

Norm-induced forgetting: When social norms induce us to forget

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Abstract

Sometimes subjects have sufficient internal and external resources to retrieve information stored in memory, in particular information that carries socially charged content. Yet, they fail to do so: they forget it. These cases pose an explanatory challenge to common explanations of forgetting in cognitive science. In this paper, I take this challenge and develop a new explanation of these cases. According to this explanation, these cases are best explained as cases of norm-induced forgetting: cases in which forgetting is caused by social norms in a relevant sense. These cases draw attention to the normative aspects of the mechanisms of forgetting. This is an important but neglected aspect of cases of everyday forgetting, in particular of those characterized by a social dimension. By investigating some ways in which the psychology of social norms is causally relevant in the mechanisms of retrieval failure, I begin to fill this gap.

Keywords: Forgetting; Retrieval failure; Social norms; Gender norms; Memory traces; Memory cues.

1. Introduction

Sometimes subjects have sufficient internal and external resources to retrieve information stored in memory: memory traces and memory cues. Yet, they fail to do so. They forget it. Here I consider a particular but common type of these cases: cases in which subjects cannot retrieve their memory of another person's idea in a social context, i.e., when they try to remember this idea with the help of others. I show that

these cases pose a challenge to common cognitive and social explanations of forgetting in cognitive science. Purely cognitive explanations fail to explain why the trace of the target memory is available but inaccessible (Section 2). Social explanations have some resources to account for such an inaccessibility but do not provide enough details about its underlying causes and mechanisms (Section 3). Thus, I sketch out a new explanation (Section 4).

According to this explanation, in these cases the underlying causes of the inaccessibility of memory traces are social norms and norms psychology. By “social norms” I refer to “informal rules that mark out what is appropriate, allowed, required, or forbidden in different situations for various community members” (Kelly & Setman, 2020: 1). By “norms psychology” I refer to the mechanisms of acquisition, maintenance, enforcement, and abidance to social norms (Heyes, 2023).¹ To identify cases in which social norms are the underlying causes of forgetting, I use the label *norm-induced forgetting*. To claim that in certain cases forgetting is induced by social norms means the following. In these cases, there are several factors involved in the mechanisms of forgetting: motivation, interferences, and inhibition. Social norms and their psychology explain why these factors are recruited in one’s memory system and how they interact with other cognitive and affective elements, ultimately causing certain memory contents to be forgotten. “Induced” denotes the underlying causal role of social norms: they initiate and later fuel the mechanisms of forgetting, thus functioning as the original and supporting causes of retrieval failure.

This discussion begins to fill a gap in the literature on forgetting in cognitive science, where the role of social norms is under-explored. Moreover, it advances research on forgetting in philosophy. Although the normative aspects of forgetting have been widely investigated in moral philosophy and epistemology (Basu, 2022; Bernecker, 2018; Murray et al., 2019; Tanesini, 2018), mechanism-centered explanations of forgetting have overlooked the causal role of social norms (Caravà, 2021, 2023; Frise, 2018; McCarroll, 2020; Michaelian, 2022; Robins,

2018; Rowlands, 2017). The concept of norm-induced forgetting is a useful tool to start this investigation (Section 5).

2. Our case: How not to explain it

Consider this case.

Project meetings: Simon (man), John (man), and Mary (woman) are professionals with the same job position who work for the same tech company. One day they meet to discuss a collaborative project, they share their project proposals, and each proposal is discussed in detail. Right after the meeting, Mary and Simon have coffee together. In that occasion, Mary describes her project proposal again and Simon seems receptive. The day after, Simon writes a report of the project meeting and in the following weeks the three professionals discuss the project proposals over e-mail. Four weeks after the first meeting, they meet again. In this occasion, Simon reminds his colleagues of John's proposal and of his own proposal but he cannot recall Mary's one, even if he wants to do so. Thus, Mary and John intervene and give to Simon a lot of information about Mary's proposal. Simon does not think that his colleagues are lying and believes that their verbal reports are true. Still, he cannot recall Mary's proposal. Simon is a young healthy adult with a good memory, he did not experience the first meeting and the coffee chat with Mary as traumatic events, and in the timeframe between the two project meetings he did not experience any events or conditions that could have impaired his memory abilities, e.g., traumatic events, the onset of a neurodegenerative disease, brain injury, an extremely stressful period, or sleep deprivation.

This case grasps a common dynamic: in fields and workplaces in which women are underrepresented, women's ideas and contributions are often forgotten (Puddifoot, 2021). Just to mention an example, think about main-stream Anglophone philosophy, where women are underrepresented – e.g., in the US only 25% of tenured philosophers are women – and their research is way less cited, i.e., it is remembered way less in the practice of writing, than research authored by men – e.g., only 10% of the most cited contemporary authors in the prestigious *Stanford Encyclopedia of Philosophy* are women (Schwitzgebel

& Jennings, 2017). My overall argument is based on general observations on memory for women's ideas in the workplace and on research on the influence of bias on memory.² The type of memory I am interested in is semantic memory, for the forgotten contents in question are ideas.³ The main question I want to answer in this article is this: how can we explain the case in my vignette, and similar cases of forgetting? In this section, I begin to address this question by showing that common cognitive explanations cannot explain this case and the cases it exemplifies.

First, we must exclude abnormal organic causes like those involved in neurodegenerative diseases and brain injury (Kopelman, 2002), which are associated with the loss of memory traces. Second, we must exclude abnormal functional causes related to emotional trauma, like those involved in cases of dissociative amnesia (Kikuchi et al., 2010) or the active forgetting of traumatic memories (Anderson & Hanslmayr, 2014), namely cases in which highly arousing emotions are the distal causes of the inaccessibility of memory traces. Indeed, Simon has a good memory, he is healthy, he did not experience the first project meeting and the coffee chat with Mary as traumatic events, and in the timeframe between the two project meetings he did not experience emotionally traumatic events. Third, we must exclude encoding failure (Schacter, 2001). Indeed, Simon wrote the meeting report and exchanged several e-mails containing information about Mary's proposal: this is evidence of memory encoding.

Excluding these explanations allows me to identify my case as an instance of *everyday forgetting*, namely the incidental inability to retrieve information encoded in memory (Crovitz & Daniel, 1984). In cognitive science there are several explanations of everyday forgetting (Craig, 2021). In what follows, I check if they apply to our case.

According to one explanation, forgetting is caused by modifications in the brain's physiology due to stress or lack of sleep, which cause impairments in the functionality of one's memory system, notably the inability to retrieve memory traces at appropriate times (Berry et al., 2015; de Quervain et al., 2000). Since we know that Simon

did not experience extreme stress or sleep deprivation, these explanations do not apply to our case.

Another explanation appeals to memory decay and the forgetting curve, i.e., the decline of memories as a function of time (Ebbinghaus, 1913). Memories are highly likely to be forgotten right after encoding. While time passes, the likelihood of forgetting diminishes. Still, this happens only with unpracticed memories (Bjork, 1988). This suggests that retrieving our memories right after encoding prevents memory decay (Wixted, 2004). Since Simon practiced his memory of Mary's proposal right after encoding, and later over an extended period of time, I suggest excluding the decay mechanisms illustrated above.

Against my suggestion, one might point out that memory decay is influenced not only by time but also by other elements that impact memory consolidation, including consolidation during sleep. For instance, one might argue that Simon's enthusiasm for Mary's proposal was fake or diminished over time, that this prompted the consolidation of a memory of Mary's proposal as emotionally neutral, and that this lack of emotional salience ultimately caused the decay of the memory trace of the target memory.

Considering research on the role of emotional valence in memory consolidation (Liu et al., 2016), this explanation sounds plausible. Still, it overlooks two other important elements: retrieval plans and expectations. Planning and expecting to retrieve a memory in the future enhance the consolidation of this memory during sleep, thus modulating the impact of other factors that may cause trace decay (Born & Wilhelm, 2012). In our case, we have evidence that Simon planned to retrieve a memory of Mary's proposal and that this plan was reinforced over time. Indeed, the e-mail exchange taking place over the course of a month not only contains information about Mary's proposal, but also information about a future meeting in which the subject is supposed to discuss this proposal. Hence, we can infer that, in the timeframe of consolidation, Simon expected to retrieve the target memory. This suggests that, even if Simon had encoded and then stored a memory of Mary's proposal as emotionally neutral, it is likely that

this memory did not decay. Rather, expectations and plans about future retrieval likely ascribed practical relevance to this memory, overriding potential trace erasure effects due to the neutral emotional valence of the stored memory.⁴

Explanations based on retrieval-induced forgetting must be excluded for similar reasons. Retrieval-induced forgetting concerns cases in which remembering some information causes forgetting of other information stored in memory. Although retrieval-induced forgetting was initially observed with memory for word lists (Anderson et al., 1994), research has shown that it applies to a variety of memory contexts (Storm et al., 2015), including social contexts involving free-flowing conversations (Coman & Hirst, 2015; Stone et al., 2013) and memories with all types of emotional valence (Stone et al., 2012). Retrieval-induced forgetting works as follows. At time t subjects learn information belonging to the same category, at time $t + 1$ they retrieve some of this information but not others, and at time $t+n$ they try to retrieve all the information they learned at time t . At this moment, they successfully retrieve the information they retrieved at time $t + 1$ but are unable to retrieve information they did not retrieve at time $t + 1$. Whether retrieval-induced forgetting is underpinned by inhibitory, interference, or cue-dependent mechanisms is a matter of debate. Still, researchers agree that retrieval-induced forgetting effects depend on selective retrieval (Storm et al., 2015). Our case does not satisfy the condition of selective retrieval: after encoding information about his colleagues' proposals, Simon has practiced all the related memories, including the forgotten one.

Based on common explanations of everyday forgetting in cognitive science, we are now left with only two possible explanations: cue-dependent forgetting and forgetting due to generalized retroactive interferences during consolidation.⁵

Cue-dependent forgetting concerns cases of retrieval failure caused by the absence of contextual retrieval cues or by interferences caused by such cues during recall attempts. The absence of cues causes the inaccessibility of memory traces and, as a consequence, the inability

to generate memory representations at particular times (Tulving, 1974). Since in our case the forgotten memory is a semantic memory, the memory cues we need to consider are semantic cues.⁶ We do not know if Simon has access to material semantic cues, such as the meeting report or the e-mails he has exchanged with his colleagues. But we know that he can rely on information that Mary and Simon give to him during his failed retrieval attempts: these are important semantic cues he is presented with. However, these memory cues are causally inactive. This suggests that our case is not a case of cue- dependent forgetting.

Yet, one might say that perhaps too many cues are present during retrieval and that cue-overload causes the inaccessibility of the memory trace through interference mechanisms. This objection is reasonable but not compelling. In our case, the subject who forgets receives and processes information he should be recalling through social interaction. This should be enough to make the relevant memory trace accessible, even if many competing external or internal cues are activated during retrieval. Therefore, the exclusion of explanations based on cue-dependence is justified.

The last explanation we should consider is the explanation based on generalized retroactive interference (Wixted, 2004). According to this explanation, learning new information right after encoding new memories interferes with the consolidation of memory traces, which in turn causes the inability to generate memory representations at appropriate times (Wixted, 2010). This explanation does not apply to our case. Indeed, we can infer that Simon has consolidated a memory trace of Mary's proposal. In the days and weeks after the first project meeting, he wrote the meeting report and exchanged e-mails with his colleagues, which contained information about Mary's proposal: this is behavioral evidence of memory retention.

I have excluded normal and abnormal organic causes, the forgetting curve and memory decay, and generalized retroactive interferences during consolidation. Since these are the main cases in which forgetting is caused by the unavailability of memory traces, we can assume that the memory trace of the forgotten memory is not lost:

it is just inaccessible.⁷ However, since I have excluded abnormal and normal functional causes and the explanation based on cue-dependence, and since these are the main explanations that appeal to the inaccessibility of memory traces, we have to find another explanation of why the trace of the target memory is inaccessible. Since the subject is provided with relevant cues for memory retrieval, the general upshot of this explanation must be an account of why, in some cases, subjects forget information stored in memory even though they have sufficient internal and external resources to recall it: memory traces and memory cues.

3. Socially-induced forgetting: A partial explanation

An intuitive way to explain why the memory trace is inaccessible is to consider the social dimension of our case, which is threefold: the forgotten memory has been encoded while the subject was interacting with other persons, this memory is a memory of another person's idea, and the subject's failed retrieval attempts occur in a social context. This threefold social dimension allows me to identify our case as an instance of *socially-induced forgetting*: a case in which forgetting is caused, at least in part, by social factors (Hirst et al., 2018). The question to be answered is this: what are the relevant social factors in our case? To answer this question, I consider the main explanations of socially-induced forgetting in social psychology. I show that, although these explanations have important resources to account for our case, they are not sufficient. Hence, we need an additional explanatory layer.

Social psychologists have identified several social influences on forgetting. The most studied are silence in conversations and its relation to retrieval-induced forgetting (Stone et al., 2012), group membership (Coman & Hirst, 2015), and implicit social schemas (Hirst et al., 2018).

I start with silence and the retrieval-induced forgetting effect. Research on silence in conversations has shown that when a speaker does not express a particular memory, irrespectively to whether they are covertly recalling it, and at the same time they verbally express other semantically similar memories, a retrieval-induced forgetting effect is likely to occur. This effect not only concerns the speaker, who is more likely to forget the non- expressed memory, but also the listeners, who are more likely to forget the memory that was not expressed by the speaker (Stone et al., 2012). This retrieval-induced forgetting effect does not apply to our case. Indeed, when Simon fails to retrieve his memory of Mary’s proposal, Mary and John are not silent. On the contrary, they verbally express their memories of Mary’s project.

As for group membership, in our case the relevant notion of group is that of “feature social group”, Which includes things like gender groups, sexual orientation groups, and race groups.⁸ Feature social groups can be identified based on a cluster of features, which can be mind-independent or mind- dependent. For example, a feature social group might be identified based on a cluster of biological features, a cluster of psychological features that the members of that group are believed to possess, or self-identification (Ritchie, 2020). Since in our case we want to know if group membership has an influence on one’s forgetting, and since forgetting occurs, at least in part, in one’s mind, the relevant features are the mind-dependent ones: a cluster of features that the members of that group are believed to possess and self-identification. Our example involves three characters: Simon, John, and Mary. The only information we have about their group membership is that Simon and John are men and Mary is a woman. Hence, I work with this information.⁹

Research on the influence of group membership on memory retrieval in conversations has shown that listeners perceive information shared by speakers of their same social group as more relevant than information shared by speakers of a different social group (Coman & Hirst, 2015). Moreover, group membership influences the listeners’ level of epistemic trust in the speakers: listeners perceive speakers of

their same social group as more competent than speakers of a different social group. These factors influence remembering. When an in-group condition is satisfied, listeners are more likely to remember information provided by the speaker; when an out-group condition is satisfied, the opposite occurs (Koppel et al., 2014).

For the purposes of my argument, I suggest interpreting this body of research in the following way. Verbal memory cues that are provided by a member of the same social group as the subject engaging in the retrieval practice are more effective than those that are provided by a member of a different social group than the subject engaging in the retrieval practice. In our case, the subject engaging in the retrieval practice (Simon) is provided with relevant information for memory retrieval by a member of his social group (John) and by a member of another social group (Mary). However, the information he receives from both does not play a causal role in getting access to the trace of the target memory. Therefore, we can exclude that John's and Mary's group membership influences the conscious processing of memory cues received through verbal interaction. Moreover, since our case is not a case of encoding failure, we can exclude that group membership caused forgetting at that stage. Hence, the level at which we should analyze group membership is the content of the target memory.¹⁰

The target memory is a memory of another person's idea: Mary's project proposal. The overall content of this memory merges two types of content: a *socially neutral content*, *project in tech*,¹¹ and a *socially charged content*, *woman's idea*. Based on the arguments in Section 2, I assume that these contents are jointly stored in a memory trace. A hypothesis about how group membership influences retrieval failure is based on the literature on biases (Brownstein, 2015; Madva & Brownstein, 2018; Soon, 2020; Spaulding, 2021). According to this hypothesis, Simon's forgetting is caused, at least in part, by the interaction between the content of the target memory and some features that Simon attributes to the social group "women", i.e., beliefs about this social group. These beliefs need not be beliefs he consciously entertains during his retrieval attempts, nor beliefs he

consciously endorses (Levy, 2015). They can be implicit biases: unconscious beliefs one does not consciously endorse, and yet guide their behavior, including mental behavior (Holroyd & Kelly, 2016; Mandelbaum, 2016; Schwitzgebel, 2010). Based on culturally shared biases about the social group “women”, Simon might implicitly believe that women do not have high skills in tech. Even if these beliefs do not show up in Simon’s awareness, they might play a causal role in his failed memory process. For instance, it might be that, during his retrieval attempts, at some point he gets access to the target memory at the sub-personal level, the socially charged content of the target memory triggers the implicit belief “women do not have high skills in tech”, and this belief triggers a chain of implicit beliefs that leads to an implicit belief of this form: “this project is not worth remembering”. These beliefs about Mary’s group membership play a causal role in retrieval failure based on motivational mechanisms: they function as demotivating factors that cause the inaccessibility of the trace of the target memory through mechanisms that are likely inhibitory in kind.¹²

This explanation is hypothetical. However, considering the psychological literature on the influence of bias on forgetting, it is plausible (Heilman, 2012; Sebastián-Tirado et al., 2023). Nonetheless, it is not sufficient. Even if it explains how group membership influences forgetting based on the socially charged content of the target memory, it does not explain what underlies the motivational mechanisms at the basis of retrieval failure. This is because it does not identify the very origin of the motivational mechanisms that operate via implicit biased beliefs. Therefore, it requires an additional explanatory layer. In what follows, I show that a similar argument applies to explanations based on implicit social schemas.

The notion of a social schema was introduced in the memory literature by Frederic Bartlett’s (Bartlett, 1932) and is now popular in research on the social psychology of memory. As psychologists William Hirst and Jeremy Yamashiro explain based on Bartlett’s work, a schema is “a representation people form of past experiences and reactions [. . .]. The schema is not the memory per se; rather, people (re)construct their

memories using the schemas they have built up over the years” (Hirst et al., 2018, pp. 82–83). As others have suggested, schemas have a social face and a cognitive face (Soon, 2020): they are acquired through social experiences and interactions, represent categories of people, and play a causal role in memory processes. Empirical studies on implicit schemas have shown that the congruence between the content of the target memory and the content of the schema activated during retrieval facilitates remembering, while the incongruence between these contents promotes forgetting (Cohen, 1981; Heilman, 2012; Stangor & McMillan, 1992). Therefore, to analyze our case, we have to identify the schema that is activated during Simon’s failed retrieval attempts, consider how it looks like, and evaluate how it interacts with the content of the target memory.

Implicit schemas are activated based on context (Barsalou, 2002). Since Simon tries to recall Mary’s proposal in a work context, he works at a tech company, he is interacting with other tech professionals, and part of the content of the target memory (*project in tech*) is associated with the schema TECH PROFESSIONAL, it is likely that this schema is activated during the retrieval attempts. Moreover, schemas are formed based on statistical regularities we extract from our experiences of and interactions with other people (Barsalou et al., 1998). Meaning that we form schemas based on what we typically encounter in certain contexts and typicality shapes the contents of our schemas: their contents are prototypical representations of what members of a social group are like (Rosch & Mervis, 1975). Our characters work at a tech company, which is an exemplary case in which the majority of the workforce is male (Fry et al., 2021). Based on this information, and considering that in the workplace we tend to be particularly aware of gender features (Gutek & Cohen, 1987), we can expect that Simon’s schema TECH PROFESSIONAL is gendered: Simon represents TECH PROFESSIONAL as male. Thus, we can assume that Simon’s schema TECH PROFESSIONAL carries two types of content: a socially neutral content, *general knowledge about the tech profession*, and a socially charged content, *man*.

The socially neutral content of TECH PROFESSIONAL is congruent with the socially neutral content of the target memory, *project in tech*, while its socially charged content is incongruent with the socially charged content of the target memory, *woman's idea*. Empirically-informed literature, in particular literature on stereotypical schemas, suggests that the incongruence between socially charged contents can cause retrieval failure (Heilman, 2012). Hence, it is plausible that this mechanism is in place in our case: Simon's forgetting is caused, at least in part, by the activation of an implicit schema that impairs memory retrieval due to the incongruence between its socially charged content and the socially charged content of the target memory. How this schema impairs memory retrieval is a matter of speculation. Still, considering that what matters is the incongruence between two contents, it is likely that it does so through interference mechanisms. The activation of the schema TECH PROFESSIONAL interferes with the successful retrieval of the relevant memory trace and, ultimately, prevents the subject from generating a conscious representation of the target memory.¹³

This explanation is sound. Nonetheless, it does not explain why the two socially charged contents are prioritized over the two socially neutral contents during the retrieval process. Since the socially neutral contents are congruent, one might expect that this aspect facilitates remembering. Yet, in our case, like in many others (Sebastián-Tirado et al., 2023), this does not happen. To be satisfactory, an explanation of forgetting based on implicit social schemas must identify the mechanism that ascribes more causal power to socially charged contents than to socially neutral contents.

At this point we are left with two open questions. What does underlie the motivational mechanisms that ascribe causal relevance to group membership? How can we explain the fact that socially charged contents are prioritized over socially neutral contents when implicit schemas are involved in failed retrieval attempts?

4. Norm-induced forgetting: How social norms cause retrieval failure

In this section, I investigate the questions above. The upshot of this investigation is threefold. At the micro-level, I show that social norms are the underlying causes of the motivational mechanisms that ascribe causal relevance to group membership in the process of forgetting. Moreover, I show that the activation of norms psychology explains why socially charged contents are prioritized over socially neutral contents during failed retrieval. At the macro-level, I offer a solution to the explanatory challenge that drives this article: I explain our case, and cases of the same type,¹⁴ as instances of *norm-induced forgetting*: cases in which forgetting is caused and underpinned by social norms in a relevant sense.

I start with the first question: what does underlie the motivational mechanisms that ascribe causal relevance to group membership? To identify social groups, in Section 3 I appealed to clusters of features that their members are believed to possess and self-identification (Ritchie, 2020). This strategy gave us good but partial results. Here I adopt another strategy: the strategy based on the normative significance of social groups proposed by Amie Thomasson (Thomasson, 2019). Thomasson's idea is this: social groups can be identified not only based on mind-independent and mind-dependent clusters of features, but also based on their internal and external norms. Internal norms are “norms regarding how members of a group are to behave”, while external norms are “norms regarding how members of that group are to be treated, regarded, [and] behaved towards by those who are not members of the group” (Thomasson, 2019, pp. 4838–4839). In the case of gender groups, internal norms are norms that, e.g., prescribe how members of a certain group should behave in social relationships, how they should speak in public contexts, or which jobs or educational paths they should pursue. While external norms are norms that, e.g., make it more permissible to interrupt individuals of a certain gender group, to

give them unsolicited advice or explanation, or to regard them as less worthy of respect (Thomasson, 2019, p. 4839).

Literature on the psychology and transmission of social norms suggests that norms are not established willfully by individuals or social groups but rather by social structures, socialization across life-span, and culture (Bicchieri, 2018; Heyes, 2023). Moreover, it suggests that these norms are in place in certain contexts not necessarily because the members of certain social groups intentionally follow them. Rather, they have been reinforced across different generations through rewards and punishments (Bicchieri, 2006; Kelly & Setman, 2020; Sripada & Stich, 2006), members of social groups have internalized them (Kelly, 2022), and are motivated to follow them, even if they are not aware of doing so (Davidson & Kelly, 2018; Kelly, 2020). Furthermore, we have evidence that norms are observable: one can detect them, including whether they are followed or violated, by observing other people's behavioral regularities and signals of social maintenance (van den Herik & Rietveld, 2021; Westra & Andrews, 2022).

In our case, to identify the influence of group membership we should look at its interaction with the socially charged content of the target memory. My previous strategy was to claim that, during retrieval attempts, at some point the subject gets access to the trace of the target memory and that its socially charged content triggers implicit beliefs about the social group "women". These beliefs demotivate him to continue his memory search and ultimately cause forgetting. The problem of this strategy is that it does not identify the underlying causes of the motivational mechanisms that support the implicit beliefs in question. Appealing to the normative significance of social groups allows me to identify these causes.

Consider the external norms that might be in place in our case. Since our case takes place in a professional context, and since the socially charged content of the target memory is *woman's idea*, the relevant norms might be norms regarding the respect one should owe women in the workplace, the attention one should pay to their ideas, or the importance one should give to the professional tasks they perform.

It might be that Simon does not consciously endorse these norms. Yet, over time, he might have observed how they are enforced and maintained in his company and in the broader cultural context he lives in, he might have internalized them, and he might be following them in his everyday life, even without knowing he is doing so. If this is the case, then it is likely that these norms are in place and causally active when he tries to remember Mary's project. Not only because he has internalized them and they have become second nature (Hesni, 2024), but also because norms psychology is activated based on context (Bicchieri, 2006; van den Herik & Rietveld, 2021; Westra & Andrews, 2022). If this supposition is plausible, then we have good reasons to think that the motivational factors involved in our case of retrieval failure are supported by the external norms of the social group "women". Certain implicit beliefs – and not others – are activated because the external norms of the social group "women" trigger them. These beliefs have a strong motivational power because they are underpinned by the subject's intrinsic motivation to follow certain norms he has internalized, which function as implicit motivational factors that override other motivational states, for example conscious motivations for remembering.

This explanation is hypothetical. But if it is valid, we have a first answer to our first question: the underlying causes of the motivational factors that disrupt memory retrieval through implicit beliefs are social norms, in particular the external norms that apply to the social group "women".

A similar explanation applies to internal norms. In our case, these norms are the internal norms that the subject who forgets (Simon) might be following based on his gender. Since norms psychology is activated based on context, and since the retrieval attempts occur in the workplace, these norms might be the internal norms that apply to the gender group "men" in professional contexts. For instance, they might be norms that make errors of omission more permissible, or norms that prescribe not to pay much attention to certain aspects of a job, e.g., interpersonal aspects. Suppose that Simon has internalized these

norms. If this supposition is accurate, we have additional resources to explain why, at the implicit level, he is not particularly motivated to retrieve Mary's proposal. The lack of social punishment as a response to errors of omission implicitly demotivates him to continue the difficult task of retrieving a memory he cannot retrieve. And the norms that prescribe not to pay much attention to interpersonal aspects at work lead him to overlook the harm that his own forgetting may cause to Mary, a harm that, had it been acknowledged, perhaps may have functioned as motivating factor against forgetting.¹⁵

This explanation offers a second answer to my first question: in our case, what ascribes causal relevance to group membership in the mechanisms of retrieval failure are the internal and the external norms of social groups, in particular gender groups.

I now proceed to address my second question: how can we explain the fact that socially charged content is prioritized over socially neutral content when implicit schemas are involved in memory retrieval? This question was driven by the following problem. In addition to implicit beliefs and motivations, there is another element involved in the subject's memory search: the schema TECH PROFESSIONAL. TECH PROFESSIONAL carries two types of content: a socially neutral content, i.e., *general knowledge about the tech profession*, and a socially charged content, i.e., *man*. Like the schema TECH PROFESSIONAL, the target memory carries two types of content: a socially neutral content, i.e., *project in tech*, and a socially charged content, i.e., *woman's idea*. The two socially neutral contents are congruent, while the two socially charged contents are incongruent. The explanation proposed in Section 3 appealed to the incongruence between the socially charged contents and accounted for the inaccessibility of the memory trace as due to interferences. The problem with this explanation is that it does not tell us why, in retrieval failure, the incongruence between the socially charged contents matters more than the congruence between the socially neutral contents. I now sketch out a norm-based explanation that accounts for this aspect.

My core hypothesis is this: the congruence and incongruence effects brought forth by the two types of content and the sub-personal states and reactions they instantiate are different in kind. The congruence between the socially neutral contents concerns *facts*: the job tasks and aims involved in the tech profession and an intellectual product related to these job tasks and aims. The sub-personal state instantiated by the congruence between these two contents is a *cognitive judgement* about two sets of facts that match each other: the intellectual product stored as the memory *project in tech* and the job tasks and aims involved in the tech profession. The incongruence between the two socially charged contents concerns *norms*: the external norms that apply to the social group “men” and the external norms that apply to the social group “women”. The sub-personal state instantiated by this incongruence is an affective state: an *emotional reaction* caused by motivational states that pull or push in opposite directions. These motivational states are implicit motivations to follow two sets of norms. First, the external norms of the social group “man”, which are triggered by the socially charged content of the schema TECH PROFESSIONAL (*man*). Second, the external norms of the social group “women”, which are triggered by the socially charged content of the target memory (*woman’s idea*). These norms function as imperatives for mental actions that are incongruent with each other. For example, “pay attention”, “pay respect”, or “attribute some value” –the mental actions instantiated by the external norms of the social group ‘men’– and “do not make an effort to pay attention”, “do not feel compelled to pay respect”, or “do not feel compelled to attribute some value”– the mental actions instantiated by the external norms of the social group “women”. Considering that the psychological machinery underlying norm-following is activated automatically, it is likely that, at the sub-personal level, the external norms of the two social groups automatically instantiate mental action-tendencies that compete with each other. In turn, such a competition causes a state of emotional overload, which is due to the different directions in which these action-tendencies pull or push.

This explanation tells us why the incongruence between the socially charged contents overrides the congruence between the socially neutral contents, ultimately causing retrieval failure through interferences. The emotional overload caused by the incongruence between the socially charged contents, by imperatives to follow norms that are inconsistent with each other, and by mental action-tendencies that pull or push in different directions create an internal context that is emotional in kind. Empirical literature on cognitive vs. affective primacy suggests that the prioritization or de-prioritization of cognitive or affective factors depends on context (Lai et al., 2012). Since in our case the sub-personal context of the memory search is emotional in kind, it is likely that cognitive factors are de-prioritized, while affective factors are prioritized. These de-prioritization and prioritization effects explain why the incongruence between the socially charged contents of the schema and of the target memory matters more than the congruence between their respective socially neutral contents. This content incongruence is supported by an internal emotional context that self-feeds by recruiting competing implicit motivational states to follow certain norms, which in turn instantiate competing mental action-tendencies. By clashing between each other, these mental action-tendencies interfere with the cognitive judgment about two matching sets of facts, a cognitive judgment that could have otherwise prompted the generation of a conscious representation of the target memory: remembering.

Overall, this explanation complements the explanation based on interferences proposed in Section 3. The interferences that cause the inaccessibility of the memory trace, and therefore retrieval failure, are ultimately due to normative mechanisms: the prescription of competing mental actions one is supposed to perform based on the norms that apply to different social groups.

The investigation of my two questions is now complete. First, I have shown that the motivational factors that inhibit the access to the trace of the target memory are supported by norms that apply to different social groups. By appealing to these norms, I have identified

the origin of the motivational factors that impair memory retrieval through implicit biased beliefs. Second, I have shown how norms psychology influences the weight of congruence vs. incongruence effects when implicit schemas are involved in retrieval attempts. The general upshot of this argument was this: norms and norms psychology are the underlying causes of the interference mechanisms that make the trace of the target memory inaccessible, thus causing retrieval failure. Taken together, these results give us this general conclusion about our case of forgetting, and about cases of the same type: these are cases of *norm-induced forgetting*. These cases involve several mechanisms: motivational, inhibitory, and interference mechanisms. However, what underlie these mechanisms are two main things: social norms and their psychology. Social norms and norms psychology initiate these mechanisms and later fuel them, thus functioning as the original and supporting causes of retrieval failure. This suggests that, in these cases, the causes of retrieval failure are social norms: these are the elements that induce us to forget.

Before proceeding with some general conclusions, I want to consider one potential worry about my explanation. This worry is as follows. Even if I have excluded common cognitive explanations based on the unavailability of the relevant memory trace, it might be that normative elements caused such an unavailability during encoding and consolidation. For example, one might argue that implicit beliefs supported by gender norms interfered with memory encoding. Or that the instantiation of these beliefs during consolidation functioned as a demotivating factor that contributed to the total erasure of the memory trace. If that was the case, then my case would not be a case of retrieval failure: no stored trace, no retrieval failure. This worry is reasonable. Generally, I do not rule out that norms and norms psychology can cause forgetting at different memory stages: encoding, consolidation, and retrieval. On the contrary, I believe they can have this influence. Still, considering the details of my vignette, appealing to the unavailability of the memory trace is not apt here. This is because we have evidence of memory encoding and of memory retention, which comes from the

subject's behavior in the timeframe between the learning experience and the retrieval phase.

However, I want to note that the explanation based on retrieval failure proposed in this article is not at odds with *all* explanations based on normative elements involved in memory consolidation. For instance, consider the following explanation. As above, one might argue that implicit beliefs supported by gender norms were repeatedly activated in the subject's sub-personal system between the learning and the retrieval phase and that these beliefs functioned as demotivating factors. Since the subject consciously made retrieval plans about the target memory and expected to retrieve it in the future, the motivational factors supported by gender norms did not manage to completely erase a trace of the target memory. Still, they made it less relevant in the subject's cognitive economy, thus making the retrieval of the target memory less likely.

This explanation creates space for other influences occurring at different moments in time. For example, one might argue that the implicit beliefs in question contributed to reconsolidating a memory of Mary's project as including additional contents, such as a negative judgment about her project stored in a memory trace. If that was the case, then my retrieval-based explanation could be reformulated as follows. The socially neutral contents of the schema TECH PROFESSIONAL and of the target memory entail a mismatch, which can be expressed through this cognitive judgment: "this project is not up to the standards of a good project in tech". This negative judgment makes the target memory less relevant and this lack of relevance impairs retrieval.

Even this explanation appeals to cognitive elements, it supports the explanatory framework of norm-induced forgetting proposed here. First, if social norms are causally relevant elements during consolidation and reconsolidation, and if the effects of consolidation and reconsolidation due to social norms have an influence on retrieval, then social norms are the original causes of retrieval failure. Second, the interferences caused by mismatches between the socially neutral

contents and those caused by mismatches between the socially charged contents can work in tandem, jointly contributing to retrieval failure. Since my norm-based explanation allows for the interaction between normative and non-normative elements, and since what is important in the framework of norm-induced forgetting is that social norms and norm psychology play a relevant causal role in the mechanisms of retrieval failure, the additional explanation I have just proposed satisfies the conditions of norm-induced forgetting: it further supports my explanatory framework.¹⁶

5. Conclusions

This article was driven by a challenge: to explain cases in which subjects have sufficient internal and external resources to retrieve a semantic memory that carries a socially charged content but fail to do so. I have shown that common explanations of forgetting in cognitive science do not explain these cases and that explanations that consider social aspects as causal factors explain them only partially. Therefore, I have sketched out a new explanation. According to this explanation, these are cases of norm-induced forgetting: cases in which social norms and norms psychology cause retrieval failure through motivational, inhibitory, and interference mechanisms.

This explanation advances current research on forgetting in cognitive science and the philosophy of memory. Regarding the philosophy of memory, extant explanations have rarely considered the influence of social norms in the mechanisms of forgetting and have focused on other questions.¹⁷ For example, how particular types of mental and world-involving actions contribute to inaccessibility of memory traces (Caravà, 2021, 2023), whether forgetting is always best explained by appealing to trace-erasure (Robins, 2018), whether an appeal to memory traces is always needed to explain forgetting (McCarroll, 2020; Michaelian, 2022), and how forgetting influences knowledge, morality,

and personal identity (Bernecker, 2018; Blustein, 2014; Michaelian, 2011; Murray et al., 2019; Rowlands, 2017; Tanesini, 2018). The concept of norm-induced forgetting is a useful tool to start to fill an important gap in the literature.

However, the explanation proposed here is just a start. Since I have considered only cases of retrieval failure in semantic memory under particular conditions, more work should be done. First, future research should investigate the role of social norms in other memory cases, such as forgetting in episodic memory, cases in which forgetting is due to the absence of memory traces due to encoding failure and total lack of consolidation, and cases in which norm-induced forgetting impairs source monitoring and causes errors of attribution. Second, one might want to explore fine-grained differences among cases of norm-induced forgetting. These differences might be due, e.g., to different implicit schemas, different social norms that apply to different social groups, and the level of internalization of these norms. Third, future research should investigate the relationship between schemas and social scripts and its influence on forgetting. In particular, how the interplay between normative elements at the sub-personal level (implicit schemas) and behavioral level (scripts) causes or rather prevents forgetting, e.g., by instantiating social emotions such as shame and guilt. The concept of norm-induced forgetting proposed here is general enough and is compatible with a broad set of underlying mechanisms. Thus, it is a good candidate to accommodate a variety of memory cases.

Notes

1. Considering the cases I want to explain, in this manuscript the relevant level of analysis for norms psychology are not entire cultures or societies but individuals who have internalized certain social norms. There are many accounts of norms psychology: in this paper I rely on some key ideas shared by these accounts.
2. I thank two anonymous reviewers for pushing me to clarify this aspect.

3. One might worry that focusing only on semantic memory is artificial because an individual memory can contain both semantic and episodic features. In response to this worry, I want to note that, in forgetting, episodic and semantic features are often dissociable. For example, think about having a conversation with a friend, then episodically remembering aspects of that event, but not the content of the conversation. A similar thing holds for our case. It might be that our character episodically remembers some features of the learning event; still, he forgets a semantic content: a project idea. Hence, in my case it is apt to focus only on semantic features. I thank an anonymous reviewer for suggesting clarifying this point.
4. I thank an anonymous reviewer for inviting me to consider this objection.
5. Another explanation appeals to proactive interference due to cue-overload (Underwood, 1957). According to this explanation, forgetting is caused by information learned before the forgotten memory was encoded, which disrupts the consolidation of memory traces through interference mechanisms. Since this explanation has been disconfirmed for cases of everyday forgetting (Wixted, 2010), I do not consider it here. However, I do not exclude that proactive interference may have an influence on forgetting at another stage: retrieval.
6. Internal affective states (e.g., moods) and aspects of the environment (e.g., evocative objects and odors) are powerful cues for recalling episodic memories but not semantic memories (Hall et al., 2020). Hence, they do not apply to our case. Moreover, although until recently it was believed that the overall configuration of the environmental context at the retrieval stage contributes to forgetting in semantic memory (Godden & Baddeley, 1975), this idea has been disconfirmed (Murre, 2021). Therefore, I do not analyze this macro memory cue.
7. This implies that our case is a case of temporary forgetting because permanent forgetting is usually explained by appealing to the unavailability of memory traces (Tulving, 1974).
8. Other groups that are often mentioned in social philosophy are organized social groups, like teams, committees, clubs, and courts (Ritchie, 2020). Since our characters are part of the same organized social group, and since the influence of group membership on forgetting is more significant when an out-group condition is satisfied (Hirst et al., 2018), I do not consider organized social groups.
9. In real life individuals are complex entities, whose identities depend on overlapping clusters of features, e.g., gender, including non-binary genders, sexual orientation, race, disability status, education. A fine-grained analysis should consider this complexity. Since my analysis is coarse-grained, it entails some simplifications.
10. Excluding lack of epistemic trust as a causal factor during retrieval does not entail dismissing its influence at other levels. For example, it may be that Simon's level of epistemic trust in Mary is low in general. If that was the case, then it could be that he has deemed Mary's proposal as meaningless and has made it more difficult to remember, even if he has encoded it (Hennessee et al., 2019). This explanation is

not at odds with the explanations I propose here and in Section 4 but complements them.

11. This does not entail that *project in tech* has nothing to do with the social world: a project in tech is an artifact produced by humans. Still, one can conceive of *project in tech* as a representation combining pure technical content and technical steps to achieve a technical goal: “product in tech”. In this sense, it is appropriate to qualify *project in tech* as socially neutral. This also applies to the content *general knowledge about the tech profession*. This content is part of the overall content of the schema TECH PROFESSIONAL, which I will investigate later in this section.

12. This hypothesis is consistent with extant accounts of motivated forgetting in cognitive science (Anderson & Hanslmayr, 2014). However, our case does not fall under the category of *active* motivated forgetting, since at the conscious level the subject is motivated to recall the target memory and actively tries to do so.

13. If this hypothesis is correct, then our case of forgetting is caused, at least in part, by proactive interference at the retrieval stage, namely a mechanism through which information stored in memory interferes with the retrieval of other information. This explanation is not at odds with the explanation based on inhibitory mechanisms due to de-motivating factors I developed earlier. These two explanations aim at two different explanatory levels that complement each other.

14. These cases have the following features: (a) they are cases of everyday forgetting characterized by a social dimension; (b) the forgotten memory is a memory of another person’s idea; (c) the subject who forgets and the subject whose idea has been forgotten are members of different social groups; (d) the subject who forgets has sufficient internal and external resources to retrieve a memory but fails to do so.

15. Establishing the specific type of harm involved in this case is beyond the scope this article. However, since the forgotten memory is another person’s intellectual product, our case is likely an instance of epistemic injustice, and in particular an instance of mnemonic injustice: a case in which a subject’s epistemic agency is jeopardized by a memory process undergone by another subject (Puddifoot, 2021; Trakas & Puddifoot, 2023).

16. I thank an anonymous reviewer for pushing me to consider this objection.

17. For an important exception, see Campbell (2003).

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