4], and six were fillers. In the control condition, all words were neutral.

Trait hypothesis-testing task (Snyder & Swan, 1978). Following Snyder and Swan (1978), participants received written instructions for the task. They first read that their task would be to test the hypothesis that a fellow student (whom they have never met before) was an extrovert. They then read a short description of a typical extrovert. Subsequently, they read that in order to test the hypothesis, they can ask the fellow student 12 questions that they had to choose from a list of 25 questions provided by the experimenter. Critically, out of the 25 questions, 10 were hypothesis-confirming questions (i.e., questions that tend to yield extravertlike answers; e.g., "What do you like about living situations in which there are always lots of people around?"); 10 were hypothesis-disconfirming questions (i.e., questions that tend to yield introvertlike answers; e.g., "What factors make it hard for you to really open up to people?"), and five were neutral.

Awareness assessment. Immediately after they had finished the hypothesis-testing task, participants were probed for awareness. To assess conflict phenomenology, we asked (a) "To what extent did you experience conflict?" and (b) "To what extent would you describe your state of mind during the experiments as one of deliberation, or thinking about different, contradicting alternatives?" (this question assessed phenomenology of the conflict mindset). Responses to these questions were given on a 9-point scale ranging from 1 (*not at all*) to 9 (*to a large extent*). Because conflict may be associated with negative mood, and lower satisfaction with one's performance, we also asked participants to rate their mood (from 1 [*very negative*] to 9 [*very positive*]) and the extent to which they were pleased with their performance in the task (from 1 [*not at all*] to 9 [*very much*]). To examine whether goal priming increased conscious goal pursuit, participants were asked to rate their goal commitment to both goals—"How important is it for you to succeed academically?" and "How important is it for you to socialize and go out to have fun?" Responses were given on a scale ranging from 1 (*not at all*) to 9 (*very much*). Finally, participants were asked an open-ended question urging them to express any thoughts they might have had regarding the connection between the two (allegedly) separate tasks.

Results

Trait hypothesis-testing task. For each participant, we calculated the percent of confirming, disconfirming, and neutral questions selected (out of the total 12; see Table 1 for means and standard deviations). As a manipulation check, we examined the confirmation bias separately for each condition. A paired sample *t* test comparing the percent of confirming and disconfirming

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[1] Previous research has looked at other ways in which these biases can be reduced (e.g., Galinsky & Moskowitz, 2000; Hirt, Kardes, & Markman, 2004; Lord, Lepper, & Preston, 1984; Mussweiler, Strack & Pfeiffer, 2000). We succinctly review this literature in the General Discussion.

[2] Detailed description of manipulations, stimuli, and dependent measures for all experiments can be found in Appendix A.

[3] Experiments 1, 2, and 4 were conducted in Israel, and all stimuli for these experiments reported in the article are translated from Hebrew.

[4] The priming words were selected in a two-stage pilot. First, we asked students (N = 15) to list words associated with the academic and the social goals. Then, we asked a different sample of students (N = 20) to rate how much each of the words obtained in the first sample represented the respective goal on a scale ranging from 1 (*not at all*) to 9 (*very*). We selected the highest rated words to serve as primes.

Table 1

Means (and Standard Deviations) for the Percent of Questions Selected (Out of 12) in the Trait Hypothesis-Testing Task by Condition, for Experiments 1–3

| Variable | Condition | Percent of questions selected | | |
		Hypothesis confirming	Hypothesis disconfirming	Neutral
Experiment 1				
	Control	56.67 (20.22)	26.11 (19.89)	17.22 (7.36)
	Conflict	41.67 (15.43)	41.11 (15.26)	17.22 (8.61)
Experiment 2				
	Control	59.72 (16.96)	24.44 (19.57)	15.83 (7.04)
	Opposites	58.61 (15.55)	23.61 (16.82)	17.78 (6.47)
	Conflict	44.72 (9.90)	40.00 (10.81)	15.28 (6.22)
Experiment 3				
	Control	64.33 (11.16)	16.33 (13.06)	19.33 (8.91)
	Unrelated	61.33 (13.58)	18.33 (12.95)	20.33 (9.03)
	Conflict	47.67 (19.02)	35.67 (20.91)	16.67 (8.67)

questions selected by control participants revealed a significant effect, $t(14) = 3.01$, $p = .01$. Participants chose more confirming than disconfirming questions, replicating the modal finding of confirmation bias. The same comparison done for conflict participants did not reveal any difference between the type of questions selected ($t < 1$), thus confirmation bias was eliminated for conflict participants.

To examine differences between the conditions, we compared the percent of confirming questions selected in each condition.[5] A one-way analysis of variance (ANOVA) comparing the percent of confirming questions selected in the control (56.67) and conflict (41.67) conditions revealed a significant difference, $F(1, 28) = 5.22$, $p < .05$, $\eta^2 = .16$, such that participants in the conflict condition selected fewer confirmatory questions compared with participants in the control condition. Importantly, the number of neutral questions selected did not differ between the conditions (see Table 1 for all means and standard deviations for this experiment).

Awareness. One-way ANOVAs comparing the control and conflict conditions did not reveal any differences between the two conditions for any of the awareness probing questions (see Appendix B for descriptive and comparison statistics for all awareness questions). No differences were found in terms of subjective reports of experienced conflict, or experiencing a conflict mindset (both ps > .50). Furthermore, no differences between conditions were found for mood or satisfaction with performance ratings (ps > .30), nor were there differences in commitment to either the academic achievement or social goals (both ps > .23). In addition, none of the participants suspected that the two parts of the experiment were related. These null effects were predicted; they are part of the dissociation we aim to establish between the effects of the nonconscious goal conflict on performance, on the one hand, and the absence of conflict phenomenology, on the other. However, given that they are all null effects, we report the awareness measures for all of the experiments combined (thus considerably increasing statistical power) right after Experiment 5.

Finally, we repeated the main analysis, comparing performance on the hypothesis-testing task of the control and conflict participants, using analyses of covariance (ANCOVAs), with the subjective ratings of conflict and conflict mindset as covariates. The logic here was that if there is a correlation between behavior and

subjective conscious reports, then the effect of priming should disappear. The pattern of results remained the same, however, thereby suggesting that the effect of conflict is independent from its phenomenology, $F(1, 27) = 5.06$, $p < .05$; and, $F(1, 27) = 5.20$, $p < .05$, for the subjective ratings of conflict and conflict mindset ANCOVAs, respectively.

Discussion

The results of Experiment 1 demonstrated that an induction of nonconscious goal conflict led to a reduction in the confirmation bias. Unlike their control counterparts who overwhelmingly searched for hypothesis-confirming information, conflict participants were balanced in their information search. This was the first step in demonstrating that a conflict mindset significantly modulates confirmation tendencies in judgments.

Experiment 2: Goal Conflict, But Not Semantic Conflict, Reduces Confirmation Bias

The results of Experiment 1 left open the question of what has been primed: Is it a *goal* conflict, or is it simply a *semantic* conflict? Specifically, it could be argued that simply priming semantic opposites, even if they do not bear any motivational load, will produce the effects documented in Experiment 1. In Experiment 2, we used a more stringent test of our argument that it is a *goal* conflict that is responsible for the attenuation of the confirmation bias. We do so by examining whether simply priming words that are semantic opposites would result in a reduction in confirmatory thinking.

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[5] The total number of questions participants were allowed to select was fixed (i.e., 12 out of 25); the selection of different types of questions (i.e., confirming, disconfirming, and neutral) was not independent. Hence, comparing the percentage of the confirming questions selected will allow us to examine differences between the conditions in the pattern of questions selected—lower percentage of confirming questions selected indicates a more balanced information search that includes both hypothesis-confirming and hypothesis-disconfirming questions.

Method

Participants. Ninety students (60% females; mean age = 23.64, SD = 1.79) from the Hebrew University participated for course credit. They were randomly assigned to three between-participants conditions: nonconscious goal conflict (conflict), semantic opposites (opposites), and control.

Priming manipulation. The same lexical decision task used in Experiment 1 was used here for the control and conflict conditions. In the new semantic opposites condition, the primed words were semantic opposites. We selected pairs of opposites (big, small, short, tall, fat, thin, smart, stupid, pretty, ugly, warm, cold, nice, mean), which were all adjectives describing a person. This was done to mimic as closely as possible the goal conflict condition as all of the words revolved around a common theme. As in the control and conflict conditions, each word (or nonword) appeared on the screen (selected at a random order), and participants were asked to indicate whether it was a word or a nonword.

Trait hypothesis-testing task. This was the same task used in Experiment 1.

Awareness assessment. This was identical to the awareness assessment used in Experiment 1.

Results

Trait hypothesis-testing task. For each participant, we calculated the percent of confirming, disconfirming, and neutral questions selected (out of the total 12; see Table 1 for means and standard deviations). As a manipulation check, we examined the confirmation bias separately for each condition. A paired sample t test comparing the percent of confirming and disconfirming questions selected by control participants revealed a significant effect, $t(29) = 5.38, p < .01$. The same was true for participants in the semantic opposites condition, $t(29) = 6.04, p < .01$. The percent of confirming questions selected in both the control and semantic oposites conditions was significantly greater than the percent of disconfirming questions selected, replicating the modal finding of confirmation bias. Conflict participants, however, did not show any confirmation bias as no difference was found between the percent of confirming and disconfirming questions they selected, $t(29) = 1.31, p > .20$.

To examine the differences between the conditions in the pattern of questions selected, we conducted a one-way ANOVA comparing percent of hypothesis-confirming questions selected in the control, semantic opposites, and conflict conditions (59.72%, 58.61%, and 44.72%, respectively; see Table 1 for all descriptive statistics). This analysis revealed a significant difference, $F(2, 87) = 10.02, p < .01, \eta^2 = .19$. We conducted Tukey's pairwise post hoc comparisons[6] to examine the differences between the specific conditions. Replicating the results of Experiment 1, participants in the conflict condition selected fewer confirmatory questions compared with participants in the control condition (see Table 1 for means and standard deviations; $p < .01$). Conflict participants also selected fewer confirmatory questions compared with participants in the semantic opposites condition (see Table 1; $p < .01$). The control and semantic opposites conditions did not differ in the percentage of confirmatory questions selected ($p > .90$). Importantly, as in Experiment 1, the number of neutral questions selected did not differ between the three conditions ($p > .21$).

Awareness. A one-way ANOVA did not reveal any differences between the three conditions in any of the awareness measures (see Appendix B for descriptive and comparison statistics for all awareness questions). Specifically, no differences between conditions were found in terms of subjective reports of experienced conflict, experiencing a conflict mindset, mood, or performance satisfaction (all $ps > .14$). Furthermore, no differences between conditions were found in terms of conscious goal commitment for either the academic achievement or social goals (both $ps > .15$). In addition, none of the participants reported suspicion as to a possible connection between the priming manipulation and the hypothesis-testing task.

Finally, as in Experiment 1, analyzing the data with ANCOVAs, in which participants' conflict and conflict mindset ratings were entered as a covariate, did not change the pattern of results, $F(1, 86) = 9.85, p < .01$; and, $F(1, 86) = 10.36, p < .01$, for the subjective ratings of conflict and conflict mindset ANCOVAs, respectively.

Discussion

The results of Experiment 2 replicated those of Experiment 1. The confirmation bias in the conflict condition was substantially smaller than that in the control participants condition. Crucially, the mere priming of semantic opposites did not change the default tendency to confirm. These results suggest that it is the priming of *goal* conflict, and not the priming of conflicting concepts per se, that is responsible for the reduction in confirmatory thinking.

Experiment 3: Conflicting Goals, But Not Unrelated Goals, Reduce Confirmation Bias

It may be argued that goals from the academic and social domains (those that were used in Experiments 1 and 2) share content with our dependent variable (namely, extroversion and introversion as examined in the trait hypothesis-testing task) and hence may have influenced the results directly. We examine this possibility empirically by introducing a condition in which two conflicting goals that are unrelated to the dependent variable are primed (health vs. indulgence). This manipulation also allows us to generalize our results above and beyond a specific conflict.

Furthermore, it may be argued that simply priming two goals—any two goals—will lead to reduction in confirmation tendencies (e.g., because activating two goals leads to cognitive load). Hence, Experiment 3 also includes a control condition in which we prime two goals that do not conflict with each other. If a conflict mindset—and not the mere activation of two goals—produces our results, then we should replicate our previous findings in the conflict condition, but not in the unrelated goals condition.

Method

Participants. Seventy-five students (75% females; mean age = 19.43, SD = 1.50) from New York University participated

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[6] We had planned hypothesis for the differences expected between the conditions. However, the comparisons we wished to make are not orthogonal, and thus we used post hoc tests. If anything, this is a more conservative test of our hypothesis.

in the experiment in exchange for course credit. They were randomly assigned to three between-participants conditions: Nonconscious goal conflict (conflict), unrelated goals, and control.

Priming manipulation. The same lexical decision task used in Experiments 1 and 2 was used here. The control condition was identical to that of Experiments 1 and 2. In the conflict condition, the primed words were related to pursuing a health goal (health, diet, weight, fit, slim, thin, calories) as well as to pursuing an indulgence goal (indulge, savor, tasty, treat, dessert, sweets, munch). In the unrelated goals condition, the primed words were related to pursuing a health goal (see above) and an academic goal (degree, graduate, professor, student, college, classroom, school).

Trait hypothesis-testing task. This was the same task used in Experiments 1 and 2.

Awareness assessment. This was identical to the awareness assessment used in Experiments 1 and 2.

Results

Trait hypothesis testing. For each participant, we calculated the percent of confirming, disconfirming, and neutral questions selected (out of the total 12; see Table 1 for means and standard deviations). As a manipulation check, we examined the confirmation bias separately for each condition. A paired sample t test comparing the percent of confirming and disconfirming questions selected by control participants revealed a significant effect, $t(24) = 10.62, p < .01$. The same was true for participants in the unrelated goals condition, $t(24) = 8.61, p < .01$. The percent of confirming questions selected in both the control and unrelated goals conditions was significantly greater than the percent of disconfirming questions selected, replicating the modal finding of confirmation bias. Conflict participants, however, did not show any confirmation bias as no difference was found between the percent of confirming and disconfirming questions they selected, $t(24) = 1.54, p > .13$.

To examine the differences in the pattern of questions selected, we conducted a one-way ANOVA comparing the percent of hypothesis-confirming questions selected in the control, unrelated goals, and conflict conditions (64.33, 61.33, and 47.67, respectively; see Table 1 for all descriptive statistics). The analysis revealed a significant difference, $F(2, 72) = 8.82, p < .01, \eta^2 = .20$. We further conducted Tukey's pairwise post hoc comparisons to examine the differences between the specific conditions. Replicating the results of Experiments 1 and 2, participants in the conflict condition selected fewer confirmatory questions than participants in the control condition (see Table 1 for means and standard deviations; $p < .01$). Conflict participants also selected fewer confirmatory questions than participants in the unrelated goals condition (see Table 1; $p < .01$). There was no difference between the control and unrelated goals conditions ($p > .75$). Importantly, as in the previous experiments, the number of neutral questions selected did not vary between the three conditions ($p > .32$).

Awareness. A one-way ANOVA did not reveal any differences between the three conditions in any of the awareness measures (see Appendix B for descriptive and comparison statistics for all awareness questions). Specifically, no differences between conditions were found in terms of subjective reports of experienced conflict, experiencing a conflict mindset, mood, or performance

satisfaction (all $ps > .12$). Furthermore, no differences between conditions were found in terms of conscious goal commitment for either of the primed goals ($ps > .23$). In addition, none of the participants reported suspicion as to a possible connection between the priming manipulation and the hypothesis-testing task. Finally, as in previous experiments, two ANCOVAs in which participants' conflict and conflict mindset ratings were entered as a covariate did not change the pattern of results, $F(1, 71) = 9.11, p < .01$; and, $F(1, 71) = 10.42, p < .01$, for the subjective ratings of conflict and conflict mindset ANCOVAs, respectively.

Discussion

The results of Experiment 3 replicated those of Experiments 1 and 2, while using a different pair of conflicting goals. Confirmation bias was significantly smaller for participants in the conflict condition compared with participants in the control condition. It was also smaller than that of participants for whom unrelated yet nonconflicting goals were activated. These results support a conflict mindset account, rather than either a direct priming account (the primed goals and the dependent variable were not related in content in this experiment) or a cognitive resources account (the priming of two unrelated goals that do not directly conflict with one another did not reduce confirmatory tendencies).

Experiment 4: Generalizing the Effect: Conflict Mindset Reduces the Magnitude of Anchoring

Experiments 1 through 3 focused on a classic hypothesis-testing task examining patterns of information search. They suggested that these patterns change in a conflict mindset—information search is less prone to one-sided, hypothesis-confirming tendencies. In Experiment 4, we tested another robust judgmental bias—anchoring, thereby generalizing the effects documented in the first three experiments to a different set of biases.

Anchoring is a judgmental bias in which estimates are unjustly assimilated to a previously considered standard (Tversky & Kahneman, 1974). In a typical anchoring experiment, participants are first asked to make a relative judgment, for example, whether the percentage of African nations in the United Nations is lower or higher than 10% (in the case of the low-anchor condition) or 65% (in the case of the high-anchor condition). In the second stage, participants are asked to make an absolute judgment, that is, stating the percentage of African nations in the United Nations. By and large, participants' absolute judgments are assimilated to the anchor.

One compelling account for at least a subset of the anchoring phenomena holds that it is a result of the confirmatory examination of the hypothesis that the anchor is the correct answer to the question asked (Mussweiler, 2003; Mussweiler & Strack, 1999). The induction of nonconscious goal conflict, then, should lead to a significant reduction in anchoring, in the same way that it led to a reduction in confirmatory thinking in the previous three experiments.

Method

Participants. Fifty-two students (65% females; mean age = 24.29, $SD = 2.52$) from the Hebrew University who participated

for course credit were randomly assigned to either the control or the nonconscious goal conflict (conflict) conditions.

Priming manipulation. This was identical to the one used in Experiment 1.

Anchoring task. Each participant answered four anchoring questions taken from Jacowitz and Kahneman (1995). The questions were "What is the length of the Nile River?" (low and high anchors set at 3,000 km and 9,000 km, respectively); "What is the height of Mount Everest?" (low and high anchors set at 5,000 m and 12,000 m, respectively); "In what year was the telephone invented?" (low and high anchors set at 1850 and 1920, respectively) and "What is the monthly fuel consumption on the average Israeli?" (low and high anchors set at 75 liters and 300 liters, respectively). For each question, participants were first asked to make a relative judgment that introduced an anchor (e.g., "Was the telephone invented before or after 1850?") and then an absolute one (e.g., "In what year was the telephone invented?"). For each participant, two out of the four questions contained low anchors (e.g., the year 1850), and two contained high anchors (e.g., 1920).

Awareness assessment. This was identical to the one used in Experiments 1 through 3.

Results

Anchoring. The anchoring questions were taken from different content domains, with a different range of values. Hence, participants' estimations were transformed into z scores, using the mean and standard deviation of each question across participants. This procedure resulted in two z scores for each participant, one for low anchors and one for high ones (for an identical procedure, see, e.g., Bodenhausen, Gabriel, & Lineberger, 2000; Strack & Mussweiler, 1997).

As a manipulation check, we first examined the anchoring effect separately for each of the conditions. A paired sample t test comparing low anchors with high anchors in the control condition revealed a significant anchoring effect, $t(25) = -6.69$, $p < .01$, such that estimations that followed high anchors were higher than those that followed low anchors (see Table 2 for descriptive statistics). In the conflict condition, the anchoring effect did not reach significance, $t(25) = -1.58$, $p > .12$.

To examine differences between conditions in the anchoring effect, we then computed for each participant an anchor score by subtracting the low z score from the high z score (larger numbers thus reflect a larger anchoring effect). This score served as our dependent variable. A one-way ANOVA comparing the control and conflict conditions revealed a significant difference in the magnitude of the anchoring effect, $F(1, 50) = 6.43$, $p < .05$, $\eta^2 = .11$, which was significantly smaller in the conflict condition ($M = 0.36$, $SD = 1.17$) compared with the control condition ($M = 1.07$, $SD = 0.82$).

Awareness. The same analyses used in the previous experiments were used here. One-way ANOVAs comparing the control and conflict conditions did not reveal any differences in conscious goal commitment, conflict ratings, conflict mindset ratings, mood, or performance satisfaction (all ps > .31; see Appendix B for descriptive and comparison statistics for all awareness questions). No participant reported any suspicion regarding a possible connection between the priming and anchoring tasks. Finally, ANCOVA analyses covarying the conflict and conflict mindset ratings did not change the pattern of results, $F(1, 49) = 6.36$, $p < .05$; and, $F(1, 49) = 6.49$, $p < .05$, for the subjective ratings of conflict and conflict mindset ANCOVAs, respectively.

Discussion

The anchoring effect was significantly weakened following a subtle priming of two conflicting goals. These results conceptually replicate those of Experiments 1 through 3 while using a different task. Consistent with the account that the anchoring effect results from a one-sided, confirmatory examination of a hypothesis, interfering with this process via the conflict mindset reduced anchoring. Furthermore, in Experiments 1 through 3, we looked at the type of information participants had searched for in order to make a judgment. In the current experiment, we demonstrated that the conflict mindset affects absolute judgments as well.

Experiment 5: Decision Duration and the Conflict Mindset

In Experiments 1 through 4, we showed that priming conflicting goals leads to a significant reduction in confirmatory thinking. In Experiment 5, we used one marker of goal conflict, decision duration, to begin examining the process that underlies these effects. From task conflicts such as those that occur during the Stroop task (Stroop, 1935) to more motivational conflicts such as those that involve decisions to use (or not) condoms (Abraham & Sheeran, 2003), decisions under conflict take longer. The logic is simple—during conflicts, one has to negotiate between (at least) two conflicting goals, plans, or behaviors, and negotiation takes time. Most pertinent to the current article, it has been recently argued that decision duration can be used to detect the activation of nonconscious goal conflicts (Kleiman & Hassin, 2011).

Note that longer decision duration may characterize other states of mind. For example, decisions may take longer because one is simply trying harder. Our proposal entails that when decisions take longer because one is in a conflict, the effect of the conflict mindset should be correlated with decision duration. This should not be the case when longer decision duration results from other processes. Hence, we compare a conflict condition with a condition in which one spends more time in a decision simply because one is more motivated to do so.

In the current experiment, then, we contrast three conditions: a conflict condition, a single academic achievement goal condition,

Table 2
Means (and Standard Deviations) of the Low- and High-Anchor Z Scores by Condition, for Experiments 4 and 5

Variable	Condition	Anchor	
		Low	High
Experiment 4			
	Control	−0.53 (0.53)	0.54 (0.62)
	Conflict	−0.20 (0.84)	0.16 (0.61)
Experiment 5			
	Control	−0.49 (0.48)	0.47 (0.61)
	Achievement	−0.58 (0.49)	0.84 (0.88)
	Conflict	−0.32 (0.44)	0.14 (0.46)

and a control condition. We look at decision duration and the magnitude of the anchoring effect and make three predictions: first that participants in the conflict condition should have smaller anchoring effects (replicating the results of Experiment 4) and second that decision duration should be longer in the conflict condition, and may also be longer in the achievement condition. Finally, and most important for our claim, there should be a correlation between decision duration and the size of the anchoring effect in the conflict condition, but not in the control or achievement conditions.

Method

Participants. Seventy-three New York University students (71% females; mean age = 19.18, $SD = 1.17$) who participated for course credit were randomly assigned to either the control, single academic achievement goal (henceforth, achievement), or the nonconscious goal conflict (conflict) conditions.

Priming manipulation. The manipulation procedure was identical to that used in Experiments 1 through 4. For this experiment, we used priming words taken from Fishbach et al. (2010). In the conflict condition, we primed both the academic (books, paper, professor, project, reading, school, student, teaching, notebook, campus, classroom, college, degree, desk, lecture, library graduate) and social (bar, playing, socialize, sunny, television, travel, trip, vacation, video, beach, beer, chat, downtown, drinking, escape, movie, partying) goals. In the academic achievement condition, the priming words related to the academic goal (the same words that were used for the academic goal in the conflict condition).

Anchoring task. As in Experiment 4, each participant answered four anchoring questions taken from Jacowitz and Kahneman (1995). The telephone and Mount Everest questions were identical to those of Experiment 4, albeit height was presented in feet rather than in meters. The additional two questions were "What is the maximum speed of a house cat (in mph)?" (low and high anchors set at 7 mph and 30 mph, respectively) and "What is the number of female professors at the University of California, Berkeley?" (low and high anchors set at 25 and 130, respectively). The questions appeared on a computer screen, and response latency was recorded for each of the judgments participants made.

Awareness assessment. This was identical to the one used in all of the previous experiments reported above.

Results

Anchoring. As in Experiment 4, we computed low-anchoring and high-anchoring z scores for each participant, and as a manipulation check examined the anchoring effect separately for each of the conditions. A paired sample t test comparing low anchors with high anchors revealed a significant anchoring effect in each of the three conditions: Estimations that followed high anchors were higher than those that followed low anchors (see Table 2 for descriptive statistics) in the control, $t(23) = -9.01$, $p < .01$; achievement, $t(23) = -8.17$, $p < .01$; and conflict, $t(24) = -3.02$, $p < .01$, conditions.

To compare the magnitude of the anchoring effect across conditions, we subtracted the low-anchor score from the high-anchor score to create an individual anchor score. This score served as the dependent variable, where larger scores indicate a larger anchoring effect. A one-way ANOVA comparing the control, achievement, and conflict conditions on the magnitude of the anchoring effect yielded a significant difference, $F(2, 70) = 10.71$, $p < .01$, $\eta^2 = .23$. Tukey's pairwise post hoc comparison revealed a significant difference between the control and conflict conditions ($p < .05$). Replicating the results of Experiment 4, conflict participants had a smaller anchoring effect than control participants (see Table 2). Conflict participants also had a smaller anchoring effect than achievement participants (see Table 2; $p < .01$). Finally, achievement participants tended to have a *bigger* anchoring effect than participants in the control condition ($p < .09$). This effect was not hypothesized, so we do not wish to make much of it, but it is worth noting that the effect of achievement priming is *opposite* in direction to that of conflict priming.

Decision duration. We computed mean decision duration for each participant by averaging decision times of the four anchoring questions. A one-way ANOVA of the three conditions revealed a significant effect, $F(2, 70) = 4.68$, $p < .05$, $\eta^2 = .12$.[7] Tukey's pairwise post hoc comparison revealed a significant difference between the conflict and control conditions ($p < .05$), such that conflict participants were slower to make their decisions ($M = 7506.75$ ms, $SD = 3373.97$) than control participants ($M = 5246.64$ ms, $SD = 1618.33$). Achievement participants ($M = 7254.52$ ms, $SD = 3112.10$) were also slower than control participants in making their decisions ($p < .05$). No significant difference was found between the decision times of conflict and achievement participants ($p > .90$).

The relation between decision duration and anchoring. We computed, separately for each condition, the correlation between the decision duration and magnitude of the anchoring effect. In the control and achievement conditions, this correlation was (very) marginally positive ($r = .38$, $p < .07$; and $r = .36$, $p < .09$, for the control and achievement conditions, respectively), suggesting that longer response times were associated with a *larger* anchoring effect. In the conflict condition, however, this correlation was negative ($r = -.47$, $p < .05$), suggesting that longer response times were associated with a *smaller* anchoring effect.

Awareness. One-way ANOVAs comparing the control, achievement, and conflict conditions did not reveal any differences in conscious goal commitment, conflict ratings, conflict mindset ratings, mood, or performance satisfaction (all ps > .14; see Appendix B for descriptive and comparison statistics for all awareness questions). ANCOVA analyses covarying the conflict and conflict mindset ratings did not change the pattern of results neither for the anchoring, $F(1, 69) = 10.49$, $p < .01$; and, $F(1, 69) = 10.70$, $p < .01$ (for the subjective ratings of conflict and conflict mindset ANCOVAs, respectively), nor for the decision duration analyses, $F(1, 69) = 4.72$, $p = .01$; and, $F(1, 69) = 5.23$, $p < .01$ (for the subjective ratings of conflict and conflict mindset ANCOVAs, respectively). Finally, no participant reported any suspicion regarding a possible connection between the priming and anchoring tasks.

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[7] Three data points might be considered as outliers, deviating more than three standard deviations from the decision time mean across participants. Excluding these three data points does not change the pattern of results, $F(2, 70) = 4.95$, $p < .05$, $\eta^2 = .12$ for the ANOVA.

Discussion

Replicating the results of Experiment 4, the anchoring effect was significantly smaller in the conflict condition than in the control condition. As hypothesized, conflict participants took longer to make their judgments, and this longer duration was associated with a smaller anchoring effect. This suggests that the more time spent in the conflict mindset, the more pronounced are its effects. Importantly, this pattern was not evidenced in the other two conditions.

Interestingly, conflict and achievement goal participants did not differ in their decision durations. However, they markedly differed in the process outcome: Conflict participants had a significantly smaller anchoring effect than participants in the achievement goal condition, and the reduction in anchoring was correlated with decision duration. If anything, the reverse was true for participants in the achievement goal condition: Longer decision times were associated with a *larger* anchoring effect. Taken together, these results suggest that more effortful or careful processing per se (as measured by decision duration) does not lead to reduction in confirmation tendencies. One has to invest more effort, or to be more careful, in a specific way—in this case, the way that is induced by a conflict mindset.

Awareness across experiments. To examine our awareness measures with increased statistical power ($N = 241$), we conducted a 5 (Experiment: 1 vs. 2 vs. 3 vs. 4 vs. 5) $\times$ 2 (condition: control vs. conflict) between-participants ANOVA on all of the awareness measures we used that applied to all experiments: experienced conflict, experienced conflict mindset, mood, and satisfaction with performance. All of the F values for the condition main effect were smaller than 1, and none of the interaction effects reached statistical significance (all ps > .20). These results strongly support our contention that the priming manipulation did not affect the phenomenology of conflict.

General Discussion

Five experiments support the contention that nonconscious goal conflicts induce a conflict mindset that affects reasoning and judgments in domains that are not related to the conflict itself. In Experiment 1, priming two conflicting goals led to a significant reduction—in this case, even elimination—of a very robust confirmation bias. In Experiment 2, we replicated this finding and showed that priming of semantic opposites does not lead to a similar effect, suggesting that it is a *goal* conflict that induces the conflict mindset. In Experiment 3, we generalized the results of the previous experiments by inducing the conflict mindset via priming of a different set of goals. We further demonstrated that priming two nonconflicting goals does not reduce confirmatory thinking, hence stressing the importance of *conflict*. In Experiment 4, nonconscious goal conflict led to a significant reduction in another robust phenomenon, the anchoring effect. In Experiment 5, we accomplished two goals. First, we showed that inducing a conflict mindset leads to longer decision times—a marker of goal conflicts. Second, we tapped into the process that underlies the effects we report here and showed that the longer the time one spends in the conflict mindset (while one is making the judgment), the larger is the reduction in confirmation tendencies.

These changes were brought about without changing the phenomenology of conflict, as assessed by multiple direct and indirect questions. Together, then, these results strongly support our contention that nonconscious goal conflicts induce a mindset that has implications for how we think and reason in domains that are not directly relevant to the conflict itself. Given the many forms and variants of confirmatory thinking, this mode may play a role in many domains of human thought and decision making.

There are three issues we wish to address here—first, whether it was a *mindset* that was activated by our manipulations. The results reported herein show that reduction in confirmation bias *did not* occur when the primed constructs were in conflict but were not goals (Experiment 2), or when they were goals that did not conflict (Experiment 3). They also showed that it is not the specific content of the primed goals (e.g., is it achievement related or not; Experiment 3) that matters. Lastly, our manipulation resulted in longer decision duration, a marker of nonconscious goal conflict (Kleiman & Hassin, 2011). We thus conclude that what we activated in this set of experiments is a goal-conflict mindset.

The second issue is that of awareness. We adopted a dissociation paradigm, dissociating task performance from explicit measures of phenomenology. Put differently, although the control and experimental conditions were expected to differ with respect to goal-related behaviors, no differences between the two conditions were expected when phenomenology was probed. This dissociation serves as an indication that although the goals were activated, and conflict ensued, the process was not accompanied by conscious awareness. Although control and conflict participants differed in the type of information they looked for (Experiments 1 through 3) and the judgments they made (Experiments 4 and 5), no evidence of differences in conflict phenomenology emerged. This was true for each of the multiple questions used to assess conflict and motivation in each of the experiments, as well as when the data from all experiments were pooled to increase statistical power. Moreover, statistically partialing out conflict ratings, using ANCOVAs, did not change the pattern of results. This consistent and strong pattern of dissociation suggests that, indeed, goal conflicts that take place outside of conscious awareness can affect behavior that is not related to the conflict itself.

The third issue has to do with specificity: whether our findings are specific to nonconscious goal conflicts, or do they characterize conscious goal conflicts as well? We believe that there must be similarities and differences between conscious and nonconscious mindsets and that both are related to the way in which decisions unfold in the situation. It seems likely that the basic mechanism of activating a conflict mindset should be identical. Yet, the results of these mindsets may be strikingly different. Assume, for example, that conscious (but not nonconscious) goal conflicts bring about conscious stress (e.g., Emmons & King, 1988). If this is the case, then the manipulation of conscious goal conflicts will induce conscious stress, which may, in turn, modulate many behaviors and decisions (e.g., Janis, 1993; Keinan, 1987; Porcelli & Delgado, 2009). The results of the conscious and nonconscious conditions will be very different, then. Yet, the simple and honest answer to the question of specificity is that this is an *empirical* question that goes beyond the scope of the current work—we were interested here in understanding the nature and downstream effects of the nonconscious conflict mindset.

Relatedly, Morsella (2005) has proposed a theory that postulates that consciousness enables the cognitive system to cope with response conflicts if and when those reach a stage in which control

of skeletal muscles is needed (such as in the Stroop task). Thus, the conflicts that reach conscious awareness are those that involve skeleton-motor conflicts (see Morsella, Gray, Krieger, & Bargh, 2009). On the face of it, this theory seems to contradict the current proposal, because the goal conflict should have reached phenomenology. We believe, however, that there is no real contradiction here. We focused on goal conflicts that did not lead to skeletal-motor conflicts per se. In other words, participants in our experiments did not need, for example, to reach for a brownie versus an apple and thus did not experience an actual response conflict. Taken together, Morsella's view and the current findings pose interesting questions for future research distinguishing between the effects of conflicts that do (vs. do not) reach conscious awareness.

Implications for Nonconscious Goal Pursuits and Conflicts

Thus far, the literature on nonconscious goal pursuit tended to focus on examining the effects of goal priming on goal-relevant behaviors. Thus, for example, when primed with sweets, good dieters activate their high-level goal of dieting (Fishbach et al., 2003); when primed with cooperation, participants show more cooperative behavior in a social dilemma (Bargh et al., 2001); and when primed with achievement, people perform better on the Wisconsin Card Sorting Test (Hassin, Bargh, & Zimerman, 2009). The current experiments are the first to show that goal priming can change modes of thinking that affect the processing of information that is not contextually related to the primed material.

The current article highlights what may be a potentially interesting difference to explore between the effects nonconscious goal conflicts have on conflict-related versus conflict-unrelated decisions. For example, Oettingen and colleagues (Oettingen et al., 2006; Parks-Stamm, Oettingen, & Gollwitzer, 2010) argue that nonconscious goals, compared with conscious ones, act in an "explanatory vacuum" because behavior resulting from nonconscious goals cannot be attributed to a conscious intention. Thus, a nonconscious goal that leads to a behavior that is norm violating (e.g., acting competitively in a cooperation context) will also produce negative affect because one cannot find an explanation for why one violated the norm. In the current article, we did not observe any differences in reported mood between the conditions in any of the experiments. One notable difference (among many others) between the current set of experiments and previous ones (i.e., those of Oettingen et al., 2006, and those of Kleiman & Hassin, 2011) is that here we induced a conflict mindset and measured the effects of nonconscious goal conflicts on conflict-*unrelated* behavior. The literature on nonconscious goal conflicts is still in its infancy, and the experiments conducted in various labs differ in many respects. Hence, it is difficult to determine whether discrepancies reflect fundamental differences between the effects of conflicts on conflict-related and unrelated decisions, or are they a result of specific effects found in specific studies. This would be an interesting question to pursue in future research.

Overcoming Confirmation Biases

The confirmation bias is not easy to overcome. Intuitively appealing techniques for overcoming it, such as increasing the importance of the decision, or accuracy motivation, consistently fail (e.g., Lord et al., 1984). Directly encouraging participants to think about alternative conceptions to the one they currently hold is a more successful debiasing technique (Lord et al., 1984; Mussweiler, Strack, & Pfeiffer, 2000). Furthermore, when participants are asked to generate counterfactuals (Galinsky & Moskowitz, 2000; Hirt, Kardes, & Markman, 2004), or focus on differences (vs. similarities; Mussweiler, 2002) in a "first" experiment, they are less likely to show evidence for confirmatory thinking in the following, allegedly unrelated, experiment. Our results are certainly consistent with these previous findings. Note, however, that whereas in all of this previous literature specific strategies were activated, there was nothing of this sort in our experiments. We simply exposed participants to words related to two conflicting goals. It is the inherent conflict between these goals that brought about the conflict mindset, resulting in a reduction in confirmatory thinking.

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(*Appendices follow*)

Appendix A

Manipulations, Stimuli, and Dependent Variables for Experiments 1–5

Experiment 1

Manipulation. All manipulations were carried out via a lexical decision task, in which black letter strings appeared randomly on a white computer screen and participants had to press either of two assigned keys: one for nonwords and one for words. The letter strings appeared on the screen until the participant responded.

Stimuli (translated from Hebrew). Control condition: picture, diamond, hat, carpet, window, blue, chair, radio, stamp, lamp, floor, cream, garbage, boat, rubber band, pink, pavement, sir conditioner, shoes, color, jewelry.

Conflict condition: university, lecture, class, study, library, papers, grades, alcohol, going out, bar, club, party, pub, movie.

Dependent measure. A Hebrew translation of the "trait hypothesis testing task" (Snyder & Swann, 1978) was used.

Awareness questions (translated from Hebrew). 1. "To what extent did you feel conflicted during the experiment?" (1 = not at all, 9 = very).

2. "To what extent would you describe your state of mind during the experiments as one of deliberation, or thinking about different, contradicting alternatives?" (1 = not at all, 9 = very).

3. "How pleased are you with your performance in the experiments?" (1 = not at all, 9 = very).

4. "How would you describe your mood right now?" (1 = very bad, = very good).

5. "How important is it for you to do well in school?" (1 = not at all, 9 = very).

6. "How important is it for you to socialize and do fun things?" (1 = not at all, 9 = very).

Experiment 2

Manipulation. Identical to that of Experiment 1.

Stimuli (translated from Hebrew). Control condition: Stimuli were identical to those of Experiment 1.

Conflict condition: Stimuli were identical to those of Experiment 1.

Opposites condition: big, small, short, tall, fat, thin, smart, stupid, pretty, ugly, warm, cold, nice, mean.

Dependent measure. Identical to that of Experiment 1.

Awareness questions (translated from Hebrew). Identical to those of Experiment 1.

Experiment 3

Manipulation. Identical to that of Experiments 1 and 2.

Stimuli. Control condition: door, stairs, picture, closet, drawer, radio, window, carpet, desk, chair, table, lamp, curtain, sofa.

Conflict condition: health, diet, weight, fit, slim, thin, calories, indulge, savor, tasty, treat, dessert, sweets, munch.

Unrelated goals condition: degree, graduate, professor, student, college, classroom, school, health, diet, weight, fit, slim, thin, calories.

Dependent measure. The original English language version of the "trait hypothesis testing task" (Snyder & Swann, 1978) was used.

Awareness questions. 1. "To what extent did you feel conflicted during the experiment?" (1 = not at all, 9 = very).

2. "To what extent would you describe your state of mind during the experiments as one of deliberation, or thinking about different, contradicting alternatives?" (1 = not at all, 9 = very).

3. "How pleased are you with your performance in the experiments?" (1 = not at all, 9 = very).

4. "How would you describe your mood right now?" (1 = very bad, 9 = very good).

5. "How important is it for you to maintain a healthy diet?" (1 = not at all, 9 = very).

6. "How important is it for you to occasionally indulge?" (1 = not at all, 9 = very).

Experiment 4

Manipulation. Identical to that of Experiments 1–3.

Stimuli (translated from Hebrew). Control condition: Identical to Experiment 1.

Conflict condition: Identical to Experiment 1.

Dependent measure. Four anchoring questions taken from Jacowitz and Kahneman (1995) and modeled after the classic anchoring task of Tversky and Kahneman (1974). Each participant got each of the questions with either the low or the high anchor. Across the four questions, each participant answered two low-anchor questions and two high-anchor questions.

The questions (translated from Hebrew):

1. "What is the length of the Nile River?" (low and high anchors set at 3,000 km and 9,000 km, respectively).

2. "What is the height of Mount Everest?" (low and high anchors set at 5,000 m and 12,000 m, respectively).

3. "In what year was the telephone invented"? (low and high anchors set at 1850 and 1920, respectively).

4. "What is the monthly fuel consumption on the average Israeli?" (low and high anchors set at 75 liters and 300 liters, respectively).

Awareness questions. Identical to those of Experiments 1 and 2.

Experiment 5

Manipulation. Identical to that of Experiments 1–3.

Stimuli. Control condition: shoes, socks, belt, pants, skirt, shirt, coat, scarf, hat, carpet, curtain, lamp, door, window, floor, sofa, rug.

(Appendices continue)

Conflict condition: books, paper, professor, project, reading, school, student, teaching, notebook, campus, classroom, college, degree, desk, lecture, library, graduate, bar, playing, socialize, sunny, television, travel, trip, vacation, video, beach, beer, chat, downtown, drinking, escape, movie, partying.

Achievement condition: books, paper, professor, project, reading, school, student, teaching, notebook, campus, classroom, college, degree, desk, lecture, library, graduate.

Dependent measures. (1) Four anchoring questions taken from Jacowitz and Kahneman (1995) and modeled after the classic anchoring task of Tversky and Kahneman (1974). Each participant got each of the questions with either the low or the high anchor. Across the four questions, each participant answered two low-anchor questions and two high-anchor questions. (2) Response times were measured using DirectRT software (Jarvis, 2012). Response times are recorded for the first key press for each question.

The questions:

1. "What is the maximum speed of a house cat (in mph)?" (low and high anchors set at 7 mph and 30 mph, respectively).

2. "What is the height of Mount Everest?" (low and high anchors set at 5,000 m and 12,000 m, respectively).

3. "In what year was the telephone invented?" (low and high anchors set at 1850 and 1920, respectively).

4. "What is the number of female professors at the University of California, Berkeley?" (low and high anchors set at 25 and 130, respectively).

Awareness questions. 1. "To what extent did you feel conflicted during the experiment?" (1 = *not at all*, 9 = *very*).

2. "To what extent would you describe your state of mind during the experiments as one of deliberation, or thinking about different, contradicting alternatives?" (1 = *not at all*, 9 = *very*).

3. "How pleased are you with your performance in the experiments?" (1 = *not at all*, 9 = *very*).

4. "How would you describe your mood right now?" (1 = *very bad*, 9 = *very good*).

5. "How important is it for you to do well in school?" (1 = *not at all*, 9 = *very*).

6. "How important is it for you to socialize and do fun things?" (1 = *not at all*, 9 = *very*).

(*Appendices continue*)

Appendix B

Means, (Standard Deviations), and *p* Values for the Awareness Assessment Questions in the Different Conditions of Experiments 1–5

Variable	Condition control	Conflict		*p*
Experiment 1				
Feeling conflict	4.73 (1.94)	4.80 (2.65)	—	.94
Conflict mindset	5.93 (1.44)	5.53 (1.77)	—	.50
Pleased with performance	7.00 (1.13)	7.47 (1.30)	—	.30
Mood	7.13 (0.99)	7.27 (1.28)	—	.75
Commitment to Goal 1	8.73 (0.46)	8.80 (0.41)	—	.68
Commitment to Goal 2	7.27 (1.22)	7.73 (0.80)	—	.23
	Control	Conflict	Opposites	*p*
Experiment 2				
Feeling conflict	3.83 (1.84)	4.13 (2.37)	4.90 (2.16)	.14
Conflict mindset	5.33 (2.11)	5.97 (1.88)	6.30 (1.76)	.15
Pleased with performance	7.37 (1.07)	7.10 (1.12)	7.28 (0.84)	.59
Mood	7.73 (1.20)	7.07 (1.34)	7.52 (1.38)	.14
Commitment to Goal 1	8.63 (0.56)	8.70 (0.60)	8.67 (0.66)	.88
Commitment to Goal 2	7.20 (1.88)	6.90 (1.42)	7.67 (1.18)	.15
	Control	Conflict	Unrelated	*p*
Experiment 3				
Feeling conflict	3.72 (2.48)	3.24 (1.71)	3.72 (2.32)	.67
Conflict mindset	5.60 (2.08)	4.48 (2.12)	5.44 (2.00)	.13
Pleased with performance	6.60 (1.44)	5.88 (1.72)	6.44 (1.58)	.25
Mood	6.32 (1.70)	6.04 (1.37)	6.68 (1.35)	.32
Commitment to Goal 1	7.56 (1.71)	7.52 (1.29)	6.80 (2.14)	.23
Commitment to Goal 2	6.84 (2.13)	6.84 (1.77)	7.12 (2.13)	.85
	Control	Conflict		*p*
Experiment 4				
Feeling conflict	4.08 (2.44)	4.12 (2.41)	—	.96
Conflict mindset	5.69 (1.93)	5.54 (1.75)	—	.77
Pleased with performance	6.62 (1.60)	6.69 (1.23)	—	.85
Mood	7.73 (0.92)	7.50 (1.33)	—	.47
Commitment to Goal 1	8.65 (0.56)	8.50 (0.71)	—	.39
Commitment to Goal 2	7.58 (1.60)	7.19 (1.33)	—	.35
	Control	Conflict	Achievement	*p*
Experiment 5				
Feeling conflict	3.58 (1.91)	3.28 (2.15)	3.46 (2.19)	.88
Conflict mindset	4.75 (2.05)	4.96 (2.61)	4.96 (2.22)	.94
Pleased with performance	6.13 (1.60)	6.56 (1.42)	6.17 (1.34)	.51
Mood	5.17 (1.74)	5.28 (2.26)	4.58 (1.14)	.35
Commitment to Goal 1	8.50 (0.59)	8.08 (1.26)	7.92 (1.18)	.15
Commitment to Goal 2	8.13 (0.99)	7.56 (1.33)	7.58 (1.06)	.16

Note. Feeling conflict = "To what extent did you feel conflicted during the experiment?" (1 = *not at all*, 9 = *very*); Conflict mindset = "To what extent would you describe your state of mind during the experiments as one of deliberation, or thinking about different, contradicting alternatives?" (1 = *not at all*, 9 = *very*); Pleased with performance = "How pleased are you with your performance in the experiments?" (1 = *not at all*, 9 = *very*); Mood = "How would you describe your mood right now?" (1 = *very bad*, 9 = *very good*); Commitment to Goal 1 (in Experiments 1, 2, 4, 5) = "How important is it for you to do well in school?" (1 = *not at all*, 9 = *very*); Commitment to Goal 1 (in Experiment 3) = "How important is it for you to maintain a healthy diet?" (1 = *not at all*, 9 = *very*); Commitment to Goal 2 (in Experiments 1, 2, 4, 5) = "How important is it for you to socialize and do fun things?" (1 = *not at all*, 9 = *very*); Commitment to Goal 2 (in Experiment 3) = "How important is it for you to occasionally indulge?" (1 = *not at all*, 9 = *very*); *p* values are the product of the one-way analysis of variance comparing the conditions. Dashes indicate the data were not collected.