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Valence and Ownership:

Object Desirability Influences Self-Prioritization

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Abstract

Research has demonstrated that possession exerts a potent influence on stimulus processing, such that objects are categorized more rapidly when owned-by-self than when they belong to other people. Outstanding theoretical questions remain, however, regarding the extent of this self-prioritization effect. In particular, does ownership enhance the processing of objects regardless of their valence or is self-prioritization restricted to only desirable items? To address this issue, here we explored the speed with which participants categorized objects (i.e., desirable & undesirable posters) that ostensibly belonged to the self and a best friend. In addition, to identify the cognitive processes supporting task performance, data were submitted to a hierarchical drift diffusion model (HDDM) analysis. The results revealed a self-prioritization effect (i.e., $RT_{self} < RT_{friend}$) for desirable posters that was underpinned by differences in the efficiency of stimulus processing. Specifically, decisional evidence was extracted more rapidly from self-owned posters when they were desirable than undesirable, an effect that was reversed for friend-owned posters. These findings advance understanding of when and how valence influences self-prioritization during decisional processing.

Keywords: self-prioritization, ownership, valence, decision-making, drift diffusion model

Valence and Ownership:
Object Desirability Influence Self-Prioritization

A striking facet of daily life is the prominence accorded to one's personal possessions (James, 1890). Whether paperweights, pens or pyjamas, proprietorship exerts a potent influence on judgment and memory. Most notably, as psychological extensions of the self, owned (vs. not owned) objects are processed in a self-serving manner (Beggan, 1992; Belk, 1988, 2014). For example, epitomized by the 'mere ownership' effect, objects randomly assigned to the self are deemed to be more pleasing, likable, and valuable than identical items with no prior self-association (e.g., Beggan, 1992; Kahneman, Knetsch, & Thaler, 1991; Morewedge & Giblin, 2015). Similarly, objects owned by the self (vs. other people) are highly memorable, even when the basis of ownership is arbitrary, and the items are inconsequential (Cunningham, Turk, Macdonald, & Macrae, 2008; Sparks, Cunningham, & Kritikos, 2016). Finally, and of relevance to the current investigation, ownership also confers an advantage to stimuli during object categorization, such that self-owned items are identified more rapidly than comparable objects belonging to other people (Golubickis, Falbén, Cunningham, & Macrae, 2018; Golubickis et al., 2019).

That ownership facilitates object categorization is consistent with an extensive literature demonstrating self-prioritization during stimulus processing (Humphreys & Sui, 2016; Sui & Humphreys, 2015, 2017). As powerful cues for attention, self-relevant stimuli enhance perceptual decision-making (e.g., Constable, Welsh, Huffman, & Pratt, 2019; Humphreys & Sui, 2016; Macrae, Visokomogilski, Golubickis, Cunningham, & Sahraie, 2017; Macrae, Visokomogilski, Golubickis, & Sahraie, 2018; Sui, He, & Humphreys, 2012; Truong, Roberts, & Todd, 2017; Truong & Todd, 2017). Notwithstanding numerous demonstrations of this effect, however, several unresolved issues remain. Prominent among these is the issue of whether the benefits of self-relevance extend beyond the abstract (e.g., geometric shapes) and inconsequential (e.g., pencils, mugs) stimuli that have been used in research on this topic to date (Constable et al., 2019; Golubickis et al., 2018, 2019; Sui et al., 2012; Sui, Rothstein, & Humphreys, 2013). Take, for example, the valence of objects, an obvious dimension of significance outside the laboratory and a pivotal component of self-referential thought (Higgins, 1987). If one were to acquire both a desirable and undesirable item, would each display prioritized processing?

Interestingly, extant theoretical accounts advance divergent predictions regarding the effects of ownership and valence on stimulus prioritization. According to Beggan (1992), mere ownership effects arise from people's motivation to maintain (and enhance) a positive self-concept through their belongings. Whilst possession of desirable objects clearly satisfies this requirement, through reappraisal, undesirable items can serve an identical function (Alicke & Sedikides, 2009; Sedikides & Strube, 1997). Specifically, as they challenge the maintenance of a positive self-image, self-enhancement motivation prompts people to construe their undesirable belongings in a favorable way (e.g., although too large, the sweater has a lovely color). As such, ownership should facilitate the processing of objects regardless of their valence. In contrast, based on the application of Balanced-Identity Theory (Greenwald et al., 2002), Ye and Gawronski (2016) contend that mere ownership effects are moderated by pre-existing object properties, including valence. Whereas self-object associations in memory are strengthened for desirable items, inhibitory connections are formed between the self and undesirable objects, thereby dictating that self-prioritization should be restricted to only the former items. Given these competing possibilities, here we investigated the extent to which the desirability of items influences stimulus prioritization during an object-ownership task (Golubickis et al., 2018, 2019).

To elucidate how object valence impacts self-prioritization, a dual analytic approach was adopted. Combined with a standard comparison of response times (i.e., owned-by-self vs. owned-by-other), data were also submitted to a drift diffusion model analysis (Ratcliff & Rouder, 1998; Ratcliff, Smith, Brown, & McKoon, 2016; Voss, Nagler, & Lerche, 2013). The drift diffusion model uses both accuracy and latency to represent the decision-making process as it unfolds over time, thus enabling the latent cognitive operations associated with task performance to be estimated. During binary decision-making (e.g., is an object owned-by-self or owned-by-other?), information is continuously accumulated from a stimulus until sufficient evidence is acquired to make a response (e.g., the object is mine). In this decisional context, task performance can be influenced by two distinct processes (White & Poldrack, 2014). First, before a stimulus has been presented, self-relevance can bias response selection (i.e., response bias), such that one outcome (e.g., owned-by-self) is preferred over another (e.g., owned-by-other). Second, during object processing, self-relevance can influence the quality of information gathering (i.e., a stimulus bias), with decisional evidence extracted more efficiently from some stimuli (e.g., self-owned objects) than others (e.g., other-owned objects). Application of the drift diffusion model is therefore informative as it can establish the extent to which the self-ownership effect is underpinned by response and/or stimulus biases (Humphreys & Sui, 2016; Sui & Humphreys, 2015, 2017).

In the current experiment, participants were presented with desirable and undesirable objects (i.e., posters) that ostensibly belonged either to the self or a best friend. Their task was simply to categorize the items on the basis of ownership (i.e., owned-by-self vs. owned-by-friend). Of theoretical interest was establishing whether self-prioritization extends to objects regardless of their valence or is restricted instead to only desirable items (Beggan, 1992; Ye & Gawronski, 2016). To identify the processes underpinning task performance, data were submitted to a Hierarchical Drift Diffusion Model (HDDM) analysis (Wiecki, Sofer, & Frank, 2013).

Method

Participants and Design

Forty undergraduates (10 male, M_{age} = 20.33, *SD* = 1.94) took part in the research.[1] All participants had normal or corrected-to-normal visual acuity. Informed consent was obtained from participants prior to the commencement of the experiment and the protocol was reviewed and approved by the Ethics Committee at the School of Psychology, University of Aberdeen, Scotland. The experiment had 2 (Owner: self vs. friend) X 2 (Poster Valence: positive vs. negative) repeated measures design.

Stimulus Materials and Procedure

Participants arrived at the laboratory individually, were greeted by an experimenter, seated in front of a desktop computer, and informed that the experiment comprised a categorization task featuring posters. They were then given 5 x 7 cm cards displaying poster images (4 positive images and 4 negative images) and asked to sort the items into two piles according to their desirability (i.e., is the image desirable or undesirable?). This task was conducted to ensure participants construed the images in the intended manner. Although possible that some participants may have found desirable posters to be unappealing (and vice versa), no such responses were recorded during the sorting task. The colored images were taken from the Geneva Affective Picture Database (Dan-Glauser & Scherer, 2011) and were 173 x 130 pixels in size. Based on the ratings in the database (1 = negative, 100 = positive), the posters were equivalent in positivity/negativity (i.e., positive, *M* = 90.40, *SD* = 5.82; negative, *M* = 11.82, *SD* = 6.52). Ratings of arousal (1 = calm/relaxed, 100 = excited/stimulated) were lower for positive (*M* = 16.75, *SD* = 7.23) than negative (*M* = 67.75, *SD* = 2.50) posters.

[1] Based on a medium effect size, G*Power (d = .50, α = .05, power = 80%) revealed a requirement of 34 participants. For complete counterbalancing, 40 participants were recruited.

The experimenter explained that, prior to the commencement of the categorization task, the computer would randomly assign one set of posters to them (i.e., owned-by-self), and another set to their best friend (i.e., owned-by-friend). At this point, each participant was required to give the name of his or her best friend and the two sets of to-be-assigned posters were revealed (Set A & Set B). Each set of posters comprised two positive and two negative images. Following a brief delay, the computer then indicated, via text on the screen, who owned each set of posters (e.g., you = Set A, friend = Set B). Assignment of the posters to Set A or B and to the self or friend were counterbalanced across the sample. Participants were then told that, on the computer screen, they would be presented with individual posters and their task was simply to report, as quickly and accurately as possible, to whom each item belonged (i.e., owned-by-self vs. owned-by-friend). Responses were given using two buttons on the keyboard (i.e., N & M), and stimulus-response mappings were counterbalanced across participants. Each trial began with the presentation of a central fixation cross for 1000 ms, followed by a positive or negative poster which remained on the screen for 50 ms. Following previous research on this topic, targets were presented for 50 ms to increase errant responding thereby optimize drift diffusion modeling (Golubickis et al., 2018, 2019; Voss et al., 2013). After each poster was presented, the screen turned blank until participants reported the owner of the item. If no response was given within 10 seconds, the next trial began. Following each response, the fixation cross re-appeared and the next trial commenced. Participants initially performed 16 practice trials, the purpose of which was to familiarize them with the task. No performance-related feedback was provided during these practice trials. Next, two blocks of experimental trials were completed, in which all stimuli occurred equally often in a random order. In total, there were 192 trials, with 96 trials in each condition (i.e., self-owned trials vs. friend-owned trials). On completion of the task, participants were debriefed, thanked, and dismissed.

Results

Following previous research (Golubickis et al., 2018, 2019; Sui et al., 2012), together with trials on which no response was given, responses faster than 200 ms and slower than 1500 ms were excluded from the reaction time and accuracy analyses, eliminating approximately 2% of the overall number of trials. Data exclusions were distributed evenly throughout the sample (*SD* = 1.9%; range 7.8% to 0%). Participants' correct mean reaction times were submitted to a 2 (Owner: self vs. friend) X 2 (Poster Valence: positive vs. negative) repeated measures analysis of variance (ANOVA).[2] This yielded a main effect of Owner [$F(1, 39) = 15.77$, $p < .001$, $\eta_p^2 = .288$] that was qualified by a significant Owner X Poster Valence interaction [$F(1, 39) = 21.39$, $p < .001$, $\eta_p^2 = .354$, see Figure 1]. Post-hoc *t*-tests revealed that whereas responses were faster to positive posters when owned-by-self than owned-by-friend ($t(39) = 5.67$, $p < .001$, $d_z = 0.90$), no difference emerged for negative posters ($t(39) = 0.53$, $p = .597$). In addition, responses to self-owned items were faster when the posters were positive than negative ($t(39) = 3.45$, $p = .001$, $d_z = 0.54$), an effect that was reversed for friend-owned posters ($t(39) = 4.14$, $p < .001$, $d_z = 0.65$).

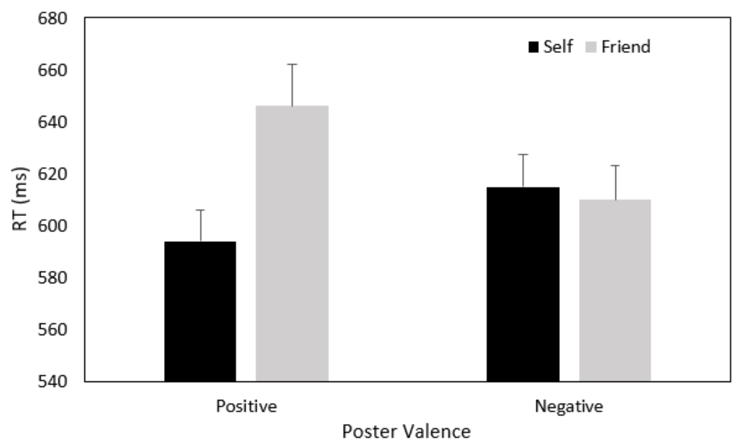

Figure 1. Reaction Time (RT) as a Function of Owner and Poster Valence. Error bars represent +1 SEM.

[2] A paired sample *t*-test revealed that errors were faster than correct responses (respective *M*s: 578 ms (*SD* = 155 ms) vs. 616 ms (*SD* = 80 ms), $t(39) = 2.04$, $p = .049$, $d_z = 0.32$).

A 2 (Owner: self vs. friend) X 2 (Poster Valence: positive vs. negative) repeated measures ANOVA on the accuracy of participants' responses yielded a main effect of Poster Valence [$F(1, 39) = 4.38$, $p = .043$, $\eta_p^2 = .101$] and a significant Owner X Poster Valence interaction [$F(1, 39) = 6.60$, $p = .014$, $\eta_p^2 = .145$, see Figure 2]. Post-hoc *t*-tests revealed that whereas accuracy was greater to positive posters when owned-by-self than owned-by-friend ($t(39) = 2.12$, $p = .040$, $d_z = 0.34$), no difference emerged for negative posters ($t(39) = 0.82$, $p = .415$). In addition, accuracy to friend-owned items was greater when the posters were negative than positive ($t(39) = 2.95$, $p = .005$, $d_z = 0.47$). No effect emerged for self-owned posters ($t(39) = 1.00$, $p = .322$).

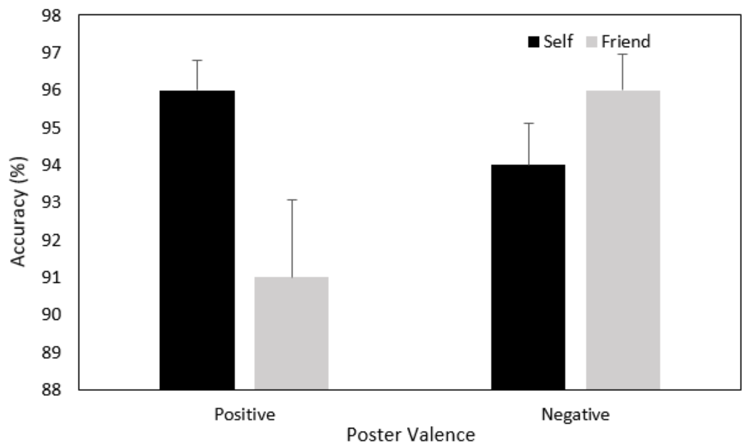

Figure 2. Accuracy (%) as a Function of Owner and Poster Valence. Error bars represent +1 SEM.

Drift Diffusion Modeling

To identify the cognitive operations underpinning task performance, data were submitted to an HDDM analysis (Wiecki et al., 2013). HDDM is an open-source software package written in Python for the hierarchical Bayesian estimation of drift diffusion model parameters. This approach assumes that the model parameters for individual participants are random samples drawn from group-level distributions and uses Bayesian statistical methods to estimate all parameters at both the group- and individual-participant level (Vandekerckhove, Tuerlinckx, & Lee, 2011). Based on data simulation studies, one of the main benefits of HDDM is that, compared to other modeling approaches, parameters can be estimated with fewer experimental trials (i.e., < 100, Ratcliff & Childers, 2015; Wiecki et al., 2013). For example, Wiecki et al. (2013) simulated different numbers of trials (ranging from 20 to 150) for 12 hypothetical participants and found that even as low as 20-40 trials per participant were sufficient to retrieve reliable parameter estimates. The current study had 192 trials per participant. The duration of the diffusion process is known as the decision time, and the process itself can be characterized by several important parameters (Ratcliff et al., 2016; Voss et al., 2013; White & Poldrack, 2014). Drift rate (v) estimates the speed of information gathering (i.e., larger drift rate = faster information uptake), thus is interpreted as a measure of the efficiency of stimulus processing during decision-making. Boundary separation (a) estimates the distance between the two decision thresholds (e.g., self-owned vs. friend-owned), hence indicates how much evidence is required before a response is made (i.e., wider thresholds signal response caution). The starting point (z) defines the position between the decision thresholds at which evidence accumulation begins. If z is not centered between the thresholds, this denotes an a priori bias in favor of the response that is closer to the starting point. In other words, less evidence is required to reach the preferred (vs. non-preferred) threshold. Finally, the duration of all non-decisional processes is given by the additional parameter t_0, which is taken to indicate differences in stimulus encoding and response execution.

Models were response coded, such that the upper threshold corresponded to an ‘owned-by-self’ response and the lower threshold to an ‘owned-by-friend’ response (Golubickis et al., 2018, 2019). Three models were estimated for comparison (see Table 1). First, a model that allowed a single starting point (z) to vary as a function of Owner (i.e., self vs. friend) and a single drift rate (v) to vary across all experimental conditions was estimated. This model assumes that drift rate for self-owned objects is equal to friend-owned objects. Second, a model that allowed starting point (z) and drift rate (v) to vary as a function of Owner (i.e., self vs. friend) was estimated. Third, a model that allowed a single starting point (z) to vary as a function of Owner (i.e., self vs. friend) and drift rate (v) to vary as a function of Owner (i.e., self vs. friend) and Poster Valence (i.e., positive vs. negative) was estimated. It should be noted that models allowing drift rate and starting point to vary as a function of Valence were not estimated as they violate traditional drift diffusion modeling assumptions (Ratcliff et al., 2016; Voss et al., 2013; White & Poldrack, 2014). That is, information uptake (v) should drift toward the upper (e.g., self-owned) or lower (e.g., friend-owned) response threshold. In addition, response biases (z) during decision-making are typically set before the information-accumulation process begins (i.e., target presentation signals the start of decisional processing), therefore should not vary as a function of stimulus type (but see Correll, Wittenbrink, Crawford, & Sadler, 2015). Bayesian posterior distributions were modeled using a Markov Chain Monte Carlo (MCMC) with 10,000 samples (following 1,000 burn in samples). Based on HDDM package guidelines, 5% of the trials were assumed as outliers (i.e., 5% probability of obtaining an outlier) using an inbuilt exclusion function (Wiecki et al., 2013). This was applied to the raw (pre-trimmed) data which estimated a model that allowed stable parameter estimation even with the outliers present in the data (for more specifications, see http://ski.clps.brown.edu/hddm_docs/howto.html#outliers).

Table 1. Deviance Information Criterion (DIC) for each model.

	Starting point (z)	Drift (v)	DIC
Model	Allowed to Vary as a Function of…		
1	Owner (one z)	Fixed across conditions (one v)	-6648
2	Owner (one z)	Owner (two v's)	-7236
3	Owner (one z)	Owner X Poster Valence (four v's)	-7472

Note. z = starting point, v = drift rate. A DIC difference of 10 is strong evidence for a model (Kass & Raftery, 1995).

As can be seen in Table 1, Model 3 yielded the best fit (i.e., lowest DIC value). The DIC was adopted as it is routinely used for hierarchical Bayesian model comparison (Spiegelhalter, Best, Carlin, & van der Linde, 1998). As diffusion models were fit hierarchically rather than individually for each participant, a single value was calculated for each model that reflected the overall fit to the data at the participant and group-level. Lower DIC values favor models with the highest likelihood and least number of parameters. To further evaluate the best fitting model, a standard model comparison procedure used in Bayesian parameter estimation — the Posterior Predictive Check (PPC) — was also performed (Wiecki et al., 2013). From the best fitting model, the posterior distributions of the estimated parameters were used to simulate data sets. The quality of model fit was then assessed by plotting the observed data against the simulated data for the .1, .3, .5, .7, and .9 reaction-time (RT) quantiles and accuracy for each experimental condition (Krypotos, Beckers, Kindt, & Wagenmakers, 2015). This revealed good model fit (see Figure 3). Specifically, all recovered estimates (i.e., simulated means and variance of RT and accuracy) fell within ±1 SEM. Indeed, most of the means were almost indistinguishable, indicating minimal deviation between the predicted and observed data.

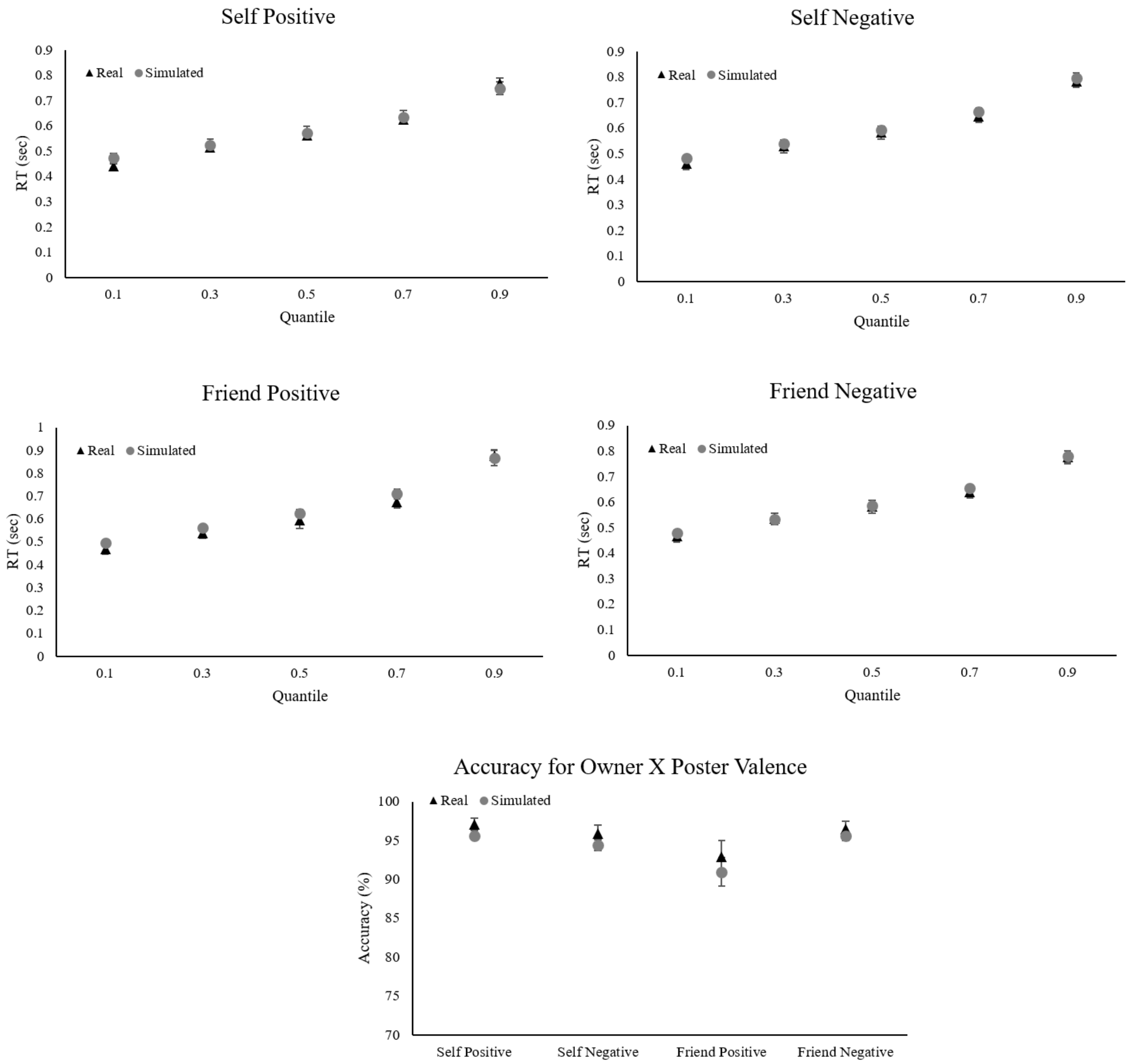

Figure 3. Comparison of simulated data generated by the best fitting model (i.e., model 3) and the observed data for the .1, .3, .5, .7, and .9 RT quantiles and accuracy for each experimental condition. Error bars represent standard error of the means.

Interrogation of the posterior distributions for the best fitting model revealed that task performance was underpinned by both response and stimulus biases (see Figure 4). Comparison of the observed starting value (z) with no bias (z = .50) indicated extremely strong evidence of a preference for self-owned compared to friend-owned responses (M = .69, p_{Bayes}[bias > 0.5] < .001).[3] In addition, strong evidence for a difference in drift rates (v) was also observed (negative drift rates were first multiplied by -1), such that information uptake was faster when self-owned posters were positive than negative (Ms: 4.34 vs. 3.87, p_{Bayes}[positive > negative] = .030) and friend-owned posters were negative than positive (Ms: 4.04 vs. 3.44, p_{Bayes}[negative > positive] = .007).

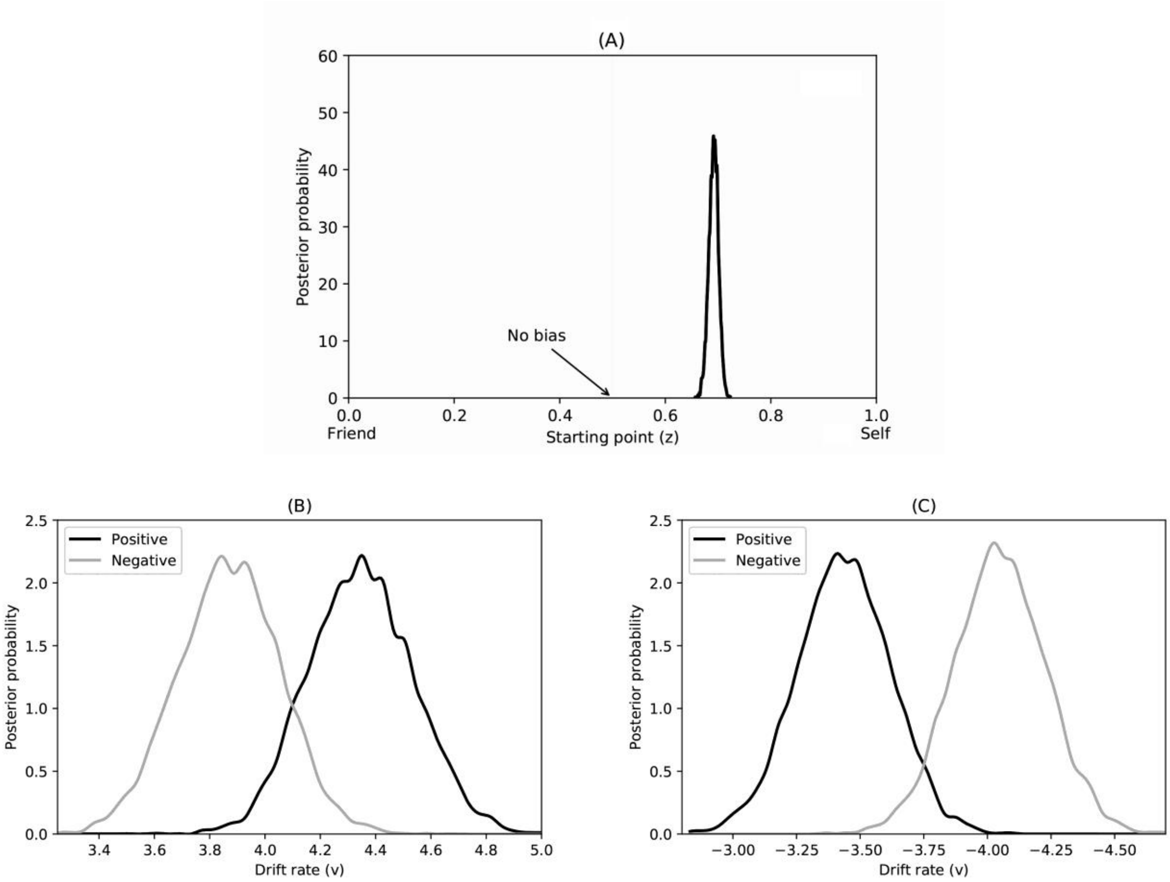

Figure 4. Mean posterior distributions of starting point (z) (Panel A), and drift rate (v) as a function of Poster Valence for self-trials (Panel B) and friend-trials (Panel C).

[3] Bayesian p values quantify the degree to which the difference in the posterior distribution is consistent with the hypothesis that the parameter is greater for self-owned than friend-owned responses. For example, a Bayesian p of .05 indicates that 95% of the posterior distribution supports the hypothesis.

General Discussion

The current results underscore the impact that ownership exerts on object processing. In addition, they extend influential accounts of self-referential cognition by elucidating how stimulus valence moderates self-prioritization (Humphreys & Sui, 2016; Sui & Humphreys, 2015, 2017; Truong & Todd, 2017). Previously, research on this topic has focused almost exclusively on the processing of abstract geometric shapes associated with various social targets (e.g., self, friend, stranger). Although informative, this work clearly fails to capture the character of the self-object associations that are typically forged in life outside the laboratory (see Constable et al., 2019; Falbén et al., 2019). Addressing this issue, here we demonstrated that object desirability exerts a critical influence on stimulus prioritization during decisional processing. In so doing, the current findings corroborate the theoretical viewpoint — derived from an associative network approach — that ownership is moderated by pre-existing object properties (Greenwald et al., 2002; Ye & Gawronski, 2016). Specifically, stimulus prioritization only emerged when desirable (vs. undesirable) posters were owned-by-self (vs. owned-by-friend). Drift diffusion modeling further indicated that task performance was underpinned by a combination of response and stimulus biases (Golubickis et al., 2018; White & Poldrack, 2014). First, reflecting the adoption of an egocentric decisional strategy, participants were predisposed (i.e., less information was required) toward self-owned compared to friend-owned responses (Epley & Gilovich, 2004; Golubickis et al., 2018, 2019). Second, evidence was extracted more efficiently from self-owned posters were when they were positive than negative in valence.

Despite the contention that self-relevance enhances perception (Humphreys & Sui, 2016; Sui & Humphreys, 2015, 2017; Sui & Rothstein, 2019), little evidence has been garnered for this viewpoint. Indeed, studies manipulating object ownership have demonstrated that self-prioritization is underpinned by a different underlying mechanism — a response bias. Using drift diffusion modeling to identify the processes supporting task performance (Radcliff, Smith, Brown, & McKoon, 2016; Voss, Nagler, & Lerche, 2013; White & Poldrack, 2014), Golubickis et al. (2018, 2019) showed that stimulus prioritization was underpinned by differences in the evidential requirements of response generation; notably, less information was needed to generate owned-by-self compared to owned-by-other responses. The current investigation yielded a similar effect. Together with related research this reveals that, rather than enhancing stimulus salience, self-relevance facilitates performance through its influence on post-perceptual processing operations (Miyakoshi, Nomura, & Ohira, 2007; Reuther & Chakravarthi, 2017; Siebold, Weaver, Donk, & van Zoest, 2015; Stein, Siebold, & Zoest, 2016; Wade & Vickery, 2018).

The current experiment also revealed a stimulus bias, such that information uptake was faster for desirable than undesirable self-owned posters. It is possible that, corresponding to differences in the self-enhancing qualities of desirable versus undesirable possessions (Sedikides & Strube, 1997; Ye & Gawronski, 2016), motivation was elevated when the former items were presented during the object-categorization task (Pessoa & Engleman, 2010). That is, on a trial-by-trial basis, the efficiency of evidence extraction was sensitive to the valence of the posters. Similar effects have been reported elsewhere, with desirable stimuli facilitating attentional cueing and decision-making (e.g., McCoy & Theeuwes, 2016; Langford, Schevernels & Boehler, 2016; Milstein & Dorris, 2007). McCoy and Theeuwes (2016), for example, demonstrated that enhanced oculomotor control is underpinned by differences in the rate of information uptake that vary as a function of stimulus reward. Given the close association between self-referential and reward-related processing (Humphreys & Sui, 2016; Sui & Humphreys, 2015; Northoff & Hayes, 2011), desirable posters may have incentivized decision-making, prompting increased rates of information uptake (Sui et al., 2012, 2013). To extend the current investigation, a useful task for future research will be to utilize the post-perceptual biases that underpin decisional processing to explicate when and how stimulus reward and valence influence the self-ownership effect (Golubickis et al., 2018, 2019). In addition, consideration of settings in which participants choose which items belong to them (vs. others) will further enhance understanding of how valence impacts object processing (Huang, Wang, & Shi, 2009).

Perhaps the most interesting result observed here was that valence reversed the effect of ownership on object categorization. Whereas self-owned posters were categorized more rapidly when positive than negative in valence, responses to friend-owned posters were faster when stimuli were negative than positive, with equivalent (i.e., medium) effect sizes emerging in each case. A comparable effect also emerged on the efficiency of stimulus processing during decision-making. Whereas the rate of information uptake (i.e., drift rate) was faster when self-owned posters were desirable than undesirable, posters owned by a friend showed the opposite effect (i.e., faster information uptake for undesirable than desirable posters). Given that unpleasant stimuli typically evoke more pronounced and rapid responses than pleasant stimuli (Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001; Cacioppo & Gardner, 1999; Peters & Czapinski, 1990), this suggests that self-ownership may reverse the standard negativity bias in cognitive processing. In so doing, the current findings resonate with related research revealing that self-referential processing triggers a bias for positive (vs. negative) memories (e.g., D'Argembeau, Comblain, & Van der Linden, 2005; D'Argembeau & Van der linden, 2008; Durbin, Mitchell, & Johnson, 2017; Moran, Macrae, Heatherton, Wyland, & Kelley, 2006; Walker, Skowronski, & Thompson, 2003).

In considering the current findings, it is important to acknowledge the role that arousal potentially plays in the processing of emotional stimuli. Juth, Lundqvist, Karlsson, and Ohman (2005), for example, found that when controlled for low-level perceptual features, arousal rather than valence influenced attentional prioritization. As is frequently the case, arousal is commonly higher for negative than positive stimuli (Ito, Cacioppo, & Lang 1998; Ito & Cacioppo, 2005). Indeed, this was the situation for the current posters. Notwithstanding the observed reversal of the self-prioritization effect as a function of valence, it nevertheless remains to be seen how ownership would modulate stimulus processing with posters perfectly matched for arousal. It should also be noted that the emotional significance of objects is highly context dependent, such that the value of a stimulus is influenced by the context in which it is encountered (Barrett, Mesquita, Ochsner, & Gross, 2007). For example, receiving an undesirable poster as a gift from a friend may be more pleasing than acquiring a desirable poster from a foe. As such, reflecting the nuanced character of emotional appraisal, the current effects are likely sensitive to contextual factors related to the manner in which possessions are acquired. Similarly, age-related differences in emotional processing may also modulate the effects of valence on self-prioritization, with positivity biases more prevalent among older than younger adults (Carstensen & Turk-Charles, 1994; Charles, Mather, & Carstensen, 2003; Mather & Carstensen, 2003). Finally, individual differences may also exert influence on how valence impacts self-prioritization. For example, one intriguing possibility is that variation in levels of self-worth (e.g., high vs. low) may moderate whether people prioritize desirable or undesirable objects during decisional processing (Heatherton, 2011).

The demonstration that the self exhibits a positivity bias has a well-documented history in psychological research (Baumeister, 1998; James, 1890; Sedikides & Gregg, 2008). For example, amongst other things, people evaluate themselves more approvingly than others, believe they possess more desirable (and less undesirable) qualities than others, and deem they are more likely than others to experience positive (vs. negative) life events (Dunning, Heath, & Suls, 2004; Sedikides & Strube, 1997). Driving these unrealistically flattering assessments is a powerful self-enhancement motive that strives to maintain (and bolster) the positivity of the self-concept (Baumeister, 1998; Leary, 2007). Positivity biases have important theoretical implications for accounts of self-prioritization (Humphreys & Sui, 2016; Sui & Humphreys, 2015, 2017). According to Sui and Humphreys (2017), the self functions as a fundamental social-cognitive hub, enhancing both the binding of self-object relations and the efficiency of processing operations (e.g., attention, memory). In this respect, stimulus desirability plays a significant role. As established herein, at least in the context of object categorization, the mind appears to be preferentially tuned toward items with positive (vs. negative) implications for the self.

Compliance with Ethical Standards

Conflict of Interest

The authors declare no conflict of interest.

Ethical Approval

All procedures performed in the current experiment were approved by the ethical standards of the School of Psychology, University of Aberdeen, Ethics Review Board, and in accordance with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent

All participants provided written, informed consent prior to their participation in the current experiment.

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