# On Difficult Questions and Evident Answers: Dispositional Inference From Role-Constrained Behavior

**Bertram Gawronski**
*University of Würzburg*

*The present research investigated the underlying processes of how perceivers draw correspondent dispositional inferences about two interacting targets in the presence of situationally induced role constraints. Specifically, it is argued that a sufficient understanding of role-dependent attributional biases (e.g., the fundamental attribution error) requires a separate consideration of the respective dispositional inference processes about each of the targets involved, particularly with respect to deliberate attributional inferences. Employing the quiz-role paradigm results from four experiments generally support this assumption. Moreover, the present findings suggest that perceivers are much more sensitive to situationally induced role constraints than previous results may suggest. Implications for the fundamental attribution error and theories of dispositional inference are discussed.*

***Keywords:*** *correspondence bias; dispositional inference; fundamental attribution error; questioner superiority effect; social roles*

When people observe other individuals' behavior, they often infer stable dispositions from this behavior even when it can be explained by situational factors (for a review, see Gilbert & Malone, 1995). As job interviewers, for example, we might consider an applicant's behavioral anxiety to reflect dispositional anxiety, although the anxious behavior also could be due to the anxiety-provoking job interview. This tendency to overestimate the importance of dispositional factors relative to situational influences is usually called the fundamental attribution error (Ross, 1977) or the correspondence bias (Jones, 1990).

A common explanation for this neglect of situational factors is that perceivers often lack the required motivation or cognitive capacity to adjust spontaneous trait inferences to situational constraints. Gilbert, Pelham, and Krull (1988), for example, presented a three-stage model of dispositional inference that postulates three sequential processes: behavioral categorization (i.e., What is the actor doing?), dispositional characterization (i.e., What disposition does the behavior imply?), and situational adjustment (i.e., What situational factors might have caused the observed behavior?). Whereas behavioral categorization and dispositional characterization are hypothesized to be spontaneous processes that occur relatively automatically (for a review, see Uleman, Newman, & Moskowitz, 1996), situational adjustment is assumed to be a deliberate process that depends on both the motivation and the cognitive capacity for an effortful processing of the relevant information. Hence, the fundamental attribution error can be expected to increase when perceivers do not have the required cognitive capacity to effortfully adjust their spontaneous trait inferences to situational constraints (e.g., Gilbert et al., 1988; Trope & Alfieri, 1997; Yost & Weary, 1996). In contrast, the fundamental attribution error should decrease when perceivers are highly motivated to process the available information effortfully (e.g., D'Agostino &

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Fincher-Kiefer, 1992; Fein, 1996; Tetlock, 1985; Vonk, 1999; Webster, 1993; Yost & Weary, 1996).

A particularly interesting instance of the fundamental attribution error concerns the neglect of situational constraints imposed by social roles. Eagly (1987), for example, has argued that stereotypes about men and women largely stem from a neglect of the socially imposed distribution of men and women to different work roles (see also Humphrey, 1985). Whereas men more often have the role of breadwinners, women more often have the role of homemakers. Hence, when perceivers do not adjust their dispositional inferences to gender roles, they may spontaneously infer that women are more communal than men and that men are more assertive than women. Based on this consideration, Eagly argued that gender stereotypes mainly reflect the division of labor within a given society and perceivers' neglect of role-conferred, self-presentational asymmetries rather than a genuine psychological difference between men and women.

A sophisticated paradigm to demonstrate perceivers' neglect of such role-conferred asymmetries was developed by Ross, Amabile, and Steinmetz (1977): the quiz-role paradigm. In this experimental setting, three participants unfamiliar with each other are randomly assigned to the roles of quizmaster, contestant, and observer. The quizmaster is then instructed to think up 10 challenging general knowledge questions and to pose them to the contestant, who is usually unable to answer more than 4 questions correctly. The most interesting finding in this paradigm, however, is that observers seem to use this evidence to attribute a higher level of general knowledge to the quizmaster than to the contestant (e.g., Block & Funder, 1986; Johnson, Jemmott, & Pettigrew, 1984; Quattrone, 1982; Ross et al., 1977; see also Humphrey, 1985, for related results in an organizational setting); that is, they seem to neglect (a) the situationally induced role advantage of the quizmaster, who is free to confront the contestant with questions displaying his or her personal knowledge, and (b) "the 'invisible jail' in which contestants were imprisoned" when they have to answer the questions generated by the quizmaster (Gilbert & Malone, 1995, p. 25). Drawing on these considerations, the difference between observers' general knowledge ratings for quizmasters and contestants (i.e., the questioner superiority effect) is usually interpreted as the degree of the fundamental attribution error they fall prey to (Ross, 1977).

The main goal of the studies reported in this article was to investigate the underlying processes of how perceivers draw correspondent dispositional inferences in the presence of self-presentational asymmetries imposed by social roles. Specifically, it is argued that a sufficient understanding of role-dependent attributional biases, such as the questioner superiority effect, requires a separate consideration of the dispositional inference processes about each of the two parties, particularly when it comes to a process of deliberate attributional thinking. Moreover, it will be demonstrated that the mere emergence of social role effects on trait attributions is actually not informative about perceivers' neglect or consideration of situational factors in dispositional inference. Rather, the present studies suggest that perceivers are much more sensitive to situationally induced role constraints than previous results seem to imply. However, before testing these hypotheses, it seems useful to further illustrate the present assumptions with respect to the quiz-role paradigm, which was used as the main paradigm in the present studies.

### *Process and Content of Dispositional Inference in the Quiz-Role Paradigm*

According to a widespread interpretation of the questioner superiority effect, perceivers largely rely on the number of correct answers observed for each of the two targets. In terms of Gilbert et al.'s (1988) three-stage model, this reliance can be conceptualized as a spontaneous categorization of the observed performance as high for the quizmaster and low for the contestant. Correspondingly, the spontaneous characterization of a corresponding disposition implies a high level of general knowledge for the quizmaster and a low level for the contestant. If perceivers are not motivated or able to process the available information effortfully, they will use these spontaneous dispositional characterizations for their attributions of general knowledge. If, however, perceivers have the motivation and the cognitive capacity for deliberate attributional processing of the relevant information, they may consider the self-presentational asymmetries implied by the two roles and thus adjust their inferences to situational factors. For this case, it is often assumed that the questioner superiority effect should disappear, that is, contestants and quizmasters should be judged equal with respect to their general knowledge (see Model A in Figure 1).

The conceptualization proposed in the present investigation corresponds to this classic account by assuming identical processes for behavioral categorization and dispositional characterization. However, the present model essentially differs from the classic account with respect to the deliberate process of attributional inference. Specifically, it is argued that deliberate attributional inferences about the quizmaster's and the contestant's performance have to be regarded as two separate processes (see Model B in Figure 1).

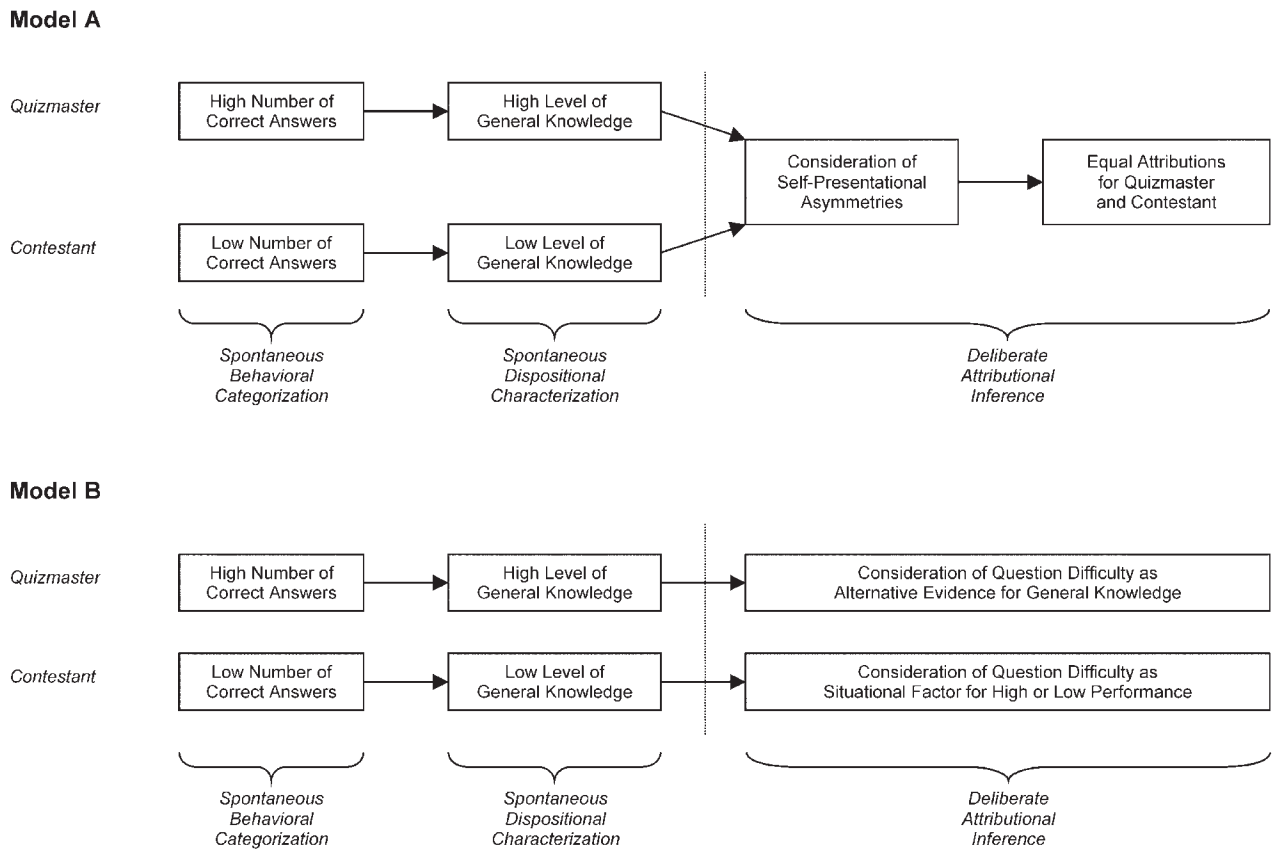


**Figure 1 Two alternative models of dispositional inference for general knowledge attributions in the quiz-role paradigm.**

With respect to inferences about contestants, it is assumed that perceivers consider question difficulty as an important situational factor for the contestant's performance. More precisely, whether the contestant will be able to offer correct answers should not only depend on his or her general knowledge level but also on the difficulty of the questions (Kelley, 1972; Weiner, 1985). Whereas easy questions offer no situational explanation for a poor performance, difficult questions actually do offer such an explanation. Hence, when observers adjust their inferences about contestants to situational constraints, they should attribute a higher level of general knowledge to the contestant when the questions not answered correctly are difficult than when they are easy.

With respect to inferences about quizmasters, it is assumed that perceivers search for alternative information that may be diagnostic for the quizmaster's general knowledge when his or her knowledge of the answers is disregarded as being due to the advantage of having generated the questions. In this case, perceivers are assumed to rely on the difficulty of the questions generated by the quizmaster rather than on his or her knowledge of the answers. Specifically, perceivers may adjust their spontaneous dispositional characterizations of quizmasters according to an implicit theory of ability (Reeder, 1997), implying that only quizmasters with a high level of general knowledge should be able to generate difficult questions. Easy questions, in contrast, may be generated by anyone, regardless of his or her general knowledge level. Accordingly, perceivers should attribute a higher level of general knowledge to the quizmaster when the questions he or she generated are difficult than when they are easy. However, this should only be the case when perceivers engage in deliberate attributional processing, not when trait attributions are the result of superficial processing.

Taken together, the present conceptualization implies that a sufficient understanding of the questioner superiority effect requires a separate consideration of the dispositional inference processes about quizmasters and contestants, particularly with respect to the process of deliberate attributional inference. Moreover, question difficulty is assumed to play an important role for deliberate attributional inferences, such that question difficulty is regarded as a discounting situational factor for the contestant's poor performance and as alternative information for inferences about the quizmaster.

*Processing Constraints*

Notwithstanding the present assumptions about the processes and the contents of dispositional inference, the quiz-role paradigm implies a number of additional factors that may constrain these processes, and thus the relative impact of question difficulty. The most important of these factors concerns the salience of question difficulty as a situational factor for the contestant's performance. Specifically, one may assume that perceivers often try to answer the questions posed to the contestant and hence, by default, take the perspective of the contestant. Because such perspective taking, in turn, generally increases the salience of situational factors for the contestant's performance (Jones & Nisbett, 1972; Storms, 1973), and thus reduces the cognitive effort required for processing the relevant situational information (Trope & Gaunt, 2000), the likelihood that question difficulty affects inferences about contestants may be higher as compared to the likelihood that question difficulty is considered for inferences about quizmasters. In other words, even though question difficulty may be regarded as important information for inferences about both quizmasters and contestants, its use might be asymmetrical due to the differential salience of the relevance of this factor.

*Overview of the Experiments*

To investigate the postulated role of question difficulty for dispositional inferences about contestants and quizmasters, a total of four experiments were conducted. In all of these experiments, participants watched a videotaped simulation of a quiz-role experiment and were asked to estimate the quizmaster's and the contestant's general knowledge level. Experiment 1 offers a first test of the impact of question difficulty on general knowledge attributions with questions not answered correctly being either difficult or easy and questions answered correctly being generally easy. Experiment 2 further tested the role of perceivers' cognitive elaboration for the impact of question difficulty. For this purpose, participants watched a videotaped quiz-role game such as that used in Experiment 1 either (a) under the promise of incentives for accurate judgments, (b) under cognitive load, or (c) under control conditions. Experiment 3 tested effects of role salience on the impact of the difficulty of questions not answered correctly by asking participants either to generate 10 questions or to answer 10 questions before watching the quiz-role game. Finally, Experiment 4 manipulated role salience and the difficulty of the questions answered correctly by the contestant.

## EXPERIMENT 1

*Method*

*Participants.* A total of 41 psychology undergraduates (38 women) participated in a study on social roles, receiving credit for experiment participation requirements. Data from one participant who was familiar with one of the two videotaped targets were excluded from analyses.

*Question difficulty.* To manipulate the difficulty of the questions, a total of 44 general knowledge questions selected from different parlor games (e.g., Trivial Pursuit) were pretested for their difficulty. For this purpose, the selected questions were posed to 40 psychology students in a short questionnaire. Questions with less than 10 correct answers were treated as difficult questions; questions with more than 30 correct answers were treated as easy questions. From these questions, a set of 4 easy ones were selected to be the ones the contestant could answer correctly in the simulated quiz. In addition, two sets of 6 questions were taken to be the ones the contestant could not answer correctly. One of these sets consisted of easy questions and one consisted of difficult questions.

*Quiz-role game and design.* Using these questions, a total of four videotapes of a simulated quiz-role experiment were prepared. For this purpose, two male confederates played the roles of quizmaster and contestant. The videos were recorded in a psychological laboratory with the quizmaster and the contestant sitting at two tables approximately 1 meter apart. The quizmaster sat on the left side, the contestant on the right. The quizmaster posed 10 questions to the contestant, who offered the correct answers to 4 of these questions. For 2 questions, the contestant indicated that he did not know the answer; 4 questions were answered incorrectly. The quizmaster generally indicated whether the contestant's answer was correct or false, and he also mentioned the correct answer when the contestant did not answer the question correctly. Correct answers were given to Questions 1, 2, 4, and 9; incorrect answers were given to Questions 3, 5, 8, and 10; and the contestant indicated that he did not know the answer to Questions 6 and 7. Questions answered correctly were generally easy and questions not answered correctly were either difficult or easy. Each confederate played both the role of the quizmaster and the role of the contestant once for each level of question difficulty, thus resulting in a total of four videos.

To reduce unintended variations in the videos, the quiz-role games were scripted for the wording of both questions and answers. Taken together, the experiment consisted of a 2 (role position: quizmaster vs. contestant) $\times$ 2 (difficulty of questions not answered correctly: easy

vs. difficult) × 2 (role distribution: actor A being quizmaster vs. actor B being quizmaster) mixed-model design with the first variable being a within-subjects factor and the other two being between-subjects factors.

*Measures.* To assess participants' attributions of general knowledge, they were asked to rate the quizmaster and the contestant on four 7-point scales ranging from 1 (*very low*) to 7 (*very high*), respectively. The four questions referred to (a) the general knowledge compared to an average student, (b) the ability to generate general knowledge questions, (c) the ability to answer general knowledge questions generated by another person, and (d) the targets' level of knowledge in general. In addition, three distractor items were included referring to the targets' ability to take an unfamiliar social role, the targets' resilience in testing situations, and the targets' ability to memorize everyday events. Furthermore, perceived question difficulty was rated on a 7-point scale ranging from 1 (*very easy*) to 7 (*very difficult*).

*Procedure.* When participants arrived, they were welcomed and informed that they were taking part in a study on social roles. The experimenter further explained that in a previous experiment a number of quiz-role games had been conducted in which two participants were randomly assigned to the roles of a quizmaster or a contestant and that the quizmaster was asked to generate 10 challenging general knowledge questions to be posed to the contestant in a short quiz-role game. Participants were informed that these quiz-role games had been recorded by video and that they were to watch one of these clips. After this instruction, participants drew a lot for the video they were to watch. After watching the video, participants were asked to estimate the general knowledge of both the quizmaster and the contestant in a short questionnaire.

*Results*

Because the particular role distribution of the two actors revealed no significant main or interaction effect on any of the present dependent measures, this variable was dropped from further analyses.

*Manipulation checks.* In line with the intended manipulation, questions were rated significantly higher in difficulty when the six questions not answered correctly were difficult than when they were easy ($M_{easy} = 2.00$, $M_{difficult} = 3.95$), $t(38) = 6.09$, $p < .001$.

*General knowledge.* Items designed to assess attributions of general knowledge were merged into a single index of estimated general knowledge of the quizmaster (Cronbach's $\alpha = .85$) and the contestant (Cronbach's $\alpha = .79$), respectively. These indices were submitted to a 2 (role position: quizmaster vs. contestant) × 2 (difficulty of questions not answered correctly: easy vs. difficult) mixed-model ANOVA, revealing a significant main effect of role position, $F(1, 37) = 38.40$, $p < .001$. Replicating the questioner superiority effect obtained by Ross et al. (1977), quizmasters were rated higher in general knowledge than contestants ($M_{quizmaster} = 4.74$, $M_{contestant} = 3.74$). In addition, a significant main effect of question difficulty indicated that the two targets were rated higher in general knowledge when the questions not answered correctly were difficult than when they were easy ($M_{easy} = 3.82$, $M_{difficult} = 4.68$), $F(1, 37) = 13.18$, $p < .001$. These main effects were qualified by a significant two-way interaction of role position and question difficulty, $F(1, 37) = 4.77$, $p < .05$. Whereas contestants were rated dramatically higher in general knowledge when questions were difficult than when they were easy ($M_{easy} = 3.15$, $M_{difficult} = 4.36$), this effect was much less pronounced for quizmasters ($M_{easy} = 4.49$, $M_{difficult} = 5.00$). Post hoc comparisons specified this interaction by revealing a highly significant effect of question difficulty for contestants, $t(37) = 4.48$, $p < .001$, but only a marginally significant effect for quizmasters, $t(38) = 1.75$, $p = .09$. The difference between ratings for quizmasters and contestants was significant for difficult questions, $t(18) = 2.98$, $p < .01$, and highly significant for easy questions, $t(19) = 5.70$, $p < .001$.

*Discussion*

The present results offer first evidence for the assumption that question difficulty plays an important role for general knowledge attributions in the quiz-role paradigm. Consistent with the assumption that perceivers adjust their inferences about contestants to question difficulty, contestants were rated higher in general knowledge when the questions not answered correctly were difficult than when they were easy. Furthermore, there was a tendency for quizmasters to be rated higher in general knowledge when these questions were difficult than when they were easy. However, consistent with the prediction that question difficulty has an asymmetrical influence on inferences about quizmasters and contestants, the effect of question difficulty was much less pronounced for quizmasters than for contestants. This result is consistent with the assumption that perceivers by default take the perspective of the contestant. Hence, situational constraints for the contestant's performance should become highly salient (Jones & Nisbett, 1972; Storms, 1973), thus increasing the likelihood of situational adjustment (Trope & Gaunt, 2000).

However, even though these results are consistent with the proposed conceptualization, it is still an open question under which conditions question difficulty also affects inferences about quizmasters. Hence, the main goal of Experiment 2 was to further clarify the conditions

under which question difficulty affects inferences about quizmasters and contestants.

## EXPERIMENT 2

The main objective of Experiment 2 was to investigate the influence of cognitive elaboration on the impact of question difficulty on dispositional inferences about quizmasters and contestants. Even though question difficulty had only a marginal effect on inferences about quizmasters in Experiment 1, it can be expected to have a strong impact on general knowledge attributions for quizmasters when participants are highly motivated to take alternative information into account. Moreover, because situational adjustment can be assumed to be an effortful process (Gilbert et al., 1988; Trope & Alfieri, 1997; but see Trope & Gaunt, 2000), the obtained impact of question difficulty on general knowledge attributions for contestants should disappear when participants do not have the cognitive capacity to adjust their inferences to situational constraints. In other words, enhanced processing motivation should increase the effect of question difficulty for both quizmasters and contestants. Cognitive load, in contrast, can be expected to generally attenuate the impact of question difficulty. For control conditions, a replication of the results of Experiment 1 was predicted, such that question difficulty will have a much more pronounced impact on inferences about contestants than for quizmasters. To test these predictions, participants watched a videotaped quiz-role game such as that used in Experiment 1 either (a) under cognitive load, (b) under enhanced processing motivation, or (c) under control conditions.

### *Method*

*Participants and design.* A total of 61 students (34 women) were recruited on campus for a study on social roles. As an incentive for taking part, participants received a chocolate bar. The experiment consisted of a 2 (role position: quizmaster vs. contestant) × 2 (difficulty of questions not answered correctly: easy vs. difficult) × 2 (role distribution: actor A being quizmaster vs. actor B being quizmaster) × 3 (processing condition: cognitive load vs. control vs. incentives) mixed-model design, with the first variable as a within-subjects factor and the other three as between-subjects factors. Data from one participant who indicated being familiar with the questioner superiority effect were excluded from analyses.

*Measures.* After watching the quiz-role game, participants were told that the two targets were administered a general knowledge questionnaire after the video had been recorded. The questionnaire ostensibly consisted of 50 general knowledge questions taken from the parlor game Trivial Pursuit. To assess attributions of general knowledge, participants were asked to estimate the exact number of questions each of the two individuals was able to answer correctly. Hence, general knowledge attributions for quizmasters and contestants could range from 0 to 50. Manipulation checks of question difficulty were identical to Experiment 1.

*Quiz-role game.* Videotaped recordings of simulated quiz-role games were identical to Experiment 1. Questions answered correctly were generally easy and questions not answered correctly were either difficult or easy.

*Processing level.* To manipulate participants' processing level, one third of the sample was asked to rehearse an eight-digit number during the experiment. This number was presented in large digits on a pin board before watching the video. Participants were instructed to rehearse this number until the end of the experiment. This procedure is well established as a method of decreasing participants' cognitive capacity (e.g., Gilbert & Hixon, 1991; Krull, 1993; Sherman & Frost, 2000; Trope & Alfieri, 1997; Yost & Weary, 1996; Yzerbyt, Coull, & Rocher, 1999) and was thus expected to inhibit deliberate attributional inferences. Another third of the sample was informed that the three participants whose estimations of correctly answered questions were nearest to the exact numbers would receive a voucher for a compact disk (value: DM30, U.S.$15). This manipulation was assumed to increase participants' accuracy motivation and thus their motivation for an effortful processing of the relevant information. Another third served as a control group receiving no additional task or promise of an incentive. After the experiment, all participants were debriefed about these manipulations. The winners of the three vouchers were drawn by a random procedure.

### *Results*

Because the particular role distribution of the two actors revealed no significant main or interaction effect on any of the present dependent measures, this variable was dropped from further analyses.

*Manipulation checks.* A 2 (difficulty of questions not answered correctly: easy vs. difficult) × 3 (processing condition: cognitive load vs. control vs. incentives) ANOVA on perceived question difficulty revealed a significant main effect of question difficulty, $F(1, 54) = 21.75$, $p < .001$, indicating that questions were rated higher in difficulty when the questions not answered correctly were difficult than when they were easy ($M_{easy} = 2.53$, $M_{difficult} = 3.70$). No other main or interaction effect reached statistical significance (all $F$s < 1.61). All participants recalled at least seven digits of the eight-digit number, suggesting that participants actually spent cognitive effort on the secondary task (see Gilbert & Hixon, 1991).

*General knowledge.* A 2 (role position: quizmaster vs. contestant) × 2 (difficulty of questions not answered correctly: easy vs. difficult) × 3 (processing condition: cognitive load vs. control vs. incentives) mixed-model ANOVA on the estimated number of correct answers revealed a significant main effect of the role position, indicating that participants attributed a higher number of correct answers to the quizmaster ($M = 30.75$) than to the contestant ($M = 25.68$), $F(1, 54) = 35.63$, $p < .001$. In addition, a significant main effect of question difficulty indicated that the two targets were attributed a higher number of correct answers when the questions were difficult ($M = 31.10$) than when they were easy ($M = 25.33$), $F(1, 54) = 12.30$, $p < .001$. These main effects were qualified by a significant two-way interaction of role position and question difficulty, $F(1, 54) = 12.49$, $p < .001$. Replicating the pattern of results obtained in Experiment 1, the effect of question difficulty was much more pronounced for contestants ($M_{easy} = 21.30$, $M_{difficult} = 30.07$) than for quizmasters ($M_{easy} = 29.37$, $M_{difficult} = 32.13$). This effect, however, was further qualified by a marginally significant three-way interaction of role position, question difficulty, and processing condition, $F(2, 54) = 3.04$, $p = .06$ (see Figure 2). To specify this interaction in terms of the present hypotheses, separate analyses for the three processing conditions were conducted.

For cognitive load conditions, a 2 (role position: quizmaster vs. contestant) × 2 (difficulty of questions not answered correctly: easy vs. difficult) mixed-model ANOVA on the estimated number of correct answers revealed a significant main effect of the role position, $F(1, 18) = 4.87$, $p < .05$, indicating that quizmasters were attributed a higher number of correct answers than contestants ($M_{quizmaster} = 30.55$, $M_{contestant} = 27.15$). This main effect was qualified by a significant two-way interaction of role position and question difficulty, $F(1, 18) = 9.30$, $p < .01$. Whereas attributions for quizmasters were unaffected by question difficulty ($M_{easy} = 31.40$, $M_{difficult} = 29.70$), $t(18) = -.53$, *ns*, contestants were ascribed a higher number of correct answers when the questions were difficult than when they were easy ($M_{easy} = 23.30$, $M_{difficult} = 31.00$), $t(18) = 2.30$, $p < .05$. Furthermore, quizmasters were attributed a higher number of correct answers than contestants only when questions were easy, $t(9) = 4.91$, $p < .01$, but not when questions were difficult, $t(9) = -.50$, *ns*.

For control conditions, the same ANOVA revealed a significant main effect of the role position, $F(1, 18) = 15.20$, $p < .001$, indicating that quizmasters were ascribed a higher number of correct answers than contestants ($M_{quizmaster} = 31.35$, $M_{contestant} = 25.80$). This main effect was qualified by a significant two-way interaction of role position and question difficulty, $F(1, 18) = 8.91$, $p < .01$. Whereas attributions for quizmasters were unaffected by question difficulty ($M_{easy} = 31.70$, $M_{difficult} = 31.00$), $t(18) = -.22$, *ns*, contestants were ascribed a higher number of correct answers when the questions were difficult than when they were easy ($M_{easy} = 21.90$, $M_{difficult} = 29.70$), $t(18) = 3.41$, $p < .01$. Moreover, quizmasters were ascribed a higher number of correct answers than contestants only when questions were easy, $t(9) = 4.99$, $p < .001$, but not when questions were difficult, $t(9) = .63$, *ns*.

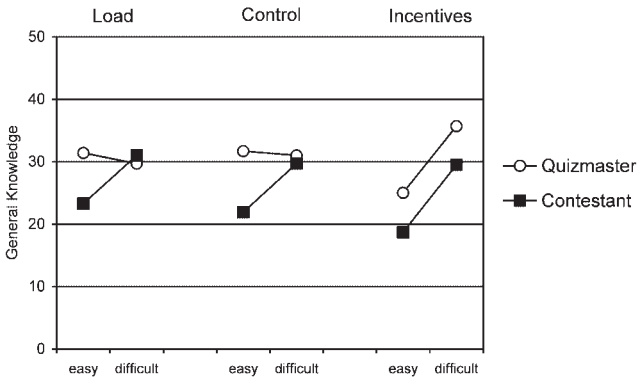


**Figure 2 Mean general knowledge attributions for quizmasters and contestants as a function of the difficulty of questions not answered correctly (easy vs. difficult) and processing condition (cognitive load vs. control vs. incentives), Experiment 2.**
NOTE: Higher values indicate higher attributions of general knowledge.

For incentive conditions, the same ANOVA revealed a significant main effect of role position, $F(1, 18) = 18.76$, $p < .001$, indicating that quizmasters were generally ascribed a higher number of correct answers than contestants ($M_{quizmaster} = 30.35$, $M_{contestant} = 24.10$). Furthermore, a significant main effect of question difficulty indicated that both targets were ascribed a higher number of correct answers when the questions were difficult than when they were easy ($M_{easy} = 21.85$, $M_{difficult} = 32.60$), $F(1, 18) = 11.14$, $p < .01$. Most important, there was no significant interaction between role position and question difficulty ($F < 1$).

Comparing the impact of cognitive elaboration on attributions for quizmasters and contestants, respectively, a 2 (difficulty of questions not answered correctly: easy vs. difficult) × 3 (processing condition: cognitive load vs. control vs. incentives) ANOVA on estimations for contestants revealed a significant main effect of question difficulty, $F(1, 54) = 22.48$, $p < .001$, indicating that contestants were ascribed a higher number of correct answers when questions were difficult than when they were easy. Surprisingly, there was neither a main or an interaction effect of processing condition (all $F$s < 1).

For quizmasters, the same ANOVA revealed a significant two-way interaction of question difficulty and processing condition, $F(1, 54) = 4.61$, $p < .05$. Whereas under incentives conditions quizmasters were attributed a higher number of correct answers when questions were difficult than when they were easy, $t(18) = 3.28$, $p < .01$,

question difficulty had no effect under cognitive load, $t(18) = -.53$, *ns*, or under control conditions, $t(18) = -.22$, *ns*.

*Questioner superiority effect.* To further illustrate the present results in terms of the questioner superiority effect, the estimated number of questions answered correctly by the contestant was subtracted from the estimated number of questions answered correctly by the quizmaster. This difference is usually interpreted as the degree of the fundamental attribution error to which observers have fallen prey (Ross, 1977). According to a common interpretation of the fundamental attribution error, this difference should generally decrease as a function of the cognitive effort perceivers are motivated and able to invest. Of interest, this assumption is seriously challenged by the present data. Specifically, when the questions not answered correctly were easy, cognitive elaboration had no remarkable impact on the questioner superiority effect ($M_{load} = 8.10$, $M_{control} = 9.80$, $M_{incentives} = 6.30$). However, when the questions were difficult, the questioner superiority effect actually increased rather than decreased as a function of cognitive elaboration ($M_{load} = -1.30$, $M_{control} = 1.30$, $M_{incentives} = 6.20$). Moreover, for difficult questions, cognitive load even reversed the questioner superiority effect such that contestants were rated higher in general knowledge than quizmasters.

### *Discussion*

Results from Experiment 2 offer further evidence for the assumption that question difficulty plays an important role for general knowledge attributions in the quizrole paradigm (Ross et al., 1977). Moreover, the present results offer further insights into the underlying processes of how perceivers draw correspondent inferences about quizmasters and contestants. Whereas inferences about contestants were generally affected by the difficulty of the questions not answered correctly, question difficulty affected inferences about quizmasters only when perceivers were highly motivated to process the available information effortfully, but not under control conditions or when perceivers were distracted. This result is consistent with the assumption that perceivers consider question difficulty as alternative information for inferences about the quizmaster's general knowledge only when they have the motivation and the cognitive capacity to process the available information effortfully.

An interesting secondary result of Experiment 2 is that increased processing motivation did not reduce the questioner superiority effect (i.e., the fundamental attribution error) when the questions not answered correctly were difficult. In contrast, for difficult questions, the questioner superiority effect actually increased as a function of cognitive elaboration. This result is particularly interesting because it challenges the widespread assumption that effortful processing generally decreases the fundamental attribution error. The present results demonstrate that this is not necessarily the case.

However, there was also an unexpected effect concerning the cognitive load manipulation. In contrast to the prediction of a general attenuation of the impact of question difficulty under cognitive load, contestants were still rated higher in general knowledge when unanswered questions were difficult than when they were easy. There are at least two possible explanations for this result. First, the cognitive load manipulation of rehearsing an 8-digit number could have been insufficiently distracting. Thus, the present cognitive load conditions may be more likely to correspond to the control conditions. However, even though it is not possible to unambiguously rule out this interpretation (see Gilbert & Hixon, 1991, for a discussion), previous studies inducing cognitive load via the rehearsal of an eight-digit number have generally found reliable effects on situational adjustment (e.g., Krull, 1993; Trope & Alfieri, 1997; Yost & Weary, 1996) or other processes requiring a high amount of cognitive effort (e.g., Gilbert & Hixon, 1991; Sherman & Frost, 2000; Yzerbyt et al., 1999). Hence, in light of these findings, a general ineffectiveness of the present cognitive load manipulation seems rather unlikely.

A second possible interpretation that seems more likely to account for the present data can be drawn from recent results obtained by Trope and Gaunt (2000). These researchers found that cognitive load undermines the process of situational adjustment only when the salience of situational factors is low. If, however, the salience of situational factors is high, perceivers adjust their inferences to situational constraints as strongly as they do under default conditions. Applied to the present data, it seems reasonable to assume that question difficulty as a situational factor for the contestant's performance has a relatively high salience. As already outlined, observers may usually try to answer the questions posed to the contestant and hence take the perspective of the contestant. This, in turn, should increase the salience of the difficulty of the questions, and thus the salience of the contestant's situation (Jones & Nisbett, 1972; Storms, 1973). Hence, situational adjustment for the contestant may occur even when perceivers are distracted.

## EXPERIMENT 3

Drawing on the proposed post hoc explanation of the obtained null effect of cognitive load, Experiment 3 investigated the effects of role salience on the impact of question difficulty on general knowledge attributions for quizmasters and contestants. For this purpose, participants were asked either to generate or to answer 10

questions before watching the quiz-role game. This role-perspective manipulation was expected to differentially make apparent the difficulty of generating and answering questions. Hence, participants should adjust their spontaneous trait inferences to question difficulty only for the target with the corresponding role; that is, participants who take the perspective of the contestant should consider question difficulty only for inferences about contestants, not for inferences about quizmasters. Participants who take the perspective of the quizmaster, in contrast, were expected to consider question difficulty only for inferences about quizmasters, not for inferences about contestants. These predictions further imply that the questioner superiority effect should increase as a function of question difficulty when participants take the perspective of the quizmaster but decrease as a function of question difficulty when participants take the perspective of the contestant.

A second objective of Experiment 3 was to investigate the consistency between trait attributions and behavioral predictions. Johnson et al. (1984), for example, found that participants predicted an approximately equal performance of the quizmaster in answering questions if the quizmaster and the contestant would change their roles. Most interestingly, this effect emerged even though participants rated the quizmaster generally higher in general knowledge than the contestant. Drawing on these findings, Johnson et al. concluded that participants may actually have an adequate representation of the underlying causal forces but fail to adjust their dispositional inferences to this knowledge.

Alternatively, however, performance predictions after a role change of the two targets may be less indicative of a potential attenuation of questioner superiority effect but of a consideration of the relative difference between quizmaster and contestant attributions; that is, performance predictions for quizmasters after a role change may be a joint product of the general knowledge attributed to the quizmaster and the general knowledge attributed to the contestant. These attributions, in turn, should be determined by the respective consideration of question difficulty. Accordingly, performance predictions after role change should reveal the same pattern of results as was predicted for the questioner superiority effect; that is, both the questioner superiority effect and the estimated number of correct answers should increase as a function of question difficulty when participants take the perspective of the quizmaster, but they both should decrease when participants take the perspective of the contestant.

### *Method*

*Participants and design.* A total of 52 students (18 women) were recruited on campus for a study on social roles. As an incentive for taking part, participants received a chocolate bar. The experiment consisted of a 2 (role position: quizmaster vs. contestant) × 2 (difficulty of questions not answered correctly: easy vs. difficult) × 2 (role distribution: actor A being quizmaster vs. actor B being quizmaster) × 2 (role salience: quizmaster vs. contestant) mixed-model design, with the first variable as a within-subjects factor and the other three as between-subjects factors.

*Measures and quiz-role game.* Measures and videotaped recordings of simulated quiz-role games were identical to Experiment 1. In addition, participants were asked to estimate how many of 10 questions the quizmaster would be able to answer correctly if quizmaster and contestant would change their roles.

*Role salience.* To manipulate the salience of either the quizmaster's or the contestant's role, participants were asked either to generate 10 general knowledge questions (high salience of quizmaster's role) or to answer 10 general knowledge questions (high salience of contestant's role) before they were presented the video. Questions participants had to answer were taken from the pretests for Experiment 1 and were moderately difficult.

### *Results*

Because the particular role distribution of the two actors revealed no significant main or interaction effect on any of the present dependent measures, this variable was dropped from further analyses.

*Manipulation checks.* A 2 (difficulty of questions not answered correctly: easy vs. difficult) × 2 (role salience: quizmaster vs. contestant) ANOVA on perceived question difficulty revealed a significant main effect of question difficulty, $F(1, 48) = 5.88$, $p < .05$, indicating that questions were rated higher in difficulty when the questions not answered correctly were difficult than when they were easy ($M_{easy} = 3.11$, $M_{difficult} = 3.96$). No other main or interaction effect reached statistical significance (all $F$s < 1).

*General knowledge.* Items designed to assess attributions of general knowledge were merged into indices of estimated general knowledge of the quizmaster (Cronbach's $\alpha = .81$) and the contestant (Cronbach's $\alpha = .85$). These indices were submitted to a 2 (role position: quizmaster vs. contestant) × 2 (difficulty of questions not answered correctly: easy vs. difficult) × 2 (role salience: quizmaster vs. contestant) mixed-model ANOVA. This analysis revealed a significant main effect of the role position, $F(1, 48) = 11.35$, $p < .001$, indicating that quizmasters were rated higher in general knowledge than contestants ($M_{quizmaster} = 4.28$, $M_{contestant} = 3.86$). In addition, a significant main effect of question difficulty indicated that the two targets were rated higher in

general knowledge when the questions not answered correctly were difficult than when they were easy ($M_{difficult}$ = 4.50, $M_{easy}$ = 3.68), $F(1, 48) = 17.01$, $p < .001$. These main effects were qualified by a significant three-way interaction of role position, question difficulty, and role salience, $F(1, 48) = 10.14$, $p < .01$ (see Figure 3). To specify this interaction in terms of the present hypotheses, separate analyses for the two role salience conditions were conducted.

For conditions in which participants took the perspective of the contestant, a 2 (role position: quizmaster vs. contestant) × 2 (difficulty of questions not answered correctly: easy vs. difficult) mixed-model ANOVA revealed a significant main effect of role position, such that quizmasters were rated higher in general knowledge than contestants ($M_{quizmaster}$ = 4.38, $M_{contestant}$ = 3.91), $F(1, 23) = 6.00$, $p < .05$. In addition, a significant main effect of question difficulty indicated that the two targets were rated higher in general knowledge when questions were difficult than when they were easy ($M_{difficult}$ = 4.58, $M_{easy}$ = 3.68), $F(1, 23) = 9.61$, $p < .01$. These main effects were qualified by a significant two-way interaction of question difficulty and role position, $F(1, 23) = 6.00$, $p < .05$. Replicating the main pattern of results under default conditions, contestants were rated higher in general knowledge when questions were difficult than when they were easy ($M_{difficult}$ = 4.58, $M_{easy}$ = 3.19), $t(23) = 4.25$, $p < .001$. Quizmasters, in contrast, were rated approximately equal regardless of question difficulty ($M_{difficult}$ = 4.58, $M_{easy}$ = 4.17), $t(23) = 1.09$, *ns*. Moreover, quizmasters were rated higher than contestants only when questions were easy, $t(11) = 3.69$, $p < .01$, but not when they were difficult, $t(12) = .00$, *ns*.

For conditions in which participants took the perspective of the quizmaster, the same ANOVA revealed a significant main effect of role position, $F(1, 25) = 5.30$, $p < .05$, indicating that quizmasters were rated higher in general knowledge than contestants ($M_{quizmaster}$ = 4.19, $M_{contestant}$ = 3.81). Moreover, a significant main effect of question difficulty indicated that the two targets were rated higher in general knowledge when questions were difficult than when they were easy ($M_{difficult}$ = 4.42, $M_{easy}$ = 3.67), $F(1, 25) = 7.39$, $p < .05$. These main effects were qualified by a marginally significant two-way interaction of question difficulty and role position, $F(1, 25) = 4.12$, $p = .06$. Consistent with the present predictions, quizmasters were rated higher when questions were difficult than when they were easy ($M_{difficult}$ = 4.81, $M_{easy}$ = 3.70), $t(25) = 3.12$, $p < .01$. Contestants, in contrast, were rated approximately equal regardless of question difficulty ($M_{difficult}$ = 4.02, $M_{easy}$ = 3.65), $t(25) = 1.24$, *ns*. Moreover, quizmasters were rated higher than contestants only when questions were difficult, $t(11) = 2.61$, $p < .05$, but not when they were easy, $t(14) = .23$, *ns*.

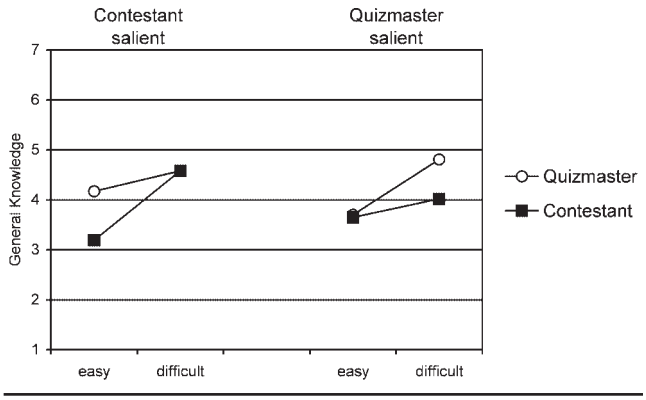


**Figure 3 Mean general knowledge attributions for quizmasters and contestants as a function of the difficulty of questions not answered correctly (easy vs. difficult) and role salience (quizmaster salient vs. contestant salient), Experiment 3.**
NOTE: Higher values indicate higher attributions of general knowledge.

*Role-change predictions and the questioner superiority effect.* To test the relation between role-change predictions and the questioner superiority effect, general knowledge ratings for contestants were subtracted from general knowledge ratings for quizmasters. This score was interpreted as an index for the questioner superiority effect. An inspection of mean values indicates that the questioner superiority effect increased as a function of question difficulty when participants took the perspective of the quizmaster ($M_{easy}$ = .05, $M_{difficult}$ = .79) but decreased when participants took the perspective of the contestant ($M_{easy}$ = .98, $M_{difficult}$ = .00). Most interestingly, the same pattern of results was observed for performance predictions after role change. Specifically, a 2 (difficulty of questions not answered correctly: easy vs. difficult) × 2 (role salience: quizmaster vs. contestant) ANOVA on performance predictions for quizmasters after role change revealed a marginally significant two-way interaction of question difficulty and role salience, $F(1, 48) = 3.68$, $p = .06$, indicating higher performance predictions as a function of question difficulty when participants took the perspective of the quizmaster ($M_{easy}$ = 5.60, $M_{difficult}$ = 6.25) but lower performance predictions as a function of question difficulty when participants took the perspective of the contestant ($M_{easy}$ = 6.92, $M_{difficult}$ = 5.69). Moreover, an ANCOVA on performance predictions including the questioner superiority effect as a covariate revealed a significant effect of the covariate, $F(1, 47) = 8.79$, $p < .01$, such that performance predictions increased as a function of the questioner superiority effect ($r = .46$, $p < .001$). The interaction of question difficulty and role salience, however, failed to reach the level of statistical signifi-

cance after controlling for the questioner superiority effect ($F < 1$). A Sobel test indicated a significant mediation of the questioner superiority effect, $z = 2.17$, $p < .05$. These results suggest that participants actually consider the relation between quizmaster and contestant attributions when predicting the quizmaster's performance after a role change, such that performance predictions after role change are mediated by the relative difference between quizmaster and contestant attributions (see Baron & Kenny, 1986).

*Discussion*

Results from Experiment 3 further corroborate the assumption that question difficulty plays an important role for dispositional inferences in the quiz-role paradigm, and thus for the emergence of the questioner superiority effect. Furthermore, role salience was found to be an essential determinant for the impact of question difficulty on dispositional inferences. In the present study, question difficulty affected inferences about contestants only when participants took the perspective of the contestant, not when they took the perspective of the quizmaster. In contrast, inferences about quizmasters were affected by question difficulty only when participants took the perspective of the quizmaster, not when they were took the perspective of the contestant. Moreover, when participants took the perspective of the quizmaster the questioner superiority effect emerged only for difficult questions, not for easy questions. In contrast, when participants took the perspective of the contestant the questioner superiority effect emerged only for easy questions, not for difficult questions. Together with the results of Experiment 2, these findings suggest that perceivers by default take the perspective of the contestant, which increases the salience of question difficulty as a situational factor for his or her performance (Jones & Nisbett, 1972; Storms, 1973). Because increased salience, in turn, facilitates the adjustment to situational factors (Trope & Gaunt, 2000), adjustment to question difficulty as a situational factor for the contestant's performance seems likely even under conditions of distraction.

Another interesting result of Experiment 3 is that performance predictions after role change are more directly related to general knowledge attributions than previous results may suggest (e.g., Johnson et al., 1984). Specifically, performance predictions for quizmasters if contestants and quizmasters would change their roles revealed the same pattern of results as was obtained for the questioner superiority effect. Moreover, performance predictions after role change were significantly related to the questioner superiority effect, such that performance predictions after role change were mediated by the relative difference between quizmaster and contestant attributions.

## EXPERIMENT 4

So far, the present results support the assumption that observers adjust their inferences about contestants to question difficulty as an important situational factor for his or her performance. Moreover, the use of question difficulty was found to be asymmetrical, such that it affected inferences about quizmasters only when participants were highly motivated to process the relevant information effortfully (Experiment 2) or when they took the perspective of the quizmaster (Experiment 3). Inferences about contestants, in contrast, were affected by question difficulty even under cognitive load (Experiment 2). These results were obtained as a function of the difficulty of the questions not answered correctly.

It is, however, an open question whether general knowledge attributions also are affected by the difficulty of the questions the contestant is actually able to answer correctly. This case differs from the one investigated in the first studies such that question difficulty might function as an augmenting, rather than as a discounting, situational factor (Kelley, 1972). More precisely, perceivers may use the high difficulty of a question not answered correctly to discount the contestant's failure to offer the correct answer, but they may use the high difficulty of a question answered correctly to augment a successful performance.

To test these assumptions was the main objective of Experiment 4. In this study, participants watched a videotaped quiz-role game with questions not answered correctly being generally difficult and questions answered correctly being either difficult or easy. Orthogonal to this manipulation, participants took either the perspective of the quizmaster or the perspective of the contestant before watching the video. Based on the results of Experiment 3, it was expected that the difficulty of the questions answered correctly affects inferences about contestants only when perceivers take the perspective of the contestant, not when they take the perspective of the quizmaster.

In contrast to inferences about contestants, quizmaster attributions were expected to be unaffected by the difficulty of the questions answered correctly. This prediction is implied by the assumption that difficult questions generally have a high diagnostic value for inferring a high level of general knowledge (see Reeder, 1997). Hence, in the present study, the high level of difficulty of the questions not answered correctly should lead to attri-

butions of a high general knowledge level regardless of the difficulty of the questions answered correctly. In other words, when perceivers take the perspective of the contestant, the difficulty of the questions answered correctly should have no impact on quizmaster attributions due to the generally neglected relevance of alternative information. When perceivers take the perspective of the quizmaster, however, the difficulty of the questions answered correctly also should have no impact on quizmaster attributions because the high level of difficulty of the questions not answered correctly always implies a high level of general knowledge.

*Method*

*Participants and design.* A total of 56 students (15 women) were recruited on campus for a study on social roles. Participants received a chocolate bar for participation. The experiment consisted of a 2 (role position: quizmaster vs. contestant) × 2 (difficulty of questions answered correctly: easy vs. difficult) × 2 (role distribution: actor A being quizmaster vs. actor B being quizmaster) × 2 (role salience: quizmaster vs. contestant) mixed-model design, with the first variable as within-subjects factor and the other three as between-subjects factors. Data from one participant who indicated knowing both of the targets were excluded from analyses.

*Procedure.* Four new videotapes of a simulated quiz-role game were recorded, with two male confederates twice playing the quizmaster and twice the contestant. Questions not answered correctly were generally difficult; questions answered correctly were either difficult or easy. Questions were selected according to the procedure described for Experiment 1 in a new pretest with a total of 38 psychology students. Order of the questions answered correctly and not correctly was identical to Experiment 1. Manipulations of role salience, procedures, and measures of general knowledge and role-change predictions were identical to Experiment 3.

*Results*

Because the particular role distribution of the two actors revealed no interpretable effects on any of the dependent measures, this variable was dropped from further analyses.

*Manipulation checks.* A 2 (difficulty of questions answered correctly: easy vs. difficult) × 2 (role salience: quizmaster vs. contestant) ANOVA on perceived question difficulty revealed a significant main of question difficulty, $F(1, 51) = 5.87$, $p < .05$, indicating that questions were perceived as more difficult when the questions answered correctly were difficult than when they were easy ($M_{easy} = 3.86$, $M_{difficult} = 4.70$). No other main or interaction effects reached statistical significance (all $F$s < 1).

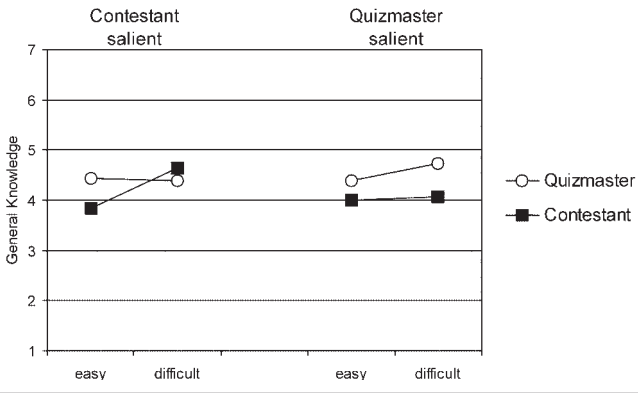


**Figure 4 Mean general knowledge attributions for quizmasters and contestants as a function of the difficulty of questions answered correctly (easy vs. difficult) and role salience (quizmaster salient vs. contestant salient), Experiment 4.**
NOTE: Higher values indicate higher attributions of general knowledge.

*General knowledge.* Items designed to assess attributions of general knowledge were merged into a single index of estimated general knowledge of the quizmaster (Cronbach's α = .77) and the contestant (Cronbach's α = .60). These indices were submitted to a 2 (role position: quizmaster vs. contestant) × 2 (difficulty of questions answered correctly: easy vs. difficult) × 2 (role salience: quizmaster vs. contestant) mixed-model ANOVA. This analysis revealed a significant main effect of role position, indicating that quizmasters were rated higher in general knowledge than contestants ($M_{quizmaster} = 4.55$, $M_{contestant} = 4.41$), $F(1, 51) = 6.97$, $p < .05$. This main effect was qualified by a significant three-way interaction of role position, question difficulty, and role salience, $F(1, 47) = 4.59$, $p < .05$ (see Figure 4). To specify this interaction in terms of the present hypotheses, separate analyses for the two role salience conditions were conducted.

For conditions in which participants took the perspective of the contestant, a 2 (role position: quizmaster vs. contestant) × 2 (difficulty of questions answered correctly: easy vs. difficult) mixed-model ANOVA revealed a significant two-way interaction of question difficulty and role position, $F(1, 26) = 5.36$, $p < .05$. Whereas contestants were rated higher in general knowledge when the questions answered correctly were difficult than when they were easy ($M_{difficult} = 4.64$, $M_{easy} = 3.85$), $t(26) = 4.12$, $p < .001$, ratings for quizmasters were unaffected by question difficulty ($M_{difficult} = 4.39$, $M_{easy} = 4.43$), $t(26) = -.10$, *ns*. Moreover, quizmasters were rated higher in general knowledge than contestants only when questions were easy, $t(13) = 2.68$, $p < .05$, but not when they were difficult, $t(13) = -.87$, *ns*.

For conditions in which participants took the perspective of the quizmaster, the same ANOVA revealed a

significant main effect of role position, $F(1, 25) = 7.56$, $p < .05$, indicating that quizmasters were rated higher in general knowledge than contestants ($M_{quizmaster} = 4.55$, $M_{contestant} = 4.03$). No other main or interaction effect reached statistical significance (all $F$s < 1).

*Role-change predictions and the questioner superiority effect.* To test the relation between role-change predictions and the questioner superiority effect, general knowledge ratings for contestants were subtracted from general knowledge ratings for quizmasters. An inspection of mean values indicates that the questioner superiority effect increased as a function of question difficulty when participants took the perspective of the quizmaster ($M_{easy} = .38$, $M_{difficult} = .67$) but decreased when participants took the perspective of the contestant ($M_{easy} = .58$, $M_{difficult} = -.25$). A corresponding two-way interaction was observed for performance predictions after role change, $F(1, 51) = 5.02$, $p < .05$, indicating higher performance predictions as a function of question difficulty when participants took the perspective of the quizmaster ($M_{easy} = 5.36$, $M_{difficult} = 6.15$) but lower performance predictions as a function of question difficulty when participants took the perspective of the contestant ($M_{easy} = 6.07$, $M_{difficult} = 5.00$). Moreover, an ANCOVA on performance predictions including the questioner superiority effect as a covariate revealed a significant effect of the covariate, $F(1, 50) = 5.76$, $p < .05$, such that performance predictions increased as a function of the questioner superiority effect ($r = .39$, $p < .01$). The interaction of question difficulty and role salience, however, was only marginally significant after controlling for the questioner superiority effect, $F(1, 50) = 2.14$, $p \leq .13$. In contrast to Experiment 3, a Sobel test indicated only a marginal mediation of the questioner superiority effect, $z = 1.59$, $p = .11$.

### *Discussion*

Experiment 4 offers evidence that general knowledge attributions for contestants are not only affected by the difficulty of the questions not answered correctly but also by the difficulty of the questions answered correctly. Specifically, contestants (but not quizmasters) were rated higher in general knowledge when the questions answered correctly were difficult than when they were easy. However, this effect emerged only when perceivers took the perspective of the contestant but not when they took the perspective of the quizmaster. Together with the results obtained in Experiments 1 to 3, these findings suggest (a) that perceivers consider the difficulty of the questions not answered correctly as a discounting situational factor for failure and (b) that they consider the difficulty of the questions answered correctly as an augmenting situational factor for success (see Kelley, 1972). Both effects, however, seem to be limited to conditions in which perceivers take the perspective of the contestant; that is, when situational determinants of the contestant's performance are highly salient.

In contrast to inferences about contestants, quizmaster attributions were generally unaffected by the difficulty of the questions answered correctly. This seems to be due to the high diagnostic value of difficult questions for inferring a high level of general knowledge (see Reeder, 1997). Specifically, it seems that deliberate attributional inferences about quizmasters follow an implicit of ability, implying that only knowledgeable individuals should able to generate difficult questions. Hence, in the present study, the high difficulty of the questions not answered correctly should always lead to attributions of a high level of general knowledge, regardless of whether the questions answered correctly are difficult or easy.

## GENERAL DISCUSSION

The main goal of the present studies was to investigate the underlying processes of how perceivers draw correspondent dispositional inferences in the presence of self-presentational asymmetries imposed by social roles. Specifically, it was argued that a sufficient understanding of role-dependent attributional biases (e.g., the questioner superiority effect) requires a separate consideration of the dispositional inference processes about each of the targets involved, particularly with respect to deliberate attributional inferences. Employing Ross et al.'s (1977) quiz-role paradigm, results from four studies generally supported these assumptions. Consistent with the assumption that perceivers consider the difficulty of the questions not answered correctly as a situational factor for the contestant's performance, contestants were generally rated higher in general knowledge when the questions not answered correctly were difficult than when they were easy. Surprisingly, this effect emerged even when perceivers were distracted (Experiment 2). This was assumed to be due to the high salience of question difficulty as a situational factor for the performance of the contestant (Trope & Gaunt, 2000). Motivated to prove their own general knowledge, observers may attempt to answer the questions posed to the contestant and thus take the perspective of the contestant. Accordingly, question difficulty as a situational factor for the performance of the contestant becomes highly salient (Jones & Nisbett, 1972; Storms, 1973). Because situational adjustment, in turn, should take place even under conditions of distraction when situational factors are highly salient (Trope & Gaunt, 2000), inferences about contestants should be adjusted to question difficulty even under conditions of cognitive load. These assumptions are supported by the results of Experiment 3, in which question difficulty affected general knowledge attributions for contestants only when participants took the perspective of the contestant, not when they took the

perspective of the quizmaster. Finally, Experiment 4 demonstrated that perceivers consider question difficulty for inferences about contestants not only as a discounting situational factor for failure but also as an augmenting situational factor for success (see Kelley, 1972).

With respect to inferences about quizmasters, the present results also support the assumption that perceivers search for alternative information that may be diagnostic for the quizmaster's level of general knowledge when they consider the quizmaster's knowledge of the correct answers as nondiagnostic. Consistent with this assumption, perceivers attributed a higher level of general knowledge to the quizmaster when the questions posed to the contestant were difficult than when they were easy. This effect, however, was observed only when perceivers were highly motivated to process the available information effortfully (Experiment 2) or when the role advantage of the quizmaster was highly salient (Experiment 3).

*Sensitivity to Situational Factors*

The present findings also suggest that perceivers are much more sensitive to situationally induced role constraints than previous results seem to imply. In the present studies, participants showed a rather high sensitivity for question difficulty as an important situational factor for the contestant's performance. In other words, perceivers were highly aware of "the 'invisible jail' in which contestants were imprisoned" (Gilbert & Malone, 1995, p. 25). Most interestingly, situational adjustment to question difficulty was undermined only when perceivers took the perspective of the quizmaster. However, when perceivers took the perspective of the contestant, they adjusted their inferences about contestants to question difficulty even when they were distracted.

Even though the present findings suggest that perceivers are highly sensitive to the role-conferred disadvantage of the contestant, it is still an open question whether they are also aware of the role-conferred advantage of the quizmaster. On one hand, it could be argued that inferences about quizmasters are adjusted to question difficulty only when perceivers disregard his or her performance as being due to the situationally induced role advantage. This assumption is consistent with Reeder's (1997) finding that implicit theories of ability affect dispositional inference within the process of situational adjustment (see also Gawronski, 2003a). On the other hand, however, one also could argue that awareness of the quizmaster's role advantage is actually not necessary for a consideration of question difficulty. In other words, perceivers may consider question difficulty as behavioral evidence for the quizmaster's general knowledge without any awareness of his or her role advantage. Future research may help to clarify whether role awareness is actually a necessary precondition for an impact of question difficulty on inferences about quizmasters.

*Trait Attributions and Performance Predictions*

An interesting secondary finding of the present studies is that trait attributions and performance predictions for quizmasters when contestants and quizmasters would change their roles are much more related to one another than previous results suggest. Johnson et al. (1984), for example, argued that performance predictions after role change reflect perceivers' higher order causal inferences about the factors involved in the quiz-role paradigm. Trait attributions, in contrast, may reflect perceivers' spontaneous perceptions of trait-behavior associations (see Model A in Figure 1). Drawing on this distinction, the questioner superiority effect was argued to represent a failure of adjusting spontaneous trait inferences to situational constraints rather than a general misperception of causality. In the present studies, however, it was argued that role-change predictions may reflect a consequence of trait attributions rather than an independent representation of causality that might be used to adjust spontaneous trait inferences. Specifically, role-change predictions were assumed to be a joint product of participants' general knowledge attributions for contestants and quizmasters; that is, they may consider their respective trait attributions of general knowledge when predicting the quizmaster's performance in case the two targets would change their roles. This assumption was supported by the finding that performance predictions after role change were mediated by the relative difference in trait attributions for quizmasters and contestants (Experiments 3 and 4).

But how does this result relate to Johnson et al.'s (1984) finding that participants attributed an approximately equal number of correct answers to the quizmaster, as was previously observed for the contestant? First, whereas in the present studies participants were asked to predict an exact number, Johnson et al. used a rating scale with the endpoints *much worse* versus *much better* and the midpoint *about the same*. Hence, the difference between Johnson et al.'s results and the present findings could be due to differences in the method used to assess role-change predictions. Second, even though the questioner-superiority effect was not attenuated by "causal awareness" (i.e., equal performance predictions), Johnson et al. found a significant relation between performance predictions and trait attributions, such that higher performance predictions were associated with a higher level of the questioner superiority effect. Hence, the apparent inconsistency between Johnson et al.'s finding and the present results seems to be less substantial than it may appear. Finally, and most

important, Johnson et al. used difficult questions for both the questions answered correctly and the questions not answered correctly. In the present study, however, this combination also led to the prediction of an approximately equal performance, at least under conditions in which participants took the perspective of the contestant (Experiment 4). Hence, Johnson et al.'s finding may reflect the consequence of a particular combination of question difficulty rather than a substantial difference to the present results.

*Cognitive Elaboration and the Fundamental Attribution Error*

Another interesting finding of the present studies is that the questioner superiority effect, which is commonly interpreted as an instance of the fundamental attribution error (Ross, 1977), increased rather than decreased as a function of cognitive elaboration when the questions not answered correctly were difficult (Experiment 2). This result is in contrast to the results of previous studies in which the fundamental attribution error was generally found to decrease as a function of increasing cognitive elaboration (e.g., D'Agostino & Fincher-Kiefer, 1992; Fein, 1996; Tetlock, 1985; Vonk, 1999; Webster, 1993). Even though this result may be limited to particular conditions (e.g., high difficulty of questions not answered correctly), the discrepancy between this result and previous evidence could have its roots in at least two basic differences.

First, whereas the tendency to commit the fundamental attribution error in the attitude attribution paradigm (Jones & Harris, 1967) is conceptualized as perceivers' tendency to draw correspondent dispositional inferences from situationally constrained behavior for a single target, the fundamental attribution error in the quiz-role paradigm is conceptualized as the difference between dispositional attributions for two different targets. Most important, the two dispositional attributions in the quiz-role paradigm seem to be differentially affected by one and the same factor (i.e., question difficulty), because this factor can be a situational factor for one target but a sign of ability for the other. Hence, even though results from both the attitude attribution paradigm and the quiz-role paradigm are usually interpreted in terms of the fundamental attribution error, the respective factors contributing to the fundamental attribution error may not be comparable to one another.

Second, the label "fundamental attribution error" may generally be misleading in both the quiz-role and the attitude attribution paradigm. Traditionally, the label "fundamental attribution error" is used to describe perceivers' "general tendency to overestimate the importance of personal or dispositional factors relative to environmental influences" (Ross, 1977, p. 183). As a consequence, they draw correspondent dispositional inferences even when the actor's behavior is highly constrained by situational factors. Some experiments, however, suggest that perceivers commit the so-called fundamental attribution error even when they consider the impact of situational factors (e.g., Trope & Gaunt, 1999; see Gawronski, 2003a, 2003b for a discussion). Similar findings were obtained in the present studies in which perceivers considered the impact of question difficulty as a situational factor for a poor performance of the contestant but (under certain conditions) nevertheless fell prey to the questioner superiority effect.

*Relations to Other Models of Social Inference*

Even though the present framework does not explicitly consider the role of inferential goals, it has a number of similarities to Krull's (1993) Mixed Model of Social Inference. According to Krull, the processing sequence proposed by Gilbert et al. (1988) is not a fixed one but depends on the inferential goal of the perceiver. When perceivers are interested in inferring dispositions they are assumed (a) to spontaneously categorize the target's behavior, (b) to spontaneously characterize a corresponding disposition, and (c) to deliberately adjust these characterizations to situational constraints. However, when perceivers are interested in the causal role of situational factors, they are assumed (a) to spontaneously categorize the target's behavior, (b) to spontaneously characterize the situation, and (c) to deliberately adjust these characterizations to dispositional information. In other words, the content of both characterization and adjustment is assumed to depend on the inferential goal of the perceiver (e.g., Krull & Dill, 1996; Krull & Erickson, 1995).

The present framework is similar to Krull's (1993) model by considering two different sequences. However, whereas in Krull's model the two sequences refer to mutually exclusive inferential goals with respect to one and the same target, the present framework refers to two simultaneous inferential goals with respect to two different targets. Notwithstanding this difference, inferential goals also may be important for the present conceptualization. Specifically, perceivers in the quiz-role paradigm may allocate their attention to either the quizmaster or the contestant, which should be strongly determined by perceivers' inferential goals. Whereas perceivers interested in dispositions of the quizmaster might pay more attention to the quizmaster than to the contestant, the reverse should be true for perceivers who are interested in dispositions of the contestant. Because attention to one of the two targets, in turn, may undermine a sufficient processing of the relevant information about the other target (Experiments 3 and 4), inferential goals may be an important determinant for the asymmetrical

impact of question difficulty, as was obtained in the present studies.

*Implications for Social Role Theory*

The present findings also have important implications for the emergence of role-conferred stereotypes. According to Social Role Theory, gender stereotypes largely stem from the distribution of men and women into different social roles (Eagly, 1987; Eagly, Wood, & Diekman, 2000). Whereas men more often have the role of breadwinners, women more often have the role of homemakers. This unequal distribution, in turn, is assumed to promote the attribution of role-corresponding traits, as long as perceivers do not adjust their dispositional inferences to the behavioral constraints implied by the two roles (see also Humphrey, 1985). Hence, gender stereotypes may reflect the division of labor within a given society and perceivers' susceptibility to the fundamental attribution error rather than a genuine psychological difference between men and women.

From the present perspective, however, even deliberate attributional inferences may be insufficient to attenuate gender-stereotypical judgments. Specifically, one could argue that perceivers processing the available evidence superficially, spontaneously infer corresponding dispositions from the mere perception of men's and women's role behaviors (i.e., breadwinning, homemaking). In contrast, perceivers engaging in deliberate attributional processing might consider men's and women's actual performance levels within their roles. Hence, deliberate processors may still infer gender-stereotypical traits when both of them do a good job within their respective role. In other words, as long as men do a good job in stereotypically male domains and women do a good job in stereotypically female ones, even deliberate attributional inferences may lead to gender-stereotypical judgments. Moreover, deliberate attributional processing may attenuate gender-stereotypical judgments only when men and women are perceived to perform well in counterstereotypical roles, but not when they are perceived to perform poorly.

*Conclusion*

In sum, the present studies suggest that a sufficient understanding of role-dependent attributional biases, such as the questioner superiority effect, requires a separate consideration of the dispositional inference processes about each of the targets involved, particularly with respect to the process of deliberate attributional inference. Moreover, it seems that perceivers are much more sensitive to situationally induced role constraints than previous results may suggest. Hence, to offer a better understanding of lay perceivers' dispositional judgments it may be fruitful to move from comparing these judgments with some arbitrary normative standards to empirically investigating the underlying cognitive processes of these judgments.

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