Mnemic Neglect: Selective Amnesia of One's Faults

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Abstract

The mnemic neglect model predicts and accounts for selective memory for social feedback as a function of various feedback properties. At the heart of the model is the mnemic neglect effect (MNE), defined as inferior recall for self-threatening feedback compared to other kinds of feedback. The effect emerges both in mundane realism settings and in minimal feedback settings. The effect is presumed to occur in the service of self-protection motivation. Mnemic neglect is pronounced when the feedback poses high levels of self-threat (i.e., can detect accurately one's weakness), but is lost when self-threat is averted via a self-affirmation manipulation. Mnemic neglect is caused by self-threatening feedback being processed shallowly and in ways that separate it from stored (positive) self-knowledge. For example, mnemic neglect is lost when feedback processing occurs under cognitive load. The emergence of mnemic neglect is qualified by situational moderators (extent to which one considers their self-conceptions modifiable, receives feedback from a close source, or is primed with improvement-related constructs) and individual differences moderators (anxiety, dysphoria, or defensive pessimism). Finally, the MNE is present in recall, but absent in recognition. Output interference cannot explain this disparity in results, but an inhibitory repression account (e.g., experiential avoidance) can: Repressors show enhanced mnemic neglect. The findings advance research on memory, motivation, and the self.

Keywords: memory, self, forgetting, motivation, self-protection, social memory

"It's not only the most difficult thing to know one's self, but the most inconvenient"

— Josh Billings (1818-1885), American writer and humourist

The self-concept contains rich and well-organised mental representations of one's attributes, and these representations are predominantly positive (Alicke, Zell, & Guenther, 2013; Sedikides & Gregg, 2003; Sedikides & Spencer, 2007): For the most part, people view themselves as moral, competent, warm, attractive, and loveable. However, this positive self-view is not necessarily backed by objective evidence or peer consensus (Alicke & Sedikides, 2011; Sedikides, Gregg, & Hart, 2007; Sedikides, Hoorens, & Dufner, 2015). As such, the self-view may often be threatened by undesirable interpersonal feedback or disapproving social evaluations (e.g., comments from peers, friends, relatives, employers, acquaintances, and even strangers), so that "favorable views about oneself are questioned, contradicted, impugned, mocked, challenged, or otherwise put in jeopardy" (Baumeister, Smart, & Boden, 1996, p. 8). The ensuing self-threat is discomforting. Moreover, unfavourable evaluations, when occurring in public, can damage one's reputation. Such damage can produce a bruised ego (e.g., reduced self-esteem) and a sense of rejection (Leary, Terry, Allen, & Tate, 2009; Sedikides, 2012). Criticism hurts—both metaphorically and literally (Dickerson, Gruenewald, & Kemeny, 2004; Eisenberger, 2015).

Individuals typically have a low threshold for self-threat (Greenwald, 1980; vanDellen, Campbell, Hoyle, & Bradfield, 2011; Sedikides, 2012) and, as such, they guard against negative social evaluations (Campbell & Sedikides, 1999; Sedikides & Alicke, 2012; Sedikides, Gaertner, Luke, O'Mara, & Gebauer, 2013). Detection of threats prompts efforts at self-protection: When criticised, one becomes especially motivated to diminish the negativity, or shield the positivity, of the self-concept via the activation of the self-protection motive (Hart, 2014; Sedikides, Green, & Pinter, 2004; Sedikides, 2012). This motive works to re-establish psychological homeostasis, restoring self-conceptions to their prior positive level (Alicke & Sedikides, 2009; Sedikides & Strube, 1997; Skowronski, 2011).

The self-protection motive may influence individuals to avoid negative information about themselves. In one illustrative study (Gaertner, Sedikides, & Cai, 2012), participants indicated the extent to which they desired negative (i.e., self-effacing) feedback, positive (i.e., self-enhancing) feedback, self-improving feedback, or no feedback at all, from each of four sources: teachers, classmates, friends, and parents. For example, in the case of feedback from teachers, participants

responded to four statements that followed the stem "I want my teachers to tell me …". The statements were: (1) "I am an average student" (*self-effacing*), (2) "I am a great student" (*self-enhancing*), (3) "how to be a better student" (*self-improving*), and (4) "nothing about the kind of student I am" (*no feedback*). Participants (both American and Chinese) expressed a low desire for self-effacing feedback. This low desire for negative feedback can manifest in behaviour. For example, in relevant research (Sedikides, 1993), participants were presented with a list of candidate questions to ask themselves in private in order to find out if they truly possessed a number of traits. These traits varied in valence: for some participants they were positive (e.g., friendly), but for others they were negative (e.g., unfriendly). The questions also varied in diagnosticity: some (i.e., high-diagnosticity) were designed to elicit a definitive conclusion about whether one possessed the relevant trait or not, but others (i.e., low-diagnosticity) were designed to elicit a vague conclusion. Participants selected high-diagnosticity questions (e.g., "would I invite a new neighbour over for dinner?") when reflecting on possible possession of positive traits (i.e., friendly), but selected low-diagnosticity questions (e.g., "do I go to football games?") when reflecting on possible possession of negative traits (i.e., unfriendly). Thus, participants actively pursued definitive knowledge of their positive qualities, but, presumably in effort to avoid self-threat, evaded knowledge of their negative qualities (Gregg, Sedikides, & Gebauer, 2011; Sedikides & Gregg, 2008).

In this article, we focus on one other possible manifestation of this self-protection-driven avoidance of negative information: the selective forgetting of feedback that has unfavourable implications for the self. In particular, we propose a theoretical model of memorial self-protection, called the *mnemic neglect model*. We review core empirical evidence from the mnemic neglect paradigm that evinces selective forgetting of feedback. Then we review evidence from experiments on loss of mnemic neglect, which highlight the motivational and cognitive mechanisms involved in the production of mnemic neglect. Next, we consider alternative mechanisms proposed as explanations for mnemic neglect and review research that discounts them. Finally, we reflect on the nature of mnemic neglect and contextualise our findings in the memory and self literature.

The Mnemic Neglect Paradigm

The selective forgetting of self-threatening feedback has been systematically examined using the *mnemic neglect paradigm*, a technique adapted from the person memory literature (Hastie & Kumar, 1979; J.W. Sherman & Hamilton, 1994; Srull & Wyer, 1989; for a review, see

Skowronski, McCarthy, & Wells, 2013). In the experiments that use this paradigm, participants receive many instances of social feedback (sometimes real, sometimes imagined), conveyed one item at a time. Each feedback item has trait implications (e.g., "unkind"), but is delivered in terms of a behaviour that implies a trait (e.g., "You would purposely hurt someone to benefit yourself."). Following feedback delivery, participants typically perform a surprise free-recall task in which they attempt to recall as many of the behaviours as possible. The recalled behaviours are used to construct the dependent variables.

This mnemic neglect paradigm possesses several advantages over paradigms that assess biases in recall using real-world memories (Brunot & Sanitioso, 2004; Crary, 1966; Mischel, Ebbesen, & Zeiss, 1976; Story, 1998). For example, in studies examining real-world memories, researchers often worry about possible biases introduced into the data because of incomplete or selective sampling of events from a person's life. The mnemic neglect paradigm bypasses such problems because the to-be-remembered material is generated by, and is controlled by, the researchers. The control afforded by this paradigm also has other benefits: It allows: (1) the ratio of negative to positive information presented to participants to be equalised (at 50%), (2) the physical environment in which feedback is delivered and encoded to be standardised, (3) the source of feedback to be standardised (or manipulated, when theoretically relevant; Green, Sedikides, Pinter, & Van Tongeren, 2009, Experiment 2), and (4) memory assessments to use standard memory measures which can be administered in tightly controlled conditions .

Three Feedback Distinctions

The standard mnemic neglect paradigm manipulates social feedback in three ways (Green, Sedikides, & Gregg, 2008; Sedikides & Green, 2009). The first manipulation involves *feedback valence* in which each feedback item implies one of several negative traits (e.g., unkind, untrustworthy, immodest, complaining) or one of several positive traits (e.g., kind, trustworthy, modest, uncomplaining). The second manipulation involves *feedback type*. Each feedback item pertains to a trait dimension that is either central (e.g., kind, trustworthy) or peripheral (e.g., modest, uncomplaining) to a person's self-concept. The third manipulation involves *feedback referent*: the feedback refers either to the participant or someone else (a generic peer, androgynously dubbed *Chris* or *Pat*). In most experiments, feedback valence and feedback type are within-subjects variables, but feedback referent is a between-subjects variable. Thus, across conditions (Table 1a

and 1b), participants encounter eight behaviour types reflecting the combination of feedback valence (positive or negative), feedback type (central trait dimension or peripheral trait dimension) and feedback referent (self or other).

We display, in Appendix A, traits and relevant behavioural feedback that participants received in many mnemic neglect experiments (e.g., Sedikides & Green, 2000). The traits and behaviours used in most experiments were pretested both for valence and centrality (Sedikides & Green, 2000, Pilot Studies 1-2). Central traits were rated as more important, positive, and self-descriptive than peripheral traits. Further, the positive behaviours implying central traits were rated as more important to perform (and the negative behaviour as more important not to perform) than their peripheral counterparts. Further, all behaviours were pretested to be high in diagnosticity (Sedikides & Green, 2000, Pilot Study 2), meaning that pretest participants considered all behaviours informative as to whether the recipient had the underlying trait or not.

Propositions: Feedback Processing and Recall

Of special interest is the examination of recall rates for behaviours that reflect each of the eight condition combinations. A key theoretical mechanism concerns the processing of *self-threatening feedback* (feedback that is self-referent, negative, and has implications for central traits). Examples of this sort of feedback are: "You would make fun of others because of their looks" (unkind) and "You would borrow other people's belongings without their knowledge" (untrustworthy). Even when people attend to, and encode, such self-threatening feedback, due to the action of the self-protection motive, they should process self-threatening feedback in a shallow or non-elaborative manner (Brown & Craik, 2000; Craik, 2002; Klein & J. Loftus, 1988). Moreover, they should think about the feedback in a way that separates it (i.e., "not me") from stored self-knowledge. Thus, individuals process self-threatening feedback to a different degree (in a shallow manner) and in different ways (by separating it from existing self-knowledge) than other kinds of feedback. Such processing should produce few retrieval routes that lead to the behaviour and, ultimately, should produce poor recall.

Recall for this self-threatening feedback can be compared to recall for *other/negative/central trait dimension-relevant feedback*. Examples of this kind of feedback are: "Chris would make fun of others because of their looks" (unkind) and "Chris would borrow other people's belongings without their knowledge" (untrustworthy). Other/negative/central trait dimension-relevant feedback pertains

to participants' important traits, thereby maintaining a level of interest and self-involvement. Nevertheless, because it does not directly implicate the self, this kind of feedback poses a far weaker level of self-threat than self/negative/central trait dimension-relevant feedback. As such, other/negative/central feedback should be processed with some degree of depth and should thus be recalled better than self-threatening feedback—an outcome we term the *mnemic neglect effect* (MNE). This self versus Chris comparison is the cleanest way to search for evidence of memory impairment in the mnemic neglect paradigm, for it involves examination of recall for the *exact same behaviours* (e.g., making fun of others because of their looks) as affected by the referent (the participant's self vs. Chris). Hence, in this comparison, variations in recall for a behaviour across referent cannot be due to mechanisms or variables other than those linked to the behaviour's referent.

This same self versus Chris comparison should be less likely to yield memory impairment for negative behaviours pertaining to peripheral trait dimensions. Examples of pretested negative peripheral feedback are: "I (Chris) would talk more about me (Chris) than about others" (immodest) and "When I (Chris) would not like to do something, I (Chris) would constantly mention it" (complaining). Negative behaviours on peripheral trait dimensions do not threaten the self as much as central trait dimension-relevant negative behaviours do. Hence, the memory impairment likely to occur for central trait dimension-relevant negative behaviours ought to be diminished or reduced when examining recall for negative behaviours pertaining to peripheral trait dimensions.

Moreover, given that these peripheral trait-relevant behaviours are minimally important, they will be processed in a shallow fashion, which should produce relatively low levels of recall in comparison to recall levels for central trait-relevant behaviours. However, one needs to be cautious when evaluating this prediction in the context of the mnemic neglect paradigm, because such a comparison involves examination of recall for different behaviours across conditions. The recallability of behaviours can be affected by several variables (vividness, salience, unexpectedness, frequency, meaningfulness) that are unrelated to the processing induced by the relevance of a behaviour to central trait dimensions. The potential presence of these additional influences on recall should be kept in mind when evaluating the results of the comparison of recall for central trait dimension-relevant behaviours to recall for peripheral trait dimension-relevant behaviours. However, this caution only applies when one compares recall for central trait dimension behaviours

to recall for peripheral trait dimension behaviours within the same actor. These potential confounds do not occur when recall for the same behaviours is compared across different behaviour referents (i.e., self vs. Chris). In the standard mnemic neglect paradigm, these latter, unconfounded comparisons clearly yield evidence of mnemic neglect.

The same point should be kept in mind when evaluating other comparisons among conditions in the mnemic neglect paradigm. For example, theory suggests that it would be of interest to compare recall for self-threatening feedback with recall for *self-affirming feedbac*k (self/positive/central trait dimension-relevant). Examples of this sort of feedback are: "You would volunteer time to work as a big brother/big sister to a child in need" (kind) and "You would keep secrets when asked to" (trustworthy). The self-protection motive is not activated in self-affirming feedback. Instead, such feedback may activate the self-enhancement motive, so individuals should process it in a deep or elaborative manner (Brown & Craik, 2000; Klein & J. Loftus, 1988). They should give it ample processing time and integrate it (i.e., "me") with stored self-knowledge. This elaborative processing should thus produce many retrieval routes that lead to relevant behaviours, and, consequently, should prompt good recall. However, in the mnemic neglect paradigm, there is a danger in comparing recall for self-affirming feedback with recall for self-threatening feedback: the comparison does not involve recall for the same behaviours across conditions. Hence, while the comparison across these conditions is of theoretical interest, results must be interpreted with caution.

Still, keeping this caution in mind, a difference in recall for self-affirming feedback and self-threatening feedback is consistent with the mechanisms thought to produce mnemic neglect. Self-affirming information should be both processed deeply and integrated with self, whereas self-threatening information should be both processed shallowly and separated from the self. Moreover, these processing mechanisms do not readily apply when the behaviours describe another person (e.g., "Chris"). Thus, if one recalls central positive behaviours better than central negative behaviours when these same behaviours describe the self but not when they describe Chris, it is difficult to explain that statistical interaction by resorting to characteristics of the behaviours themselves (e.g., vividness, salience, unexpectedness, frequency, meaningfulness across central behaviours differing in valence). Such characteristics would lead us to predict a main effect across

central/behaviour valence that should occur regardless of a behaviour's referent (self or Chris), not an interaction between central/behaviour valence and referent.

Core Evidence for Mnemic Neglect

Proof of Concept

Mundane realism setting. An initial test (Sedikides & Green, 2000, Experiment 1) was carried out in a laboratory setting that nonetheless afforded relatively high mundane realism (i.e., similarity to real-life situations). Participants completed an ostensibly valid, reliable, and widely administered personality test, the Michigan Omnibus Personality Inventory (MOPI). The MOPI consisted of 45 computer-administered items that were plausibly-phrased in order to maximise believability. Indeed, participants reported at the end of the experiment, and uniformly across conditions, that they liked the MOPI and found it insightful. The MOPI boasted an allegedly unique feature: it supplied concrete and accurate feedback in terms of behaviours one was likely to enact. Sample items are: "It's amazing how 'light' life sometimes seems," "I sometimes go to people I consider wise for advice," "I don't mind visiting places where I have never been before." Participants read the 45 items and expressed their level of agreement with each. Next, they watched the computer screen indicate successive levels of score completion (25%, 50%, 75%, 100%) in calculating their personality profile, which would then be conveyed to them in the form of behaviours.

Participants were informed that these behaviours referred either to them or to another person (Sedikides & Green, 2000, p. 912). Specifically, half of them (*self condition*) learned:

> "The MOPI provides specific feedback in the form of behaviors that you are likely to perform. In other words, you will read several behaviors that you are likely to perform. In this way, you will receive concrete and highly accurate information about the type of person that you are."

The other half of participants (*Chris condition*) learned:

> "Your scores will be used to validate the MOPI for … undergraduates. We are interested in how participants perceive other people. You will read the personality test results of another person who recently completed the MOPI and gave permission for his or her results to be used anonymously. Let's call this person Chris. The MOPI provides specific feedback in the form of behaviors that a person is likely to perform. In other words, you will read several

behaviors that Chris is likely to perform. In this way, you will receive concrete and highly accurate information about the type of person Chris is."

Next, participants practised reading 10 general statements (e.g., "The chairs were ordered neatly around the table"), which were presented to them in a format similar to that of the impending feedback. Finally, they received the 32 feedback behaviours (Appendix A) and read them at their own pace. Several randomization patterns were used to present the behaviours, and this manipulation did not influence results. After completing a 2.5min filler task assessing geographical knowledge, participants encountered a surprise recall task. They were asked to recall, in a booklet, "as many behaviors as possible, write down one behavior per page in any order the behaviors came to mind, not to turn back to previous pages, and try to be as accurate as possible without worrying about recalling the behaviors verbatim" (Sedikides & Green, 2000, p. 912). Recall lasted approximately 5 min. The recalled items were coded by two independent judges who used a "gist" criterion. Their agreement level was high (98%), and a third judge helped resolve discrepancies. Intrusions were evenly distributed across conditions (at 5%) and were removed from the data set prior to analyses. These intrusions were defined as recalling the same behaviour twice, recalling a non-presented behaviour, or recalling the opposite valence of a given behaviour.

The recall protocols were used to calculate the proportion of recalled behaviours for each of the four within-subjects behaviour types (each participant saw eight items reflecting each of these four behaviour types). These proportions were entered into a 2 (Feedback Valence) x 2 (Feedback Type) x 2 (Feedback Referent) mixed-model Analysis of Variance (ANOVA), with feedback referent as a between-subjects factor. The ANOVA yielded a three-way interaction. The means for the interaction (Table 1a) show evidence of the MNE: impaired memory for information that, in theory, posed a high self-threat. Specifically, participants manifested poorer recall for self-threatening behaviours (self/negative/central trait-dimension-relevant) than for the exact same behaviours that were ascribed to Chris, and thus were theoretically low in self-threat. Also consistent with the idea that degree of self-threat affects recall was the finding that the self versus Chris difference in recall for negative behaviours did not emerge for behaviours that implied traits of peripheral self-importance. Finally, though potentially contaminated by differences across conditions in the behaviours recalled, that self-threat reduced recall also fits with participants

showing poorer recall for central/negative trait-relevant behaviours than for central/positive trait-relevant behaviours, but only when the behaviours described the self and not Chris.

Minimal feedback setting. Would participants be self-threatened even by feedback that was a product of make-believe or role-play (Miller, 1972)? A second test examined whether the above findings would emerge when the feedback was seemingly innocuous or fictitious. Given that the literature suggests people often respond to imagined information as if it were true (Holmes & Mathews, 2005; Morewedge, Huh, & Vosgerau, 2010), the MNE was expected to occur even in response to imagined feedback.

Sedikides and Green (2000, Experiment 2) created a variant of the mnemic neglect paradigm that supplied hypothetical feedback. Participants in the self-referent condition were instructed to "consider the following description of yourself. Think of the description as being based on actual knowledge of people who know you well. Think of the description as real" (p. 913). Participants in the other-referent condition were instructed to "consider the description of a person named Chris. Think of the description as being based on actual knowledge of people who know Chris well. Think of the description as real" (p. 913). Despite the imagined feedback, the results duplicated those of the initial experiment: participants manifested evidence of mnemic neglect, recalling self-threatening information poorly. That the MNE occurs even in hypothetical feedback conditions attests to its power and generality.

Indeed, this MNE has emerged repeatedly, and in a similar fashion, across multiple experiments. Table 1b shows the average pattern of mnemic neglect effects (from Wells, 2012) that emerged from the corpus of experiments reviewed by Sedikides and Green (2009). Moreover, the MNE reflected in Table 1b is not restricted to the exact procedures used by Sedikides and Green (2000). We have already noted that the MNE emerges both in mundane realism settings, where feedback is based on a purportedly valid personality inventory, and settings in which feedback is imaginary. In addition, the effect emerges: (1) averaging across two central trait dimensions (kind/unkind, trustworthy/untrustworthy) and two peripheral trait dimensions (uncomplaining/complaining, modest/immodest), (2) across multiple behaviours within each of those dimensions, and (3) across assorted behaviour presentation formats (behaviours being blocked by trait and displayed on separate booklet pages, behaviours displayed randomly and on computer,

behaviours being randomised; Green et al., 2008; Green et al., 2009; Sedikides & Green, 2000, Experiment 4; Sedikides & Green, 2004).

Verifying that the Mnemic Neglect Effect Is in the Service of Self-Protection

The mnemic neglect model emphasises motivation-driven processing of negative self-referent (vs. other-referent) information. Self-threat, a discomforting state, is thought to activate the self-protection motive, which then works to minimise the threat via reduction of recall for the threatening information. Mnemic neglect, then, occurs in the service of self-protection. One way to evaluate this proposal is to observe whether the MNE varies depending on level of self-threat. The model implies that the greater the self-threat, the poorer the memory for feedback.

Consistent with this proposal, the MNE occurred (1) for self-framed behaviours, but not for Chris-framed behaviours, and (2) for central trait-relevant negative behaviours, but not for peripheral-trait relevant negative behaviours (Sedikides & Green, 2000, Experiments 1-2). However, this evidence does not provide cast-iron proof for the proposal. For example, these findings may have been a function of *behaviours ascribed to Chris* and not of behaviours ascribed to the self. This is a plausible concern. The person memory paradigm adapted for the investigation of mnemic neglect was developed to study an individual's memory for other people (Hastie & Kumar, 1979). For example, in the service of interpersonal safety, people may be vigilant to the important negative characteristics of another person (Pinkham, Griffin, Baron, Sasson, & Gur, 2010), which would prompt high memory for them (Skowronski & Carlston, 1987; Skowronski, Betz, Thompson, & Shannon, 1991). Thus, in the context of the comparison of recall for self/negative/central trait-dimension relevant behaviours to recall for Chris/negative/central trait-dimension relevant behaviours, it may be that recall for the Chris behaviours is enhanced over baseline rates rather than recall for self behaviours being decreased over baseline rates. To address this alternative, several experiments examined if the MNE indeed reflected the action of the self on recall.

Self-affirmation. One set of experiments relied on self-affirmation theory (D.K. Sherman, 2013), which suggests that self-bolstering or ego-inflation can block the self-protection motive. For example, elevating one's self-view (via flattering information that is real or imagined) tempers one's defences, thus rendering impending negative feedback more palatable (Kumashiro & Sedikides, 2005; Trope & Neter, 1994). If self-threat is at the heart of mnemic neglect, and if ego-

inflation cancels the effects of self-threat, then an ego-inflation manipulation would moderate or eliminate the MNE.

Participants in a relevant experiment (Green et al., 2008, Experiment 2) engaged in a purported creativity test, the "Lange-Elliot Creativity Test" (Sedikides, Campbell, Reeder, & Elliot, 1998), generating functional uses for a candle and a brick for 5mins. Subsequently, they received bogus information designed to diminish the self ("you are uncreative—at the 31st percentile of your peers"; *ego-deflation*) or bolster the self ("you are very creative—at the 93rd percentile of your peers"; *ego-inflation*). The usual mnemic neglect paradigm followed: participants viewed 32 hypothetical behaviours referring either to them or to Chris, and later recalled the behaviours.

How would ego-deflation, or ego-inflation, influence feedback recall? It was hypothesised that the MNE would be present in the case of ego-deflation, but moderated or absent in the case of ego-inflation (i.e., producing a four-way statistical interaction). Indeed, as hypothesised, the MNE emerged after ego-deflation (Table 2b), but not after ego-inflation (Table 2a). Note that, although ego-inflated participants reported being in a better mood than their ego-deflated counterparts, mood did not account for fluctuations in the MNE.

Feedback diagnosticity. Additional research focused on the notion that people recall self-referent feedback more poorly than other-referent feedback when they perceive it as especially self-threatening. In the original experiments, the central trait-relevant negative feedback was designed to be threatening; that is, it was pretested to be highly diagnostic of important negative traits. For example, the statement "You would often lie to your parents" was designed to be self-threatening, as it strongly and unambiguously implies that the participant is untrustworthy. What would happen if an experiment employed untrustworthy behaviours that were not especially diagnostic of the presence of those same negative traits? The mnemic neglect model posits that, in comparison to diagnostic negative behaviours, these less diagnostic behaviours should not prompt high levels of self-threat, and so participants should not exhibit impaired recall. This should occur despite the fact that the low-diagnosticity negative behaviours continue to imply possession of aversive self-traits.

This proposal was examined by Green and Sedikides (2004). They pre-tested behaviours so that some were highly diagnostic of a trait (e.g., the untrustworthy behaviour "you often lie to your parents") and some were not highly diagnostic of the same trait (e.g., the untrustworthy behaviour "you would take a pen from a bank after signing a check"). These behaviours were then used in the

imaginary feedback version of the mnemic neglect paradigm. According to the model, mnemic neglect ought to occur only for high-threat behaviours—self-referent negative behaviours that were highly diagnostic of central trait-relevant dimensions. Statistically, this implies a four-way interaction involving feedback diagnosticity, feedback valence, feedback type, and feedback referent. This interaction emerged, and the means were as expected: the MNE occurred in the high-diagnosticity feedback condition (Table 3a), but was negated in the low-diagnosticity feedback condition (Table 3b).

Perceived trait modifiability. Other research capitalised on the notion that people perceive traits as varying on modifiability (e.g., amenable to change via training or growth). Negative feedback on unmodifiable traits is felt as especially painful (Dauenheimer, Stahlberg, Spreeman, & Sedikides, 2002; Roese & Olson, 2007) and curtails the desire for information about one's liabilities (Dunning, 1995; Trope, Gervey, & Bolger, 2003). Given that such feedback is threatening (it exposes fundamental weaknesses in one's personality) and is of limited—if any—utility (in the sense that these personality weaknesses are unalterable), an individual is likely to barricade mentally themselves against the feedback, neglect it, and recall it poorly. In contrast, negative feedback on modifiable traits is not felt as particularly painful (Dauenheimer et al., 2002; Roese & Olson, 2007) and strengthens the desire for liability-focused information (Dunning, 1995; Trope et al., 2003). Such feedback is likely to trigger self-improvement motivation. Given that the feedback is low on self-threat (i.e., has fleeting consequences) and constructive (i.e., likely to lead to remedial action or long-term benefits), the individual will be open to it, process it deeply, and recall it well.

These proposals were tested by Green, Pinter, and Sedikides (2005). They manipulated the degree to which participants perceived the feedback-relevant personality traits as either unmodifiable or modifiable. Specifically, in the context of the mnemic neglect paradigm, participants were told that the behaviours reflected the "Big Four" trait dimensions: untrustworthy-trustworthy, unkind-kind, immodest-modest, and complaining-uncomplaining. Subsequently, those in the *modifiable* condition learned: "The Big Four have been empirically proven to be remarkably flexible, malleable, and variable across the lifespan …. In other words, people are very changeable on these traits from early childhood to early adulthood to middle and old age…. All these traits are monuments of instability and change, as they fluctuate constantly." Correspondingly, those in the *unmodifiabile* condition learned: "The Big Four have been empirically proven to be remarkably

constant, fixed, and unchangeable across the lifespan …. In other words, people are very stable on these traits from early childhood to early adulthood to middle and old age…. All these traits are monuments of stability."

The MNE was stronger in the unmodifiable than modifiable condition. For example, in the unmodifiable condition mnemic neglect is reflected in the recall comparison for self-referent (.18) versus Chris-referent (.32) negative/central trait dimension behaviours; that difference was not as robust in the modifiable condition (self = .26, Chris = .32). Here again the results suggest that (1) the effects of manipulating the degree to which feedback was threatening are centred on self-referent feedback, and (2) mnemic neglect is especially likely to occur when negative feedback is threatening.

Individual differences in processing style. A fourth approach to verifying the self-protective character of the MNE is to examine how individual differences in processing self-relevant information are related to mnemic neglect. For example, some people (repressors) may chronically use defensive processing techniques when confronted with self-threatening information. Repressors display attentional avoidance of threatening stimuli (Ioannou, Mogg, & Bradley, 2004), evince a low likelihood of recalling negative autobiographical memories (Davis & Schwartz, 1987), and, when presented with positive and negative information and asked to encode it self-referentially, are especially unlikely to recall the negative information (Myers & Brewin, 1995). This suggests that, if the mnemic neglect model holds, memory impairments for the important self-referential negative behaviours ought to be especially powerful in repressors.

Saunders, Worth, and Fernandes (2012) tested this hypothesis using a modified version (e.g., no Chris condition) of the mnemic neglect paradigm. They examined how repression is related to mnemic neglect, reasoning that persons high in repressive tendencies would be particularly likely to exhibit mnemic neglect. Results from three experiments supported this reasoning. Saunders et al. used measures of anxiety (State-Trait Anxiety Inventory—Trait or STAI; Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983) and social desirability concerns (Crowne-Marlowe scale; Crowne & Marlowe, 1960) to identify repressors (low in anxiety, high in social desirability concerns). Repressors were prone to forget self-threatening information (Experiment 1), especially when that information posed a high self-threat due to being perceived as either unmodifiable (Experiment 2) or as highly diagnostic of central negative traits (Experiment 3).

We offer one methodological comment in regard to this work, which will apply to several experiments we discuss later. Our preference in describing mnemic neglect is to focus on self-referent versus Chris-referent memory for negative/central trait-relevant behavioural feedback. The Saunders et al. (2012) work did not involve the Chris condition, so we cannot use this preferred comparison. In these cases, however, the emphasis is on *loss of mnemic neglect*, and an inference about this loss can be made by comparing recall for negative/central trait-relevant behavioural feedback across person types or conditions. This comparison ensures that, as in our preferred self-referent versus Chris-referent comparison, the key effects being examined pertain to recall for the exact same behaviours (negative/central trait-relevant behavioural feedback). Hence, the effects described by Saunders et al. (2012), and those that emerge from similar individual difference-focused studies we discuss later in this article, are not confounded by behaviours differing in characteristics such as concreteness or vividness.

Stigmatisation. A fifth and final approach to verifying that self-protection underpins the MNE focused on stigmatisation. L.S. Newman, Eccleston, and Oikawa (in press, Experiment 1) hypothesised that Black, compared to White, students would evince a heightened MNE. Their reasoning was based on findings that Blacks, acutely aware of their group membership (Mendoza-Denton, Downey, Purdie, Davis, & Pietrzak, 2002), cope with historically antagonistic social environments by downplaying the relevance or diagnosticity of negative information about themselves, attributing it to bias or discrimination (Crocker & Major; 1989; Major & O'Brien, 2005). A chronically accessible self-protection motive, then, would become easily and strongly activated by important negative feedback, thus inhibiting recall of self-threatening feedback among Black (but not White) participants. The results were consistent with the hypothesis. For example, Black participants recalled self-referent/negative/central trait dimension-relevant behaviours less frequently (.15) than they recalled the same behaviours that described Chris (.25). This did not happen for White participants (self = .31, Chris = .29).

Black students' memorial self-protection is presumably due to perceptions of social injustice. If so, restoring psychologically social justice would lead temporarily to loss of mnemic neglect. To do so, L.S. Newman et al. (in press, Experiment 2) primed the fairness or egalitarianism construct via a scrambled sentences task (Srull & Wyer, 1989). Black and White students constructed 4-word sentences out of 16 sets of 5 words each. In the priming condition, 10 of the 16

sets included words related to egalitarianism; example sets are "respect, fairness, we, value, always" and "treats, he, equally, always, everyone." In the control condition, no word set included words related to egalitarianism; example sets are: "need, sleep, we, were, always" and "breakfast, he, lunch, always, eat." After exposure to the priming task, participants completed a version of the mnemic neglect paradigm. This version did not involve the Chris-referent condition. However, as we mentioned earlier, an informative and unconfounded assessment of the presence or absence of mnemic neglect can involve comparison of recall of the same negative central trait dimension-relevant behaviours across participants and conditions. As hypothesised, activation of egalitarian values produced loss of mnemic neglect among Black participants while leaving mnemic neglect unaffected among White participants.

In Search of *Loss of Mnemic Neglect*

The findings from the critical experiments confirm that the memory impairment for self/negative/central trait dimension-relevant (i.e., self-threatening) behaviours reflected the actions of a participant's *self* and were not driven by memory for feedback directed at others. A promising strategy would be to design experiments likely to produce *loss of mnemic neglect* (a term coined by Zengel, Skowronski, Valentiner, & Sedikides, 2015). Such experiments (and we have already provided a few examples) would involve the search for circumstances or persons who do not show the typical impaired memory for self/negative/central trait dimension-relevant behaviours (Saunders, Vallath, & Reed, 2015).

Several mechanisms may underlie loss of mnemic neglect. Among these are: (1) negative feedback is especially relevant to an individual, so, despite its threatening nature, it receives self-relevant processing anyway; (2) any feedback, good or bad, is threatening to an individual, so all feedback is equally processed and highly recalled; (3) people (or some people under some conditions) do not care about any feedback received from others, so the differential processing thought to be necessary for mnemic neglect does not occur; (4) people (or some people in some circumstances) are unable to differentially process information, so no MNE will emerge. We next review experiments in which loss of mnemic neglect might be induced by these mechanisms.

Dispositions and loss of mnemic neglect. One line of research has examined whether the MNE is qualified by traits ("a person's base-rate propensity toward [or away from] a set of cognitions, emotions, or actions;" Lenton, Bruder, Slabu, & Sedikides, 2013, p. 276), and in

particular by (subclinical) anxiety and dysphoria. The pursuit of relations between mnemic neglect and such traits makes considerable theoretical sense. According to the mnemic neglect model, people are keenly motivated to believe in their own goodness and staunchly defend this belief: mnemic neglect serves to protect such beliefs. As such, mnemic neglect resembles repression (Freud, 1915; Greenwald, 1981; Terr, 1994), especially inhibitory repression (L. S. Newman, Duff, & Baumeister, 1997; Sedikides & Green, 2006; Sedikides, Green, & Gregg, 2007), which entails "cognitive avoidance (non-thinking) of some target material [that] leads to loss of accessible memory" (Erdelyi, 2006, p. 499). The concept of inhibitory repression is rooted not only in Ebbinghaus (1885), who demonstrated that removal of stimuli from consciousness begets forgetting, but also in contemporary research (Küpper, Benoit, Dalgleish, & Anderson, 2014; Storm & Levy, 2012), including work showing that forgetting can be intentional (McCulloch, Aarts, Fujita, & Bargh, 2008; Murayama, Miyatsu, Buchli, & Storm, 2014; Saunders, Worth, Vallath, & Fernandes, 2014). In fact, inhibitory control can be more effective in producing forgetting for negative than neutral memories (Depue, Banich, & Curran, 2006).

More generally, due to its motivational and emotional underpinnings, the MNE can be considered an instance of experiential avoidance (Blackledge & Hayes, 2001; Chawla & Ostafin, 2007), defined as "any attempt to avoid thoughts, feelings, memories, physical sensations, and other internal experiences, despite the negative consequences suffered by such experiential withdrawal" (Saunders, Barawi, & McHugh, 2013, p. 1376). This definition, given its emphasis on the avoidance of distressing or disturbing experiences or mental content, implies that the MNE will be present among non-clinical populations, but absent among subclinical populations characterised by emotional impairments or emotional processing difficulties. We review relevant work next.

Trait anxiety and social anxiety. There is a sizeable literature on relation between trait anxiety and memory. Anticipating the mnemic neglect model, some authors (Mogg, Mathews, & Weinman, 1987) proposed impoverished elaboration and recall of negative information among high anxiety individuals due to the information's threat potential. However, other authors (Beck, Emery, & Greenberg, 1985) expressed a contrary view, proposing high elaboration and recall of negative information among high anxiety individuals due to the potential for negative information to confirm the self-concept.

A meta-analysis of the literature (Mitte, 2008) found support for the latter view, concluding that people high (vs. low) in anxiety manifest better recall for negative than positive information. This effect, however, occurred in designs in which participants received only negative stimuli or only positive stimuli. Most of the relevant studies did not incorporate the central/peripheral distinction that is crucial to the mnemic neglect paradigm. The mnemic neglect model predicts that the relation between anxiety and mnemic neglect depends on the extent to which a behaviour pertains to traits that are central to an individual's self-concept.

Work by Saunders (2013) supported this prediction. Three studies using a modified mnemic neglect paradigm (i.e., no Chris condition), showed that participants varying in levels of *trait anxiety* (measured via the STAI; Spielberger et al., 1983) did not remember the behavioural feedback in the same way. Participants low in anxiety evinced memory patterns that are standard in the mnemic neglect paradigm. In contrast, participants high in anxiety evinced no impaired memory for negative feedback when it implied high centrality self-traits. This loss of mnemic neglect was not due to poor overall memory. Relatedly, the good memory for the negative/central trait dimension-relevant behaviours among the highly anxious was limited to circumstances in which the behaviours posed the highest self-threat: when they were unmodifiable (Saunders, Experiment 2) or were high in trait diagnosticity (Saunders, Experiment 3). These findings were replicated in another three studies (Saunders et al., 2012).

Zengel et al. (2015) conducted two experiments assessing the extent to which participants varied in levels of *social anxiety* (Social Interaction Anxiety Scale; Rodebaugh, Woods, Heimberg, Liebowitz, & Schneider, 2006). These participants engaged in a modified mnemic neglect paradigm in which some of the behaviours were linked to traits thought to be important to social anxiety. For example, one central trait dimension was *socially adept/socially inept*. Examples of behaviours relevant to this dimension were "(You/Chris) would laugh along with everyone else at the embarrassing stories from when X was young" and "(You/Chris) would fidget in the library whenever a new person walked by." A peripheral trait dimension was *extroverted/introverted*, and is exemplified by the behaviours "(You/Chris) would join in on an ongoing conversation on modern music groups" and "(You/Chris) would often eat alone in the cafeteria." Thus, Zengel et al. relied on trait dimensions and stimuli different from those used by Sedikides and Green (2000).

An MNE was obtained in both of the Zengel et al. (2015) experiments. However, this effect extended not only to central trait dimension-relevant behaviours, but also to peripheral trait dimension-relevant behaviours (a result also reported by L.S. Newman, Sapolsky, Tang, & Bakina, 2014 as well), most likely because the pretested difference in personal importance and self-descriptiveness ratings between social adeptness (central) and extraversion (peripheral) were significant but not as large as in the stimuli used in the standard mnemic neglect paradigm. Despite this minor complication, the implications of these results are clear: (1) people have trouble remembering self-threatening information, and (2) this effect extends to trait dimensions that go beyond those used by Sedikides and Green (2000). In addition, Zengel et al. (2015) found that high social anxiety was linked to loss of mnemic neglect: High social anxiety predicted disproportionate recall for negative behaviours that reflected central trait dimensions. The results diverged slightly across experiments. In Experiment 1 (Figure 1), this predicted effect occurred for both central trait dimensions (social fluency/social ineptness, trustworthy/untrustworthy). In Experiment 2, social anxiety predicted loss of mnemic neglect only for socially inept behaviours. This inconsistency awaits empirical resolution. More importantly, the Zengel et al. findings show for social anxiety, as did the Saunders (2013) results for general trait anxiety, that the emergence of mnemic neglect (and the loss of mnemic neglect) depends, in part, on level of anxiety.

Dysphoria. A large literature has addressed relations between dysphoria (i.e., low mood) and memory (Burt, Zembar, & Niederhehe, 1995; Gaddy & Ingram, 2014) concluding that dysphoric persons recall more negative than positive information (Gilboa, Roberts, & Gotlib, 1997; Matt, Vazquez, & Campbell, 1992; White, Ratcliff, Vasey, & McKoon, 2009). However, this finding may reflect methodological limitations. The information presented to dysphorics is not always self-referent (so the level of self-threat from negative stimuli is unclear), and conclusions about memory often come from comparisons of recall for negative items and positive items. As already noted, a confound in this comparison is that recall discrepancies between differently-valenced items can be caused by variables that go beyond valence (e.g., frequency, concreteness, vividness). The mnemic neglect paradigm addresses these limitations.

Saunders (2011) explored the link between dysphoria and memory, reporting results from three experiments that implemented a variant of the mnemic neglect paradigm (no Chris condition). Participants who varied in level of dysphoria (Beck Depression Inventory; Beck, Steer, & Garbin,

1988) were exposed to self-referent behavioural feedback (positive vs. negative, relevant to central or peripheral trait dimensions). The results demonstrated a loss of mnemic neglect associated with dysphoria: Participants high in dysphoria had a greater recall rate for self-threatening (negative, central) feedback than those low in dysphoria (but see Zengel et al., 2015, who in subsidiary analyses reported two non-replications of this loss of mnemic neglect in high dysphorics). We note that in Saunders (2011) this loss of mnemic neglect occurred only for feedback that was especially threatening: The effect did not manifest for peripheral negative behaviours, which were relatively low on self-threat. Moreover, among participants high (but not low) in dysphoria, (1) recall for central negative behaviours was better than recall for central positive behaviours, and (2) this effect was limited to central negative behaviours that were unmodifiable (Experiment 2) and diagnostic of negative central traits (Experiment 3).

Reflections on individual differences and loss of mnemic neglect. High levels of trait anxiety, social anxiety, and dysphoria are associated with a loss of mnemic neglect. However, the relevant experiments did not examine the extent to which the behaviours were processed or how they were processed. Hence, proposals about mechanisms underlying these findings can only be speculative.

One proposal lies in the notion that information is easy to process when it fits one's self-conception (Swann, 2012). This ease-of-processing idea would lead to a loss of mnemic neglect similar to that observed by Zengel et al. (2015, Experiment 2): High social anxiety produced a loss of mnemic neglect for socially inept behaviours (which fit the self-view of the socially anxious), but not for socially irresponsible (e.g., untrustworthy) behaviours (which do not fit that self-view). An alternative proposal is that those high in trait anxiety, social anxiety, or dysphoria manifest a loss of self-regulation ability (J.P. Newman & Wallace, 1993). To elaborate on this argument, let us assume that one element of self-regulation is the capacity to minimise negativity after it has been encountered (Sedikides & Skowronski, 2012; Skowronski, 2011). From this perspective, the loss of mnemic neglect in those high in anxiety, social anxiety, or dysphoria reflects a loss of the ability to minimise the impact of central negative information on processing. Consequently, such information is processed in a fashion similar to the processing accorded to positive central information. This perspective fits with the notion that a loss of mnemic neglect in the socially anxious often reflects the fact that negative and positive behaviours are equally well recalled (Zengel et al., 2015). A third

and final proposal (J.P. Newman & Wallace, 1993) is that anxiety prompts a narrowed focus on motivationally significant cues. Central negative behaviours may be such cues for those high in anxiety, social anxiety, or dysphoria. This mechanism helps to explain why recall for negative (relative to positive) behaviours is especially good in high dysphorics (Saunders, 2011).

These proposals need to be disentangled by future research and are by no means mutually exclusive. However, more relevant for the purposes of this article are the conclusions to be drawn from the reviewed literature. First, there are individual differences in the extent to which people exhibit the "classic" memorial pattern in the mnemic neglect paradigm. Second, some of these individual differences reflect a *loss of mnemic neglect* in which a segment of participants does not manifest the same impaired memory for central negative information that is manifested by others. Finally, these individual differences are almost exclusively linked to changes that implicate self-processing. For example, especially notable in the Zengel et al. (2015) social anxiety experiments is that high levels of social anxiety were not substantially linked to recall rates for behaviours enacted by Chris. Most, if not all, the action in the anxiety-related recall changes emerged in recall for self-framed behaviours.

Not all sources of feedback are created equal: Feedback from close others engenders loss of mnemic neglect. In all the experiments we have discussed so far, the source of feedback was imaginary, supplied by alleged mechanical scoring of the MOPI, or was provided by acquaintances of the participants. However, sometimes feedback comes from close friends or life partners. There is reason to believe that feedback from these sources may not produce the defensive processing that culminates in mnemic neglect.

In the context of some close relationships, the self-protection motive is relatively dormant. Relationship maintenance is facilitated by maximisation of joint outcomes, with partners accommodating each other's interests (Rusbult & Van Lange, 2003) and subjugating their own (Sedikides, Campbell, Reeder, & Elliot, 2002). Partners typically offer a safe haven, a trusting and supporting environment that negates the motivation to be on guard and engage in self-protection strivings (Mikulincer & Shaver, 2010). Moreover, in close relationships the self-improvement motive is especially active. The attachment security that one derives from partners is conducive to energy (Luke, Sedikides, & Carnelley, 2012), cognitive openness (Mikulincer & Arad, 1999), and environmental exploration (Green & Campbell, 2000). In addition, individuals may directly

perceive close others as a desired source of feedback. For example, incarcerated male juvenile offenders report that they want to receive more self-improving feedback from their girlfriends than they actually receive (Neiss, Sedikides, Shahinfar, & Kupersmidt, 2006). More generally, in close relationships, individuals can use partner-provided feedback to assist them in altering their behaviour for the sake of relationship maintenance (Harvey & Omarzu, 1997). They will gauge feedback for its long-term utility (e.g., potential to change the self to accommodate the relationship) rather than its immediate threat.

Such reasoning leads to the hypothesis that loss of mnemic neglect will occur when feedback comes from a close friend or a romantic partner. This hypothesis was tested by Green et al. (2009, Experiment 2) using a variant of the mnemic neglect paradigm (no Chris condition). Each participant arrived at the laboratory with another person, who was a close friend or romantic (usually dating) partner. Participants were randomly paired with either their own friend/partner (*relational closeness* condition) or with another participant's friend/partner who was a stranger to the participant (*relational distance* condition). Next, participants learned that they would be working on a social perception task with the person with whom they were paired (friend/partner vs. stranger). One associate (the sender) would respond to a computer-based personality test. The other associate (the receiver) would review the sender's responses and provide the sender with appropriate feedback. Although the roles of sender and receiver appeared to be allocated at random, in actuality each participant ended up choosing a slip of paper with the word "receiver" written on it. Next, all participants took the MOPI. Responses were ostensibly transmitted to their associate (sender), who was seated in a separate room housed in a different building. Receivers learned that their sender was examining their response to MOPI to become more deeply informed about their personality. Then the sender would match responses to a predetermined list of behaviours likely to be enacted by the receiver. The sender would allegedly select both positive behaviours and negative behaviours (from a larger pool of behaviours) that, in her or his opinion, described accurately the receiver's personality. Behavioural feedback followed, as did the free-recall task.

The results were consistent with the hypothesis that mnemic neglect would dissipate when feedback came from close partners. Negative behaviours that had implications for central trait dimensions were remembered at a lower rate when the feedback came from a stranger (.29) than a close friend (.35). In fact, when this important negative feedback came from a close friend, people

remembered it better than they remembered the positive feedback provided by the close friend (.31), an outcome that did not emerge when the positive feedback on central trait dimensions came from a stranger (.37).

Direct activation of the self-improvement motive and loss of mnemic neglect. An assumption of the above-mentioned relational closeness experiment (Green et al., 2009, Experiment 2) is that, because one is especially motivated to improve in ways that will please relationship partners, a person is more "open" to feedback from those partners. However, this mechanism is only implicated by the results we have reviewed so far. Green et al. (2009, Experiment 1) directly tested the hypothesis that activating the self-improvement motive produces loss of mnemic neglect. They did so by using, prior to the mnemic neglect paradigm, a manipulation designed to activate the self-improvement motive. The manipulation involved a sentence-completion task modelled after Brown and Zagefka (2006). The procedure was as follows. Experimenter A sat participants in front of computers in preparation for the advertised experiment, when Experimenter B entered the room and, after apologising, requested permission for "a brief pilot study involving making short sentences out of a group of words." Experimenter A granted permission under the stipulation that the pilot study would occur at an interval following administration of the personality test (i.e., MOPI)—a time when participants were ostensibly scheduled to take a short break. Participants proceeded to complete the MOPI. Experimenter B then re-entered the room and distributed the sentence-completion task, titled "language fluency task." It was a sheet containing 20 sets of 4-6 words. In the *self-improvement* condition, four of the word sets were fillers, whereas the other 16 sets consisted of words associated with self-improvement (e.g., improved, aspirations, raises). In the *control* condition, 15 of the 16 improvement words were replaced with filler words (e.g., announced, heels, tours). Participants in the self-improvement, but not the control, condition were therefore primed with the construct "improvement." Behavioural feedback followed, concluding with the free-recall task.

The results were as hypothesised. The usual MNE emerged in the control condition (negative/central trait dimension-relevant recall: self = .27, Chris = .35). However, this effect was lost in the self-improvement condition (negative/central trait dimension-relevant recall: self = .39, Chris = .36).

Loss of mnemic neglect and recall order effects. We presented evidence for mnemic neglect in the context of a free-recall task. One might wonder whether the MNE is distributed equally across the recall period or is limited to a certain portion of the recall period. This is a sensible question in light of other experimental findings that have used the cumulative recall procedure characteristic of the mnemic neglect paradigm. These findings suggest that the probability of recall of a given piece of information at any given moment is often affected by information previously recalled during the free-recall period. Such an effect is sometimes inhibitory, producing output interference (Cowan, Saults, Elliott, & Moreno, 2002; Tulving & Arbuckle, 1966): an "interfering effect of recalling an item on other items yet to be recalled" (Lockhart, 2000, p. 50). This output interference phenomenon raises the possibility that the emergence of mnemic neglect is partially a function of output interference. Here is how. Assume that self-enhancing items are processed during encoding in a way that makes them more accessible in memory than self-threatening items. This differential accessibility effect should be especially likely to affect memory during the early portion of recall. As recall proceeds, the effects of differential accessibility may be obscured by output interference, potentially masking mnemic neglect.

Research conducted by L.S. Newman et al. (2014) tested this hypothesis using variants of the mnemic neglect paradigm. In some of their experiments, participants recorded each recalled behaviour on a separate page (limiting ability for initial items to affect recall of other items by preventing easy review) and continued recording for 5min. The researchers contrasted this separate-page procedure with a single-page procedure in which participants recorded all recalled behaviours on the same page. Newman et al. analysed patterns of recall obtained in the first half versus the entire 5min free-recall period. In three experiments, the authors found evidence that mnemic neglect emerged only in the items recalled during the initial 2.5min of the free-recall period when behaviours were reported on a single page (rather than on separate pages): The last 2.5min added noise to the data or, interpreted differently, showed a loss of mnemic neglect. The authors attributed this loss of mnemic neglect to output interference that could occur because previously-recalled items were easily reviewed. These findings suggest that the emergence of mnemic neglect in a given experiment may reflect the length of time for which data are collected or aspects of the memory measure itself. We discuss this issue below.

Loss of mnemic neglect in behaviour recognition. Is memory for self-threatening information lost or recoverable? One theoretical view equates memory decay with loss. Once forgotten, memories are truly gone (Holmes, 1990; E.F. Loftus & Davis, 2006). Some forgotten memories, such as traumatic memories, may be truly "gone" (Ehlers, 2010). However, many seemingly "forgotten" memories are recoverable via enhanced retrieval effort (Erdelyi, 1996; Payne, 1987) or via the use of alternative memory measures (implicit memory, procedural memory, or recognition memory; Nobel & Shiffrin, 2001; Rovee-Collier, Hayne, & Colombo, 2000). These alternative memory measures may not evince mnemic neglect effects, and they may not do so for theoretically relevant reasons.

The mechanism that theoretically causes mnemic neglect is based on the idea that processing at behaviour encoding affects ease of retrieval. That is, the shallow processing accorded to self-threatening information and the separation of this information from the self make it hard to find the threatening information in a memory search (free recall): Due to the action of these two mechanisms, self-threatening information is not well-linked to other information in memory during the encoding process. Remembering is often cue dependent, so the more cues that are linked to a piece of information, the more likely it is that the information will be recalled (Rothkopf & Coke, 1961). Hence, because self-threatening behaviours are linkage-cue impoverished, they are recalled relatively poorly. However, the retrieval-based mechanisms that produce these deficits could be bypassed by other measures of memory. For example, recognition memory, like recall, is based partly on explicit recollection of previously encountered material, but, unlike recall, capitalises on feelings of familiarity. This method of memory assessment does not require the elaborate traversal of associative pathways formed during feedback processing (Diana, Reder, Arndt, & Heekyeyong, 2006; Yonelinas, 2002) and is sensitive to the presence of material in memory that is difficult to recall (Shiffrin & Steyvers, 1997; Stangor & McMillan, 1992). Hence, it seems reasonable that mnemic neglect not be evinced when memory is probed via a recognition task.

Several experiments have implemented this recognition task approach. In such a task, participants are first shown a behaviour that was presented during initial exposure and are asked if it is one that was actually presented during the exposure task (other behaviours presented in the task are lures that were never presented during exposure). For example, Green et al. (2008, Experiment 1), using the standard mnemic neglect paradigm, provided participants with hypothetical

behavioural feedback (about themselves or Chris) and assessed free recall for the behaviours. Next, participants engaged in a recognition task. They received in random order the old behaviours plus 32 lure behaviours, carefully pretested to be similar to the old ones. Participants were told that some of the 64 behaviours they had seen before and some not, and that they would need to identify the old and new sentences: "If the sentence is old (i.e., you read it before), then press the 'z' key, but if the sentence is new (i.e., you have not read it before), then press the "/" key" (p. 551). After resting their fingers on the two keys, participants responded to the behaviours, which were presented in the middle of a computer screen. The typical MNE was obtained for recall. However, as expected, there was loss of mnemic neglect in the recognition responses (Table 4a). Here, accuracy was virtually uniform across conditions: Accurate discrimination of old and new behaviours (as assessed via signal detection analyses; Swets, 1996) was unaffected by the degree to which behaviours posed a self-threat. This same loss of mnemic neglect in recognition occurs even when recall is influenced by manipulations that render the self either more or less resistant to threat. For example, in the paragraphs above, we discussed findings (Green et al., 2008, Experiment 2) suggesting that an ego-inflation manipulation minimised mnemic neglect in recall, whereas an ego-deflation manipulation augmented it. That same experiment also measured the impact of that inflation/deflation manipulation on recognition memory. The manipulation did not influence recognition (which again indicated a loss of mnemic neglect), despite influencing recall (Table 4b).

Wells (2012) reported similar findings, and showed that they persisted regardless of whether memory was assessed soon after behaviour presentation or was assessed after a 48-hour delay. That is, when memory was assessed via the usual free-recall task the MNE emerged even when recall was measured after a 48-hour delay. For example, recall for negative/central trait dimension-relevant behaviours was greater for Chris (.39) than for the self (.25) at the small delay, and remained after the 48-hour delay (Chris = .20, self = .08). However, there was a loss of mnemic neglect in recognition memory at both levels of the delay manipulation (Table 5).

Taken together, the evidence from the recognition measure experiments indicates that self-threatening information was indeed stored in memory. It is not as if participants engage in perceptual defence when encoding self-threatening feedback and "shut out" such feedback so that it not at all encoded into memory. This conclusion is bolstered by the results of two experiments that allowed participants to read the behaviours at their own pace (Green & Sedikides, 2007; Wells,

2012, Pilot Study). The authors measured the amount of time participants spent reading the presented behaviours. A perceptual-defence perspective suggests that participants would spend less time reading threatening feedback when it referred to the self than Chris. This was not the case. For example, Wells reported that participants spent the same amount of time reading the negative/central trait dimension-relevant behaviours, regardless of whether those behaviours referred to Chris (3978ms) or to the self (4081ms). Despite this similarity in reading times, the MNE in free recall occurred for such behaviours (Chris = .39, self = .21).

Given that even self-threatening information is stored in memory, the mechanisms that are postulated to underlie mnemic neglect would suggest that, with the presentation of a powerful recall cue (e.g., the behaviour itself), individuals should experience a loss of mnemic neglect: providing strong cues should wipe out the memory disadvantages allotted to self-threatening information during encoding. This is exactly what happens (Tables 4-5). In recognition tasks, individuals experience a loss of mnemic neglect and are able to remember self-threatening feedback at least as well as they remember the other kinds of feedback.

Loss of mnemic neglect and trait cued recall. Can similar loss of mnemic neglect occur by providing participants with recall cues that are less complete than the cues present in recognition tasks? For example, the spontaneous trait inference literature suggests that trait terms are often spontaneously extracted from behaviours during encoding. One implication of this process is that the trait terms might serve as useful cues for behaviour recall. According to the mnemic neglect model, providing such cues to participants will produce loss of mnemic neglect.

An experiment by Zengel, Wells, and Skowronski (2016a) tested this hypothesis. Participants engaged in a mnemic neglect paradigm in which they were asked to consider the presented behaviours as real. The behaviours used "X" instead of a referent, and participants were requested to interpret X either as themselves or as Chris (between-subjects factor). The display of the usual 32 behaviours was followed by the standard distracter task and a modified recall task. Participants were informed during this recall task that they had previously seen four behaviours for each of eight traits (trustworthy, untrustworthy, kind, unkind, modest, immodest, uncomplaining, complaining). They were provided with four lines to record the behaviours for each of the traits. In the response task, the traits and the associated response lines were displayed in a random order.

Results are shown in Table 6. The three-way interaction between referent, centrality, and valence was not statically significant, although the pattern of means suggested a MNE. Thus, though not entirely conclusive, the results indicate that the trait cuing procedure used by Zengel et al. (2016a) reduced mnemic neglect. This finding fits with the model's argument that mnemic neglect (1) is caused by memory encoding processes that produce impaired search processes during the free-recall task, and (2) providing trait cues during recall helps to overcome this impoverishment. More broadly, the results suggest that the emergence of mnemic neglect is moderated by the specifics of the relevant memory task (L.S. Newman et al., 2014).

Manipulations of processing that produce loss of mnemic neglect. The mnemic neglect model posits that people process self-threatening feedback differently than other kinds of feedback. Individuals process self-threatening feedback either to a different degree (in a shallow manner) and in different ways (by separating it from existing self-knowledge) than other kinds of feedback. These mechanisms point the way toward manipulations of feedback processing that ought to produce loss of mnemic neglect.

***Limits on processing ability: restricting time and imposing load*.** One strand of research examined relations between processing and mnemic neglect by attempting to interfere with participants' ability to think as they read the behaviours. An experiment did so by limiting the amount of time participants were given to read the behaviours. Because it restricts thinking, limited processing time is a determinant of poor recall (Story, 1998). If mnemic neglect is caused by limited processing of self-referent/central trait dimension-relevant/negative behaviours, then limited processing time should produce loss of mnemic neglect by prompting poor recall for positive central trait-relevant behaviours and for all central behaviours that describe Chris. Stated otherwise, limited processing time should produce loss of mnemic neglect by negating the usual processing advantages that occur for central positive self-feedback and for central feedback that refers to Chris.

Sedikides and Green (2000, Experiment 3) tested this hypothesis. They used a standard mnemic neglect paradigm, but manipulated the length of time that feedback (hypothetical feedback, in this case) remained on the computer screen. In the *ample processing time* condition, each behaviour was displayed on the screen for 8sec. This duration mimicked the timing used in the standard paradigm. In the *limited processing time* condition, the presentation time for each behaviour was cut to 2sec. As expected, the MNE emerged in the ample processing time condition,

but was eliminated in the limited processing time condition. Moreover, the effects of limited processing time on recall were selective, affecting some conditions more than others. For example, recall of negative/central trait dimension-relevant feedback about Chris decreased from the ample condition (.42) to the limited condition (.32). Moreover, recall for self/central trait-dimension relevant/positive behaviours decreased substantially from the ample processing time condition (.45) to the limited processing time condition (.23). However, recall for the self-threatening feedback *was essentially the same* in the ample (.33) and limited (.32) processing time conditions.

The selectivity of the effects of decreasing processing time on recall converges on the conclusion that low processing time-induced decreases in recall did not simply occur because of an impaired ability to read the behaviours, but instead of a reduced ability to think about the behaviours. In ample time conditions participants could think about negative/central behaviours that described Chris, and about positive/central behaviours that described the self. Decreasing the ability to think impaired recall for these kinds of behaviours. In contrast, participants used shallow processing to think about the self/central trait dimension-relevant/negative behaviours, even when given ample processing time. Hence, when processing time was restricted, the thought given to these behaviours essentially did not change, and so recall was unaffected.

Wells (2012, Experiment 1) also pursued the idea that interference with thinking would produce loss of mnemic neglect. To do so, he paired a cognitive load manipulation with the mnemic neglect paradigm. Participants in the *high load condition* were given a 6-digit number before reading each behaviour and were asked to report the number after the behaviour disappeared from the computer screen. The other participants (*low load condition*) simply completed the standard paradigm without being exposed to the cognitive load manipulation while reading the behaviours. The results were similar to those of Sedikides and Green (2000, Experiment 3). The MNE that emerged in the no-load condition (self/central/negative = .29; Chris/central/negative = .40) not only dissipated, but reversed under cognitive load (self/central/negative = .26; Chris/central/negative = .18). Note that here again, as in the Sedikides and Green restriction of time experiment, the load manipulation had little effect on recall for self-threatening behaviours. Instead, the effect was selective: The manipulation reduced recall for central/negative behaviours that described Chris, but not the self. Significant recall reductions were also evident for positive/central behaviours (self/no load = .45; self/load = .15; Chris/no load = .39; Chris/load = .23).

These results point to a two-stage processing of central self-relevant feedback. Central negative information might be privileged in that it is easily and rapidly encoded during initial processing. Such privileged processing might occur because threat often requires rapid responding (Gebauer, Göritz, Hofmann, & Sedikides, 2012; Taylor, 1991). However, in the second stage of processing individuals may intensively think about the feedback. It is here that the central positive information gains its advantage. Incorporating positive feedback into the self-structure and linking it to other self-relevant information may produce many cues that can prompt recall for the positive feedback, and a relevant principle is that the more cues there are available to prompt recall for information, the better the memory of that information (Rothkopf & Coke, 1961).

Zengel, Wells, and Skowronski (2016b) also tested the processing load hypothesis. They exposed participants to the standard mnemic neglect paradigm with one addition: Participants evaluated each behaviour, regardless of whether the referent was the self or Chris, on a 7-point bad-good scale. The rationale underlying this procedure was that the usual cognitive load manipulations may interfere with attention to behaviours, and it is this attentional impairment (instead of interfering with linking-and-thinking) that might impair recall. The evaluation task ensured that participants' complete focus was on the behaviours. However, by requesting that each behaviour be evaluated as it was read, the task should have prevented the kind of thinking (elaboration and self-linking) that is related to recall. Did this behaviour evaluation task prevent the elaboration (e.g., depth of processing, integration/separation) that underlies the MNE? Results appear in Table 7. As expected, the evaluation task erased the MNE. For example, in these behaviour evaluation conditions and for the central/negative cell of the design, recall rates for self-referent behaviours (.29) and Chris-referent behaviours (.29) behaviours were identical.

Thus, the results from different sets of experiments converge on the following conclusion: Preventing the kind of thinking that people use to link incoming stimuli to existing knowledge interferes with memory. Such prevention can be accomplished by limiting processing time, by imposing a cognitive load that is irrelevant to behaviour processing, or by asking participants to process behaviours in a way that does not allow linking and thinking that facilitates memory. The loss of mnemic neglect in all of these conditions occurs because the processing advantages that accompany thinking about non-self-threatening behaviours are absent in the case of cognitive load.

Processing feedback in different ways causes loss of mnemic neglect: separation versus integration. As we noted, in addition to suggesting that self-threatening feedback is processed in a shallow manner, the mnemic neglect model posits that people process self-threatening feedback and non self-threatening (e.g., self-affirming) feedback in qualitatively distinct ways. Self-threatening feedback (e.g., "You would make a rude gesture at an old lady") clashes with a normatively positive self-concept (Gaertner, Sedikides, & Graetz, 1999; Schmitt & Allik, 2005) and, as such, people consider this kind of feedback implausible (Sedikides & Green, 2000, Pilot Study 3), surprising, or disturbing. Such perceptions ensure behaviour encoding (Bjork, 1989), but also imply that the behaviours are encoded in a way as to separate them from accumulated self-knowledge. In other words, people contrast self-threatening feedback away from the self ("This behaviour does not describe me"). However, people assimilate self-affirming feedback into their self-knowledge structures ("This behaviour describes me"). Central positive feedback ("You would follow through on promises made to friends") is viewed as affirming the typically positive self. People think about such behaviours in terms of their positive traits and past positive behaviours. These all provide cues to later retrieval of the feedback. Consequently, recall of self-threatening feedback (which ought to be associated with few retrieval cues originating in stored self-knowledge) should be substantially poorer than recall of non self-threatening feedback (which ought to be associated with many self-knowledge-based retrieval cues).

Pinter, Green, Sedikides, and Gregg (2011) tested this hypothesis focusing solely on self-referent feedback. In Experiment 1, participants viewed 32 behaviours corresponding to the positive traits kind, trustworthy, friendly, modest, uncomplaining, and predictable. The behaviours were pretested to be moderately positive. Each behaviour was displayed on a computer screen accompanied by instructions directing participants to think about the behaviours in different ways. Half of the behaviours were accompanied by a *separation judgement* direction ("Why doesn't this sentence describe you?"), half by an *integration judgement* direction ("Why does this sentence describe you?"). Free recall of behaviours was lower after separation judgements (.13) than integration judgements (.21). Moreover, this manipulation only affected free recall, not recognition. Thus, the separation instructions apparently caused participants to not experience the cue-based facilitation of free recall that otherwise would be produced from the cues that come from self-

knowledge, despite the fact that the behaviours encoded under separation instructions were available in memory.

In a second experiment, Pinter et al. (2011) applied this separation/integration manipulation to a variant of the mnemic neglect paradigm (with no Chris condition). The key question was whether processing instructions would minimise or eliminate mnemic neglect. Results showed that separation-directed thought reduced recall for feedback that had implications for central dimension-relevant traits, regardless of whether that feedback was negative (separation = .12, integration = .21) or positive (separation = .14, integration = .37). This manipulation only affected free recall and not recognition. Hence, the free-recall results are not the product of perceptual defence-type mechanisms, but instead reflect the kinds of, and consequences of, mental processing that occur during behaviour encoding. Further, separation instructions substantially affected recall for self-affirming feedback, but had less impact on recall for self-threatening feedback. This dichotomy may be due to either (or both) of two circumstances. First, the limited impact of separation instructions on recall for central negative feedback simply reflects that participants were already engaging in separation-based thinking about such feedback, so that the separation instructions could only negligibly influence recall for those items. Second, people spontaneously incorporate positive feedback into the self, but are able not to do so when properly motivated. When placed in context, this effect of separation-thinking on recall for positive feedback may not be so surprising. For example, consider an employee who is praised by a supervisor. If the employee suspects that the supervisor has ulterior motives for the praise (e.g., "He's only praising my work because he wants to date me"), the employee may think about the feedback in ways that separate it from the self.

Assessing Alternative Explanations for the Mnemic Neglect Effect

The mnemic neglect model suggests that mnemic neglect is a motivated effect, caused by self-protection strivings. This self-protection motivation influences information processing, impairing peoples' ability to retrieve self-threatening information in a free-recall task. However, there are alternative explanations of the MNE that we consider below.

The Expectancy Account of Mnemic Neglect

This alternative highlights the relevance of behavioural expectancies in the emergence of mnemic neglect. Participants may expect for themselves, much more so than a peer, to enact positive (especially central) behaviours and to shy away from enacting negative (especially central)

behaviours (Green & Sedikides, 2004; Messick, Bloom, Boldizar, & Samuelson, 1985; Mischel et al., 1976). Participants do indeed hold such expectancies (Hepper, Hart, Gregg, & Sedikides, 2011; Newman, Nibert, & Winer, 2009; Sedikides & Green, 2000, Pilot Study 3). These findings might be used to account for the MNE. Information that violates expectancies about a person is sometimes poorly recalled (Skowronski et al., 2013). Thus, self-threatening feedback is dismissed and recalled poorly, not because it belittles the self, but because it violates participants' self-expectancies. Although this prediction is plausible, it is not straightforward: Expectancy-violating information can have a memorial advantage over expected information (Skowronski et al., 2013). Hence, it is unclear whether the expectancy-driven mechanism can readily account for mnemic neglect.

Nevertheless, a possible link between expectancies and mnemic neglect has been tested in three ways. In the first, Sedikides and Green (2004) examined the putative influence of expectancy strength manipulations on mnemic neglect. Their reasoning was as follows. If mnemic neglect was caused by stronger positive expectancies for the self than for Chris, then it would be possible to eliminate mnemic neglect by creating a version of Chris accompanied by expectations that are at least as positive as the expectations for the self. To test this idea, Sedikides and Green gave all participants hypothetical behavioural feedback. However, they varied the feedback referent in a manner that is more complex than in the usual mnemic neglect experiment. One quarter of participants received feedback about themselves, whereas another quarter received feedback about Chris. These two conditions were identical to those of the typical mnemic neglect experiment. Two additional referent conditions were added to the paradigm. The third quarter of participants received feedback referring to a person who had been described in an introductory paragraph in glowing terms, that is, as being extraordinarily kind and trustworthy (*Super-Chris condition*). The fourth and final quarter of participants received feedback referring to a close friend (*friend condition*). Crucially, pretesting established participants' expectancies for each feedback recipient. Participants held the highest expectancies for Super-Chris, considering her or him as most likely to enact positive behaviours and least likely to enact negative behaviours. Expectancies for friend and self were virtually identical and both were more positive than expectancies for Chris.

If expectancies were a sufficient explanation for mnemic neglect, then the effect would track this ordering of positivity in expectations. That is, mnemic neglect should be most pronounced in the Super-Chris condition, followed by the friend and self conditions in equal measure, with the

least mnemic neglect occurring in the Chris condition. If, on the other hand, expectancies constituted an insufficient explanation for mnemic neglect, the usual pattern should emerge: the effect should be most pronounced for the self-referent behaviours, and should be least pronounced for the Chris-referent behaviours and Super-Chris referent behaviours (as both are generic peers). Because close friends are seen as a part of the self (e.g., inclusion of close others into the self-concept; Aron et al., 2004), the friend-referent behaviours should reflect an intermediate level of mnemic neglect. The results were in accord with the mnemic neglect model rather than the expectancy account. Participants manifested the strongest mnemic neglect in the self-referent condition, followed by the friend-referent condition, and trailed by the Chris and Super-Chris conditions (both of which evinced the typical Chris condition results pattern). These findings thus suggest that expectancy strength, by itself, cannot account for mnemic neglect.

L.S. Newman et al. (2009) also tested the expectancies alternative. They proposed that, although people might expect themselves to be more positive than others, they expect others to be positive (Sears, 1983), especially on central trait dimensions. To test the role of expectancies, they relied on an individual difference: defensive pessimism. They suggested that defensive pessimists are especially likely to use their expectancies to process social information, because ‘‘being prepared is their most salient goal” (Norem, 2008, p. 91). Thus, L.S. Newman et al. reasoned that if: (1) people engaging in schema-driven processing are especially able to process and recall behaviours consistent with well-established and strongly held expectations, and (2) defensive pessimists’ processing is especially driven by these expectations; then (3) those high in defensive pessimism should show evidence of mnemic neglect in both the self and Chris condition. In addition, these authors proposed that the high defensive pessimists’ expectations for the occurrence of behaviours of a particular type should correlate with recall of that type of behaviour more strongly than the correlation observed for low defensive pessimists.

L.S. Newman et al. (2009) asked participants, some high (upper tertile of distribution) and some low (lower tertile of distribution) in defensive pessimism, to engage in a typical mnemic neglect paradigm. Next, they instructed those in the self-condition to rate the degree to which they expected to perform each behaviour, and instructed those in the Chris condition to rate the extent to which they expected Chris to perform each behaviour. The MNE was replicated for participants low in defensive pessimism (negative/central behaviour total recall: self = 1.67; Chris = 3.08), but not

for participants high in defensive pessimism (negative/central behaviour total recall: self = 1.75; Chris = 1.81). More importantly, for those low in defensive pessimism, the assessed expectancies were *not* correlated with recall. From these results, the authors concluded that mnemic neglect is not an expectancy-driven effect. They drew this conclusion, in part, because it was the *loss* of mnemic neglect in recall observed for the expectancy-driven high defensive pessimists (largely driven by poor recall for Chris-referent/negative/central trait-relevant behaviours) that was predicted by expectancies.

A third variant of research addressing the expectancy account also relies on assessment of individual differences and their relation to the emergence of mnemic neglect. This variant is again anchored in the notion that self-threatening feedback is recalled poorly because it is inconsistent with participants' positive self-concept (Swann, 2012). An implication is that recall patterns in the mnemic neglect paradigm should be different in those who have a positive self-concept and in those who have a negative self-concept. That is, the expectancy account suggests that self-affirming feedback should be recalled poorly by participants with a negative self-concept (because of the inconsistency with the negative self). To make this more concrete, consider the hypothetical cases of Chet and Vaida. Chet believes that dishonesty is bad and also believes passionately that he is honest. Vaida, too, believes that dishonesty is bad, but she believes that she is dishonest. According to the inconsistency-driven variant, Chet should show the usual MNE (especially poor memory for self-referent dishonest behaviours), but Vaida should show a reversed MNE (especially poor memory for self-referent honest behaviours).

Sedikides and Green (2004, Experiment 2) tested this exact idea. They conducted a pretest to identify two sets of participants: those who had a chronically negative self-concept on the central traits of the paradigm (i.e., untrustworthy and unkind) and those who had a chronically positive self-concept on the central traits of the paradigm (i.e., trustworthy and kind). These selected participants later engaged in the standard mnemic neglect paradigm. The results favoured the mnemic neglect model and discounted the expectancy account. Both participants with a positive self-concept (self = .28, Chris = .53) and those with a negative self-concept (self = .36, Chris = .60) evinced mnemic neglect. This effect was not moderated by self-conception valence. Thus, even participants who thought of themselves as relatively untrustworthy or unkind showed impairment in the recall of untrustworthy or unkind behaviours. To return to our example, the dishonest Vaida is likely to

forget feedback that portrays her as dishonest. This result suggests that even people who harbour a negative self-image are threatened by negative feedback, and that the motive to protect the self trumps concerns with consistency maintenance.

Retrieval-only Accounts of Mnemic Neglect

A second alternative to the mnemic neglect model suggests that the effects produced by the model do not operate during behaviour encoding, but instead are solely a function of processes operating during memory retrieval. One version of this retrieval-based idea for the MNE was tested in an experiment by Zengel and Skowronski (2016). Some participants (*control condition*) engaged in the standard mnemic neglect paradigm. However, at the beginning of the experiment (*priming before encoding* condition) other participants were assigned to complete Green et al.'s (2009, Experiment 1) self-improvement task. Results for these participants were expected to replicate those reported by Green et al. (2009), revealing a loss of mnemic neglect (presumably because the self-improvement motive overrides the threat-protection motive). The key condition in the Zengel and Skowronski experiment was a *priming after encoding* condition, in which participants received the self-improvement task after they had already encoded the behaviours in the mnemic neglect paradigm but before recalling those behaviours. This condition assessed the possibility that activating the self-improvement motive after encoding, but before recall, would cause a loss of mnemic neglect similar to that observed by Green et al. (2009). Such a result would support the idea that at least a part of the mnemic neglect effect is due to how self-motives (self-protection, self-improvement) operate during the retrieval stage of information processing. This idea was not supported (Table 8). As expected, the MNE emerged in the control condition (self/central/negative: self = .17, Chris = .31). Loss of mnemic neglect was observed only in the priming before encoding condition (self/central/negative: self = .22, Chris = .26). Finally, the MNE (rather than loss of mnemic neglect) was observed in the priming after encoding condition (self/central/negative: self = .23, Chris = .37). These results are consistent with the notion that self-motives (self-protection, self-improvement) influence memory during behaviour encoding, but not during behaviour retrieval.

There is a second version of the argument that the MNE is caused by processes occurring during retrieval. This is the retrieval interference mechanism. According to this alternative, the comparatively low recall of self-threatening behaviours is due to information interference that occurs during the final free-recall task (Lockhart, 2000; Tulving & Arbuckle, 1966). This may

occur because, while retrieving self-affirming behaviours, participants generate novel self-affirming behaviours (i.e., extra-list items), which are coded as zero and disregarded as intrusions in a normal MNE analysis. These novel behaviours are likely to be positive. After all, stored self-knowledge is predominantly positive and likely consists of closely-linked associative structures in memory (Higgins, Van Hook, & Dorfman, 1988; Shi, Sedikides, Cai, Liu, & Yang, 2016). Hence, the behaviours presented as feedback will remind people of similar old positive behaviours or will cause the generation of similar new hypothetical positive behaviours. Regardless of their origins, according to this retrieval interference mechanism, these "extra-list items" will produce retrieval interference that can lead to poor recall of self-threatening behaviours.

An analysis conducted by Wells (2012) collapsing across data from four experiments illustrates the plausibility of this mechanism. He examined the recall protocols from these four experiments, all of which used a similar variant of the mnemic neglect paradigm, for various kinds of recall errors. These were: (1) recalling a behaviour that was not presented (including self-affirming novel behaviours discussed above), (2) recalling the same behaviour twice, and (3) changing the valence of a recalled behaviour (the behaviour could be identified as one of those used in the paradigm, but the valence had changed). The frequency with which such errors occur in the context of a single experiment is too small to analyse with sufficient statistical power—a problem that can be rectified by combining data across experiments. The data (i.e., rate of error type occurrence per participant) showed that valence reversal errors were especially likely for self-framed behaviours. An example of such an error is reporting that "I would not cheat in a relationship" when the presented behaviour stated "I would cheat in a relationship." This error type was more likely for negative/central trait dimension-relevant behaviours when the referent was the self (.33) rather than Chris (.07). However, and more relevant to the interference account, participants were more likely to recall falsely positive/central trait dimension-relevant behaviours for the self (.18) than for Chris (.13), and were less likely to recall falsely negative/central trait dimension-relevant behaviours for the self (.09) than for Chris (.15). These latter findings suggest that participants do generate extra-list information in response to feedback. It is possible, then, for extra-list information to affect recall.

Sedikides and Green (2000, Experiment 4) directly tested this retrieval interference explanation for mnemic neglect by introducing three methodological alterations to the standard

mnemic neglect paradigm. First, referent was a within- rather than a between-subjects variable. Second, to accommodate the within-subjects referent variable, they added 32 new behaviours to the original set of 32. Finally, and most importantly, they instructed participants to disregard the feedback referent while recalling the behaviours: participants did not need to keep in mind or write down whether each behaviour was likely to be enacted by them or by Chris. The intent behind these methodological modifications was as follows. If participants disregarded the feedback referent during recall, they should be less likely to generate extra-list items while retrieving self-threatening behaviours. This should minimise the possibility of retrieval interference, and so the likelihood of extra-list items displacing self-threatening behaviours should decrease. Thus, the mnemic neglect model and the retrieval interference alternative offer contrasting predictions. According to the former, the procedural changes should not alter the usual pattern of findings. Participants ought to show a recall disadvantage for self-threatening feedback. According to the latter, the nature of the recall task ought to minimise retrieval interference. If it did so, then the results should evince a loss of mnemic neglect.

The results backed the mnemic neglect model. Even in the face of the design modifications designed to minimise retrieval interference, participants recalled negative/central trait dimension-relevant behaviours more poorly when the behaviours referred to the self (.22) rather than Chris (.28). Yet, this outcome is not definitive. For one, the magnitude of the MNE, as reflected in the difference between the self and Chris means, was smaller (.06) than in the standard paradigm (estimated to be .11 from Table 1b). Thus, although attenuation could have resulted from alterations to the paradigm (64 behaviours, referent within-subjects, no referent needed at recall), the possibility remains that retrieval interference play some role in mnemic neglect, thought it does not appear to be sufficient to explain the effect.

One other curious outcome of Sedikides and Green (2000, Experiment 4) concerns the positive behaviours: Participants recalled these behaviours at a higher rate when they were self-framed than Chris-framed, regardless of whether these were relevant to central trait dimensions (self = .33, Chris = .27) or peripheral trait dimensions (self = .18, Chris = .12). Given that most people have a positive self and pursue positive information, this pro-positivity effect in recall may seem to be a sensible outcome. However, as reflected in the summary data in Table 1b, this self-positivity effect tends not to occur (or does not occur robustly) in the standard mnemic neglect paradigm. One

unsettled puzzle is the absence of this pro-positivity effect in standard mnemic neglect experiments, as well as its emergence in the modified paradigm used by Sedikides and Green (2000). Future research needs to address these issues.

Another result argues against an output interference account of mnemic neglect. Green and Sedikides (2001) examined the possibility that the positive self drives recall for self-affirming behaviours early in the free-recall task, and this selectivity inhibits subsequent recall for self-threatening behaviours (Bäuml, 1998). The researchers tested this possibility by analysing clustering in recall. If the self drives early recall of central positive self-referent behaviours, the pattern of recall clustering should differ in the first and second half of recall protocols. That is, clustering for self-affirming behaviours should be evident in the first half of recall protocols, and, contingent upon it, clustering for self-threatening behaviours should be diminished in the second half of recall protocols. We assessed clustering in recall using the Adjusted Ratio of Clustering measure (ARC: Roenker, Thompson & Brown, 1971; see also Ostrom, Carpenter, Sedikides, & Li, 1993). The ARC is based on the frequency with which two behaviours from the same category (e.g., self-affirming, self-threatening) are recalled in direct sequence during the recall period. If that frequency is higher than chance, then this category is presumed to have been used by participants as the basis for accessing the recalled behaviours. We examined the recall data of Sedikides and Green (2000, Experiments 1-2) for evidence of such clustering. The ARC scores (0 = *chance clustering*, 1 = *maximum clustering*) provided no evidence of differential clustering in the different halves of the recall protocol. That is, self-affirming behaviours did not cluster in the first half, and self-threatening behaviours did not cluster in the second half. These results are inconsistent with an output interference explanation for the MNE.

Taking a Step Back: An Overview of Mnemic Neglect

Quentin Crisp (1908-1999), the British writer and raconteur, made a poignant, if not dramatic, statement about the quandary of self-evaluation in social context: “The very purpose of existence is to reconcile the glowing opinion we hold of ourselves with the appalling things that other people think about us” (http://www.brainyquote.com/quotes/quotes/q/quentincri135092.html#btI35xL2wSxgWrBa.99). Crisp may have captured the discrepancy between the near-angelic image people may have of themselves and the near-demonic image others may have of them. People believe they are (more or

less) loveable, worthy, competent, warm, and moral. Others may think of them as (more or less) egotistical, calculating, opportunistic, cold, and amoral. Others' views of one's character may occasionally leak into banter (Dunbar, Duncan, & Marriott, 1997; Emler, 1994), despite the norms of white lie societies. How does one reconcile one's own glowing self-perceptions with the harsh reality of devaluations received from others? How does one cope with self-threat?

Not only does self-threat have unfavourable psychological and physical health implications (Catarino, Küpper, Werner-Seidler, Dalgleish, & Anderson, 2015; Eccleston, 2008; Eisenberger, 2015); it also has repercussions for one's standing in a relationship or group and, correspondingly, one's exclusion from the relationships or group (Leary et al., 2009; Muller & Fayant, 2010; Park, 2010). Fundamentally, self-threat instigates self-protection motivation. This motive can manifest in a variety of strategies, such as denials, excuses, displacing responsibility to others, disputing the credibility of feedback, disparaging the source of self-threat, and even aggressive or violent action against the source of self-threat (Helzer & Dunning, 2012; Hepper, Gramzow, & Sedikides, 2010; Hepper & Sedikides, 2012). Yet, the self-threat often enters memory and is later subject to remembering. Here we have focused on a memorial coping strategy with self-threat: forgetting.

Human memory is built, perhaps due to evolutionary pressures (Sedikides & Skowronski, 1997, 2003; Sedikides, Skowronski, & Dunbar, 2006), to bury indignations— at least minor or mild ones. Doing so should minimise psychological and physical aversion, preserve relational or group harmony, and sustain meaningful goal-pursuit (Alicke & Sedikides, 2009; Sedikides & Skowronski, 2009; Skowronski & Sedikides, 2007). These ideas are supported by the fact that people engage in selective forgetting of unfavourable information about the self, a phenomenon we termed the mnemic neglect effect (MNE).

We can confidently assert that the MNE is driven by self-protection motivation. The effect is pronounced when levels of self-threat are especially high (e.g., on dimensions that are self-central, when one receives feedback that is highly diagnostic of one's weakness) and is overridden by conditions that either reduce self-threat (a self-affirmation manipulation) or otherwise promote processing of central negative information (e.g., activation of the self-improvement motive). Non-motivational alternative explanations for the MNE (expectancies, inconsistency, retrieval interference) are empirically unsupported.

We can also confidently assert that the MNE is due, at least in part, to the self-threatening feedback being allocated limited mental resources and being separated from stored (and positive) self-knowledge. Moreover, in the context of the mnemic neglect paradigm, the MNE requires that self-protection operate on feedback encoding. When such encoding-driven effects are eliminated (as when motivation is manipulated after encoding but before recall), a loss of mnemic effect occurs.

The MNE emerges across both mundane realism settings and minimal feedback settings. That is, the emergence of the effect does not depend on whether people regard the feedback as ”real,” imagine that the feedback is real, or are exposed to the feedback with no information about its reality. Moreover, the effect is observed in naturalistic analogues of dishonesty and stigmatisation.

However, this consistency across settings does not imply that the MNE emerges invariably. The emergence of the MNE is qualified by at least four classes of moderators: (1) *situational variations* (e.g., whether one receives feedback from a close or distant source, whether one is primed with improvement-related or neutral constructs), (2) temporary alterations in *individual motivational states* (e.g., self-defensiveness, self-improvement) that might reflect those situational variations, (3) cognitions about the self and self-traits (e.g., the extent to which one regards one’s self-conceptions as unmodifiable or modifiable), and (4) *individual differences* (e.g., anxiety, dysphoria, defensive pessimism).

Moreover, one characteristic of the mnemic neglect research that we have described is that it has been conducted in the context of a very specific experimental paradigm (lists of behaviours that are to be recalled) designed to probe for evidence of self-protective processing and the cognitive processes driven by such processing. Yet, research methods should be characterized by the use of multiple methods in a research domain. If results converge across multiple methods, it is unlikely that a given result is determined by limitations of any single paradigm. Hence, we have some degree of concern about the extent to which our results might be confined to the materials and methods used in the person memory-based paradigm on which we relied to examine mnemic neglect and its loss.

Our concern is mitigated, however, by the fact that mnemic neglect-like effects can be found outside of that paradigm. For example, Shu and Gino (2012) asked how memory for morality-relevant material would be affected, if participants acted in a self-threatening way. What if they

acted dishonestly, that is, against a code of ethics to which they were recently exposed? Would they still misremember the moral norms that were meant to steer their behaviour? Dishonesty presents a loud and clear self-threat, because it elicits guilt (Klass, 1978) and discomfort (Shaffer, 1975).

Participants read either a text containing moral rules (i.e., 2-page academic honour code outlining proper academic behaviour) or a text containing neutral or morality-irrelevant rules (i.e., 2-page driving manual outlining proper road behaviour). Participants were under the impression that they would answer questions about the text later. A problem-solving task followed, in which they were invited to solve 20 matrices in an insufficient time period (4 min) and promised $0.50 per matrix solved. From then on, participants were randomly assigned to two conditions. In the own-reporting condition, they had the opportunity to cheat. They were handed an envelope containing $10, asked to count and write down the number of matrices solved (which they would deposit in a box), and then pay themselves. In the control condition, participants did not have the opportunity to cheat, because the experimenter monitored their performance. The procedure allowed a comparison of own-reported performance (and hence payment) with actual performance (and payment). Finally, participants recalled the corresponding 2-page text. Dishonest participants (i.e., those who cheated by over-reporting their performance and overpaying themselves) exhibited poorer memory for the moral rules compared to honest participants. However, dishonest participants did not differ from their honest counterparts in memory for neutral or morality-irrelevant rules (Experiments 1 and 3).

Follow-up studies (Shu & Gino, 2012) revealed a theoretically-relevant variation of this MNE analogue. Dishonest participants' selective forgetting was not due to lack of encoding of moral rules; that is, they displayed poor memory for such rules only after cheating, and not before having the opportunity to cheat (Experiment 2). Also, this motivated forgetting by dishonest participants was due to inhibitory repression, namely, reduced access to moral concepts (Experiment 4).

Nonetheless, despite such work, there is a pressing need for researchers to examine the MNE using alternative methods. Such attempts might include minor modifications to the standard paradigm (e.g., the trait dimensions and behaviours used) as well as the manner in which memory is assessed (e.g., implicit memory assessments instead of free recall). Additional attempts (e.g., Moore, 2016) might capture the spirit of the research reported by Shu and Gino (2012) and move beyond the boundaries of the person memory-based mnemic neglect paradigm.

Thinking Outside the Proverbial Box: Mnemic Neglect and the World of Psychology

In the remainder of this article, we consider the implications of the mnemic neglect model while contextualizing it in the autobiographical memory and self literatures.

Mnemic Neglect in the Context of Valence-Focused Autobiographical Memory Research

One way in which research into mnemic neglect links to the broad world of psychology is via that large literature that has been concerned with stimulus valence and memory for autobiographical events. This demonstrates that memory favours the positive (Matlin & Stang, 1978). For example, positive life events are often remembered better than negative life events (Mather, 2006; Ross & Wilson, 2002; Skowronski et al., 1991). It is tempting to consider such effects as real-world examples of the mnemic neglect effects that have been produced in the context of the laboratory-based mnemic neglect paradigm. However, caution needs to be exercised when considering memorial positivity biases in autobiographical memory: They are not overwhelmingly powerful and do not emerge uniformly across studies (Skowronski, 2011).

There are several reasons for this partial inconsistency. As noted earlier, one of the perils of comparing positive memories and negative memories is that the memories may vary in ways other than valence. This is a particular problem for studies using small samples of memories, as in mnemic neglect research. That is why in mnemic neglect experiments we have focused mostly on comparisons involving recall for the same behaviours, such as of recall for self-referent versus Chris-referent central negative feedback. However, confounding of effects of valence with other properties of memories may also be a problem for studies that rely on large samples of memories (Skowronski et al., 1991). In addition, the base rate of negative versus positive events in people's lives is unequal: negative events are far less frequent than positive ones (25% vs. 50%; Walker, Skowronski, & Thompson, 2003). Negative information, then, may be remembered poorly, because it is less similar and dense in associative memory than positive information (Unkelbach, Fiedler, Bayer, Stegmueller, & Danner, 2008). Environmental cues at encoding may also account, at least in part, for this recall discrepancy: For example, negative events may be remembered poorly because they tend to occur in unpleasant or ordinary settings, whereas positive events are likely to occur in pleasant or 'special' settings. Moreover, the two types of events may originate in different kinds of persons. The typical source of negative life events may be antagonistic persons, whereas the typical

source of positive life events may be friendly persons. Hence, negative information may be remembered relatively poorly due to its association with antagonistic others.

In this context, empirical demonstrations of mnemic neglect and loss of mnemic neglect may help us to understand definitively the inconsistency with which valence effects emerge in memory research. For example, a lot of work examining valence effects in memory does not account for the extent to which the to-be-remembered stimuli link to the self. This deficiency is present in research that addresses valence effects in autobiographical memories (including studies examining how anxiety and depression might moderate valence effects), as well as in research that addresses valence effects for laboratory-generated stimuli. However, we know from some studies (Ritchie et al., 2006; Thompson, Skowronski, Larsen, & Betz, 1996) that the self-relevant characteristics of the to-be-remembered stimuli are important to event recall. Two such characteristics are the extent to which an event is important to the self and the extent to which an event is psychologically open (e.g., relevant to the current self) or psychologically closed (e.g., not especially relevant to the current self) (Beike & Wirth-Beaumont, 2005). Indeed, in some analyses, a positivity bias in memory only emerges when the self-characteristics of memories, such as a memory's importance to the self, are statistically accounted for. These self-characteristics of memories are highlighted by the mnemic neglect literature. In this regard, a lesson from this literature is that mnemic neglect emerges more powerfully for information that is *important to the current self*. That is, mnemic neglect emerges for stimuli that are self-framed (not Chris-framed) and for stimuli that are relevant to central (not peripheral) trait dimensions. Other valence-focused memory research has often not assessed, controlled for, or accounted for the self-reference or self-centrality of to-be-remembered stimuli. This methodological difference may be one reason why valence effects have emerged from other memory research in an inconsistent fashion, but emerge consistently in the mnemic neglect literature.

The second lesson from the mnemic neglect literature is that there is nothing "special" about valence in and of itself: The effects of valence on memory really depend on the *differential processing* given to positive stimuli and to negative stimuli. For example, although effective self-regulation might generally push toward processing that produces a positivity bias in memory (Mather, 2006; Skowronski, 2011), the mnemic neglect research illustrates that this bias can easily be eliminated or reversed under different processing conditions (e.g., under cognitive load). Some

elements of the memory literature have recognised this issue. McAdams (2013; also see Ross & Wilson, 2002) draws on this idea when he notes that people may process negative events extensively when trying to find meaning in such events. For example, in trying to understand one's life, one might dwell on the negativity of a past behaviour to emphasise how far one has come since then ("When I went to grad school I failed my first stats course – now I can make SAS sing!"). This may also be the point of a story that one tells to others to emphasise one's current expertise. Frequent rehearsal or public repetition of this kind of a story obviously enhances memory for a negative event – in this case, failing the stats course. However, the ultimate point of rehearsing the event is to make oneself feel good about the current self (Sedikides & Wildschut, 2016; Sedikides, Wildschut, Arndt, & Routledge, 2008). A critical corollary is that memory for information, whether positive or negative, will be partly determined by the amount and kind of processing given to an event. Much past valence research did not assess or manipulate the processing that perceivers used in response to stimuli, relying on naturally-emerging differences to produce valence effects. Whereas the mnemic neglect literature indicates that such natural processing effects might produce mnemic neglect for self-central stimuli, it also helps to account for the inconsistency by showing that this naturally-occurring processing difference can be altered with relative ease.

The third lesson from the mnemic neglect literature is that valence-related processing differences are motivated. Change the motivation, and you may change the information-related processing and subsequent ability to remember information (Nairne, 2010; Ritchie, Sedikides, & Skowronski, 2015; Ritchie, Skowronski, Cadogan, & Sedikides, 2014). As we noted above, people may be motivated to avoid deep processing of threatening negative feedback. However, upon activation of self-improvement motivation, they may be especially likely to attend to the same negative information so they can later work on it. It is not hard to imagine other motives similarly favouring the processing of negative information. For example, a person whose relative was killed by a rival gang may be motivated by revenge never to forget the killing, and may frequently rehearse and repeat the event, strengthening its memory. Information processing serves motivational needs. Although those needs may usually prompt avoidance of negative events, they do not always do so—an implication that naturally leads to the idea that valence effects will sometimes emerge in memory but sometimes they will not.

A fourth lesson from the mnemic neglect literature is that motivation and processing are context-dependent. For example, motivation and processing change when feedback comes from a significant other whom one wants to please. Processing also changes when one has limited time to read the stimuli or when one is under cognitive load. This lesson again helps to explain the inconsistency with which valence effects have emerged in prior research.

Linking the Mnemic Neglect Effect to the Self Literature

The mnemic neglect research can also be linked to the self literature. The model accounts for cognitive underpinning of established effects, and brings to the fore the relevance of self-protective memory for psychological and physical health, as well as for culture and neuropsychological processes.

Links between mnemic neglect and other established effects. The mnemic neglect model links to the cognitive underpinnings of several well-documented effects in the self literature. One is the Fading Affect Bias (FAB), according to which negative (vs. positive) life events are remembered poorly, because the negative (vs. positive) affect associated with autobiographical memories fades faster over time (Skowronski, Walker, Henderson, & Bond, 2014). Other effects include self-enhancing beliefs (i.e., positive illusions) about the self (Taylor & Brown, 1988) and self-serving attributions (i.e., assuming responsibility for positive outcomes but displacing responsibility for negative ones; Mezulis, Abramson, Hyde, & Hankin, 2004). If a person is particularly prone to forget negative details about themselves on matters of consequence, then their life will appear rosy in retrospect, they will remember and tout their positive characteristics, and they will remember having had the lion's share of input to favourable outcomes.

Negative information attracts more attention (Fiske, 1980; Pratto & John, 1991) and is accorded greater weight (Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001; Skowronski & Carlston, 1989) than positive information. Despite this, self-enhancing beliefs abound. The disparities between recall and recognition findings help explain this paradox. We argue that the resolution lies in the mobilisation-minimisation hypothesis (Taylor, 1991). In the context of our research program, the hypothesis would state that self-threatening feedback initially elicits a rapid and direct reaction (e.g., attending to criticism), called mobilisation; this would seek to contain or undo the feedback. It is followed by a prolonged and measured reaction (e.g., avoiding thinking about it), called minimisation; this would seek to dampen or erase the impact of the feedback. What

form might mobilisation and minimisation take? Individuals may mobilise via a swift rejection of, or denial response to, the implications of self-threatening feedback (Ditto & Lopez, 1992) as in our recognition data, and may minimise by distancing themselves from it (Simon, Greenberg, & Brehm, 1995) or not thinking about it (Erdelyi, 2006) as in our free-recall data.

This resolution has implications for efforts to curtail self-enhancement. The resolution suggests that the use of such memory retrieval methods as recognition, or of such tactics as inducing people to reflect actively on their frailties, will curb self-enhancing beliefs to which the MNE contributes. Consistent with this possibility, participants who reflect on why they might or might not possess self-threatening traits (e.g., unfriendly, unkind, untrustworthy) rate themselves lower on them relative to control participants (Sedikides, Horton, & Gregg, 2007). Also, participants who reflect on their (important) weakness as writers rate themselves as less effective writers relative to controls (Sedikides & Herbst, 2002).

Psychological and physical health. Although we know of no research linking the MNE to psychological or physical health, self-protective memory has health implications (Nørby, 2015). Selective (autobiographical) memory is beneficial to psychological health. For example, a positive memory bias is associated with decreased dysphoria (Walker, Skowronski, Gibbons, Vogl, & Thompson, 2003) or depression (Williams et al., 2007), and is also associated with harmonious interpersonal bonds (Sedikides et al., 2015), perceived meaning in life (Routledge et al., 2011), and well-being (Rathbone, Holmes, Murphy, & Ellis, 2015). Also, selective positivity in memory is linked with fewer psychopathology symptoms and improved psychological health over time (Bonanno, Keltner, Holen, & Horowitz, 1995), and with an approach (rather than avoidance) orientation (Stephan et al., 2014) including sustain goal-pursuit (Sedikides & Hepper, 2009) and the implementation of active coping strategies in challenging times (Walker & Skowronski, 2009).

Culture. Evidence indicates that the self-protection motive is stronger in the East than West (Sedikides, Gaertner, & Cai, 2015). Collectivism, or interdependence, involves rejection avoidance (Hashimoto & Yamagishi, 2013), and Easterners show excessive concern with embarrassment avoidance and face saving (Ho, 1976). Also, avoidance goals are stronger in the East than West (Elliot et al., 2012), and Easterners score higher on prevention focus than promotion focus (Hepper, Sedikides, & Cai, 2013). If avoidance orientation or prevention focus are predictors of mnemic neglect, one would indeed anticipate a stronger effect in the East than West.

Neuropsychological processes. Advances in the neuropsychology of forgetting open up exciting possibilities for the study of the MNE. Higher levels of resting heart rate variability (HRV) are positively related to inhibitory control (i.e., capacity to inhibit unwanted memories; Gillie, Vasey, & Thayer, 2014). Might higher HRV also be positively associated with the MNE? Also, hippocampal activation is reduced when an unwanted memory enters consciousness and the individual is motivated to purge it (Levy & Anderson, 2012). Might such a reduction in hippocampal activation also be observed when self-threatening feedback enters consciousness? Finally, habitual retrieval of some types of information leads to cortical suppression of competing information types (Wimber, Alink, Charest, Kriegeskorte, & Anderson, 2015). Might repeated retrieval of self-affirming feedback lead to the cortical suppression of self-threatening feedback?

In Closing

A convenient, if somewhat unorthodox, escape route from evaluative fire would be to have wounding memories erased through a painless electrical editing of neurons, a technique featured in the film *Eternal Sunshine of the Spotless Mind*. This procedure may not belong entirely to the realm of Hollywood imagination. Experimental tests of the beta-blocker, propranolol, which reduces the production of stress hormones, have been promising (Hoge et al., 2012; Lonergan, Olivera-Figueroa, Pitman, & Brunet, 2013). If taken shortly after witnessing an emotionally charged event, propranolol can be effective in preventing the memory of the scene (and in particular the emotional intensity associated with the scene) from consolidating. Human memory, though, has been implementing its own editing of unpleasant memories (called forgetting) long before medical or pharmaceutical actions were envisaged. The MNE is an example of such editing.

We opened up with Josh Billings' (1818-1885) quip about the inconvenience of knowing one's self. This inconvenience is mitigated by memory, especially when the stakes are high. When the goodness and virtuousness of selfhood are (unfairly, no doubt) disputed, memory leans toward self-protection by masking one's blemishes and faults. This is memory's bequest to psychological equanimity and homeostasis.

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Table 1

Results (a) from the Sedikides and Green (2000, Experiment 1) mundane realism experiment and (b) an average (unweighted means) from multiple experiments reviewed by Sedikides and Green (2009) that have used the basic mnemic neglect paradigm (from Wells, 2012).

(a) Sedikides and Green (2000, Experiment 1)

	Central Behaviours		Peripheral Behaviours	
Referent	Positive	Negative	Positive	Negative
Self	.39	.31	.18	.14
Chris	.36	.40	.17	.15

(b) Unweighted average of results reviewed by Sedikides and Green (2009) (from Wells, 2012)

	Central Behaviours		Peripheral Behaviours	
Referent	Positive	Negative	Positive	Negative
Self	.42	.30	.19	.18
Chris	.40	.41	.20	.18

Table 2

Results from Green, Sedikides, and Gregg (2008, Experiment 2) examining mnemic neglect after (a) ego-inflation and (b) ego-deflation.

(a) Ego-Inflation

	Central Behaviours		Peripheral Behaviours	
Referent	Positive	Negative	Positive	Negative
Self	.30 (.15)	.33 (.21)	.18 (.17)	.22 (.18)
Chris	.47 (.17)	.48 (.19)	.21 (.15)	.23 (.16)

(b) Ego-Deflation

	Central Behaviours		Peripheral Behaviours	
Referent	Positive	Negative	Positive	Negative
Self	.44 (.23)	.30 (.19)	.18 (.15)	.23 (.16)
Chris	.40 (.17)	.43 (.21)	.20 (.17)	.23 (.18)

Note. Standard Deviations are in parentheses.

Table 3

Results from Green and Sedikides (2004) examining mnemic neglect for (a) high-diagnosticity behaviors and (b) low-diagnosticity behaviours.

(a) High-Diagnosticity Behaviours

	Central Behaviours		Peripheral Behaviours	
Referent	Positive	Negative	Positive	Negative
Self	.46 (.19)	.29 (.18)	.21 (.16)	.24 (.17)
Chris	.43 (.18)	.41 (.17)	.21 (.15)	.20 (.15)

(b) Low-Diagnosticity Behaviours

	Central Behaviours		Peripheral Behaviours	
Referent	Positive	Negative	Positive	Negative
Self	.28 (.18)	.30 (.16)	.28 (.17)	.33 (.14)
Chris	.32 (.16)	.36 (.16)	.35 (.16)	.38 (.16)

Note. Standard Deviations are in parentheses.

Table 4

Loss of Mnemic Neglect in Recognition Memory in Green, Sedikides, and Green (2008, Experiments 1-2).

(a) Loss of mnemic neglect in recognition: Green et al. (2008, Experiment 1)

	Central Behaviours		Peripheral Behaviours	
	Positive	Negative	Positive	Negative
Self-referent	.86 (.11)	.88 (.09)	.82 (.14)	.84 (.13)
Chris-referent	.88 (.10)	.88 (.09)	.81 (.12)	.85 (.13)

(b) Loss of mnemic neglect in recognition: Green et al. (2008, Experiment 2)

	Central Behaviours		Peripheral Behaviours	
	Positive	Negative	Positive	Negative
Ego-Inflation				
Self-Referent	.89 (.09)	.86 (.09)	.85 (.11)	.85 (.13)
Chris-Referent	.90 (.09)	.91 (.11)	.83 (.12)	.88 (.10)
Ego-Deflation				
Self-Referent	.90 (.10)	.92 (.08)	.82 (.11)	.85 (.10)
Chris-Referent	.88 (.10)	.91 (.09)	.79 (.10)	.83 (.12)

Note. Values were derived by converting mean hits (previously seen behaviours) and mean correct rejections (previously unseen behaviours) into proportions, and then by averaging the result, for each set of eight behaviours defined by the Feedback Referent x Feedback Type x Feedback Valence interaction. Standard Deviations are in parentheses.

Table 5

Loss of mnemic neglect in recognition memory in Wells (2012, Experiment 3).

	Central Behaviours		Peripheral Behaviours	
	Positive	Negative	Positive	Negative
No Recall Delay				
Self	.79 (.17)	.79 (.14)	.76 (.14)	.78 (.15)
Chris	.85 (.16)	.85 (.15)	.77 (.16)	.82 (.14)
48-Hour Recall Delay				
Self	.69 (.17)	.71 (.17)	.67 (.15)	.70 (.12)
Chris	.78 (.16)	.76 (.15)	.73 (.13)	.71 (.14)

Note. Behavior recognition accuracy values (δ) were derived by converting mean hits and mean correct rejections into proportions, and then by averaging the result, for each set of eight behaviours defined by the interaction of Behavior Type and Behavior Valence. Standard Deviations are in parentheses.

Table 6

Loss of mnemic neglect in cued recall (Zengel, Wells, & Skowronski, 2016a).

	Central Behaviours		Peripheral Behaviours	
	Positive	Negative	Positive	Negative
Self-referent	.33 (.20)	.22 (.17)	.19 (.14)	.17 (.15)
Chris-referent	.36 (.18)	.29 (.19)	.21 (.15)	.16 (.12)

Note. Standard Deviations are in parentheses.

Table 7

Loss of mnemic neglect when participants made judgments about behaviours (Zengel, Wells, & Skowronski, 2016b).

	Central Behaviours		Peripheral Behaviours	
	Positive	Negative	Positive	Negative
Self-referent	.31 (.20)	.29 (.18)	.15 (.17)	.10 (.10)
Chris-referent	.37 (.18)	.29 (.19)	.15 (.15)	.10 (.10)

Table 8

A test of the retrieval interference account as an alternative to the mnemic neglect model (Zengel & Skowronski, 2016).

	Central Behaviors		Peripheral Behaviors	
	Positive	Negative	Positive	Negative
Priming before Encoding Condition				
Self-Referent	.28 (.19)	.22 (.21)	.12 (.11)	.08 (.12)
Chris-Referent	.32 (.18)	.26 (.19)	.12 (.11)	.08 (.10)
Priming after Encoding Condition				
Self-Referent	.26 (.22)	.23 (.15)	.14 (.17)	.10 (.15)
Chris-Referent	.34 (.17)	.37 (.17)	.16 (.14)	.09 (.10)
Control Condition				
Self-Referent	.21 (.18)	.17 (.16)	.07 (.12)	.05 (.10)
Chris-Referent	.28 (.19)	.31 (.19)	.13 (.13)	.10 (.13)

Note. Standard Deviations are in parentheses.

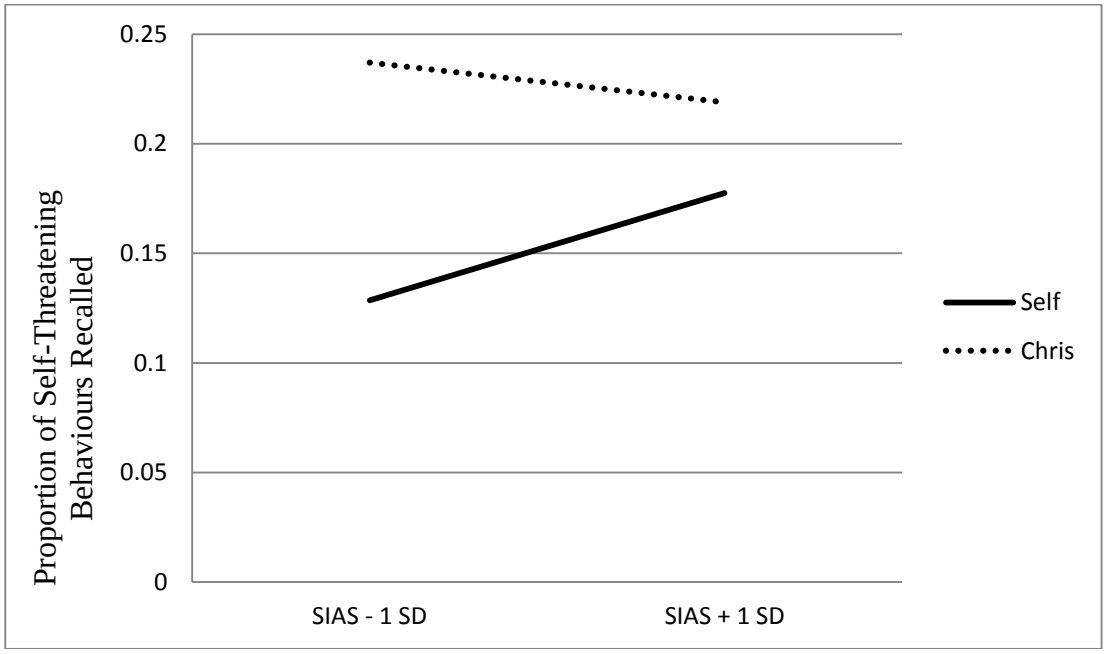

Figure 1. Loss of Mnemic Neglect for Socially Anxious Individuals (Zengel et al., 2015, Study 1)

APPENDIX A

Typical Traits and Behaviours of Mnemic Neglect Experiments Classified Along Three Feedback Distinctions: Valence (Negative, Positive), Type (Central, Peripheral), Referent (Self, Chris)*

I. Central Negative Traits and Behaviours

Untrustworthy
X would borrow other people's belongings without their knowledge.
X would be unfaithful when in an intimate relationship.
X would often lie to X's parents.
An employer would not rely on X to have an important project completed by the deadline.

Unkind
X would make fun of others because of their looks.
X would purposely hurt someone to benefit X.
X would refuse to lend classnotes to a friend who was ill.
X would make an obscene gesture at an old lady.

II. Central Positive Traits and Behaviours

Trustworthy
X would keep secrets when asked to.
X would follow through on a promise made to friends.
A teacher would leave X alone in a room while taking a test and not be afraid that X would cheat.
People would be willing to tell X embarrassing things about themselves in confidence.

Kind
X would offer to care for a neighbor's child when the babysitter couldn't come.
X would help people by opening a door if their hands were full.
X would help a handicapped neighbor paint his house.
X would volunteer time to work as a big brother/big sister to a child in need.

III. Peripheral Negative Traits and Behaviours

Immodest
X would act in a condescending manner to other people.
X would point out others' weaknesses to make X look better.
X would talk more about X than about others.
X would show off in front of others.

Complaining
X would look for faults even if X's life was going well.
When X would not like to do something, X would constantly mention it.
X would constantly talk about how much stuff there is to be done.
X would pick only the bad points to describe the classes X attends.

IV. Peripheral Positive Traits and Behaviours

Modest
X would take the focus off X and redirect it to others.
X would let some of X's achievements go by unaccredited.
X would give others the credit for a group success.
X would never openly brag about X's accomplishments.

Uncomplaining
X would rarely inform others about physical ailments.
X would overlook the bad points about a roommate.
X would tolerate situations even when not having a good time.
X would minimise bad experiences when telling about them.

*X refers either to the self (i.e., "I") or the peer (i.e., "Chris").