

## Processing Alternative Explanations of Behavior: Correction or Integration?

Yaacov Trope  
New York University

Ruth Gaunt  
Harvard University

Three experiments investigated how activation of knowledge about situational forces affects discounting in dispositional inference tasks. Each experiment varied a different knowledge activation factor—salience, accessibility, or specificity of situational information. In addition, all 3 experiments varied situational demands and cognitive load. The results showed that cognitive load eliminated discounting when situational information was low in salience, accessibility, or specificity. However, when situational information was more salient, accessible, or specific, it produced strong discounting effects even when perceivers were under cognitive load. These results are discussed in terms of correction and integration models of dispositional inferences from behavior.

In *The Psychology of Interpersonal Relations*, Heider (1958) observed that when drawing dispositional inferences from others' behavior, perceivers tend to underutilize information about situational demands. Forty years of social psychological research since the publication of Heider's book have provided considerable empirical support for this observation. On the one hand, research has shown that a wide variety of behaviors, including extreme forms of prosocial or antisocial behaviors, depend on situational demands (social norms, social roles, group pressure, etc.). On the other hand, attribution research has found that perceivers often treat behavior as indicative of personal dispositions even when the behavior is prescribed by immediate situational forces (see Gilbert, 1997; Gilbert & Malone, 1995; Jones, 1979; Jones & Nisbett, 1972; Nisbett & Ross, 1980; L. Ross, 1977; M. Ross & Fletcher, 1985; Trope & Higgins, 1993).

A variety of explanations have been proposed for the underdiscounting of behavior-correspondent dispositions (see Gilbert & Malone, 1995; McClure, 1998; Morris & Larrick, 1995; Trope & Gaunt, 1999). Some explanations emphasize perceivers' mental models of dispositional and situational determinants of behavior (e.g., Morris & Larrick, 1995; Trope & Liberman, 1993) and variation in these mental models across individuals (e.g., Dweck, Hong, & Chiu, 1993), cultures (e.g., Choi, Nisbett, & Norenzayan, 1999), and types of behavior (e.g., Reeder, 1993; Reeder & Brewer, 1979). Other explanations emphasize perceivers' use of their mental models in processing an immediate behavior episode (see e.g., Gilbert, 1989; Jones, 1979; Newman & Uleman, 1993; Read & Marcus-Newhall, 1993; Trope, 1986). The present re-

search focuses on the utilization of knowledge about situational forces. More specifically, in an attempt to examine this process and identify limiting conditions for the dispositional bias, the present research applies general knowledge activation principles to knowledge about situational forces. The question is how do the salience, accessibility, and specificity of situational information affect the use of this information in drawing inferences from immediate behavior. We examine this question from the perspective of correction and integration models of dispositional inference. Correction models assume that situational information is used in a separate resource-dependent stage following attribution of behavior to the corresponding disposition (see Gilbert & Malone, 1995), whereas integration models assume that situational information is used as an integral part of categorizing and drawing dispositional inferences from behavior (see Trope, 1986). We start with a brief description of the correction and integration models and then discuss their implications regarding the attributional consequences of activating situational knowledge.

### The Use of Situational Information as a Resource-Dependent Correction Process

A common explanation of the bias toward dispositional attributions assumes that situational causes of behavior are processed separately and differently from other causes of behavior. Thus, Jones (1979) has suggested that it is easier to link (or form a unit relation between) behavior and the actor than the behavior and the situation. The link between behavior and the person seems immediate and natural, whereas the link between behavior and the situation seems derived and remote. Therefore, according to Jones, inferences from behavior are based on anchoring and adjustment processes. Attribution of behavior to the correspondent disposition forms the anchor, which is subsequently adjusted for situational demands. The adjustment is typically insufficient, thus resulting in a bias toward dispositional attributions or discounting failures.

On the basis of this logic, Gilbert's correction model proposes that dispositional inference proceeds in three stages (see e.g., Gilbert, 1989; Gilbert, 1997; Gilbert, 1999; Gilbert & Osborne, 1989; Gilbert, Pelham, & Krull, 1988). In the first, called catego-

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Yaacov Trope, Department of Psychology, New York University; Ruth Gaunt, Department of Psychology, Harvard University.

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Correspondence concerning this article should be addressed to Yaacov Trope, Department of Psychology, 6 Washington Place, 7th Floor, New York University, New York, New York 10003. Electronic mail may be sent to trope@psych.nyu.edu.

riorization, perceivers represent what the actor does in terms of a general behavior category (e.g., "John behaved aggressively"). In the second stage, called characterization, perceivers infer that the actor possesses the corresponding disposition (e.g., "John is an aggressive person"). And in the final stage, called correction, perceivers correct this inference for situational demands (e.g., "John is not really aggressive"). The first two stages, categorization and characterization, are presumably performed automatically and require little processing resources, whereas the third correction stage is performed deliberately and effortfully.

Thus, this correction model assumes that situational information is used in a separate, resource-dependent stage, after categorizing behavior and inferring that the actor possesses the behavior-correspondent disposition. Because the correction stage is the only resource-dependent stage, it should be eliminated or impaired when attentional resources are depleted. Under cognitive load, then, judgment should reflect the output of the earlier characterization stage; that is, behavior should be attributed to the corresponding disposition even when the behavior is prescribed by situational demands. Consistent with this resource-dependent correction model, Gilbert and his colleagues (see e.g., Gilbert, Pelham, & Krull, 1988) found that when perceivers were allowed to devote full attention to the inference problem, their dispositional inferences showed marked discounting effects, whereas when perceivers were under cognitive load, their inferences failed to show discounting effects. Importantly, these studies found that cognitive load eliminated discounting effects without diminishing perceivers' awareness of the situational demands, which suggests that cognitive load impairs the ability to correct dispositional inferences rather than the ability to notice the situational demands.

#### The Use of Situational Information as an Integration Process

In integration models, situational and dispositional factors are not processed in qualitatively different ways or in any particular sequence (see Kunda, 1998; Kunda & Thagard, 1996; Read & Marcus-Newhall, 1993; Smith & DeCoster, 1999; Trope, 1986). According to such models, situational and dispositional information are both integral parts of identifying behavior and drawing attributional inferences from it. For example, Trope's two-stage model (Trope, 1986; Trope & Liberman, 1993), like Gilbert's resource-dependent correction model (Gilbert & Malone, 1995), assumes that dispositional inference starts with the identification of immediate behavior in terms of an abstract behavior category (e.g., "John acted aggressively"). The model further assumes that situational information (as well as background information about the actor's dispositions) is implicitly integrated into this early processing stage by influencing how behavior is identified. For example, knowing that the actor is being teased or insulted may activate the associated category of aggressive behavior and implicitly bias the identification of the actor's behavior as aggressive, even when it is not. Because of such biased behavior identifications, situational demands may act to increase rather than decrease dispositional attributions of behavior. Indeed, a number of studies have shown how the integration of situational information into behavior identification acts to diminish and even reverse discounting effects (see Trope, 1986; Trope, Cohen, & Alfieri, 1991; Trope & Alfieri, 1997; Trope, Cohen, & Maoz, 1988).

More important here, the model assumes that situational information is also an integral part of the subsequent dispositional inference stage. At this stage, the identified behavior is used to evaluate the hypothesis that the actor possesses the corresponding disposition ("Is John an aggressive person?") against alternative situational hypotheses (e.g., "John was forced to act aggressively"). Diagnostic evaluation requires assessment of the consistency of the behavioral evidence with both the dispositional and situational hypothetical explanations. Behavior is diagnostic to the extent that the behavior is consistent with the dispositional explanation (satisfying the sufficiency criterion) and inconsistent with situational explanations (satisfying the necessity criterion). Strong situational demands (e.g., situational provocation) diminish the diagnostic value of behavior by making the behavior seem consistent with both dispositional and situational explanations (Trope & Gaunt, 1999; Trope & Liberman, 1993).

According to this integration model, it is diagnostic reasoning, namely, the comparative evaluation of multiple explanations of behavior, that makes dispositional inference effortful and deliberate. Cognitive load prevents perceivers from fully integrating multiple explanations of behavior. Under cognitive load, perceivers will therefore overweight any explanation, dispositional or situational, that happens to be strongly activated, and underweight all other explanations. Often, a variety of informational factors give dispositional explanation an activation advantage. The mere fact that participants are typically asked to infer the actor's dispositions makes dispositional hypotheses prominent. As a result, situational explanations will be underweighted under cognitive load. Dispositional inference would then show little or no discounting, as Gilbert and his colleagues have found (Gilbert & Malone, 1995; see also Trope & Alfieri, 1997). However, as discussed below, there are circumstances in which the same informational factors that often favor dispositional explanations may actually enhance the activation of situational explanations. Under these circumstances, cognitive load may fail to produce underweighting of situational explanations, and dispositional inferences should show marked discounting effects despite the load.

#### The Salience, Accessibility, and Specificity of Situational Demands

Research on knowledge activation in social judgment and problem solving suggests three general factors that may determine the activation of stored knowledge, namely, the perceptual salience of relevant information, the accessibility of the knowledge, and its specificity (Ginossar & Trope, 1987; Higgins, 1996; Smith, 1984). For example, research has shown that base rates are likely to be utilized (a) when they are perceptually salient, (b) when they are made cognitively accessible by initial priming, and (c) when they are specific to the case under consideration (see Bar-Hillel, 1980; Ginossar & Trope, 1987). Analogous considerations hold for the activation of situational information. First, situational information may become perceptually salient as a function of its superficial physical properties such as loudness, brightness, movement, and contrast (see Arkin & Duval, 1975; McArthur & Post, 1977; Storms, 1973; Taylor & Fiske, 1978). Second, situational information may become momentarily accessible due to priming of situational causes prior to the current dispositional inference task or chronically more accessible due to the perceived prominence of

such causes for some individuals and cultures (Dweck et al., 1993; Choi et al., 1999; Chiu, Morris, Hong, Cheng, & Menon, 1998). Third, situational information may become more specific to the extent to which it applies to the particular actor under consideration.

### *Correction Predictions*

What would a resource-dependent correction model predict regarding the effect of these situational activation factors? Consider, for example, the effect of perceptual salience of situational information. Let us also assume that the perceiver's processing goal is to assess the actor's personal dispositions. According to correction, situational information is used in a separate correction stage. Hence, properties of situational information, such as its perceptual salience, cannot affect dispositional inferences unless perceivers reach the correction stage. Moreover, correction assumes that the correction stage is effortful, whereas behavior categorization and person characterization are not. Hence, cognitive load must come at the expense of the use of situational information.

One possibility is that cognitive load prevents perceivers from reaching the situational correction stage. As Gilbert and Malone (1995) state, "[busy] observers . . . will draw dispositional inferences about an actor but will fail to take the second step and correct those inferences" (p. 29). Thus, if perceivers fail to reach the correction stage, then their judgments should be unaffected by input to this stage (situational information) or any property of this input (e.g., its perceptual salience). Instead, judgments should reflect the output of the earlier characterization stage wherein situational information is irrelevant regardless of its salience. Cognitive load should therefore annul discounting effects regardless of the salience of situational information.

Another possibility is that cognitive load interferes with the correction process without completely eliminating it (Gilbert, Krull, & Pelham, 1988, p. 686). That is, dispositional inferences generated by the characterization stage may be subjected to partial correction in the subsequent correction stage. Such a partial correction process would allow salience to increase discounting effects under cognitive load. However, partial correction sets a limit on how much salience can enhance discounting under load. Salient situational information may be more noticeable, but this cannot be sufficient to produce fully revised dispositional inferences if the ability to compute such revisions is impaired by cognitive load.

Indeed, as noted above, Gilbert and his colleagues found that although cognitive load entirely eliminated discounting, it did not impair perceivers' awareness of the situational information (Gilbert, Krull, & Pelham, 1988; for similar results, see also Trope & Alfieri, 1997). On the basis of these findings, Gilbert and his colleagues argued that cognitive load constrains any possible effect of awareness of situational information, because cognitive load impairs the ability to use this information (see Gilbert & Malone, 1995, p. 25). "It is not that cognitively busy perceivers simply fail to gather situational constraint information. Rather, busy perceivers seem unable to use the information they gather and remember so well" (Gilbert, Pelham, & Krull, 1988, p. 738). In other words, awareness of situational information and the ability to correct dispositional inferences on the basis of this information are separate and necessary conditions for discounting. Perceivers may be fully aware of salient situational demands but fail to fully

correct their initial dispositional inferences on the basis of this information when the ability to compute such corrections is impaired by cognitive load. Therefore, discounting and the contribution of situational salience to discounting should be attenuated when perceivers are under cognitive load.

### *Integration Predictions*

According to integration, perceivers reach a dispositional judgment by evaluating their dispositional hypothesis against situational alternatives (Trope, 1986; Trope & Gaunt, 1999; Trope & Liberman, 1993). As argued before, this process of comparative evaluation of multiple explanations of behavior is effortful. Hence, distracted perceivers are likely to overweight the salient explanation and underweight all other, less salient explanations. In many circumstances, situational information is relatively low in salience. Distracted perceivers are therefore likely to focus on their dispositional hypothesis and underweight alternative situational hypotheses. However, when situational information is made salient, the weight of situational alternatives may increase at the expense of the weight of the dispositional hypothesis. Cognitive load may thus interfere with evaluation of the perceivers' dispositional hypothesis (or other aspects of the attributional task, such as integrating one's prior knowledge about the actor's dispositions) rather than with evaluation of situational alternative hypotheses.

Integration predicts, then, that salient situational information will produce strong discounting effects even when perceivers are under cognitive load. Moreover, because distracted perceivers, compared with undistracted perceivers, are more likely to overweight the salient explanation on the expense of other explanations, situational salience may have the same and even a greater impact on the weight of the situational explanation under cognitive load than under no load. That is, high versus low situational salience may increase discounting to the same and even greater extent under cognitive load than under no cognitive load.

## The Present Experiments

We conducted three experiments to investigate how cognitive load and the salience, accessibility, and specificity of situational demands affect the utilization of these demands in drawing dispositional inferences from behavior. Each experiment varied a different situational activation factor (salience, accessibility, or specificity), cognitive load, and situational demands. As in previous research testing situational correction (e.g., Gilbert, McNulty, Giuliano, & Benson, 1992; Gilbert, Pelham, & Krull, 1988), the explicit processing goal in all three experiments was inferring the actor's attitudes or traits from his or her behavior. To minimize any influence of situational information on behavior identification, the behavior was always unambiguous.

### Experiment 1: The Salience of Situational Demands

This experiment examines how cognitive load and perceptual salience of situational information affect the use of this information in drawing dispositional inferences from behavior. In the low salience condition, participants read the situational information as in previous experiments by Gilbert and his colleagues (see e.g., Gilbert, Krull, & Pelham, 1988; Gilbert, McNulty, Giuliano, &

Benson, 1992; Gilbert & Osborne, 1989). In the high salience condition, participants heard the same situational information. In addition, the experiment manipulated cognitive load and situational demands.

### Method

#### Overview

Participants read an essay favoring the legalization of marijuana allegedly written by another participant. The instructions to the writer were presented either in written form (low salience condition) or by means of an audio recording (high salience condition) and indicated whether the writer was free to express his or her opinions. Some participants read the essay while holding in memory an eight-digit number (load condition), whereas the remaining participants read the essay without this additional task (no-load condition). The design was thus a Situational Demands (choice vs. no choice)  $\times$  Salience of Situational Demands (high vs. low)  $\times$  Load (load vs. no load) between-participants factorial design. All participants were told that their task was to diagnose the writer's true attitude on the issue.

#### Participants

One hundred thirty-six female students and 34 male students at Tel-Aviv University participated in the experiment to fulfill a requirement in their introductory psychology course. They were randomly assigned to the eight conditions comprising the experimental design.

#### Procedure

The experiment was conducted in individual sessions. The instructions were presented in a booklet and repeated by the experimenter. Participants were told that the experiment was part of a research project on persuasion and attitude change. It was further indicated that a preliminary experiment, ostensibly conducted earlier in the year, asked students to write a short essay on the legalization of marijuana. Participants were told that their task would be to read one of these essays and assess the writer's attitude toward the legalization of marijuana.

At this point, participants in the load condition were told that the experimenter was interested in learning how well people could perform two dissimilar tasks at the same time and that the participants would therefore be required to rehearse an eight-digit number while reading the essay. The experimenter provided participants with the eight-digit number and instructed them to hold it in memory until they would be asked to recall it. Participants in the no-load condition proceeded without this additional task.

Participants then received information regarding situational demands. In the no-choice condition, participants were informed that the writer was instructed to write a prolegalization essay, whereas in the unconstrained condition, participants were told that the writer was free to express any

opinion. The presentation of this information varied according to salience conditions. In the high salience condition, participants listened to an audio recording of the experimenter supposedly giving instructions to the writer. In the low salience condition, participants read these instructions in the booklet.

After reading the essay, participants rated the writer's true attitude on a 13-point bipolar scale ranging from 1 (*the writer is opposed to legalization of marijuana*) to 13 (*the writer is in favor of legalization of marijuana*). This question served as an attitude inference measure. Participants then rated on similar scales (a) the position the writer was expected to advocate and (b) the position the essay actually advocated. These two questions served as measures of participants' identification of situational demands and the actor's behavior, respectively. Participants in the load condition were then asked to recall the eight-digit number. Finally, participants were probed for suspicion, debriefed, and dismissed.

### Results and Discussion

#### Situation and Behavior Identification

The situation and behavior identification measures were subjected to Situational Demands (choice vs. no choice)  $\times$  Salience (high vs. low)  $\times$  Load (load vs. no load) analyses of variance (ANOVAs). As expected, the ANOVA of the situational identification measure yielded a strong main effect of situational demands,  $F(1, 162) = 430.57, p < .001$ . Participants reported that the writer was required to write a more prolegalization essay in the no-choice condition ( $M = 12.38$ ) than in the choice condition ( $M = 7.64$ ). No other effect was significant in this analysis ( $F_s < 1$ ). Thus, consistent with Gilbert and his colleagues' research (e.g., Gilbert, Pelham, & Krull, 1988), the present situation identification data indicate that cognitive load did not impair participants' ability to identify the situational demands.

The ANOVA on the behavior identification measure showed no significant effect of the experimental variables. The essay was always perceived as strongly favoring the legalization of marijuana ( $M = 12.06$ ). As intended, then, the essay was sufficiently unambiguous to prevent any effect of situational demands on the interpretation of its content.

#### Attitude Inferences

Table 1 presents mean ratings of the writer's true attitude toward the legalization of marijuana. This table also presents mean differences between choice and no-choice conditions and their significance level. These differences reflect the magnitude of discounting in the various experimental conditions (i.e., the extent to

Table 1  
*Behavior-Correspondent Attitude Inferences in Experiment 1*

Situational inducement	No cognitive load		Cognitive load	
	Low salience	High salience	Low salience	High salience
No choice	9.67	8.25	11.73	8.50
Choice	12.05	11.86	11.65	11.64
Difference	2.38***	3.61***	-0.08	3.14***

Note. Higher values indicate higher behavior-correspondent attitude inferences.  
\*\*\*  $p < .001$ .

which a more positive attitude is inferred under choice than under no-choice conditions). It can be seen that in the low salience condition situational information produced a significant discounting effect under no cognitive load ( $M_s = 12.05$  vs.  $9.67$ ,  $p < .001$ ) but no discounting effect whatsoever under cognitive load ( $M_s = 11.65$  vs.  $11.73$ ). This finding closely replicates earlier research by Gilbert and his colleagues (Gilbert & Osborne, 1989; Gilbert, Pelham, & Krull, 1988; see also Reeder, 1997; Trope & Alfieri, 1997) and indicates that the load manipulation was effective. A different picture emerges, however, for the high situational salience condition. Here, attitude inferences showed highly significant discounting effects in both the no-load condition ( $M_s = 11.86$  vs.  $8.25$ ,  $p < .001$ ) and the load condition ( $M_s = 11.64$  vs.  $8.50$ ,  $p < .001$ ).

These observations were confirmed by a Choice  $\times$  Load  $\times$  Salience ANOVA of attitude inferences. Specifically, the ANOVA yielded a main effect of situational demands,  $F(1, 162) = 58.75$ ,  $p < .001$ , indicating an overall discounting effect, namely, less favorable attitude inferences in the no-choice versus choice conditions. In addition, as expected, a main effect of situational salience,  $F(1, 162) = 17.12$ ,  $p < .001$ , indicated stronger attitude inference when situational salience was low rather than high. More important, a Situational Demands  $\times$  Salience interaction effect,  $F(1, 162) = 14.17$ ,  $p < .001$ , and a Situational Demands  $\times$  Load interaction effect,  $F(1, 162) = 6.02$ ,  $p < .05$ , indicated that discounting was more pronounced when the salience of situational information was high (rather than low) and when participants were under no cognitive load (rather than under cognitive load).

Correction predicts that cognitive load will eliminate or drastically diminish the extent to which salience will increase discounting. Inspection of Table 1 shows that the results do not confirm this prediction. If anything, the effect of situational salience on discounting was stronger under cognitive load than under no cognitive load, as indicated by a Situational Demands  $\times$  Load  $\times$  Salience interaction effect,  $F(1, 162) = 2.78$ ,  $p < .05$ , one-tailed. Thus, salience significantly increased discounting in the load condition  $F(1, 84) = 10.02$ ,  $p < .01$ , but not in the no-load condition,  $F(1, 82) = 2.01$ , *ns*. In fact, when the situation was salient, discounting under load was as strong as discounting under no load,  $F(1, 82) = 0.27$ , *ns*, whereas when the situation was low in salience, discounting under load was much weaker than discounting under no load,  $F(1, 80) = 11.09$ ,  $p < .001$ .

The results of the present study suggest that discounting effects do not necessarily depend on processing resources. Dispositional inferences by our distracted participants showed massive discounting effects when situational information was made salient. This provides initial evidence that the effect of situational properties, salience in particular, on discounting is neither eliminated nor diminished by cognitive load. The findings seem inconsistent with a resource-dependent correction model of dispositional inference. In this model, the revision of dispositional inferences in light of situational information is resource dependent, and thus, *ex hypothesi*, should be eliminated or impaired under cognitive load. Presenting the same situational information orally (rather than in written form) is not sufficient to produce discounting under cognitive load, because it seems implausible that hearing rather than reading situational information makes the revision of dispositional inferences a resource-independent process.

The findings are consistent with an integration model. In this model, cognitive load does not necessarily come at the expense of the use of situational information. This allows situational properties, such as salience, to enhance the weight of situational demands under cognitive load, as the discounting effects found in the present experiment actually show.

## Experiment 2: The Priming of Situational Demands

This experiment examines the role of another situational activation factor, namely, the cognitive accessibility of knowledge about situational influences on behavior. Research on knowledge activation suggests that processing of information depends on the knowledge structures that are accessible when the information is being processed (see e.g., Bargh, Bond, Lombardi, & Tota, 1986; Herr, Sherman, & Fazio, 1983; Higgins, Rholes, & Jones, 1977; Srull & Wyer, 1979, 1980; Stapel & Schwarz, 1998; see review by Higgins, 1996). This research has shown that priming can temporarily increase the accessibility of a knowledge structure and thus the likelihood that this knowledge structure will influence subsequent information processing. On the basis of this research, the present experiment manipulated the accessibility of people's knowledge about situational demands. The question is how will priming of such knowledge affect dispositional inferences when perceivers are under cognitive load or no cognitive load.

According to resource-dependent correction, cognitive load should eliminate or attenuate discounting and any effect of situational priming on discounting. In contrast, according to integration, situational priming should strengthen discounting even when perceivers are under cognitive load. This model predicts that situational priming should increase discounting effects to the same and even greater extent when perceivers are under cognitive load than when they are under no cognitive load.

## Method

### Overview

The experiment consisted of two sessions that were presented to participants as two unrelated experiments. In the priming session, participants read and answered questions concerning four proverbs. In the situational priming condition, the proverbs concerned influences of situational forces on people's behavior, whereas in the neutral priming condition, the proverbs were unrelated to situational influences. The subsequent attitude inference session was identical to Experiment 1. Participants were asked to read an essay favoring the legalization of marijuana and to infer the writer's true attitude on this issue. As in Experiment 1, this experiment manipulated situational demands (i.e., whether the writer had a choice in writing the essay) and cognitive load (i.e., whether participants rehearsed an eight-digit number while performing the attitude inference task). Thus, the design of this experiment was a Priming (situational vs. neutral)  $\times$  Situational Demands (choice vs. no choice)  $\times$  Cognitive Load (load vs. no load) between-participants factorial.

### Participants

Eighty-four female students and 22 male students at Tel-Aviv University participated in this experiment to fulfill a requirement for their introductory psychology course.

### Procedure

**Priming session.** The first session was presented to participants as an experiment on the role of proverbs in everyday communication. Partici-

pants were presented with a set of four proverbs and were asked to restate each of them in their own words, explain their common meaning, and give an example. Half the participants were randomly assigned to the situational priming condition. In this condition, the proverbs concerned influences of situational forces on people's behavior (e.g., "When in Rome do as the Romans do"). In the neutral priming condition, the proverbs were unrelated to situational influences on behavior (e.g., "Better late than never").

**Attitude inference session.** The second session was presented to participants as part of a project on persuasion and attitude change. As in Experiment 1, participants were told that other participants in a preliminary experiment were required to write a short essay on the legalization of marijuana. Participants were told that they would be reading one of these essays. The manipulation of situational demands and cognitive load were identical to those of Experiment 1.

### Dependent Measures

The dependent measures were the same as those used in Experiment 1. First, participants rated on a 13-point bipolar scale the writer's true attitude toward the legalization of marijuana. Then, participants rated (a) the position the writer was expected to advocate and (b) the position the essay advocated. These two questions served as measures of participants' identification of situational demands and the actor's behavior, respectively. After completing the ratings, participants in the load condition were asked to recall the eight-digit number. Finally, participants were probed for suspicion, debriefed, and dismissed.

## Results and Discussion

### Situation and Behavior Identification

The situation and behavior identification measures were subjected to Situational Demands (choice vs. no choice)  $\times$  Salience (high vs. low)  $\times$  Load (load vs. no load) ANOVAs. The ANOVA of the situational identification measure yielded a strong main effect of situational demands,  $F(1, 98) = 313.27, p < .001$ . Participants indicated that the writer was required to write a more prolegalization essay in the no-choice condition ( $M = 12.59$ ) than in the choice condition ( $M = 7.81$ ). No other effect was significant in this analysis ( $F_s < 1$ ). Thus, consistent with Gilbert's research (e.g., Gilbert, Pelham, & Krull, 1988) and the results of Experiment 1, the present data show again that cognitive load did not impair participants' awareness of the situational demands.

As in Experiment 1, the behavior identification measure showed no significant effects of the experimental variables. The essay was always perceived as strongly favoring the legalization of marijuana ( $M = 12.48$ ), suggesting that it was sufficiently unambiguous to prevent situational demands from biasing the interpretation of its content.

### Attitude Inferences

Table 2 presents mean ratings of the writer's true attitude toward the legalization of marijuana and the discounting effects (i.e., the mean differences between choice and no-choice conditions) for the various experimental conditions. The pattern of results is similar to that of Experiment 1. Specifically, in the neutral priming conditions, attitude inferences showed significant discounting under no cognitive load ( $M_s = 12.08$  vs.  $9.62, p < .001$ ) but not under cognitive load ( $M_s = 12.15$  vs.  $11.77$ ). These results again replicate research by Gilbert and his colleagues (Gilbert & Osborne, 1989; Gilbert, Pelham, & Krull, 1988; see also Reeder, 1997; Trope & Alfieri, 1997) and indicate that the load manipulation was effective. Moreover, like situational salience, situational priming produced a different pattern of results. Here, attitude inferences showed highly significant discounting in both the no-load condition ( $M_s = 12.15$  vs.  $8.43, p < .001$ ) and the load condition ( $M_s = 12.08$  vs.  $8.86, p < .001$ ).

The results of a Choice  $\times$  Load  $\times$  Priming ANOVA of attitude inferences were similar to those of Experiment 1. Specifically, the ANOVA yielded a main effect of situational demands,  $F(1, 98) = 56.03, p < .001$ , indicating an overall discounting effect (less favorable attitude inferences in the no-choice vs. choice condition). A main effect of priming,  $F(1, 98) = 10.02, p < .01$ , indicated stronger attitude inferences following neutral rather than situational priming. Moreover, a Situational Demands  $\times$  Priming interaction effect,  $F(1, 98) = 9.67, p < .01$ , and a Situational Demands  $\times$  Load interaction effect,  $F(1, 98) = 3.75, p < .06$ , indicated stronger discounting after situational priming (vs. neutral priming) and under no cognitive load (vs. cognitive load). Importantly, inconsistent with resource-dependent correction, cognitive load neither eliminated nor diminished situational priming effects on discounting. If anything, situational priming had a more pronounced effect on discounting under cognitive load,  $F(1, 49) = 10.13, p < .003$ , than under no cognitive load,  $F(1, 49) = 1.69, ns$ . In fact, situational priming fully compensated for cognitive load, so that following neutral priming, cognitive load eliminated discounting,  $F(1, 49) = 6.23, p < .01$ , but following situational priming, discounting under cognitive load was as strong as discounting under no cognitive load,  $F(1, 49) = .25, ns$ .

Because Experiments 1 and 2 were identical in all respects except for the type of situational activation (salience vs. priming), we combined the attitude inference data from the two experiments and subjected them to an ANOVA with type of activation (salience vs. priming), activation level (low vs. high), cognitive load (load vs. no load), and situational demands (choice vs. no choice) as

Table 2  
Behavior-*Correspondent Attitude Inference in Experiment 2*

Situational demands	No cognitive load		Cognitive load	
	Neutral priming	Situational priming	Neutral priming	Situational priming
No choice	9.62	8.43	11.77	8.86
Choice	12.08	12.15	12.15	12.08
Difference	2.46**	3.72***	0.38	3.22***

Note. Higher values indicate higher behavior-correspondent attitude inferences.  
\*\*  $p < .01$ . \*\*\*  $p < .001$ .

between-participants factors. The ANOVA yielded the same effects as the individual experiments, and none of these effects depended on type of situational activation. Thus, a main effect of situational demands,  $F(1, 260) = 111.37, p < .001$ , indicated an overall discounting effect, and Situational Demands  $\times$  Load,  $F(1, 260) = 9.69, p < .01$ , and Situational Demands  $\times$  Activation level,  $F(1, 260) = 23.60, p < .001$ , interaction effects indicated that discounting was stronger under no cognitive load and when level of situational activation was high. Moreover, consistent with integration but not with correction, an Activation Level  $\times$  Cognitive Load  $\times$  Situational Demands interaction,  $F(1, 260) = 4.19, p < .05$ , indicated that situational activation level had a more pronounced effect on discounting under cognitive load than under no cognitive load, so that when situational activation was low, cognitive load eliminated discounting,  $F(1, 134) = 9.22, p < .01$ , but when situational activation was high, discounting effects were strong and unaffected by cognitive load,  $F(1, 134) = .003, ns$ . Obviously, the finding that these effects were not qualified by type of situational activation manipulation (salience vs. priming) should be interpreted with caution, because participants were not randomly assigned to Experiments 1 and 2. Nevertheless, this finding provides some support for our treatment of salience and priming as functionally equivalent aspects of activation of situational knowledge in dispositional inference problems.

In sum, the situational priming effects obtained in the present experiment closely parallel the situational salience effects obtained in Experiment 1. The basic finding is that accessible situational demands, like salient situational demands, can produce strong discounting effects even when perceivers are under cognitive load. This finding is more consistent with integration than resource-dependent correction.

### Experiment 3: The Specificity of Situational Demands

Experiments 1 and 2 examined the role of two properties of situational demands, their salience and accessibility, in producing inferential discounting. The present experiment investigated yet another aspect of situational information, namely, the extent to which it is specific to the actor under consideration. Judgment research suggests that perceivers are more likely to use information to the extent that it is specific to the particular case under consideration (Bar-Hillel, 1980; Ginossar & Trope, 1987; Kruglanski, Friedland, & Farkash, 1984; Sherman, Beike, & Ryalls, 1999). For example, Bar-Hillel (1980) found that perceivers utilize specific base-rate information, namely, base rates for the individual under consideration, but do not utilize general base-rate information, namely, base rates for a group to which the individual belongs. The present experiment varied the specificity of situational demands: Specific demands directly applied to the actor under consideration, whereas general demands applied to a large group to which the actor belonged. According to resource-dependent correction, cognitive load should attenuate or eliminate discounting and any effect of specificity of situational information on discounting, because load impairs perceivers' ability to use the situational information. In contrast, integration predicts that specific situational information will strengthen discounting even when perceivers are under cognitive load. Thus, according to integration, specificity of situational information should increase discounting

to the same and even greater extent when perceivers are under cognitive load than when they are under no cognitive load.

## Method

### Overview

Participants read a description of a teaching assistant (TA) who used strict criteria in grading a statistics exam and were asked to infer how dispositionally strict or lenient the TA was. Information about demands for strict grading varied according to condition. In the specific demand conditions, participants learned that the professor in the statistics course instructed the TA to use strict criteria in grading the exam. In the general demand condition, participants were informed of a general, university-wide requirement to use strict criteria in grading exams. In the control, no-demands conditions, participants did not receive any information regarding demands for grading. Cognitive load was varied as in the earlier two experiments. The design of this experiment was thus a Situational Demands (specific vs. general vs. no demands)  $\times$  Cognitive Load (load vs. no load) between-participants factorial.

### Participants

One hundred nine female students and 38 male students at Tel-Aviv University participated to fulfill a requirement for their introductory psychology course.

### Procedure

Participants read a description of a TA in an introductory statistics course who used strict criteria in grading the final exam (e.g., took off points for each minor mistake including calculation errors, etc.). It was indicated that, as a result, most of the grades in her class were relatively low and that the highest grade was B+. External demands for strict grading varied according to conditions. Participants in the general demand condition were told that the university Educational Policy Committee discussed "grade inflation" and recommended that the university take measures to lower the grade level. It was further indicated that all teaching personnel were informed of this decision. Participants in the specific demand conditions were informed that the professor of the statistics course instructed her TAs to use strict criteria in grading the exams (e.g., take off points for every minor mistake including calculating errors, etc.). Participants in the control, no-demand condition were not informed of any external pressure on the TA in grading the exam.

The load manipulation was the same as in the earlier experiments. Participants in the load condition were told that the experimenter was interested in learning how well people could perform two dissimilar tasks simultaneously and were required to rehearse an eight-digit number while reading the information about the TA and answering the questions.

### Dependent Measures

After reading the information about the TA, participants judged the TA's dispositional strictness. Specifically, participants rated the extent to which the TA was generally a strict person on a 13-point bipolar scale ranging from 1 (*not a strict person at all*) to 13 (*a very strict person*). Participants then rated on similar scales (a) the extent to which the TA was under external pressure to grade the exam leniently or strictly and (b) the extent to which the TA used lenient or strict criteria in grading the exam. These ratings served as measures of participants' identification of situational pressure on the TA and the TA's actual behavior. Participants in the load condition were then asked to recall the eight-digit number. Finally, participants were probed for suspicion, debriefed, and dismissed.

## Results and Discussion

### Situation and Behavior Identification

Participants' ratings of the external pressure on the TA's grading of the statistics exam were subjected to a Situational Demands (no demands vs. specific vs. general)  $\times$  Cognitive Load (load vs. no load) ANOVA. As expected, the ANOVA yielded a main effect of demands,  $F(2, 141) = 56.38, p < .001$ , indicating that participants recognized that the TA was expected to be more strict in the general and specific demands conditions ( $M_s = 10.33$  and  $10.84$ , respectively) than in the no-demands condition ( $M = 5.92$ ),  $F(1, 143) = 112.30, p < .001$ . The general and specific demands conditions were not significantly different on this measure, suggesting that perceivers thought that the same level of strictness was expected of the TA in the specific and general demands conditions. Consistent with our earlier experiments and past research (see e.g., Gilbert, Pelham, & Krull, 1988), the identification of demands was unaffected by cognitive load ( $F_s < 1$ ). Perceivers were thus equally accurate in identifying the demands in both the load and no-load conditions.

An ANOVA of participants' ratings of the strictness of the TA's grading (serving as a measure of behavior identification) yielded no significant effect of demands or cognitive load ( $F_s < 1$ ). As intended, then, the TA's grading of the exam was always perceived as strict in all experimental conditions ( $M = 11.75$ ).

### Dispositional Inference

Table 3 presents mean ratings of the TA's dispositional strictness. A Situational Demands  $\times$  Cognitive Load ANOVA of these ratings showed a main effect of demands,  $F(2, 141) = 38.63, p < .001$ . This effect indicated an overall discounting effect, namely, more moderate strictness inferences when situational demands (specific or general) were present ( $M = 7.59$ ) than when demands were absent ( $M = 10.71$ ),  $F(1, 143) = 58.27, p < .001$ . This effect also reflected stronger discounting under specific demands ( $M = 6.84$ ) than under general demands ( $M = 8.35$ ),  $F(1, 143) = 10.40, p < .01$ . In addition, a main effect of cognitive load  $F(1, 141) = 3.64, p < .06$ , indicated greater discounting under no cognitive load ( $M = 8.26$ ) than under cognitive load ( $M = 9.00$ ).

These main effects were qualified, however, by a Situational Demands  $\times$  Cognitive Load interaction,  $F(2, 141) = 4.55, p < .05$ . As Table 3 shows, this interaction indicated that specificity of demands had a stronger effect on dispositional strictness inferences under cognitive load than under no cognitive load,  $F(1, 94) = 6.76, p < .05$ . Specifically, under no cognitive load, general and specific demands produced similarly moderate inferences, whereas under cognitive load, specific demands produced more moderate inferences than did general demands. As a result, cog-

nitive load affected dispositional inferences when demands were general,  $t(47) = 3.27, p < .005$ , but not when demands were specific,  $t(47) = .27, ns$ .

In sum, the present experiment demonstrates that the effects of specificity of situational demands on dispositional inference are similar to those of salience and accessibility of situational demands. The results show that cognitive load attenuated participants' ability to use general situational information, but not specific situational information. When situational information was specific to the actor under consideration, it was massively utilized by both distracted and undistracted participants. Thus, contrary to resource-dependent correction, cognitive load did not eliminate or attenuate the effect of specificity of situational information on inference. On the contrary, cognitive load actually increased the effect of specificity of situational information on inference. These results are consistent with integration wherein any factor that determines the activation of situational information, such as its specificity, can fully compensate for the effect of cognitive load.

## General Discussion

The present experiments yielded a consistent pattern of findings regarding the effect of situational activation factors on dispositional inferences performed under cognitive load or no cognitive load. Basically, the findings indicate that activation increases the use of situational information to the same and even greater extent when perceivers were under cognitive load than when they are not under cognitive load. The present low situational activation conditions presented the standard situational information used in past research on discounting. The load manipulation was also the same as in past research, namely, memorizing an eight-digit number, which most of our participants (77% to 88%) correctly recalled regardless of experimental conditions. And as in past situational correction research, the processing goal given to participants was to infer the actor's dispositions. The findings show that this cognitive load manipulation eliminated discounting effects of the standard situational information, thus replicating earlier research by Gilbert and his colleagues (e.g., Gilbert et al., 1992; Gilbert & Osborne, 1989; Gilbert, Pelham, & Krull, 1988; see also Trope & Alfieri, 1997). However, the same cognitive load failed to eliminate discounting when situational information was made more salient, accessible, or specific. The situational activation manipulations seemed minor: In Experiment 1, situational information was heard rather than read. In Experiment 2, situational information was primed by having participants elaborate on proverbs that were related to situational forces. And in Experiment 3, situational information was specific to the target rather than general. Nevertheless, all three situational properties produced pronounced discounting even when participants were under cognitive load.

Table 3  
Behavior-*Correspondent Trait Inferences in Experiment 3*

Condition	No inducement	General inducement	Specific inducement
Cognitive load	10.72	9.44	6.75
No cognitive load	10.71	7.21	6.92

Note. Higher values indicate higher behavior-correspondent trait inferences.

### *Situational Discounting as Integration*

An integration model account of these findings is straightforward. According to this model, the salience, accessibility, and specificity of situational information determine the weight of situational demands as alternative explanations of the actor's behavior. Cognitive load makes it difficult for perceivers to fully integrate multiple explanations (dispositional and situational) of the actor's behavior. As a result, one explanation is heavily weighted in perceivers' judgment, whereas other explanations are underweighted. In many cases, the underweighted explanations are situational, because situational information is often low in salience, accessibility, and specificity. However, this is not necessarily the case. To the extent that situational knowledge is activated, the weight of situational explanations under cognitive load may increase at the expense of the dispositional hypothesis. Under cognitive load, then, situational activation factors can have pronounced effects on discounting. When situational activation is low, inferences under cognitive load should show little or no discounting, but when situational activation is high, inferences under cognitive load should show strong discounting effects. Of course, salience, accessibility, and specificity of situational information also increase the weight of situational information and inferential discounting by undistracted perceivers. However, because distracted perceivers are less able to fully take into account both situational and dispositional explanations of behavior, the impact of situational activation factors on discounting may be the same and even greater when perceivers are distracted than when they are undistracted, as our findings actually show.

### *Situational Discounting as Correction*

It seems more difficult to account for the present findings in terms of a resource-dependent correction model. Such a model assumes that situational information is used in a resource-dependent stage that serves to correct resource-independent attribution of behavior to the correspondent disposition. In this model, cognitive load necessarily comes at the expense of the use of situational information. Hence, contrary to the present findings, resource-dependent correction predicts that cognitive load should eliminate or at least diminish discounting and any effect of properties of situational information on dispositional inference. Activation of situational information may help perceivers become aware of situational demands. However, as pointed out by Gilbert and his colleagues (Gilbert, Pelham, & Krull, 1988, p. 738), awareness of situational demands is necessary but not sufficient to produce inferential discounting under cognitive load. This is because what makes discounting effortful is the use of situational information in the attributional calculus rather than the identification or retrieval of this information. Indeed, a number of studies have shown that distracted perceivers are fully aware of situational demands but show no evidence of using this information in drawing dispositional inferences (see Gilbert, Pelham, & Krull, 1988; Trope & Alfieri, 1997).

These theoretical and empirical considerations argue against an interpretation of our activation factors as making discounting so easy that it became independent of cognitive load. Such interpretation seems particularly inapplicable to the present salience and priming effects. Salience, for example, was manipulated by having

participants either read or hear the same situational information. It seems unlikely that such a manipulation determines whether the attributional reasoning underlying discounting is resource dependent or resource independent. In general, a resource-dependent mental operation is unlikely to become resource independent as a result of making the input salient or accessible.

An additional problem with interpreting activation as making discounting effortless is that such interpretation has to assume two types of correction: a resource-dependent correction process for situational information that is low in salience, accessibility, or specificity; and a resource-independent correction process for situational information that is high in salience, accessibility, or specificity. The obvious disadvantage of such an input-contingent correction model is loss of parsimony, as the model would have to specify the exact salience, accessibility, and specificity conditions (and perhaps other properties of situational information) that determine whether perceivers will correct for situational information via a resource-dependent or a resource-independent process. In addition, it becomes unclear how resource-independent correction differs from the earlier and effortless stages of behavior categorization and characterization. If the use of the situation is resource independent, why should it be performed only after attribution of behavior to the actor's dispositions? In these respects, integration has an advantage over correction. As discussed above, integration can account for the entire pattern of results by simply assuming that cognitive load produces (a) overweighting of any explanation, situational or dispositional, that has a salience, accessibility, or specificity advantage and (b) underweighting of all other explanations.

The present findings are consistent with past research showing that the tendency to attribute behavior to personal dispositions depends on perceivers' processing goals. This research shows that when perceivers' processing goal is to draw inferences about the situation, they tend to attribute behavior to situational forces rather than to personal dispositions (Krull, 1993; Quattrone, 1982; Webster, 1993). Moreover, the tendency to draw such situational inferences was found to increase under suboptimal processing conditions, namely, when perceivers' attentional resources are depleted (Krull, 1993) or when the need for closure is high (Webster, 1993). These findings have been explained by assuming that when provided with a situational inference goal, perceivers automatically attribute the behavior to a situational force and then engage in an effortful correction for dispositional information. It may be argued, then, that our results also reflect such a correction process.

Although this dispositional correction interpretation of our findings cannot be entirely ruled out, it seems unlikely, because all of our participants were instructed to draw a dispositional inference, not a situational inference. Given this dispositional inference goal, it seems unlikely that our participants' inferences started with an automatic attribution of the behavior to the situation. The integration model, however, can account for the findings that giving perceivers a situational inference goal results in strong situational attributions under suboptimal processing conditions. Specifically, the integration model would suggest that providing perceivers with such an inference goal simply increases the weight of situational explanations of behavior and that this comes at the expense of the weight of dispositional explanations when processing conditions are suboptimal. The result would be underdiscounting of disposi-

tional information as the aforementioned research has found. However, unlike the dispositional correction model, the integration model would predict that even when perceivers are given a situational inference goal and their processing resources are suboptimal, activation (salience, accessibility, or specificity) of dispositional explanations would still increase the use of dispositional information. These alternative predictions suggest an interesting question for future research.

A related question is raised by correction models of cultural differences in attribution. It has been suggested that both North Americans and East Asians initially make dispositional attributions but that East Asians make greater corrections for situational forces because such forces are more salient to them (Choi et al., 1999). If the situational correction stage is effortful and dispositional attribution is not, then this analysis would predict that suboptimal processing conditions will eliminate cultural differences, so that both North Americans and East Asians will be biased toward dispositional attributions. In contrast, the present integration model would predict that if cultures indeed differ in salience of dispositional and situational forces, then suboptimal processing conditions may actually amplify cultural differences, so that North Americans will make stronger dispositional attributions and East Asians will make stronger situational attributions.

### Conclusions

What are the implications of the present research for the bias toward dispositional attributions? One process explanation of this error, proposed by situational correction models, is that the use of situational information is inherently difficult (Gilbert & Malone, 1995; Jones, 1979). A more general explanation, proposed by integration models and consistent with the present findings, is that the difficulty is not so much in using situational information as it is in fully integrating multiple explanations of behavior into judgment (see Trope & Gaunt, 1999). The present findings support the integration perspective and, together with earlier research (see Chiu et al., 1998; Krull, 1993; Quattrone, 1982; Webster, 1993) suggest that the fundamental attribution error may reflect a more general bias toward overconfident attributional inferences under suboptimal processing conditions (due to depleted attentional or motivational resources). Often situational explanations are weakly activated, so that the difficulty of integrating multiple explanations favors overconfident dispositional attributions. However, to the extent that situational explanations are strongly activated, the difficulty of integrating multiple explanations may favor overconfident situational attributions.

At a more general level, the present findings have implications regarding the evaluation of any hypothesis, attributional or nonattributional, against alternative hypotheses. Correction models assume that when one hypothesis is more accessible, applicable, or probable than alternative hypotheses, perceivers will initially accept this hypothesis and only then revise it to take into account the alternative hypotheses. The present findings suggest that hypothesis evaluation does not necessarily follow such a fixed sequence. Instead, it is possible that accessibility, applicability, and prior probability of a hypothesis determine its weight in an integration process that involves an iterative or even simultaneous evaluation of the various hypotheses before reaching a conclusion.

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