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The semantic/episodic distinction: The case for social information processing

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Abstract

The directed-forgetting paradigm was used in order to dissociate episodic from semantic processes in an impression formation task. Results demonstrate that incongruent behaviors are more prone to manipulations that disrupt episodic memory, whereas congruent behaviors are unaffected by such manipulations. The results suggest that the distinction between episodic and semantic memory processes is central for the understanding of social information processing. An explanation is put forward according to which the incongruency effect, a signature effect of impression formation, is due to an episodic encoding advantage for incongruent behaviors because of their semantically isolated nature, and their impoverished semantic encoding.

Keywords: Social encoding; Impression formation; Incongruency effect; Social semantics; Episodic advantage; Retrieval inhibition; Directed forgetting; Episodic memory; Semantic memory; List position

Introduction

The ability to make sense of others using limited information is a crucial skill. When interacting for the first time with another individual, we must form an initial impression based on the available information which pulls together the individual's central characteristics. The study of how we process, store, and retrieve this social information is crucial for understanding how one goes from perceiving a set of behaviors to forming an evaluative and general personality impression.

In Hastie and Kumar's seminal study (1979), participants were presented with a list of behaviors preceded by an ensemble of traits, and were asked to form an impression of a social target from the information provided. Behaviors in the list could be congruent, incongruent or neutral with respect to the preceding traits. After reading the behaviors, participants were asked to write down as many behaviors as they could remember. A signature of impression formation processes has been the observation that incongruent behaviors are recalled better than neutral or congruent behaviors—the incongruency effect (e.g., Hastie & Kumar, 1979; for a review see Stangor & McMillan, 1992).

The classical framework

Based on their research on the incongruency effect, Hastie and Kumar (1979), and later Srull (1981); for a more recent model see Garcia-Marques and Hamilton, 1996, proposed an encoding and associative memory search model, where behaviors are encoded first in terms of the activated expectancy, creating a network of behaviors connected to the person node (i.e., a node that involves the categorical expectancy). The strength of these connections depends on the congruency of the specific behavior with the activated expectancy. Further, because incongruent items are not easily integrated into the personality

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impression, they require more extensive processing in order to be reconciled with other encoded information. Consequently, incongruent events will be kept in working memory where they will establish interepisodic associative linkages with other behaviors. Finally, each behavior is transferred along with its linkages to a location in long-term memory (Srull, 1981).

According to Garcia-Marques and colleagues (Garcia-Marques & Hamilton, 1996; Garcia-Marques, Hamilton, & Maddox, 2002), the retrieval routine that underlies free recall is also important for the understanding of the incongruency effect. This routine is *exhaustive* and *non-selective* in terms of content; it begins at the person node, and flows down one pathway until it reaches one behavior. After that, the search continues from that node to traverse the associative pathways until another behavioral episode is reached. When no new items are discovered, the search process will return to the person node and follow another path. Traversing the associative pathways during the process of behavior retrieval will more often lead to incongruent behavioral episodes than congruent ones because the former have denser inter-item linkages than the latter due to reconciliatory processing. Garcia-Marques and Hamilton also argued that when participants are probed to look for a selective target (e.g., estimate the frequency of a certain type of behavior), the retrieval mode adopted is *heuristic*, and *selective* in content; it is dependent on how strongly associated the items are with the person node. This heuristic retrieval routine can explain the robust pattern of the expectancy-based illusory correlations effect—because congruent items are more strongly connected to the person node, this heuristic retrieval mode will lead to the overestimation of congruent items over incongruent items. This framework has been extensively corroborated (e.g., Garcia-Marques et al., 2002; Hastie, 1980, 1988; Sherman & Hamilton, 1994; Srull, 1981; Srull, Lichtenstein, & Rothbart, 1985). Crucially, the sequence of behavioral recall output seems to comply with the predictions of the model. After recalling a congruent item, the probability of recalling an incongruent item is greater than the probability of recalling a congruent item (Srull, 1981).[1]

An alternative framework

Although the classical framework has been established as the received view, alternative proposals have been posited that, directly or indirectly, speak to the issue of the processing of social information (e.g., Johnston & Hawley, 1994; Reed Hunt & Lamb, 2001; Sherman, Lee, Bessenoff, & Frost, 1998). For instance, Reed Hunt and Lamb explained the isolation effect (i.e., better recall of isolated items) by appealing to a distinctive encoding advantage for isolated items in comparison to non-isolated ones. Similarly, Sherman et al. posited that congruent items are easily encoded due to their fit with the activated expectancy. More attentional resources are then available for the processing of incongruent items, which are harder to integrate into the impression due to their low conceptual fluency. The subsequent additional processing of incongruent items will strengthen their perceptual encoding, leading to better recall of these items.

The semantic/episodic distinction in social information processing

Shoben (1984) noted that the distinction between semantic and episodic memory should be more ubiquitous in social psychology frameworks, because the paradigms employed in social cognition might invoke these two memory systems differentially. Semantic memory refers here to the general knowledge that people hold about the world, from concepts to categories, whereas episodic memory refers to information about specific experiences defined in time and context (e.g., Schacter, Wagner, & Buckner, 2000). Extant frameworks do not seem to incorporate the semantic/episodic distinction. The classical framework asserts that this incongruency effect is principally due to the differential degree of encoding that congruent and incongruent items require (e.g., Hastie, 1988), and not due to major differences between the type of encoding that both behaviors motivate. An alternative framework holds that congruent and incongruent items require different types of encoding strategies. Although there are indications that the perceptual or distinctive processing proposed could be episodic in nature, it is not clear that this is the case.

In this paper, I will argue that the semantic/episodic distinction is central for the understanding of social information processing in general, and the incongruency effect in particular. It could be hypothesized that information will first be encoded in terms of its semantic fit with the activated expectancy. From this semantic processing, the semantically isolated nature of incongruent items will become evident, whereas congruent items will be assimilated into the personality impression. Moreover, the activated expectancy will interfere with the semantic encoding of incongruent items (Wigboldus, Dijksterhuis, & van Knippenberg, 2003). Incongruent items will then incur additional processing that will supply them with an encoding advantage of the type generally associated with episodic encoding, due to their isolated nature and their impoverished semantic encoding. I propose that it is this extended episodic encoding of incongruent items that is responsible for the better recall of incongruent items in tasks that tap into episodic recall.

This proposal makes clear predictions about the effect of manipulating the availability of episodic and semantic pro-

[1] Skowronski and colleagues (e.g., Skowronski & Welbourne, 1997) challenged the central assumption of the classical framework by showing that conditional probabilities, when corrected for chance, no longer present the typical pattern. Garcia-Marques (L. Garcia-Marques, personal communication, October 14, 2005) disputed these results. According to Garcia-Marques, correcting for differences in recall affects the conditional probabilities because they are not independent.

cesses. If it is true that the recall advantage of incongruent items is due to its superior episodic processing, then a paradigm that disrupts episodic processes should affect primarily the recall of incongruent items. Such a paradigm should not affect, however, tasks like frequency estimation that rely predominately on semantic encoding (e.g., Garcia-Marques & Hamilton, 1996). Moreover, it has been suggested that items in initial list positions are recalled better (i.e., the primacy effect) due to operations related with episodic processes (e.g., Burkart, Heun, & Benkert, 1998; Cubelli, Curione, & Bisiacchi, 1999), whereas the recall variance observed in middle list positions are dependent on both episodic and semantic processes (e.g., Andrade et al., 2003).[2] As the variance in the initial list positions is mainly dependent on episodic encoding, behaviors in these positions should be highly affected by any disruption to episodic processes. This effect should be stronger for incongruent items, because these items are more strongly dependent on episodic encoding. However, because variance in performance in the middle positions will be dependent on both semantic and episodic encoding, the effect of episodic disruption should be weaker in the middle positions. Furthermore, this effect should be observed *only* for incongruent items, because, in these list positions congruent items can benefit from the semantic processes at play. To address these issues, I used a paradigm that disrupts episodic, but not semantic retrieval.

Dissociating semantic and episodic processes

In order to dissociate semantic and episodic processes, the list-method directed forgetting paradigm was employed (e.g., Bjork & Bjork, 1996). In this paradigm, participants are given two lists of items to study. After studying the first list, participants are either cued to forget or to continue remembering the first list while studying the second list. Note that before being cued to remember or to forget list 1 participants are unaware of any cue manipulation (e.g., Bjork & Bjork, 1996). Robust findings emerged from studies using this paradigm. Remembering of list one is severely affected by the forget cue, so that recall of those items is much better in the remember condition than in the forget condition. Moreover, the forget cue greatly reduces proactive interference from list one to list two, so that the recall of list two is better for forget–remember lists than for remember–remember lists (for a review see MacLeod, 1998; for an application to social cognition see Macrae, Bodenhausen, Milne, & Ford, 1997).

According to Bjork and Bjork (2003), the typical pattern of results emerging from the application of the directed-forgetting paradigm is due to two types of memory failures: to-be-forgotten items suffer from an *episodic discrimination failure* and from *episodic forgetting* per se. Participants are not only unable to discriminate when or where the specific episode occurred, but are even unable to recollect that it occurred at all as part of a specific episode in the past (Bjork & Bjork, 2003). These memory failures are likely due to differential rehearsal of the items in list one and two after the forget cue (e.g., Kimball & Bjork, 2002), involving, for instance, suppression of episodic access to the items in the first list (Bjork, 1989). Lately, it has been also argued that the cue to forget items in list 1 encourages an internal change of learning contexts between the two lists (Sahakyan & Kelley, 2002). This contextual change at encoding strongly disrupts contextual cuing of items from list one at retrieval, hence leading to the memory failures above mentioned.

Irrespective of the mechanism underlying these memory failures, all the possible candidates are intrinsically related with episodic memory processes. Interestingly, indirect memory tests (e.g., word fragmentation completion tasks) seem to be impervious to directed forgetting manipulations (Bjork & Bjork, 2003). Moreover, participants present normal recognition levels, and heighten familiarity to the to-be-forgotten items. Importantly then, while directed forgetting affects episodic processes (Bjork & Bjork, 2003), it does not affect semantic processes (Anderson & Neely, 1996; for an application as a way to dissociate semantic and episodic processes see Kimball & Bjork, 2002).

Experiment

In the experiment presented herein, I used a design similar to the typical person-memory impression formation task describe above (e.g., Hastie & Kumar, 1979). Participants were asked to form an impression of an individual pertaining to a social category (e.g., Child care provider). They were then primed with both the category membership of the target and an ensemble of traits, and were asked to rate the targets on several personality scales.[3] Afterwards, they were presented with two lists of behaviors, separated by a cue to either forget the first list, or to keep paying attention to the items on list two. Participants were then unexpectedly asked to recall as many items as possible from the two lists independently of the cue. Finally, participants were instructed to estimate the number of congruent and incongruent behaviors. Behaviors were chosen so that half of the items in list one were congruent with the initial expectancy, and half were incongruent with the initial expectancy. List two was comprised of neutral behaviors.

[2] Recall levels of the last positions will not be discussed, because I will use a distractor task, which interferes with recall levels in the final list positions (Glanzer & Cunitz, 1966; Postman & Phillips, 1965).

[3] The use of both stereotype and trait information is a non-conventional expectancy manipulation (I thank J. Skowronski for raising this point). Garcia-Marques et al. (2002, Experiment 1) used a very similar approach, and replicated the usual incongruency effect. Moreover, Heider et al. (2006) showed that the *overt* use of trait or categorical knowledge to induce an expectancy has the same impact on performance.

Several analyses were performed in order to test the predictions outlined above. Personality ratings were analyzed to examine whether the expectancy manipulation succeeded. Recall performance of both lists, and frequency estimations were analyzed to check whether the directed forgetting manipulation was successful. Finally, to test the differential effect of the remember and forget cues on congruent and incongruent items, recall levels for each type of behavior in list one, and recall levels per list position[4] were also analyzed.

Methods

Participants and design

Sixty-seven undergraduate students at Harvard University participated for course credit or pay. Recall data from seven participants were discarded from the analyses because they did not follow the instructions. The study had a 2 (Instruction cue: remember vs. forget) × 2 (Occupational category: bouncer vs. childcare provider) × 3 (Order of presentation: order 1, order 2, and order 3) × 2 (behavior type: congruent vs. incongruent) × 2 (List: list 1 vs. list 2) × 2 (Task: recall vs frequency estimation) mixed design, with repeated measures on the last three factors.

Materials

In order to obtain a list of personality traits related with certain social stereotypes, a pretest questionnaire was employed. Twenty-five participants who did not take part in the main experiment were asked to write down five personality traits that they thought people generally associate with specific occupational categories. A pair of occupational groups was selected—Childcare provider and Bouncer—along with the five most selected personality traits for each group, because they represented extreme and opposite trait constellations. Six behaviors were then selected to represent each predominant trait dimension (Childcare provider/nice, and Bouncer/rude), plus 12 neutral behaviors considered not to be diagnostic of any of those dimensions. These behaviors were taken from databases of previously used behaviors (see Appendix A for a list of the behaviors used).[5]

List 1 consisted of the six behaviors related to the trait "rude" and the six behaviors related to the trait "nice". List 2 consisted of the 12 neutral behaviors. Each list was presented in three random orders. Occupational category was varied orthogonally with behavior sets, so that each behavior was congruent for half of the participants and incongruent for the other half of the participants. Therefore, recall analyses of congruent versus incongruent items were performed over the same behaviors.

Procedure

Participants sat in front of a computer screen and the experimenter explained to them that they were about to participate in a study dealing "with the way in which we form an impression of a person on the basis of his or her actions". Participants then received information about the target—his name (Bill) and his occupation. For half of the participants, the target pertained to the occupational category *Bouncer*, while for the other half, the target pertained to the occupational category *Childcare provider*. Participants were then presented with five personality traits and were asked to form an impression of the social target. After this, they were asked to rate the target on several personality-trait scales. These scales included specific trait-scales (e.g, personable), and a scale of likeability (from 1—the individual is *very likable*, to 7—the individual is *not likable at all*). Immediately following this, participants were presented with a filler task, during which they had to look for the names of the Presidents of the United States of America in a matrix of letters. They were given 5 min to do so, and then participants were given the behavioral lists, and were again asked to continue forming their impression of the social target. As noted above, after list one, participants were cued either to forget list one and concentrate their efforts on forming an impression based on list two (participants were told that the behaviors on list one were just practice and should be disregarded), or were simply instructed to keep on paying attention to the items in list two. Following list two, participants were asked to continue the same filler task as before, and were again given 5 min to complete the task. Finally, they were given an unexpected free recall test, where they were asked to recall all the behaviors they saw, even those that they were told to forget in the case of the forget condition. Participants had 8 min to perform the free recall task.

At the end of the experiment, participants were asked to estimate the number of rude and nice behaviors (i.e. congruent and incongruent behaviors depending on the stereotypical manipulation) that the target had performed. They were told to do this as fast as possible. The order of the recall task and frequency estimation task was not counterbalanced. Participants always went first through free recall and then through the frequency estimation task. However, the order of the tasks does not influence the frequency estimates for either congruent or incongruent items (Garcia-Marques & Hamilton, 1996). Participants were then debriefed, paid or given credit and thanked for their participation.

Results and discussion

Table 1 summarizes recall and estimation means. For all analyses, there were no main effects or interactions of the factors "Order of presentation", and "Occupational category". Therefore, the analyses reported below collapsed across these variables. For instance, rude behaviors performed by Bill the Childcare provider, and nice behaviors performed by Bill the Bouncer were aggregated under the

[4] I thank Bradford Mahon for suggesting this analysis.

[5] I thank Drs. Jim Uleman and David Hamilton for the stimuli.

Table 1
Mean behavioral recall values and estimation values by behavior type, list and instruction cue

		Free recall				Frequency estimation	
		List one			List two	Congruent behaviors	Incongruent behaviors
		Congruent behaviors	Incongruent behaviors	Total	Total		
Instruction	Remember	3.43	3.83	7.26	4.7	10.2	8.6
Cue	Forget	3.63	3.33	6.96	6.7	10.8	8.6

rubric of incongruent behaviors and so, when comparing congruent and incongruent behaviors, I was in fact comparing over the same behaviors. Measures of effect size will also be presented for all Fs > 1 and ts $> |1|$.[6]

Expectancy manipulation

In order to check the expectancy manipulation, likeability ratings for the bouncer and childcare provider targets were compared. Bouncers were significantly less likable ($M = 5.6$, $SD = 1.04$) than childcare providers ($M = 2.0$, $SD = 0.9$; $t(58) = 14.3$, $p < .001$, $d = 3.755$). These results indicate that the expectancy manipulation was successful.

Directed forgetting—recall of List 1 and List 2

A 2 (Instruction cue: remember vs. forget) × 2 (List: list 1 vs. list 2) analysis of variance (ANOVA) on the recall data from list 1 and list 2, with repeated measures on the last factor was performed. Both main effects of list and instruction cue were significant. List 1 ($M = 7.15$, $SD = 1.793$) was recalled better than list 2 ($M = 5.70$, $SD = 2.465$; $F(1,58) = 16.801$, $p < .001$, $MSE = 3.754$, $\eta^2 = .225$). Also, recall performance under forget instructions ($M = 6.85$, $SD = 2.26$) was better than under remember instructions ($M = 6.00$, $SD = 2.20$; $F(1,58) = 4.671$, $p = .035$, $MSE = 4.641$, $\eta^2 = .075$). This main effect of instruction cue was modulated by the significant interaction between instruction cue and list ($F(1,58) = 10.568$, $p = .002$, $MSE = 3.754$, $\eta^2 = .154$). Recall levels for List 2 were higher in the forget condition than in the remember condition ($M_{\text{L2remember}} = 4.7$, $SD_{\text{L2remember}} = 1.932$, $M_{\text{L2forget}} = 6.7$, $SD_{\text{L2forget}} = 2.562$; $t(58) = -3.41$, $p = .001$, $d = .896$; for List 1, $t < |1|$). The instructions to forget List 1 alleviated the proactive interference exerted by List 1 on List 2, suggesting that the directed forgetting manipulations were successful. Recall levels for list one are analyzed below.

Directed forgetting—frequency estimates

A 2 (Instruction cue: remember vs. forget) × 2 (Type of behavior estimated: congruent vs. incongruent) ANOVA, with repeated measures on the last factor, was performed on the frequency estimation data. The only significant effect was the main effect of type of behavior estimated ($F(1,58) = 10.230$, $p = .002$, $MSE = 10.586$, $\eta^2 = .150$). The estimated number of congruent behaviors ($M = 10.5$, $SD = 4.85$) was greater than the estimated number of incongruent behaviors ($M = 8.6$. $SD = 3.71$), replicating the typical expectancy-based illusory correlations pattern (Hamilton & Rose, 1980). This was true irrespective of the instruction given—the interaction between instruction cue and behavior type was far from significant ($F < 1$). The instruction to forget list one had no impact on the frequency estimation task, consistent with the fact that the directed forgetting manipulation does not affect semantic memory processes.

Directed forgetting—recall of congruent and incongruent behaviors

A 2 (Instruction cue: remember vs. forget) × 2 (Behavior type: congruent vs. incongruent) analysis of variance (ANOVA) on the recall data from list 1, with repeated measures on the last factor was performed. The only significant effect was the crossover interaction between behavior type and instruction cue ($F(1,58) = 7.968$, $p = .007$, $MSE = .461$, $\eta^2 = .121$). While in the remember condition participants recalled incongruent behaviors ($M = 3.8$, $SD = 1.053$) significantly better than congruent ones ($M = 3.4$, $SD = .898$; $t(29) = -2.112$, $p = .043$, $d = .418$), this was not true for the forget condition. In fact, if anything, there was a reversal of the incongruency effect ($M_{\text{incongruent}} = 3.3$, $SD_{\text{incongruent}} = 1.124$, $M_{\text{congruent}} = 3.6$, $SD_{\text{congruent}} = 1.066$; $t(29) = 1.874$, $p = .071$, $d = .25$). Two planned contrasts were performed on the difference between the remember condition and the forget condition, for congruent and incongruent items. These contrasts suggest that the interaction obtained is more dependent on the effect of the forget cue on incongruent behaviors ($t(58) = 1.85$, $p = .069$, two tailed, $r = .236$),[7] than on congruent behaviors ($t(58) = .074$, $p = .462$, two tailed, $r = .097$).[8]

Importantly, the incongruency effect was replicated in the remember condition. Furthermore, the instruction to forget the items had a differential effect on incongruent

[6] For F values, partial η^2 (η^2) will be presented, while for t tests Cohen's d (d) will be employed. In the case of independent samples t-test, Cohen's d formula used will be $d = 2\ t/(\sqrt{df})$, while for paired t-tests, $d = (M1 - M2)/(\sqrt{[(S_1^2 + S_2^2)/2]})$.

[7] The recommendations for repeated measure designs proposed by Furr and Rosenthal (2003a, 2003b) were employed. The contrast weights used were based on the predictions of the model proposed here, and were 1, −1, 0, 0, for incongruent remember, forget, congruent remember, and forget conditions, respectively.

[8] For this contrast, the contrast weights used were 0, 0, 1,−1, for incongruent remember, forget, congruent remember, and forget conditions respectively.

compared to congruent items. Congruent items were not affected by the forget instruction, or, *at most*, were slightly better recalled, whereas incongruent items were highly affected by it. This is consistent with the hypothesis that the encoding of incongruent items is dependent on episodic processes, and that the episodic advantage held by incongruent compared to congruent items is responsible for the incongruency effect.

Analysis of mean recall by list position

In order to evaluate whether the directed forgetting paradigm differentially disrupted behaviors in different list positions, the number of times that each behavior was recalled as congruent and incongruent was counted separately for each order. These values were then summed according to their position in each of the three orders, so that the total number of behaviors recalled in each position was obtained. Note that the recall levels of each behavior presented in the first position in each order were summed. Remember also that each behavior was presented half of the times as congruent and half of the times as incongruent, and so, for each position, there was the same number of congruent and incongruent cells. After this, the values were aggregated into two bins: the *primacy bin*, and the *middle bin*. The value of each bin was the average recall values for the first four, and the middle four behaviors, respectively.

As can be seen in Fig. 1, recall levels for congruent and incongruent items in the primacy bin decreased in the forget condition, when compared to the remember condition. Because the variance on these initial positions is crucially dependent on episodic processes, disrupting episodic memory should affect these behaviors. Moreover, because incongruent items are more dependent on episodic processes than congruent items, the more pronounced decrease in recall for incongruent items than for congruent ones was expected. In the middle bin, recall levels for the two types of behaviors dissociated in the forget condition—there is a decrease in recall levels for incongruent items, whereas congruent items show an increase in recall. Because recall variance for the behaviors in these middle positions is dependent on both semantic and episodic processes, an overdependence on semantic processing in the forget condition could explain the better recall of congruent items, whereas the disruption of episodic processes would explained the decrease in recall performance for incongruent items. These findings confirm that the directed forgetting paradigm targeted episodic processes, as indexed by the decrease in recall in the primacy bin for both types of behaviors. They also independently confirm that incongruent items are more dependent on episodic processes, as shown by the more pronounced decrease in recall levels for incongruent than congruent items in the primacy bin, and the dissociation between recall levels of the two types of items in the middle positions.[9]

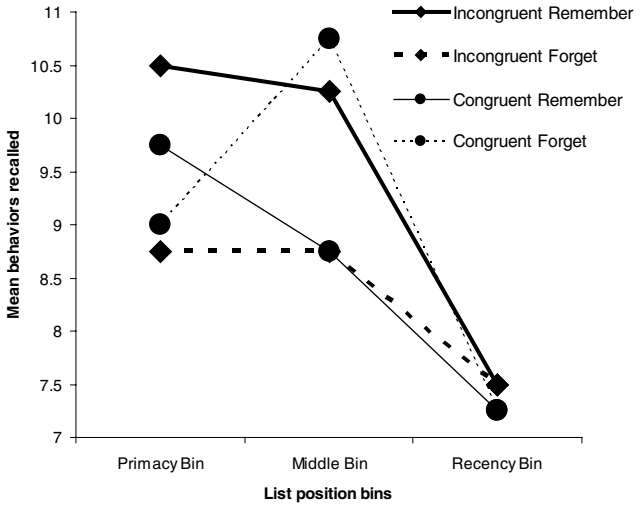

Fig. 1. Mean number of behaviors recalled per list positions, condition, and type of behavior.

General discussion

The directed-forgetting paradigm was adapted to a typical impression formation task to address the hypothesis that under impression formation instructions, behaviors that are incongruent with an activated expectancy incur additional episodic encoding. As the results demonstrate, the directed-forgetting manipulation was successful. First, the results show the typical release from proactive interference on the recall performance of the second list. Second, no effect of the forget cue was found on the frequency estimation task, consistent with the view that the estimation task is related to the semantic congruency between the activated expectancy and the target behavior. Third, recall performance on the forget condition was highly affected. Crucially, the pattern of results shows the normal incongruency effect in the remember condition, a condition which is structurally isomorphic to the forget condition, and at the same time resembling the typical impression formation procedure. Therefore, the results obtained here cannot be dismissed by assuming that there were methodological differences between the experiment presented and the typical paradigms used before.

Central to the hypothesis presented here, incongruent items show a marked *decrease* in recall from the remember to the forget condition, whereas congruent items, if anything, show a slight *increase* in recall from the remember to the forget condition. These results show, as hypothesized, that incongruent items encourage more episodic encoding, and, therefore, are more prone to suffer from episodic forgetting. Moreover, an analysis of the recall levels by list position converges with the results presented above. In the initial positions, where most of the variance is explained by episodic processes, both congruent and incongruent items show a decrease in recall levels, more pronounced for

[9] The same pattern of results was obtained when recall percentages for each type of behavior were used.

incongruent items. In the middle positions, where variance is no longer explained primarily by episodic processing, recall levels for the two types of items are dissociated—incongruent items still show a decrease in recall levels, while congruent items show an increase in recall levels, probably due to overdependence on semantic processing.

Conclusion

The findings presented herein further enhance our understanding of the processing of social information, by demonstrating that the distinction between episodic and semantic memory processes is central for the understanding of social information processing. When we perceive behaviors, we first process them in relation to the activated social expectancy (i.e., semantic encoding). The output of this semantic encoding will define the fate of the target behavior. Congruent behaviors immediately become part of the personality impression. In contrast, unexpected/incongruent behaviors require further episodic processing, either for better comprehension or integration in the general impression, or simply because they are surprising and capture our attention. Furthermore, it could be assumed that in situations where episodic retrieval is required (e.g., remembering what each person did in a specific situation), the behavioral output will present a pattern similar to the incongruency effect. If in a specific situation episodic retrieval is not required (e.g., judging how likeable a person is), then social expectancies might dominate.

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Appendix A

Behaviors	
Nice	Rude
He gave his seat to someone on a crowded bus	He cut in line in front of three people at the bank
He carried the old woman's groceries across the street	He laughed at the man on the street who slipped on the ice
He gave 10% of his income to charities	He lost his temper while playing cards and overturned the table
He helped the child look for her lost puppy	He refused to lend his lawn mower to a friend
He took the orphans to the circus	He smoked in the cafeteria after the woman asked him not to
He volunteered at the senior citizens center near his home	He threatened to hit her unless she took back what she said

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