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The Curse of Knowing: The Influence of Explicit Perspective-Awareness Instructions on Perceivers' Perspective-Taking

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Abstract

This study investigated whether an explicit and stimulated attention to the mental states of an uninformed other fosters perspective-taking. The experimental aim of this study was twofold. First, we aimed to replicate Keysar's (1994) curse of knowledge effect, indicating how privileged information biases correct perspective-judgments. The second aim was to investigate whether this curse of knowledge effect diminishes by explicit instructions to become aware of another person's perspective. Findings showed that we replicated Keysar's (1994) curse of knowledge effect. Perceivers were more likely to impute their perception of speaker's sarcasm onto an uninformed addressee when their privileged information suggested that the speaker was being sarcastic rather than being sincere. Findings further revealed that perceivers were just as likely to overestimate the extent to which their private perspective was shared by an uninformed addressee, regardless of their explicit and stimulated attention to this addressee's perspective.

Keywords: perspective-taking; interpersonal perception questions; curse of knowledge; privileged information; egocentricity bias.

Introduction

Perspective-taking is the cognitive act of imagining the situation from another person's viewpoint, thereby taking into account this person's thoughts, knowledge and intentions. When interlocutors are able to correctly infer these mental states of others, they are able to more successfully interact. Perspective-taking is therefore considered to be a vital process for social functioning (e.g. Davis, 1983). Ample research has shown, however, that perceivers often fail to appreciate the other's different vantage point, even when the social context requires them to do so (e.g., Damen et al., 2017; Wardlow Lane et al., 2006). The question whether and under what circumstances perceivers are able to successfully infer what is going on in the mind of others has received great scholarly attention. It has been scarcely investigated, however, how perspective-takers can be stimulated to successfully decipher the inner thoughts of others.

One important reason as to why perceivers often fail to correctly infer the mental states of others is because perspective-taking is considered to be an egocentric anchoring and adjustment process (Epley et al., 2004). Perceivers are argued to use their own perspective as a referential anchor and adjust away from this egocentric judgment in effortful, sequential steps to allow for a perspective-judgment that more accurately reflects the other's perspective. These perspective-adjustments,

however, are often not sufficient and are very likely to err in the direction of perceivers' egocentric interpretation. This is because perceivers are likely to accept a perspective-judgment that easily springs to mind (Epley et al., 2004), which so happens to be their own. That is, the ease at which perceivers' private cognitions are accessible makes it hard for perceivers to ignore or suppress them as plausible estimates of the other's perspective. In this way, perceivers' own mental states bias (e.g., Keysar, Barr, & Horton, 1998) or 'curse' (Birch & Bloom, 2007) perspective-taking. The burden of perceivers' egocentric perspective can result in instances in which they overestimate the extent to which their perspective is shared by uninformed others (Keysar, 1994).

Keysar (1994) has shown how perceivers' egocentric perspective can curse perspective-taking. In his scenario study, participants were very likely to impute their knowledge and perception of a protagonist's sarcasm onto an uninformed other. Participants read a scenario in which a protagonist took his parents to a restaurant recommended by his colleague. Participants either learned that the protagonist and his parents had a remarkable dining experience there, or that the experience had been miserable. The following day, the protagonist replied by e-mail to his colleague: "*You wanted to know about the restaurant: well, marvelous, just marvelous*". When participants were asked to indicate how the colleague would interpret the protagonist's comment, Keysar (1994) found that the e-mail communicating a sarcastic intention (i.e., in the poor dining experience) caused participants to wrongly infer that the colleague would interpret the comment to be sarcastic rather than to be sincere. This in contrast to the e-mail communicating a sincere intention (i.e., in the remarkable dining experience). Note that only the participants were privileged with the knowledge that the dining experience had either been poor or remarkable. For both experiences, the colleague had no other reason than to believe that the protagonist was being sincere about his marvelous dining experience. Hence, participants who learned about the protagonist's miserable experience were cursed by their own knowledge of the protagonist's sarcastic intention. Perceivers were unable to suppress their privileged perspective, which led them to overestimate the extent to which this perspective was shared by the uninformed colleague.

Weingartner and Klin (2005) showed that Keysar's (1994) findings also generalize to natural reading. In an eye-tracking experiment, Weingartner and her colleague presented readers with a target line that described the colleague's (June) interpretation of the protagonist's (David) message. This

description always reflected a sincere interpretation of the message, since the June did not have access to David's experience. For example in the dining experience where the David emails that his experience at the restaurant has been "(...) marvelous, just marvelous", readers read that June believed that David indeed enjoyed the restaurant: "*June thought that David really liked the restaurant*". Weingartner and Klin (2005) showed that this target line did not cause any interpretation problems when readers knew the experience had indeed been marvelous. However, when readers had previously learned that David was being sarcastic because the dining experience had been miserable, reading June's sincere interpretation did cause interpretation problems reflected in a slowdown in reading. When readers' privileged information suggested a sarcastic interpretation (in the negative experience), reading times on the target line were longer than when privileged information suggested that the speaker was being sincere (in the positive experience).

Interestingly, in a follow-up study, Weingartner and Klin (2005) showed that this curse of knowledge effect slightly reduced when June was brought into focus before participants read David's message. According to the authors, in previous studies investigating the same phenomenon, the protagonist (David) was still in the foreground when readers read his message (e.g., "*When David arrived at work the next morning, he e-mailed to June (...)*"). This focus on David would make all information associated with him accessible (e.g., Garrod & Sanford, 1990), including readers' knowledge of his experience. This attention on David's perspective would make it hard for readers to disregard their knowledge of David's experience while judging the interpretation of the uninformed June. Weingartner and her colleague (2005) therefore argued that by bringing June instead of David into focus (e.g., "*When June arrived at work the next morning, she read an e-mail from David saying (...)*") would make information associated with her accessible, including the information that is and isn't known by her. Findings showed some preliminary support for this perspective-focus hypothesis. When June's perspective was emphasized before the target line appeared, reading times on the target line for negative versus positive experiences was not significantly different only for items (F2), but it was for subjects (F1). Only the F2 analysis thus showed that the perspective-focus on June helped readers to more quickly realize that their privileged information was not accessible to her. According to the F1 analysis, however, readers' privileged information about David's experience still influenced their judgment of June's interpretation of the message. The authors concluded that a stronger perspective-focus manipulation is needed to hinder this powerful curse of knowledge effect.

In this study, instead of asking participants to read about the addressee's point of view as in Weingartner and Klin (2005), we explicitly instruct readers to acknowledge the addressee protagonist's perspective in a prior perspective-focus session. We investigate whether these explicit and repeated instructions to regard the addressee's point of view

stimulates participants to suppress private cognitions during subsequent perspective-taking. Instead of using a student sample as in the original and previous replication studies, we further aim to replicate Keysar's findings to a nonstudent, adult population. This allows us to strengthen the generalizability of the research findings (Peterson, 2001), and enables us to investigate whether the curse of knowledge effect dictates the perspective-taking process of adult perceivers working in an organizational context in which they are used to regularly infer intentions through e-mail correspondences.

Method

Participants

An online questionnaire was sent to 700 employees of a financial institution in the Netherlands. Out of these 700 employees, 325 accessed the online questionnaire. We excluded the participants who did not fully complete the questionnaire and based our analyses on the remaining 229 participants (116 women, 111 men, 2 unknown, $M_{age} = 48.0$ years, age range 27-65). Since we distributed the questionnaire among employees working at different levels in the organization, we also collected employees' educational background. This educational background ranged from Preparatory Secondary Vocational Education (5.7%) to a PhD (0.9%), with the majority of the participants having completed a Higher Vocational Education (33.6%). As a remuneration, participants were able to take part in a Perception-Checking workshop conducted by the first author after data collection had ended. A total of 35 employees attended the workshop.

Design

Participants were randomly allocated to one of the two Perspective-Focus conditions (Addressee-Focus, No-Focus). In each condition, participants read two scenarios in which a speaker protagonist referred to a past experience (positive, negative) to an addressee protagonist. We balanced the order in which participants learned about the speaker's negative versus positive experience by allocating half of the participants to another condition in which they first read a negative experience, followed by a positive experience. This resulted in a 2 (Perspective-Focus: Addressee-Focus vs. No-Focus) x 2 (Event Experience: Negative vs. Positive) x 2 (Presentation Order: Negative-Positive vs. Positive-Negative) design in which Perspective-Focus and Presentation Order were treated as between-subjects factors and Event Experience as a within-subjects factor.

Materials and Procedure

Event Experience The experimental design followed Keysar's (1994) first experiment in which participants indicated how an uninformed addressee protagonist would interpret a speaker protagonist's e-mail message. After having given their consent, participants read a scenario that described the speaker's past experience that had either been

negative or positive. At the end of the scenario, the speaker made a comment to the addressee about this experience. In the case of a negative experience, the speaker communicated a sarcastic intention, whereas his intention was sincere when the experience had been positive. Information about the speaker's experience was privileged to the participants and not known to the addressee protagonist. In both cases, the addressee had no other reason than to believe that the speaker was being sincere. After reading the speaker's comment, participants indicated how the uninformed addressee would interpret the speaker's message. In the original study, participants responded to the question *"Did the addressee take the speaker's comment as sarcastic?"* by circling one of the three options (yes, maybe, no). To allow for a more nuanced judgment in which participants could also select a sincere interpretation (e.g., Galinsky et al., 2006), we allowed participants to answer the question *"How did the addressee (Maartje) interpret the speaker's (Tom's) comment?"* on a seven-point scale (1 = *very sincere*, 7 = *very sarcastic*). The same held for the follow-up question that asked participants to indicate the speaker's intention with his conveyed message. In the original study, this question was formulated as *"Did you think the speaker was being sarcastic?"* (yes, maybe, no). In our study, we also nuanced this question and asked participants to answer *"What was the speaker's (Tom's) intention with his comment he send to the addressee (Maartje)?"* on a seven-point scale (1 = *very sincere*, 7 = *very sarcastic*).

The participants in Keysar's study received a booklet containing eight different scenarios that appeared in four different versions. These versions were based on whether the speaker spoke or wrote his sincere versus sarcastic message in the scenario. In contrast to Keysar, we were mainly interested in the extent to which participants would overimpute their privileged knowledge onto an uninformed other, regardless of the modality in which the speaker conveyed his message. We therefore translated two of Keysar's scenarios (Table 1) in which the speaker's message was conveyed in written text (i.e., e-mail). The scenarios described social situations that were familiar to the student sample used by Keysar. To make sure our employee sample could still identify with the described situations, we adjusted the protagonists' student/professor roles from the second scenario into colleague/colleague roles. The translated scenarios including the speaker's experience and his comment are presented in Table 1.

Table 1: Scenarios describing speaker's negative (N) or positive (P) past experience.

	Scenario 1	Scenario 2
	Background Information	
	Tom asked his colleague, Maartje, to recommend a restaurant. Tom's parents were in town and he wanted to take them to a good place. Maartje told Tom: "I can strongly recommend this new Italian restaurant, called Venezia. I just had dinner there last night and it was marvelous. Let me know how you all enjoy it". That evening, Tom took his parents to Venezia.	Within a few days, a former colleague of Tom will be joining Maartje's marketing team. Maartje is curious about this new colleague and she decides to send Tom an e-mail: "How is Karlijn as a colleague? Is she nice?". As it turns out, Tom knows Karlijn well. At his former employer, Tom worked frequently with Karlijn.
	Event Experience	
N	The food was unimpressive and the service was mediocre. The following morning, Tom e-mailed to Maartje: "You wanted to know about the restaurant, well, marvelous, just marvelous."	Tom hadn't always gotten along with Karlijn, because she had been rude to him. With that in mind, Tom responded by e-mail: "Oh yeah, Karlijn is really nice."
P	The food was indeed delicious and the service impeccable. The following morning, Tom e-mailed to Maartje: "You wanted to know about the restaurant, well, marvelous, just marvelous."	Tom had always gotten along with Karlijn. With that in mind, Tom responded by e-mail: "Oh yeah, Karlijn is really nice."

Perspective-Focus We hypothesize that repeated instructions to acknowledge another person's perspective stimulates perceivers to also acknowledge this person's perspective in a subsequent task. To investigate this prediction, we allocated half of the participants to an Addressee-Focus condition. In this condition, perception questions explicitly instructed participants to infer the perspective of the protagonist (i.e., Maartje) who assumed the role of addressee in the two subsequent scenarios. The addressee-focus session started by asking participants to read an introductory scenario that introduced Maartje's character and preferences. This information could later on be used when participants made choices on the bases of Maartje's perspective. The introductory scenario is presented below:

Maartje is 32 years old and employed at the marketing department of a well-known company in the Netherlands. She leads a very diverse team with great enthusiasm. Maartje is a true adventurer. Her adventurous character and her love for nature are perfectly manifested in her hobby mountain climbing. Maartje spends all her free hours climbing. She particularly enjoys reaching the top after a few hours of great exertion. The fact that no mountain is high enough for Maartje is apparent from her recent victory on the Kilimanjaro in Tanzania; Africa's highest mountain. This year, she challenges herself to climb the highest mountain in the world, the Mount Everest in Nepal. Maartje combines her love for nature and sport with her love for animals. She regularly travels across the Netherlands to find sponsors for the foundation "Animal Care"; a foundation she more than happily supports.

Table 2: Perception questions (Q) and their answer options (A) (optimal choices are presented in bold).

	Question		Answer
Q1	Soon, Maartje's employer organizes an annual outing. To make sure that the activities are adapted to the wishes of the employees, everybody is asked to choose one activity out of two available options. Which activity will Maartje choose?	A1	A workshop skydiving
		A2	A visit to the local beer brewery
Q2	The mountain sport magazine "To the top" has a special offer for Maartje. Since she has been a loyal customer, she will receive three editions of a magazine of choice. Maartje is able to choose one magazine out of the two following options. Which option will Maartje choose?	A1	In Picture; a magazine for film fanatics
		A2	Nature Life ; a magazine for nature enthusiasts.
Q3	The organization were Maartje is working wants to donate a particular amount to a good cause. Employees are asked to vote for one of the two proposed foundations. Which foundation will Maartje choose?	A1	Animal Foundation ; devoting itself to protect animals from negligence and maltreatment.
		A2	Make a Wish; foundation for children with a severe disease
Q4	This year, Maartje is responsible for the organization of the monthly teambuilding outing. Her staff let Maartje know to be interested in two possible activities. It is up to Maartje to decide which one it will be. Which activity will Maartje choose?	A1	City game; a joint quest through a city of choice.
		A2	Wall-climbing ; a sport activity for the whole team

Subsequent to this introductory scenario, participants answered four consecutive perception questions that asked participants to take the protagonists' perspective (Table 2). For example, one question described how the protagonist's organization asked her employees to choose an outing out of two available options (option 1 = *workshop skydiving*, option 2 = *a visit to the local beer brewery*). Participants answered the perception question "*Which activity will Maartje choose?*". If participants were to regard the protagonist's perspective, they would choose the option that adhered the most to the protagonist's perspective (option 1). The options for all four questions were presented in a counterbalanced order. The perception questions and their answer options are presented in Table 2.

Out of the four perception questions, most participants provided at least twice an answer that was the optimal choice from the perspective of the addressee Maartje ($M_{\text{optimal choices}} = 3.08$, $SD = 0.84$, $t(116) = 13.83$, $p < .001$). This indicates that the addressee-focus session was able to elicit participants' focus on Maartje's perspective.

After the addressee-focus session, participants were directed to the two scenarios. Participants in the no-focus condition did not receive explicit focus instructions and were

at the start of the experiment immediately directed to the two scenarios. Afterwards, demographics were collected and participants were questioned about the purpose of the study. No one guessed our hypotheses. The debriefing took place via e-mail one week after the data collection had ended.

Results

Two separate factorial ANOVAs for Repeated Measures were run to test for the effect of Event Experience (Negative, Positive) on (a) participants' own perception of speaker's sarcasm and on (b) participants' judgment of addressee's perception of the speaker's sarcasm. Both ANOVAs included Event Experience as a within-subjects factor and Presentation Order (Negative First-Positive Second, Positive First-Negative Second) as a between-subjects factor. The second ANOVA investigating participants' judgments of addressee's perception of sarcasm also included Perspective-Focus (Addressee-Focus, No-Focus) as a between-subjects factor. Participants' educational background was added as a covariate to control for the large variety in participants' education level. We reduced the number of educational backgrounds to two (lower, higher); the Lower- till Intermediate Vocational Education profiles were allocated to the lower level, and the Higher Vocational Education through PhD profiles were allocated to the higher level. Inspection of the data resulted in the exclusion of three cases that were considered to be outliers. The analyses are thus based on 117 participants in the Addressee-Focus condition, and on 109 participants in the No-Focus condition.

Participants' Perception of Sarcasm

Participants perceived more sarcasm in speaker's reference to his past experience when this experience had been negative ($M = 5.33$, $SD = 1.54$) rather than positive ($M = 1.75$, $SD = 0.91$), $F(1, 223) = 33.34$, $p < .001$, $r = .36$. This effect was the same for participants with a lower and higher educational level, $F(1, 223) = 3.11$, $p = .079$, $r = .12$.

The analysis revealed a main effect for Presentation Order on participants' perceptions of speaker's sarcasm, $F(1, 223) = 18.31$, $p < .001$, $\eta^2 = .08$, $r = .28$. Participants' perception of sarcasm was higher when they were first confronted with a negative experience ($M = 3.78$, $SE = 0.08$) than with a positive experience ($M = 3.31$, $SE = 0.08$). Presentation Order did not interact with Event Experience, $F(1, 223) = 0.37$, $p = .543$. Participants did not perceive more sarcasm in the negative versus positive experience when the negative experience ($M = 5.05$, $SD = 1.46$) was preceded by the positive experience ($M = 1.57$, $SD = 0.80$), than when the negative experience ($M = 5.61$, $SD = 1.57$) was followed by the positive experience ($M = 1.94$, $SD = 0.98$).

Participants' Judgment of Addressee's Perception of Sarcasm

We examined the extent to which participants used privileged information about the speaker's past experience to infer the addressee's perception of sarcasm. Participants thought the addressee would perceive sarcasm more when privileged

information suggested that the speaker was being sarcastic ($M = 3.07$, $SD = 1.67$) rather than being sincere ($M = 2.11$, $SD = 1.14$), $F(1, 221) = 14.98$, $p < .001$, $r = .25$. Event Experience interacted with participants' Educational Background, $F(1, 221) = 4.33$, $p = .039$, $r = .14$. A follow-up MANOVA revealed that the participants with a lower educational level were more strongly affected by their privileged information than speakers with a higher educational level. Participants with a lower educational level ascribed higher perceived sarcasm scores when privileged information suggested that the speaker was being sarcastic ($M = 3.43$, $SD = 1.72$) rather than being sincere ($M = 2.01$, $SD = 1.06$), than participants with a higher educational background ($M_{negative\ experience} = 2.91$, $SD = 1.63$; $M_{positive\ experience} = 2.15$, $SD = 1.17$).

There was no significant main effect of Presentation Order on participants' judgments of addressee's perception of sarcasm, $F(1, 221) = 1.57$, $p = .212$. Presentation Order did, however, interact with Event Experience, $F(1, 221) = 5.29$, $p = .022$, $r = .15$. Participants thought the addressee would perceive sarcasm more when they themselves knew the speaker was being sarcastic when the negative experience ($M = 3.15$, $SD = 1.59$) was preceded by the positive experience ($M = 1.87$, $SD = 1.13$), than when the negative experience ($M = 2.98$, $SD = 1.85$) was followed by the positive experience ($M = 2.35$, $SD = 1.09$).

Perspective-Focus on Judgments of Perceived Sarcasm

The mean scores of participants' judgments of addressee's perception of speaker's sarcasm as a function of Perspective-Focus (No-Focus, Addressee-Focus) and Event Experience (Positive, Negative) are presented in Figure 1.

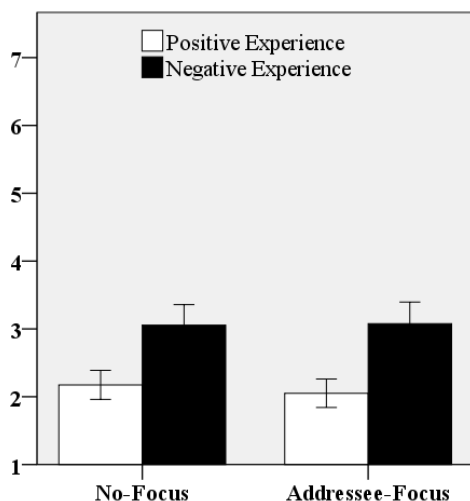


Figure 1: Mean scores of participants' judgment of addressee's perception of sarcasm (1 = very sincere, 7 = very sarcastic) as a function of Perspective-Focus and Event Experience. Error bars represent 95% confidence intervals.

Analyses revealed no significant main effect of Perspective-Focus on participants' judgments of addressee's perception of sarcasm, $F(1, 221) = 0.11$, $p = .741$. Participants' judgments of addressee's perceived sarcasm did not differ between those participants who had followed an antecedent addressee-focus session, ($M_{negative\ experience} = 3.08$, $SD = 1.74$; $M_{positive\ experience} = 2.05$, $SD = 1.14$), and those who did not follow such session ($M_{negative\ experience} = 3.06$; $SD = 1.60$; $M_{positive\ experience} = 2.17$, $SD = 1.13$). Perspective-Focus did not interact with Event Experience, $F(1, 221) = 0.33$, $p = .566$. The difference in participants' judgment of addressee's perceived sarcasm was the same between negative ($M = 3.06$, $SD = 1.60$) and positive ($M = 2.17$, $SD = 1.13$) experiences in the no-focus condition, as between negative ($M = 3.08$, $SD = 1.74$) and positive ($M = 2.05$, $SD = 1.14$) experiences in the addressee-focus condition. We ran our analyses again while controlling for age and gender, but our initial findings remained unchanged. Both age and gender did not have an influence on our results.

Discussion

This study aimed to replicate Keysar's (1994) curse of knowledge effect that claims that privileged information 'curses' perceivers during inferential perspective-taking. We investigated the curse of knowledge effect in an organizational context, thereby trying to replicate Keysar's findings using a nonstudent, adult sample (Peterson, 2001). We further investigated whether explicit instructions to infer the mental states of another person stimulates perceivers to suppress private cognitions that might influence subsequent perspective-taking. Results showed that we replicated Keysar's (1994) curse of knowledge effect in an adult population. Participants were more likely to infer that an uninformed addressee would perceive a speaker's sarcasm when participants' privileged information suggested that the speaker was being sarcastic rather than being sincere. Findings further showed that perceivers' curse of knowledge was not diminished by explicit instructions to become aware of the addressee protagonist's mental state reasoning. Whether perceivers followed an explicit addressee-focus session, they were very likely to overimpute their private perspective onto an uninformed addressee.

These findings suggest that the explicit perception questions in the addressee-focus session were not able to stimulate perceivers to successfully acknowledge the addressee's (uninformed) perspective during the subsequent scenario study. It could be that the explicit perception questions did not lead to sufficient perspective-adjustments in the subsequent scenario study because perceivers, in answering the four perception questions, did not select the choices that reflected the addressee's perspective. In the subsequent scenario study, this could have caused these perceivers to be more aware of their own perspective at the expense of being aware of the addressee's perspective. To test this assumption, we computed the mean-difference score ($M_{diff} = 1.59$) of participants' judgments of addressee's perception of the speaker's sarcasm between the two event

experiences (positive, negative) and tried to predict this score by the number of non-optimal choices ('errors') made during the addressee-focus session. This follow-up regression analysis revealed that the number of 'errors' made during the addressee-focus session did not predict this mean-difference score, $F(1,115) = 0.92$, $p = .341$. Perceivers who did not 'optimally' complete the addressee-focus session were not more likely to overimpute their privileged knowledge onto the addressee's perspective in the subsequent scenario study than those perceivers who did choose the optimal choice from the addressee's perspective. In addition, in the instances in which participants did not select the most optimal choice from the addressee's perspective during the addressee-focus session, they still had been forced to represent the addressee's perspective. This thus seems to suggest that the addressee-focus session caused perceivers to be aware of the mental state reasoning of the addressee (whether correct or incorrect), but this awareness did not cue them to adjust their egocentric perspective-judgment in the subsequent scenario study.

The question that arises here is whether the explicit perception questions influence perceivers' awareness of the addressee's uninformed perspective if these questions address the mental states that are involved during the subsequent scenario study itself. Perception questions are not only used to create a general awareness of interlocutor's mental representation of the world, but are especially used to address the false-beliefs that exist between these interlocutors (Cobb, 1993). Future research might thus investigate whether explicit perception questions contribute to perceivers' inhibition of privileged information during inferential perspective-taking when these questions are asked during the concerned mental state reasoning.

Our findings show that the curse of knowledge effect was stronger for the perceivers with a lower educational level than for those with a higher educational background. This seems to support previous findings showing that individual differences in inhibitory control predict perspective-taking behavior during language comprehension processes (e.g., Brown-Schmidt, 2009). Interestingly, our findings also showed that the order in which perceiver's privileged information was presented influenced the inferences they made about the addressee's perception of sarcasm. It seems that the saliency of perceivers' privileged information increased when participants were first confronted with a positive scenario in which the speaker communicated a sincere intention. This increased saliency about their privileged knowledge of the speaker's sarcastic intention caused perceivers to be more likely to overestimate the extent to which the uninformed addressee shared their perception of the speaker's sarcasm in the subsequent negative scenario. In the original study, Keysar (1994) does not mention whether the order of the event experiences also influenced perceivers' perspective judgments. However, in the original study, a larger number of scenarios (including more alternated positive and negative event experiences) was used, which could have, unintentionally, increased the curse of

knowledge effect. Future research might rule out this alternative explanation.

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