Research Article

How to Remember Something You Didn't Say

Lies of Omission Can Be Stored and Retrieved from Memory

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Abstract. When individuals suppress secret information, they should keep this omission in mind to not let this information slip out in future situations. Following recent findings about automatic memory retrieval of outright lies, we hypothesized that suppression tendencies are also automatically retrieved from memory when being confronted with a question to which one has previously omitted secret information. In an online study, participants first had to withhold information about a fictitious love affair during a simulated chat with their relationship partner. To assess automatic suppression tendencies, we developed an indirect response time measure wherein a key that had previously been established to indicate suppression now had to be pressed in response to word stimuli that were presented in a specific color. We found implicit suppression tendencies for words that had been withheld during the interview if they were presented following the prime that involved the question which the secret answer referred to. The question primes or the secret information alone did not elicit a suppression tendency, indicating that suppression responses were automatically retrieved from memory after re-encountering the combination of the question and the critical answer. The results are discussed regarding the theoretical implications for automatic memory processes.

Keywords: lies of omission, automatic processes, instance-based learning

Systematically omitting some details of an event while being honest about the rest has shown to be a widely used conversational strategy. In fact, in various studies, it was shown that participants who could choose between outright lies and more subtle omissions were more inclined to choose the latter (e.g., DeScioli et al., 2011; Levine et al., 2002; Pittarello et al., 2016; Rogers et al., 2017; Schweitzer & Croson, 1999). Omissions are not only cognitively less demanding compared to fabrications (McCornack et al., 2014), but they also have the advantage that people often feel less guilty for omitting relevant information than for committing an outright lie – although their victims do judge them as immoral, a phenomenon called *Omission Bias* or *Omission Effect* (Spranca et al., 1991, but see Willemsen & Reuter, 2016, for a more differentiated view). However, omissions can also become cognitively more accessible than intended by the person who uses them. Within the Preoccupation Model of Secrecy (Lane & Wegner, 1995), it is assumed that keeping a secret leads to an effortful circle of processes: The secret owner tries to suppress thoughts concerning the content of the secret, which, rather than being successful, induces intrusive thoughts of the secrecy. These intrusions lead to renewed efforts of thought suppression, thereby causing a status of cognitive "hyperaccessibility" of the suppressed content. Lane and Wegner (1995) conceived of this accessibility as being a disadvantage for secret keepers, but there might be a functional aspect to this process, as it can be important to remember one's omissions in the future to avoid being discovered.

The core focus of the current study was to further investigate automatic memory retrieval of omissions. For outright lies, we already identified a mechanism that helps liars to remember their lies in an automatic fashion in previous studies (Koranyi et al., 2015; Schreckenbach et al., 2020). Memory of previous lies is triggered by automatically retrieving episodic knowledge about having lied to a question when re-encountering the same question again in a later situation. On the one hand, contrary to outright lies, omissions consist in *not* telling something, and according to the omission bias, senders of omissions often feel less guilty than outright liars. Both of these characteristics may undermine memory retrieval of previous omissions due to a lack of a distinct behavioral memory trace that identifies the omission and/or due to a lack of marking omissions as something that is morally questionable that needs to be remembered on future

occasions. Moreover, true answers have been shown to be activated automatically when being confronted with specific cues (e.g., Duran et al., 2010; Hadar et al., 2012; Walczyk et al., 2003), which might make it even harder for people to withhold this information and to act in accordance with their previous omissions.

On the other hand, withholding relevant information is evaluated negatively by other people, making it important not to be found out after having held back important information. Additionally, based on the assumptions of the Preoccupation Model of Secrecy and the findings of an enhanced cognitive accessibility of secret thoughts (Lane & Wegner, 1995), it seems plausible to assume that under specific circumstances, omissions can be retrieved automatically from memory, which might make it easier for the secret keeper to behave consistently by repeating the previous omission. On a related note, it has been shown that binding processes can also occur between situational cues and the act of stopping or not executing an activated response (Giesen & Rothermund, 2014). This is why we expect that knowledge about omissions is also stored in memory and available for retrieval later. However, we assume that the functional properties of this "omission-retrieval mechanism" differ from the retrieval of outright lies. Specifically, we assume that in case of omissions, stimulus–response episodes are stored in memory that connect a specific question with the *suppression* of previously withheld information. Thus, re-encountering the question again on a later occasion will automatically elicit a tendency to suppress the previously omitted information again.

To measure this automatic retrieval of suppression tendencies for omissions, we developed a new experimental paradigm. For this purpose, participants first had to imagine being involved in a fictitious love-affair scenario in which they cheated on their partner. After reading this scenario, we simulated an interaction with their relationship partner in which participants had to omit all information associated with the affair while being honest about innocuous information. Participants then learned the connection between pressing a specific key and withholding information by establishing this key press response as a behavioral indicator of suppression. In a final part of the study, participants had to perform a Go/No-Go task where probe words were presented in different colors, one of which was a signal to execute the Go response, which corresponded to the "suppress" key of the previous part of the experiment. Before the presentation of these words, questions appeared on the screen as prime stimuli. This task is an indirect measure of suppression tendencies that are automatically elicited by the combination of questions and answers, which should facilitate executing the Go response (with the same key that was formerly established to indicate suppression).

This procedure allowed us to investigate the automatic activation of suppression tendencies for omitted information when being confronted with critical questions. Specifically, we predicted faster execution of Go responses with the previous "suppress" key in trials in which words reflecting secret information (i.e., information associated with the affair) were presented as probes after the matching question had been shown as a prime. Statistically, our prediction corresponds to an interaction between prime sentence (matching vs. nonmatching with the probe) and probe word (secret vs. innocuous content). We predict that Go responses should be faster for secret information compared to innocuous information if the matching question is presented as a prime. In terms of stimulus–response binding and retrieval accounts (e.g., Frings et al., 2020), re-encountering a question that was previously asked by the partner should lead to an automatic retrieval of episodes in which the secret information had been withheld from the partner in response to this very question. This activation should therefore facilitate a renewed suppression response (the formerly established key press response). On the contrary, no facilitation should occur during trials where the prime question does not match the content of the probe word, since no retrieval is triggered by the question before the probe is presented, thereby leading to equal response times (RTs) for secret and innocuous probes.

Method

Participants and Design

The study was conducted in accordance with ethical standards and was approved by the Ethical Commission of the Faculty of Social and Behavioural Sciences of the University of Jena (FSV 19/44). To make the fictional love affair in the experiment as realistic as possible, we only recruited participants who were in a permanent relationship at that time. A priori power calculations (G*Power 3; Faul et al., 2007) revealed that a sample size of $N = 37$ participants would suffice to detect a medium-sized effect ($f = 0.25$) with sufficient power ($1 - \beta = .8$), for a test that corresponds to our hypothesis ($\alpha = .05$, one-tailed), assuming a moderate degree of correlation among our dependent measures ($r = .3$). We succeeded in recruiting $N = 35$ participants during a period of two weeks. One of the participants had to be excluded because she gave inconsistent responses during the introductory part (she indicated that she was homosexual but then entered a male name as the name of her partner). Furthermore, three participants had to be excluded because they did not

behave as instructed during the second part of the experiment.[1] The final sample therefore consisted of 31 heterosexual participants (24 female) aged 1850 years (M = 26.04, SD = 7.94). Participants were recruited through social networks. They received an Amazon voucher worth €5 and were offered partial course credit in exchange for their participation.

We used a 2 × 2 factorial design with the within-subjects factors being criticality of probe (secret vs. innocuous) and matching of prime and probe (matching vs. nonmatching).

Procedure and Materials

Data were collected online using jsPsych (de Leeuw, 2015). Subjects could participate from any place but were asked to ensure a silent environment without distractions. They received the information that the study was conducted to investigate hiding behavior that people might show when they want to keep a secret affair from their partner. They were informed about the anonymization of data and that they could abort the experiment at any time. After this introduction, participants had to indicate their gender and sexual orientation as well as the names of their partner and a good friend who has a different sex from the partner. The good friend was established as a counterpart to the fictitious lover, which we used to establish the nonsecret details in the story about the weekend trip. Afterward, participants had to choose a potential secret lover from one of three images, and they assigned a name to this lover (henceforth, we will always refer to the person that participants had their fictional affair with as the lover, thereby differentiating them from their partner as well as from their friend). Male heterosexual participants should name their (female) partner and a real-life male friend and select a fictional female lover, while female heterosexual participants were instructed to name their (male) partner and a female real-life friend and to choose one of three fictional male lovers (see Electronic Supplementary Materials, ESM 1 for pictures).

Learning the Critical Episode

Afterward, participants read a story about cheating on their partner during a weekend. In this story, they were asked to imagine visiting their friend in one city for 2 days and how they spent the second day with their lover in another city. The story was made up in a way that three important facts must be remembered about what participants had done either with their friend or with their lover, respectively (e.g., to which city they went and what they ate for lunch). To make this task as easy as possible, we chose activities that are rather typical for the two cities (e.g., to eat fish in Hamburg and to eat currywurst in Berlin). Participants were then prompted to only tell their partners about the things they had done with their friend, but to withhold the activities they had done with their lover (see ESM 1 for the whole story):

> "Probably [*name of the partner]* will chat with you in a moment. Of course, he will ask about your weekend and how the trip was. You should not lie to him, but you better omit information about Berlin.
>
> Consequently, you should suppress that you were driving a Trabi, ate Currywurst and visited the Bundestag. You better tell him about Hamburg, that you travelled by Boat, ate Fish and visited the Reeperbahn.
>
> Memorize which information you can share with [*name of the partner*] and which must be omitted."

After reading the story, participants solved cloze tests (by filling in missing words in a text about their activities during the weekend) to check whether they remembered all important facts. If this was not the case, they had to reread the story. After answering the test questions correctly, participants received information about the upcoming chat with their partner in which they were asked to withhold the secret information:

> "[*Name of the partner*] is writing you! Answer her questions in the chat, preferably briefly, with only one word. Be honest, but withhold all information that [*name of the partner*] must not know."

Below the instructions, a text message application appeared in which (seemingly) the partner asked participants three questions about what they had done during the weekend (see Figure 1). In fact, prepared text modules were presented to start the conversation and to ask the questions, as well as some short responses which matched the answers that we expected from participants. Participants could reply freely via the keyboard, but the

[1] During the second part of the experiment, which served to establish an association between omitting critical information and pressing the space bar, these three participants showed high error rates (> 50%). Therefore, we have to assume that they did not establish the intended association, which is why we excluded them from all further analyses.

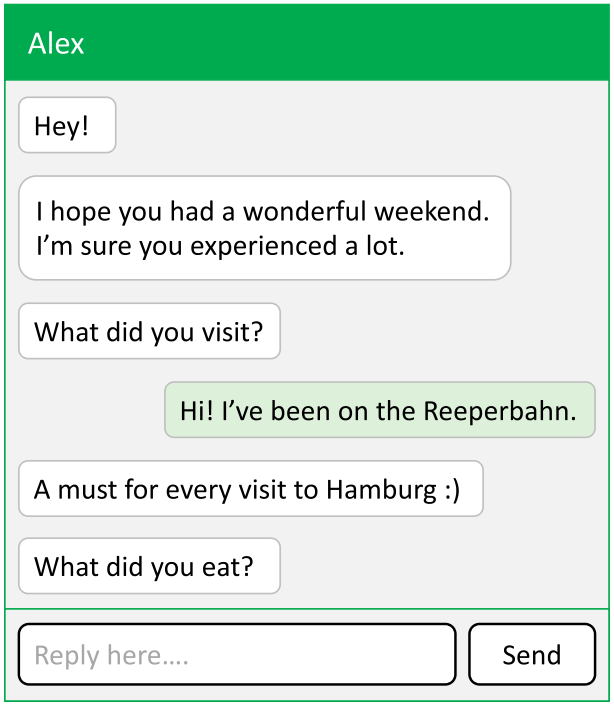

Figure 1. Display of the text message application for the chat with the participant's partner.

answer was not allowed to be sent if it did not include the innocuous answer or if it included secret information. For instance, if the partner asked "What did you eat?", participants' answers had to include "fish" but not "currywurst." During this chat, participants told three facts about their activities in Hamburg while they omitted three facts about what they did in Berlin.

Establishing a Suppression Response

During the following second part of the experiment, an association needed to be established between the omission of information and a specific, measurable behavior. For this purpose, participants engaged in another virtual conversation with their partner. In multiple trials, a silhouette of the participant's partner (female or male, respectively) was shown and a speech bubble with a question appeared (e.g., "Do you love me?"). Then, a potential answer (e.g., "No") was shown at the bottom of the screen that moved toward the silhouette. Participants were instructed to press the space bar as fast as possible if they did not want to utter the answer. In this case, the answer disappeared, and the next question was presented. If participants did not react, the answer reached the silhouette of the partner after three seconds. In total, seven questions were used, and each was shown twice in combination with different answers of which one was expected to trigger a key press (see ESM 1 for the whole list of questions and answers). All questions used in this part of the experiment were different from the questions used in the subsequent Go/No-Go task. However, some of the questions also addressed the topic of cheating on one's partner (e.g., "Do you cheat on me?"). This procedure was carefully chosen to achieve two goals: First, we needed a specific behavioral response for omissions that enabled us to measure suppression tendencies during the following Go/No-Go task. This was reached by establishing the space bar as a form of behavioral response to withhold information during this part of the experiment. Second, we wanted to avoid bindings between the key stroke and the secret information to be established in advance. This is why we chose *different* questions from those used during the chat as well as during the Go/No-Go task in the final part of the experiment.

Assessment of Suppression Tendencies for Critical Omissions

Finally, we asked participants to perform a Go/No-Go task to assess whether the specific questions from the text message conversation automatically trigger the retrieval of knowledge about having previously omitted information. Each trial had the same temporal structure (see Figure 2). A fixation cross (400 ms) was followed by the already known partner silhouette (400 ms). On top of the silhouette, the name of the partner appeared in combination with the verb "asks" (500 ms). Afterward, a prime question was presented word by word using rapid serial visual presentation with a base duration of 250 ms per word, plus an additional 25 ms per letter. This question was always one of the three questions the partner had asked during the chat. Right after the last word of the prime, a gray rectangle containing a single word appeared on the screen. After 400 ms, this probe changed its color or disappeared. If the probe turned red, participants had to press the space bar as fast as possible and their reaction time was measured (Go condition). If the probe turned green, no reaction was needed (No-Go condition). The trial ended as soon as participants pressed the space bar or after 1,000 ms had passed. The probe word was always related to information that had been uttered or omitted during the chat, thus being secret or innocuous. Since each probe word could appear after each prime, they were either matching (e.g., the prime was "What did you eat" and the probe was "currywurst") or nonmatching (e.g., the prime was "What did you visit?" and the probe was "currywurst"). The Go/No-Go task comprised 192 experimental trials, half of which were Go and half of which were No-Go trials. The order of trials was randomized individually. The three prime questions were presented 64 times each, half of the times preceding a matching probe and half of the times preceding a nonmatching probe. Furthermore, this probe comprised

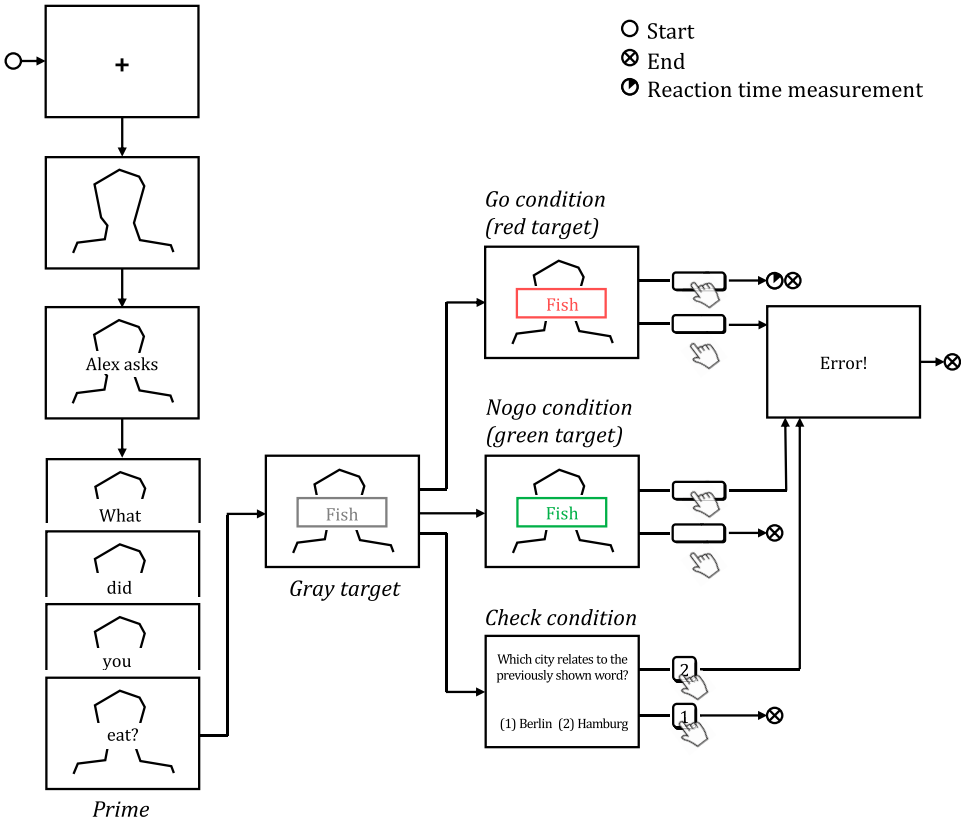

Figure 2. Trial structure of the Go/No-Go task.

secret information half of the times and half of the times innocuous information.

To ensure processing of the prime question, 10% of the trials comprised an additional attention check asking for the question that was presented as a prime stimulus in this trial. To also check participants' attention for probe words, an additional 12 trials were added where the probe did not change its color but disappeared and participants had to answer a question about the probe word (e.g., "Which city relates to the previously shown word: Berlin or Hamburg?"). At the end of the experiment, answers and reaction times were stored in an online database.

Results

RTs in the experimental task that were more than three interquartile ranges above the third quartile of an individual's RT distribution were categorized as far-out values (Tukey, 1977) and therefore discarded (2.4% of all RTs). All RTs below the threshold of 250 ms were discarded (0.2%), as well as erroneous responses (0.5% of all responses).

We calculated average RTs for each participant and combination of the factorial design (see Figure 3 for the pattern of means). To test our hypothesis that reacting to a probe should be accelerated if it relates to secret information and fits to the previously shown prime, average response latencies were submitted to a 2 (criticality of probe: secret vs. innocuous) × 2 (matching of prime and probe: matching vs. nonmatching) ANOVA with repeated measures on both factors. (The complete raw

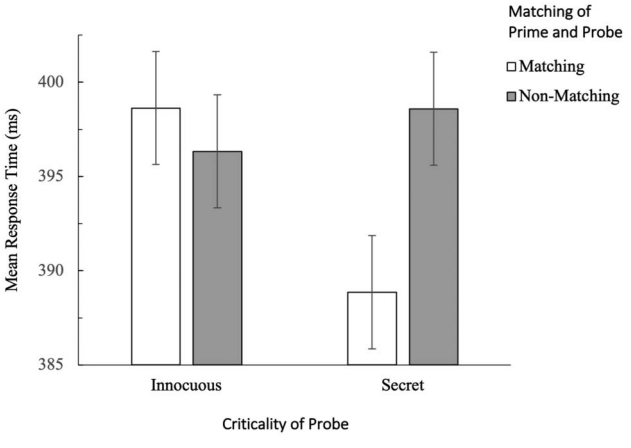

Figure 3. Mean RTs (error bars reflect SE of the mean) for executing the Go response as a function of the criticality of the probe word (secret vs. innocuous) and of the matching of prime question and probe word (matching vs. nonmatching). RT = response time.

data are available via https://osf.io/ky682/?view_only=846377030c2540cbae0c23a8c9b77e94.)

The results revealed no main effects (both Fs < 3.2) but a significant interaction of both factors, $F(1, 30) = 19.84$, $p < .001$, $\eta_p^2 = .40$. Follow-up tests showed that this effect was based on faster responses for secret probes (M = 389 ms, SD = 43) compared to innocuous probes (M = 399 ms, SD = 45) after the presentation of a prime question that matched the probe word, $t(30) = -4.03$, $p < .001$, $d_z = 0.72$. No such difference was found for nonmatching trials (M = 399 ms, SD = 49, for secret probes, and M = 396 ms, SD = 52, for innocuous probes, $|t| < 1$). Thus, in line with the hypothesis, participants were faster in executing a Go response (which was identical to the previously established suppress response) when confronted with secret information after having been primed with a question that matched the probe word.

Discussion

The aim of the present study was to test the hypothesis that critical information which was withheld in a previous communication is associated with a suppression response in memory and that this response tendency is retrieved automatically when a question is asked that directly refers to the omitted information. In line with this hypothesis, we found the predicted facilitation effect for Go responses for probe words that contained secret information (i.e., information that had to be suppressed during the first part of the experiment) after having been primed with a matching question. No such effect was found for probe words that did not match the previously presented question, leading to the conclusion that the tendency to withhold a specific piece of information is triggered in response to a certain question, and does not reflect a general tendency to suppress this specific information.

The results of the present experiment build on former studies about automatic retrieval of the knowledge of having lied (Koranyi et al., 2015; Schreckenbach et al., 2020). These results transfer the idea of an automatic memory retrieval of lies to the case of omissions, thereby extending our knowledge about implicit memory processes that relate to deception. The present findings suggest that lies of omission are stored in memory and can be automatically retrieved again, which makes them comparable to explicit lies. Importantly, and in contrast to episodes in which one has lied, omissions are coded as a tendency to suppress information. Memory for omissions apparently consists in a retrieval of the suppression of a specific type of information that had been withheld in response to a question, which is comparable to the previously mentioned binding of stop responses (Giesen & Rothermund, 2014).

However, our findings in the test phase reflect a retrieval of the knowledge that the critical information was withheld (i.e., not told) during the conversation with the partner (from part 1), and this retrieval now elicits a tendency to press the key that had been established to indicate suppression (in part 2). This indicates that knowledge of having suppressed this information before automatically elicits a general suppression tendency. No conceptual leap is taken here: The introduction of the key press as an indicator of suppression cannot change or influence the original omission episode, since the meaning of the key press was introduced only after the omission occurred.

It is important to emphasize that we established this suppression response (i.e., the key stroke) using questions that differed from the critical ones related to the secret visit in the cheating scenario. With this procedure, we ensured that only a connection between the suppression of *any* response and the corresponding key stroke could be learnt, but not the connection between the secret information (e.g., "currywurst") and the key stroke. This is an important feature of our experiment as it serves to rule out one possible alternative explanation: Participants' responses in the final Go/No-Go task cannot be attributed to the retrieval of a former episode in which the secret information was already connected to the key press. Instead, our findings reflect a retrieval of the knowledge that the critical information had been withheld (i.e., not told) during the conversation with the partner (from part 1), and this retrieval now elicits a tendency to press the key that had been established to indicate suppression (in part 2).

The retrieval effects we observed can also reflect the operation of some kind of implementation intention (e.g., Gollwitzer & Brandstätter, 1997; Gollwitzer & Schaal, 1998). Implementation intentions are self-regulatory "if-then" plans that create a strong link between a situation and an action. They have been shown to automatically direct the focus of attention toward goal-directed cues (Achtziger et al., 2012; Wieber & Sassenberg, 2006), thereby leading to a strategic automaticity during the initiation of goal-directed behavior and making the execution of the desired action effortless. The intention to withhold certain pieces of information from someone else reflects a specific type of implementation intention (e.g., "When my partner asks me whom I met last night, I will not tell her that I met my ex"). In these cases, the behavioral part of the implementation intention consists in not executing a specific behavior (cf. Chatzisarantis & Hagger, 2010; Gawrilow & Gollwitzer, 2008). If these intentions to suppress certain information in response to certain questions linger on until the end of the experiment, they can also influence performance in the final indirect test. This happens by eliciting corresponding suppression tendencies that will then be translated into corresponding

suppression behavior (i.e., pressing the space bar). To disentangle effects of implementation intentions from memory retrieval of previous acts of suppression, future studies are needed. In the critical condition of such a study, participants will be instructed to form an intention to suppress certain information (like in the present study) but then will be tested for an implicit activation of suppression tendencies without first having executed any episode of deception.

In the present study, we provided the first evidence that by omitting certain information during a conversation, an association is built between the omitting tendency and the associated question. Being confronted with that question again later leads to an automatic retrieval of this behavioral tendency to suppress information. However, there are also some limitations to the present study which need to be mentioned. First, it should be noted that the sample size in the present experiment was rather small (n = 31), which leads to a comparably low statistical power. Low power has been shown to increase the probability of committing a type II error (i.e., not rejecting the null-hypothesis although it is false), but also to lead to inflated effect sizes in the case of significant findings (Button et al., 2013; Ioannidis, 2008). Based on these considerations, the lack of power might be especially problematic when it comes to the interpretation of null effects in our design, as it was the case for nonmatching prime–probe combinations. However, because the most important finding of our study is a significant interaction effect, the small sample size does not undermine our main conclusions. Nevertheless, we cannot exclude that our effect size of $\eta_p^2 = .40$ constitutes an overestimation of the real effect. To obtain further information about the real size of the effect, future replication studies with sufficient power should be conducted.

Another potential limitation refers to the artificial setting of the present experiment. Our participants did not really cheat on their partner but only had to imagine a corresponding scenario. As a result, we do not know how well participants were able to envision this betrayal. If some participants had difficulties with this task, this, however, should rather have led to an underestimation of the effects of retrieving and re-executing omissions from memory rather than to producing these effects.

The scenario was also not representative for real-life scenarios regarding the short time span between the first omission during the simulated chat and the retrieval of this omission in the Go/No-Go task. While only few minutes passed between these tasks, longer time periods can be assumed to pass between two conversations in real life. Therefore, an important question refers to whether the effect remains stable across longer intervals between the conversation and the test phase. Another open question relates to the generalizability of the implicit memory toward other situations. According to the instance theory of automatization (Logan, 1988), and recent accounts of binding and retrieval (Frings et al., 2020), retrieval of a former bound episode should only happen when specific features of the episode are repeated. Therefore, we do not necessarily assume that the tendency to withhold secret information in future situations spreads toward situations which differ with respect to important characteristics. In the present study, it was shown that retrieval of the knowledge of having omitted a secret is bound to the critical question. However, it is possible that a similar but differently framed question requiring the same answer (or omission) does not benefit from this binding because the episode will not be retrieved and activated. Up to now, these issues remain unresolved but offer some very interesting options for follow-up investigations on this topic.

One further limitation is that the study was conducted online, which might raise questions regarding the reliability of the results. In fact, we had no control over the environment in which our participants worked on the experiment and therefore cannot rule out possible distractions induced, for example, by secondary tasks they were performing. If participants were not as focused on the task as we asked them to be, this might have had one of two possible consequences: either, the effect that we found is an underestimation of the real effect (which would have been obtained in a more controlled setting); or the effect reported here reflects a more realistic estimation than an estimation during a lab study, as it was found under conditions that are more typical for real life. Either way, the reliability and the generalizability of our findings need to be confirmed by future replications, as a single study can only be a first step into a new, promising direction.

Our findings also have interesting implications for research focusing on lie detection. Up to now, implicit paradigms of lie detection (e.g., Concealed Information Test/Guilty Knowledge Test, Lykken, 1959; autobiographical Implicit Association Test, IAT, Sartori et al., 2008) mostly rely on investigating positive signs of activation, arousal, or familiarity that are shown in response to critical information by guilty but not by innocent people (e.g., stronger physiological reactions during polygraph testing; Iacono & Ben-Shakhar, 2019). Nearly all of these measures are fairly easy to see through and are typically susceptible to faking attempts, for instance, by feigning or simulating positive responses also for noncritical information (e.g., National Research Council, 2003; Verschuere et al., 2009; for a review, see Verschuere & Meijer, 2014). Implicit measures for assessing automatic suppression tendencies have the advantage of being more indirect and thus harder to understand and control. In our view, these measures should be easy to apply, and they should be universally applicable: It is a defining feature of suspects who are guilty that they know some critical piece

of information (about the crime, about the victim, or about their own behavior) that they do not want to convey and for which they have formed an explicit suppression intention. Precisely, these suppression intentions can be identified indirectly and implicitly with the sort of paradigm we developed, which should help to distinguish guilty from innocent suspects. We expect such a measure to be mostly immune to faking due to its complexity and its indirect nature. Looking at the individual level of the measure established in the present study, one can observe that 77.4% of the participants descriptively showed the predicted pattern of results, while the remaining 22.6% showed a reverse pattern. Unfortunately, the present data are insufficient due to the lack of an innocent control group, making it impossible to conduct a more thorough discriminant analysis. However, given the chance level of 50% to guess right whether a suspect is guilty or not, it becomes obvious that the present measure is not yet sufficient for a reliable detection of guilty subjects during an interrogation. Still, we hope that with further research and a refined procedure, we will be able to reliably differentiate between guilty and innocent subjects.

In sum, our findings support the hypothesis that episodes in which a person has intentionally withheld an important piece of information in response to a question are stored in memory and are automatically retrieved by re-encountering the question again in a subsequent conversation. Retrieving this episode re-activates the tendency to suppress the same information again, which can be detected with indirect measures of suppression, as described in our study. The underlying mechanism is important for our understanding of the mechanisms of deception, and it also provides a promising approach for the implicit detection of guilty knowledge.

Electronic Supplementary Material

The electronic supplementary material is available with the online version of the article at https://doi.org/10.1027/1618-3169/a000504

ESM 1. Pictures of potential lovers, cover story, and list of questions and answers used during the decision task.

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Open Data
The complete raw data are available at https://osf.io/ky682/?view_only=846377030c2540cbae0c23a8c9b77e94. All materials for this study are available in ESM 1.

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