Barking at Emotionally-Laden Words: The Role of Attention

by

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AUTHOR'S DECLARATION

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

I understand that my thesis may be made electronically available to the public.

ABSTRACT

It has long been held that processing at the single word level during reading is automatic. However, research has recently begun to emerge that challenges this view. The literature surrounding the processing of emotion while recognizing printed words is limited, but some findings in the processing of emotion in faces suggest that negative stimuli (especially threat stimuli) promote quick and accurate processing. The purpose of the present experiments is to investigate whether negative emotionally-laden words are afforded priority processing in visual word recognition compared to positive emotionally-laden words. Two experiments are reported that manipulated the lexicality and valence of the target and distractor stimuli (Experiments 1 & 2), the validity of a spatial pre-cue (Experiments 1 & 2), and the presence of a distractor item (Experiment 2). Participants were asked to determine whether the target stimulus spelled a word or not. Response times on valid trials were faster compared to invalid trials, response times to negative emotionally-laden words were slower compared to positive emotionally-laden words, and the presence of a distractor item encouraged better focus on the target stimuli in the absence of any evidence that the valence of the distractor itself was processed. These results are consistent with the hypothesis that visual word recognition is not automatic given that processing benefited from the accurate direction of spatial attention. Furthermore, negative emotionally-laden words benefited equally compared to positive emotionally-laden words and therefore provide no evidence of automatic processing.

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DEDICATION

To my father who has always been my rock

To my best friend who pushed me when I couldn't push myself

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INTRODUCTION

Several studies have shown that as a person's ability to read improves, and the cognitive processes required for reading become more practiced, the processes begin to operate outside of the reader's awareness (e.g., Marcel, 1983; McNamara, 1992; Neely, 1977; Posner & Snyder, 1975). Lack of awareness is one of the tenets of an automatic behaviour, but on its own is not sufficient to determine that the behaviour is automatic. The purpose of my thesis was to assess the effect of an explicit manipulation of spatial attention on the recognition of emotionally laden words. A fully automatic process, by definition not requiring attention, should not be affected by a manipulation of attention. Furthermore, emotionally laden words were chosen, especially fear- or danger-signalling ones, because their evolutionary significance would be most likely to promote automatic processing.

The two experiments reported here investigated the effect of spatial attention when observers processed emotionally-laden words in a lexical decision task. Previous studies have demonstrated that participants' response latencies are shorter to validly cued targets compared to invalidly cued targets (e.g., Posner, 1980), and experiments using Posner's spatial cueing paradigm have demonstrated that the processing benefit when spatial attention is accurately directed to the target occurs for words (McCann, Folk, & Johnston, 1992; Stolz & McCann, 2000; Stolz & Stevanovski, 2004). The fact that responses to word targets benefit from the accurate cueing of spatial attention, in itself, indicates that visual word recognition is not fully automated. I replicated this finding in the current study. An in-depth discussion of the effects of a spatial attention manipulation on visual word recognition is presented later in the introduction.

Although prior work has demonstrated that the processing of word targets benefits from spatial pre-cueing, if emotionally-negative words are afforded some type of processing that is attentionally demanding, then one would expect that responses to such items would be less affected by spatial attention compared to positive word targets. Furthermore, they might produce a larger distracting effect on response times when they serve as distractors compared to positive word distractors. In the current study I demonstrated that the processing of emotionally-negative words benefited from the accurate direction of spatial attention, and therefore processing was not automatic. Furthermore, I also demonstrated that responses to negative word targets were slower compared to positive word targets, and that the presence, but not the valence, of a distractor word affected processing of the target; namely that target valence affected response times more so when there was a distractor word present compared to when it was absent.

Automaticity

Many visual word recognition researchers have claimed that the processes involved in reading are automatic[1] (e.g., Grainger, Diependaele, Spinelli, Ferrand, & Farioli, 2003; Gronau & Frost, 1997; Perfetti, Bell, & Delaney, 1988; Ziegler, Van Orden, & Jacobs, 1997). The strongest evidence supporting this claim comes from research involving the Stroop Task, during which participants are asked to indicate the font colour of a colour word (e.g., on an incongruent trial, the word "yellow" is displayed in a red font, and participants are required to respond "red", and on a congruent trial, the word "red" is displayed in a red font, and participants are required to respond "red"). When the font was a colour different from that spelled by the colour word (incongruent trial) participants are slower to respond compared to when the font is the same colour spelled by the colour word (congruent trial) (MacLeod, 1991). Consequently, it has been widely accepted that visual word recognition must be an automatic process because participants

[1] Not consciously controlled

were unable to inhibit processing of the written word even when it impeded performance. Since then, the majority of researchers have largely concluded that the processes involved in reading are automatic (see Reynolds & Besner, 2006 for a comprehensive list). For example, McCann, Remington, and Van Selst (2000) noted that most computational models of visual word recognition are structurally automatic as they are composed entirely of bottom-up processing (though they deny that processing is automatic).

Central to the current study is the role of attention in visual word recognition. Critically, the received stance is that attention is not required for visual word recognition. For instance, LaBerge and Samuels (1974) suggested that attention is only required for accuracy during learning, but is not required once the process is fully automated (see also Logan, 1978; Shiffrin & Schneider, 1977). Xu and Perfetti (1999) suggested that reading is characterized by "rapid automatic phonological activation, independent of stimulus base processing strategies" (p. 26). It is important to note that the aforementioned researchers were not investigating specifically the role of spatial attention in visual word recognition, which is of central interest in this study. Despite the prevalence of research claiming that visual word recognition is automatic, there is a growing body of literature that challenges this view. For example, Besner and Stolz (1999) demonstrated that the Stroop effect was elimated when spatial attention was not distributed across the word.

There exist three models that attempt to explain the role of spatial attention in visual word recognition. Early-selection theory holds that spatial attention affects the processing of a letter-string before the determination of its lexical status (Kahneman, Treisman, & Burkell, 1983; Treisman & Souther, 1986). In other words, spatial attention is necessary for visual word recognition processes to begin. In contrast, late-selection theory holds that words are processed automatically to the point of identification without requiring spatial attention (Allport, 1977; Marcel & Patterson, 1978; Posner & Snyder, 1975; Van der Heijden, Hagenaar, & Bloem, 1984). Finally, the familiarity-sensitive model describes the degree of need of spatial attention as depending on the familiarity of the stimulus (i.e., the least familiar stimuli require the most spatial attention and vice versa, (LaBerge & Brown, 1989)).

McCann, Folk, and Johnston (1992) designed a study to investigate which of the three models fits best. Expanding on Posner's (1980) spatial cueing paradigm, McCann et al. presented participants with target letter-strings either above or below a central fixation cross. The target letter-string was preceded by the abrupt onset of a spatial cue in either the same or opposite location that was subsequently occupied by the target. Participants were required to make a lexical decision to the letter-string and respond via keypress. The word frequency of the word targets was also manipulated. The predictions were as follows: 1) if spatial attention did affect word processing, as indicated by different word target response times on validly and invalidly cued trials, then the results of this study would support the early-selection model, 2) if spatial attention did not affect word processing, as indicated by equivalent word target response times on validly and invalidly cued trials, then the results of this study would support the late-selection model, and 3) if responses to high frequency words were less affected by spatial attention than responses to low frequency words, then the results of this study would support the familiarity-sensitive model. The results of this study demonstrated that responses to word targets were faster on validly cued trials compared to invalidly cued trials (contrary to late-selection models), and that the response time benefit for validly cued targets compared to invalidly cued targets was equivalent for high and low frequency word targets (contrary to familiarity-selective models). Essentially, the accurate direction of spatial attention benefited the processing of both words and non-words, and equally benefited the processing of low and high frequency words, thereby supporting early-selection theory.

Although the results of McCann, Folk, and Johnston (1992) demonstrated that spatial attention was required for visual word recognition before the determination of a word's lexical status, their word frequency manipulation may not have provided the best test of the effects of familiarity on the need for spatial attention to process a word. Some theorists suggest that the effects of word frequency affect a late stage of visual word recognition processing (e.g., Besner, 1983), whereas spatial attention is believed to affect processing in visual word recognition much earlier (e.g., Johnston, McCann, & Remington, 1996). If word frequency does affect visual word recognition in the later stages of processing, it cannot serve as an accurate measure of the relation between spatial attention and visual word recognition. Stolz and McCann (2000) further investigated this relation between spatial attention and visual word recognition in order to try to determine the locus or loci of the effects of spatial attention on visual word recognition (see also Stolz & Stevanovski, 2004). They used semantic priming in lieu of word frequency because semantic priming is believed to affect visual word recognition processing earlier than word frequency, and therefore serves as a better test of the relation between spatial attention and visual word recognition (e.g., Besner & Smith, 1992; Borowsky & Besner, 1993).

In the Stolz and McCann experiments, participants were required to make a lexical decision to target letter-strings (appearing either above or below fixation) that had been preceded by a prime word located at fixation, followed by an abrupt onset spatial cue appearing either above or below fixation. The target letter-strings, therefore, appeared in either the location previously occupied by the spatial cue (i.e., valid trial) or in the location opposite to that previously occupied by the spatial cue (i.e., invalid trial). Across three experiments, the predictive value of the cue was manipulated (80% vs. 50% valid) as well as the relatedness of the prime to the target when it was a word (50% vs. 25% related). The predictions were as follows: 1) if spatial attention did affect word processing, as indicated by different word target response times on validly and invalidly cued trials, then the results of this study would support the early-selection model, 2) if spatial attention did not affect word processing, as indicated by equivalent word target response times on validly and invalidly cued trials, then the results of this study would support the late-selection model, and 3) if the cueing effect was reduced when primes were related to the target, the results of this study would support familiarity-sensitive models of visual word recognition. The results of this study demonstrated a typical cueing effect; response times to invalidly cued trials were slowed compared to validly cued trials supporting early-selection models of visual word recognition. More importantly, however, when cue validity was 80%, this study also found that participants were more affected by cueing when the prime was unrelated to the target (larger cueing effect when primes were unrelated to the target) than when it was related to the target supporting the familiarity-sensitive model of visual word recognition. This result is akin to finding that high-frequency words are less affected by a manipulation of spatial attention than are low-frequency words, and, furthermore, raises the possibility that the present experiments will show evidence of reduced cueing effects for negative, as compared to positive, word targets.

With respect to automaticity, the purpose of my thesis was to examine whether negative emotionally-laden words were processed more automatically than positive emotionally-laden words. In other words, were response times to negative emotionally-laden words less affected by a manipulation of spatial attention than were positive emotionally-laden words? A lexical decision task incorporated into a spatial cueing paradigm like the design implemented by

McCann et al. was used, and a distractor item was added to appear in the location opposite to the target on all trials (Experiment 1) or on half the trials (Experiment 2). The targets were emotionally-laden words.

Emotion Processing

There exists very limited controlled experimentation examining the processing of emotion in the context of the written word. The current body of literature on the subject concentrates more specifically on the effect of the emotional state of the individual on the processing of emotion in the written word. Research using the emotional Stroop task, for example, demonstrated the context-dependency of emotional processing in visual word recognition. Response times were slower when the negative emotionally-laden word was relevant to the participant, such as the word spider to a person with arachnophobia, or depressive words to a person suffering from depression, compared to neutral words (e.g., Gotlib & McCann, 1984; McKenna & Sharma, 2004).

Though the research on emotional processing in visual word recognition is limited, there exists a larger body of research on emotional processing in other modalities, such as face perception. In a study by Fox, Russo, and Dutton (2002) participants were presented with a square or circle in one of two locations (left or right of a central fixation point "X") and required to respond "square" or "circle" by keypress. A happy, angry, or neutral face cue was presented before the appearance of the shape on either the left or right. On valid trials the facial cue appeared in the same location as the shape target, and on invalid trials the facial cue appeared in the location opposite to the shape target. Responses were slower on invalid trials when cues were angry and happy faces relative to neutral faces, indicating that participants had difficulties disengaging their attention in order to reorient to the target opposite the cue when the cues were emotional faces. Even more interesting is that when the cues were angry faces the effect of cue validity was eliminated.

Also relevant with respect to the design of the current study is research conducted by Ohman et al. Using a face in the crowd design, in which participants were asked to locate an emotional face in a sea of differently valenced emotional faces (i.e. detecting the “odd-one-out”, the target was not specified ahead of time), participants were faster and more accurate when detecting threatening faces versus neutral faces, regardless of whether the distracting stimuli were neutral or emotional, demonstrating that humans preferentially orient attention towards threat (Ohman, Lundqvist, & Esteves, 2001).

Current Study

I examined the effects of spatial attention and the emotional valence of targets and distractors, when they were words, on visual word recognition. I used a spatial cueing paradigm in which an abrupt onset spatial cue was presented above or below a central fixation cross. Shortly after the onset of the cue, letter strings were presented, one above fixation and one below fixation. In Experiment 1, both a target letter string and a distractor letter string were displayed on all trials. In Experiment 2, only one letter string (the target) was presented (either above or below fixation) on 50% of the trials in order to more directly investigate the effects of the distractor item. When two letter strings were presented, one letter string was coloured green and the other red, and participants were asked to indicate by key press whether the target stimulus (green or red, counterbalanced) was a properly-spelled word. As such, targets were words on half of the trials, and non-words on the other half. Distractor lexicality also varied in this manner, fully- crossed with the target lexicality manipulation. On half the trials the target stimulus was validly cued (it appeared in the location previously occupied by the cue) and on the other half of trials the target stimulus was invalidly cued (the target appeared opposite from the location previously occupied by the cue).

In the current study, I was interested in the effects of the emotions carried by the letter strings when they were words. Specifically, if emotionally-negative words are afforded some type of priority processing, one might expect that responses to them would be less affected by spatial attention when they were targets (compared to positive word targets), and that they might produce a larger distracting, or slowing, effect on response times when they served as distractors (compared to positive word distractors). To test this, on 50% of the word trials the target was positive, and on the other 50% of trials the target was negative. The emotional valence of the distractor words also varied in this manner, fully-crossed with the target emotional valence manipulation.

More interesting for the present study were the effects of the distractor stimulus on target responses, and whether these effects were the same when the distractor occupied the cued location (an invalid trial), as compared to when it occupied the uncued location (a valid trial). It was expected that the distractor would be processed on an invalidly cued trial, as it would by definition have occupied the cued, and therefore attended, location. This therefore served as a baseline for determining the effect of a processed distractor on responses to targets. The central question was whether the distractor influenced responses on validly cued trials, when evidence suggests it was not attended. To the extent that word recognition is automatic, the effects of the distractor item should be identical on invalid and valid trials because attention is not needed to process a word.

Thus, this thesis not only replicates previous work, but also extends a well-established paradigm to assess the effects of attention on the processing of emotionally laden words.

PILOT EXPERIMENT

Method

Participants

Two hundred forty-nine University of Waterloo undergraduate students participated in exchange for half a participation credit towards a course in psychology. Sixty-five participants responded to the survey containing Wordlist 1, 74 participants responded to the survey containing Wordlist 2, 68 participants responded to the survey containing Wordlist 3, and 70 participants responded to the survey containing Wordlist 4.

Apparatus, Design, Stimuli & Procedure

The four surveys were hosted online by SurveyMonkey (SurveyMonkey, 2012). Participants could access the surveys from any computer with an internet connection and browser. A Likert scale consisting of five options was utilized to rate the valence of the words, and each option was assigned a numerical value: negative (-2), slightly negative (-1), neutral (0), slightly positive (1), positive (2) (Likert, 1932). Five-hundred twenty words that I deemed emotional were arbitrarily divided into four word lists of 130 words each. The words were ordered alphabetically and participants responded to only one of the four wordlists (Appendix A: Pilot Experiment S). Prior to the presentation of the words, participants agreed to participate via an option button on a consent form that explained the purpose of the study as assessing the emotional valence of a list of 130 words. They were asked to indicate on a Likert scale their judgement of the emotional connotation of each of 130 words. On the following page, which contained the words they were asked to rate, participants were instructed as follows: “Please rate the following words as positive, slightly positive, neutral, slightly negative, or negative”.

Results

The average rating and standard deviation for each word was calculated. The valence ratings of stimuli that were used as experimental stimuli can be found in Appendix B: Experimental Stimuli.

EXPERIMENT 1

Method

Participants

One hundred thirty-one University of Waterloo undergraduate students participated in exchange for half a participation credit towards a course in psychology. None had participated in the Pilot Experiment.

Apparatus

The experiment was programmed and the data were collected (participant responses and response times) using E-prime experimental software (Schneider, Eschmann, & Zuccolotto, 2002). Stimuli were presented to participants on a standard 17'' SVGA colour monitor.

Design

A 2 Target Colour (red vs. green) x (Target Lexicality: word vs. non-word) x 2 (Distractor Lexicality: word vs. non-word) x 2 (Target Valence: positive vs. negative) x 2 (Distractor Valence: positive vs. negative) x 2 (Cue Validity: valid vs. invalid) x 2 (Target Position: above fixation vs. below fixation) fully-crossed mixed design was utilized. Target Colour was manipulated between-subjects, whereas all other factors were within-subjects manipulations. The stimuli were rotated through each experimental condition. Individual participants were presented with only one of sixteen possible arrangements of stimuli (per target word colour) to ensure that each participant saw each stimulus only once.

Stimuli

Four hundred sixteen (32 in the practice trials; 384 in the experimental trials), three-to eight-letter words (Appendix B: Experimental Stimuli), and 416 (32 in the practice trials; 384 in the experimental trials), three-to-eight-letter non-words were used (Rastle, Harrington, &

Coltheart, 2002). For each target, a positive word, negative word and two non-words, yoked in length to the target, were chosen as potential distractors, depending on condition. In other words, for lexicality, the following combinations were possible: word target – word distractor, word target – non-word distractor, non-word target – word distractor, non-word target – non-word distractor. For pairing by valence, the non-words were dummy-coded as either of positive or negative valence. Each participant saw each word and non-word once. The letter strings were presented in lower case letters in Courier New 18-point font.

Procedure

All stimuli were presented on a black background. Participants were seated approximately 64cm away from the computer monitor and asked to remain in an upright, seated position throughout the experiment. All distances were measured centre-to-centre.

At the start of each trial, participants viewed a fixation cross (+) located at the centre of the computer screen. Five hundred milliseconds following the onset of the fixation cross, an abrupt onset spatial cue, a white rectangle (2.5cm x 0.7cm), was then presented either 4.75cm above or below (approximately 4.2 degrees of visual angle) the fixation cross for 50 milliseconds. Fifty milliseconds after the onset of the cue, letter strings were presented, one 2.3 cm above fixation and one 2.3cm below fixation (approximately 2.1 degrees of visual angle). One letter-string was presented in green (RGB: 0, 255, 0) (red [RGB: 255, 0, 0]), whereas the other was presented in red (green). Participants were asked to indicate by key press using the index finger of each hand (the ‘C’ key for ‘No’ and the ‘M’ key for ‘Yes’), as quickly and as accurately as possible, whether the target stimulus (green for half of the participants and red for the other half of participants) was a properly-spelled word. Participants had 2 seconds to respond and the stimuli remained visible for the entire duration. If a response was not recorded within 2 seconds, the trial ended and a new trial began. After response or time-out, the next experimental trial began with the presentation of the fixation cross for 500ms. The experimental procedure is shown in Figure 1. The experiment consisted of 32 practice trials and 384 experimental trials. The experimental trials were administered continuously with no rest breaks.

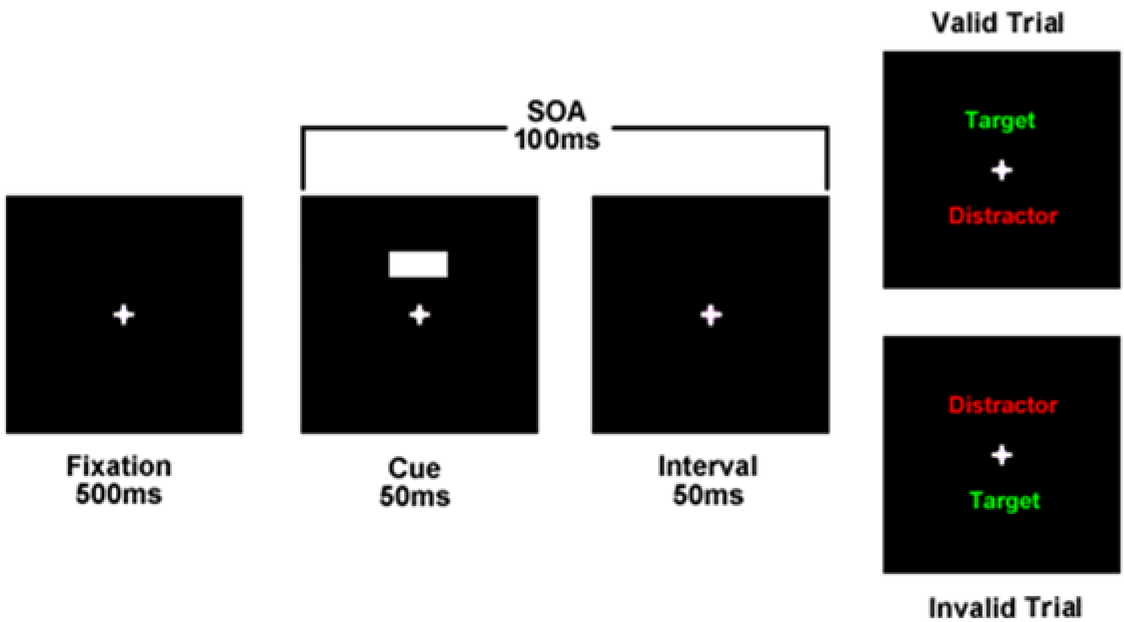

Figure 1: Experimental procedure for Experiment 1

Results

Prior to analysis, data from one participant who failed to respond before timeout on 55% of trials, and data from one participant whose accuracy was only 45% were removed. Data from one participant could not be included due to a computer error that led to the program failing to save the participant's data. RT analysis was conducted only on trials with an accurate response, and the correct response RT data were subjected to a recursive trimming procedure, which resulted in a loss of 1.77% of the data (Van Selst & Jolicoeur, 1994). A 2 (Target Colour: red vs. green) x 2 (Target Valence: positive vs. negative) x 2 (Distractor Valence: positive vs. negative) x 2 (Cue Validity: valid vs. invalid) mixed-design ANOVA was conducted on RT and accuracy data when targets and distractors were words. Target colour was treated as a between subjects factor, whereas all other variables were treated as within subjects factors.

For RTs and accuracy, the main effect of Target Colour was non-significant, F (1,126) = .039, MSE = 98315.9, p = .844, η^2 = .000; F (1,126) = .514, MSE = .024, p = .475, η^2 = .004, respectively. No interactions involving the effects of Target Colour were significant.

For RTs, the main effect of Cue Validity was significant, F (1,126) = 21.588, MSE = 3771.836, p < .001, η^2 = .146. For accuracy, the main effect of Cue Validity was non-significant, F (1,126) = .023, MSE = .008, p = .881, η^2 = .000. Participants were faster to respond on valid trials (738 ms) than on invalid trials (756 ms), but were equally accurate (0.92 for both).

Effects of Word Valence

Table 1: Mean response times (RT in ms), 95% confidence intervals for RT (CI), mean accuracies (Acc.), and 95% confidence intervals for Acc. (CI) for the main effects of Target and Distractor Valence, and the interaction between Target and Distractor Valence in Experiment 1.

	Negative Distractor				Positive Distractor				Main Effect			
	RT	CI	Acc.	CI	RT	CI	Acc.	CI	RT	CI	Acc.	CI
Negative Target	755	±21	.91	±.014	758	±21	.92	±.015	757	±20	.91	±.012
Positive Target	735	±20	.93	±.012	738	±20	.93	±.012	737	±19	.93	±.010
Main Effect	745	±20	.92	±.011	748	±19	.92	±.011				

RTs. The mean response times are summarized in Table 1. The main effect of Target Valence was significant, F (1,126) = 23.114, MSE = 4492.813, p < .001, η^2 = .155. Participants were slower to respond when the target was negative (757 ms) compared to when the target was positive (737 ms). The main effect of Distractor Valence, however, was non-significant, F

*(*1,126) = .774, *MSE* = 3176.517, *p* = .381, η^2 = .006. There was no interaction between Target Valence and Distractor Valence, *F (*1,126) = .003, *MSE* = 4335.642, *p* = .959, η^2 = .000.

Accuracy. The mean accuracies are summarized in Table 1. The main effect of Target Valence was significant, *F (*1,126) = 10.590, *MSE* = .007, *p* < .05, η^2 = .078. Participants were more accurate when the target was positive (.93) compared to when it was negative (.91). The main effect of Distractor Valence, however, was non-significant *F (*1,126) = .921, *MSE* = .007, *p* = .339, η^2 = .007. There was no interaction between Target Valence and Distractor Valence, *F (*1,126) = .057, *MSE* = .007, *p* = .812, η^2 = .000.

Effects of Word Valence and Validity

Table 2: Mean response times (RT in ms), 95% confidence intervals for RT (CI), mean accuracies (Acc.), and 95% confidence intervals for Acc. for the three-way interaction Cue Validity x Target Valence x Distractor Valence in Experiment 1.

		Negative Distractor				Positive Distractor			
		RT	CI	Acc.	CI	RT	CI	Acc.	CI
Negative Target	Invalid	758	±22	.91	±.018	768	±23	.91	±.019
	Valid	753	±23	.91	±.017	749	±21	.92	±.018
Positive Target	Invalid	746	±22	.93	±.014	751	±22	.93	±.016
	Valid	724	±21	.92	±.017	726	±20	.93	±.015

RTs. The mean response times are summarized in Table 2. The two-way interactions between Target Valence and Validity, and Distractor Valence and Validity were non-significant, *F (*1,126) = 2.574, *MSE* = 3445.248, *p* = .111, η^2 = .020; *F (*1,126) = 1.280, *MSE* = 3888.434, *p* = .260, η^2 = .010, respectively. There was, however, a trend for negative target words to be less affected by cueing compared to positive target words. The cueing effect when target words were negative was 12ms; however, it was 24ms when the target words were positive (Figure 2). The three-way interaction between Target Valence, Distractor Valence, and Validity was non-significant, F (1,126) = .414, MSE = 4016.851, p = .521, η^2 = .003.

Accuracy. The mean accuracies are summarized in Table 2. The two-way interactions between Target Valence and Validity, and Distractor Valence and Validity were non-significant, F (1,126) = .429, MSE = .006, p = .514, η^2 = .003; F (1,126) = 2.076, MSE = .006, p = .152, η^2 = .016, respectively. The three-way interaction between Target Valence, Distractor Valence, and Validity was non-significant, F (1,126) = .004, MSE = .007, p = .952, η^2 = .000.

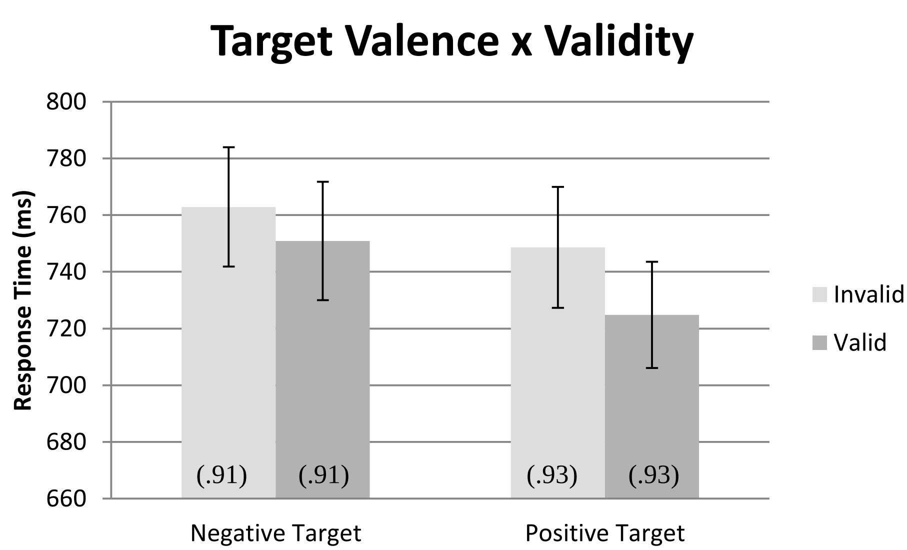

Figure 2: Mean response times (ms) and mean accuracies (shown in brackets) for the Target Valence x Validity interaction in Experiment 1. Error bars represent the 95% confidence intervals.

Discussion

Using a lexical decision task, Experiment 1 investigated the effect of an explicit manipulation of spatial attention in which the location of the target was validly cued on 50% of the trials, and the effects of target and distractor valence when the targets and distractors were words. As expected, response latencies were shorter on valid trials, when attention had been directed to the location that would be occupied by the target letter-string, than on invalid trials, when attention was misdirected. When the targets and distractors were words, participants were faster and more accurate to respond when the target was a positive word compared to when it was a negative word. RTs were unaffected by distractor valence. Interestingly, this was true even on invalid trials when attention had presumably been directed to the location of the distractor item before being moved to the target. This result suggests that the distractor items were not being processed semantically- even when they were arguably attended.

Also important, when the targets were negative words, response latencies were shorter on valid trials than on invalid trials, although this cueing effect was smaller than that seen for positive words. Be that as it may, processing of the negative targets did benefit from the accurate direction of spatial attention, thereby suggesting that negative emotionally-laden words still required attention for explicit recognition. If negative stimuli were afforded complete priority processing, then it was expected that the response latencies would have been the same on valid and invalid trials for targets of negative emotional valence.

Taken together, the present results suggest that although the emotional status of the target item affected response latencies, emotional status had no impact when it was carried by a distracting item. Although one might not have predicted a main effect of distractor emotional status, it is interesting that the effects of the distractor's emotional valence were not apparent on invalidly cued trials. Attention would have arguably been directed to the location of the distractor on invalid trials, as was indicated by the significant effect of spatial cueing. It is possible, however, that although the effect of spatial cueing was significant, that because a distractor was present on every trial and the cue was uninformative as to the subsequent location of the target item (i.e., cue validity was 50%), participants were relatively efficient about focusing attention on fixation and were less affected by the spatial cue than they might be in the absence of a distracting item.

The purpose of Experiment 2, therefore, was to test the efficiency hypothesis by randomly inter-mixing an equal number of trials that did and did not contain a distracting item. Under these circumstances, we predicted that the magnitude of the cueing effect would be larger than that observed in Experiment 1, therefore promoting further investigation of whether the emotional valence of the distractor item had an effect on response times to target items.

EXPERIMENT 2

Experiment 2 was the same as Experiment 1 with the exception that the distractor letter-string was present on only 50% of trials. On the other 50% of trials only the target letter-string was displayed. Experiment 2 therefore allowed for an examination of the effects of distractor valence, if any, under conditions in which participants were perhaps less vigilant about the focus of attention.

Method

Participants

One hundred thirty-seven University of Waterloo undergraduate students participated in exchange for half a participation credit towards a course in psychology. None had participated in the prior experiments.

Apparatus & Stimuli

The apparatus and stimuli were the same as those used in Experiment 1.

Design

A 2 (Target Colour: red vs. green) x 2 (Distractor Item Status: absent vs. present) x 2 (Target Lexicality: word vs. non-word) x 2 (Distractor Lexicality: word vs. non-word) x 2 (Target Valence: positive vs. negative) x 2 (Distractor Valence: positive vs. negative) x 2 (Cue Validity: valid vs. invalid) x 2 (Target Position: above fixation vs. below fixation) fully-crossed mixed design was used. Target Colour was manipulated between-subjects, whereas all other factors were within-subjects manipulations. The levels of Distractor Lexicality were also dummy-coded for trials in which the distractor was absent. The stimuli were rotated through each experimental condition. Individual participants were presented with only one of 32 possible arrangements of stimuli (per target word colour) to ensure that each participant saw each stimulus only once.

Procedure

All stimuli were presented on a black background. Participants were seated approximately 64cm away from the computer monitor and asked to remain in an upright, seated position throughout the experiment. All distances were measured centre-to-centre.

At the start of each trial, participants viewed a fixation cross (+) located at the centre of the computer screen. Five hundred milliseconds following the onset of the fixation cross, an abrupt onset spatial cue, a white rectangle (2.5cm x 0.7cm), was then presented either 4.75cm above or below (approximately 4.2 degrees of visual angle) the fixation cross for 50 milliseconds. Fifty milliseconds after the onset of the cue, one or both letter-strings were then presented, depending on the condition, 2.3 cm above and/or below fixation (approximately 2.1 degrees of visual angle). The target letter-string was presented in green (RGB: 0, 255, 0) (red [RGB: 255, 0, 0]), whereas the distractor, when present, was presented in red (green). Participants were asked to indicate by key press using the index finger of each hand (the ‘C’ key for ‘No’ and the ‘M’ key for ‘Yes’), as quickly and as accurately as possible, whether the target stimulus (green for half of the participants and red for the other half of participants) was a properly-spelled word. Participants had 2 seconds to respond and the display remained visible for the entire duration. If a response was not recorded within 2 seconds, the trial ended and a new trial began. After response or time-out, the next trial began with the presentation of the fixation cross for 500ms. The experimental procedure is shown in Figure 3. The experiment consisted of 32 practice trials and 384 experimental trials. The experimental trials were administered continuously with no rest breaks.

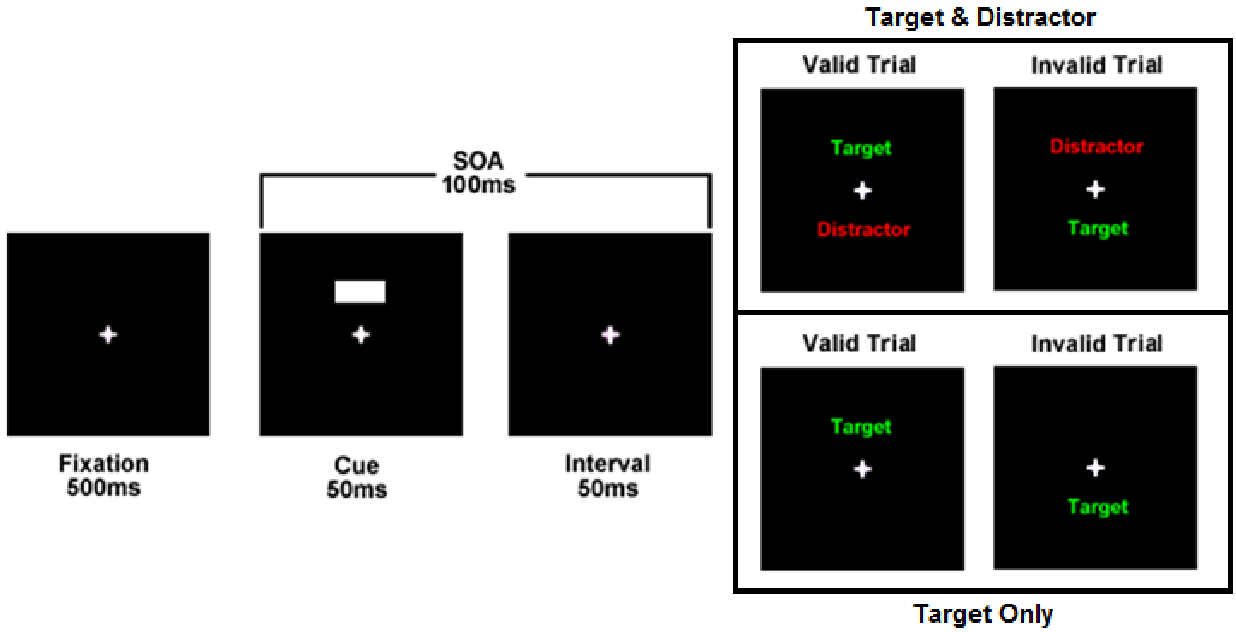

Figure 3: Experimental procedure for Experiment 2

Results

Prior to analysis, data from two participants whose accuracies were only 41% and 48%, respectively, were removed. RT analysis was conducted only on trials with an accurate response. The accurate response RT data were first subjected to a recursive trimming procedure, which resulted in a loss of 2.0% of the RTs (Van Selst & Jolicoeur, 1994). A 2 (Target Colour: red vs. green) x 2 (Distractor Item Status: absent vs. present) x 2 (Target Valence: positive vs. negative) x 2 (Distractor Valence: positive vs. negative) x 2 (Cue Validity: valid vs. invalid) mixed-design ANOVA was conducted on RT and accuracy data when targets and distractors, when present, were words. Target colour was treated as a between subjects factor, whereas all other variables were treated as within subjects factors.

For RTs and accuracy, the main effect of Target Colour was non-significant, F (1,130) = .268, MSE = 184281.361, p = .606, η^2 = .002; F (1,130) = .693, MSE = .035, p = .407, η^2 = .005, respectively. For RTs, the interaction between Target Colour and Validity was significant, F $(1,130) = 4.316$, $MSE = 184281.361$, $p < .05$, $\eta^2 = .032$. The cueing effect was larger when the target was green (43 ms) compared to when the target was red (28 ms). The main effect of Validity was significant for both target colours, green and red, F $(1,130) = 66.174$, $MSE = 7489.396$, $p < .001$, $\eta^2 = .504$; F $(1,65) = 26.507$, $MSE = 7598.982$, $p < .001$, $\eta^2 = .290$, respectively. For accuracy, the interaction between Target Colour and Validity was non-significant, F $(1,65) = .000$, $MSE = .035$, $p = .986$, $\eta^2 = .000$. No other interactions with the effects of Target Colour were significant.

For RTs, the main effect of Cue Validity was significant, F $(1,130) = 88.077$, $MSE = 7544.189$, $p < .001$, $\eta^2 = .404$. Participants were faster to respond on valid trials (707 ms) compared to invalid trials (742 ms). For accuracy, the main effect of Cue Validity was non-significant, F $(1,130) = .007$, $MSE = .013$, $p = .935$, $\eta^2 = .000$.

Effects of Distractor Item Status (Absent vs. Present)

For RTs, the main effect of Distractor Item Status was significant, F $(1,130) = 202.089$, $MSE = 7212.907$, $p < .001$, $\eta^2 = .609$. Participants were faster to respond when the distractor was absent (698 ms) compared to when it was present (751 ms). For accuracy, the main effect of Distractor Item Status was non-significant, F $(1,130) = .001$, $MSE = .015$, $p = .979$, $\eta^2 = .000$.

For RTs, the two-way interaction between Validity and Distractor Item Status was significant, F $(1,130) = 16.912$, $MSE = 5387.166$, $p < .001$, $\eta^2 = .115$. The cueing effect was larger when the distractor was present (49 ms) compared to when the distractor was absent (19 ms). The main effect of Validity was significant both when the distractor was present and when it was absent, F $(1,130) = 95.996$, $MSE = 6498.513$, $p < .001$, $\eta^2 = .425$; and F $(1,130) = 20.480$,

MSE = 6432.842, $p < .001$, $\eta^2 = .136$, respectively. For accuracy, the interaction between Validity and Distractor Item Status was significant, $F(1,130) = 4.342$, MSE = 7455.613, $p < .05$, $\eta^2 = .032$. The interaction is shown in Figure 4.

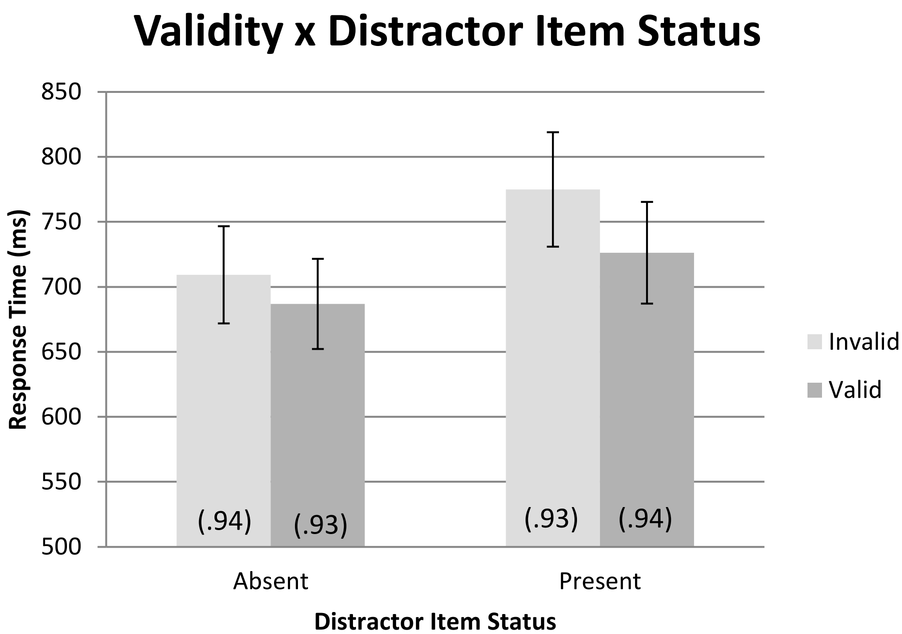

Figure 4: Mean response times and mean accuracies (shown in brackets) in for the interaction between Validity and Distractor Item Status. Error bars represent the 95% confidence intervals.

For RTs, the two-way interaction between Target Valence and Distractor Item Status was significant, $F(1,130) = 12.940$, MSE = 4485.101, $p < .001$, $\eta^2 = .091$. The effect of Target Valence was significant when the distractor item was present, $F(1,130) = 41.875$, MSE = 6235.124, $p < .001$, $\eta^2 = .244$, and when it was absent, $F(1,130) = 3.889$, MSE = 7455.613, $p = .051$, $\eta^2 = .029$. The effect of Target Valence, however, was smaller when the distractor was absent (22 ms) compared to when it was present (49 ms). For accuracy, the two-way interaction between Target Valence and Distractor Item Status was non-significant, $F(1,130) = .041$, MSE = .011, $p = .840$, $\eta^2 = .000$. The interaction is shown in Figure 5.

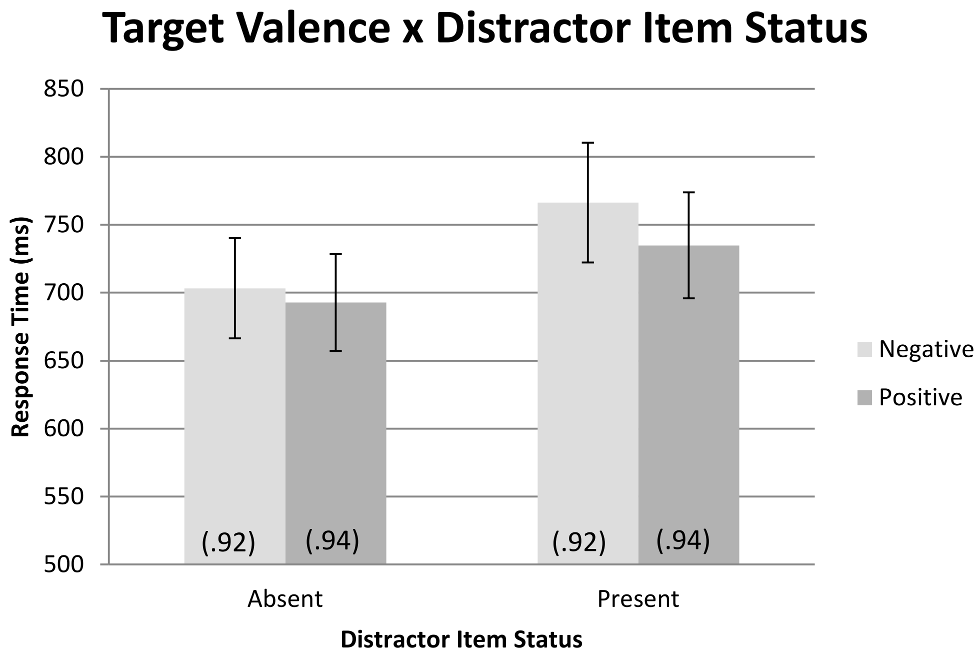

Figure 5: Mean response times and mean accuracies (shown in brackets) in Experiment 2 for the interaction between Target Valence and Distractor Item Status. Error bars represent the 95% confidence intervals.

For RTs and accuracy, the three-way interaction between Target Valence, Validity and Distractor Item Status was non-significant, F (1,130) = .026, MSE = 5514.338, p = .872, η^2 = .000 and F (1,130) = .065, MSE = .011, p = .800, η^2 = .000, respectively, as shown in Figure 6.

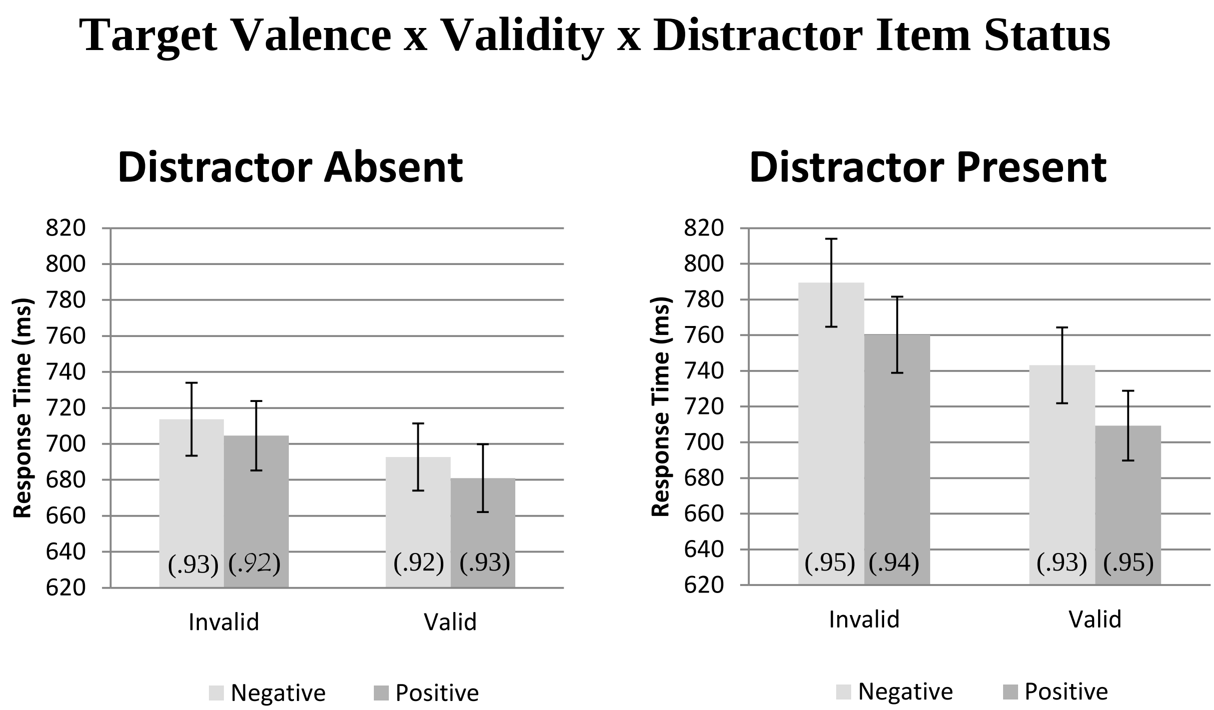

Figure 6: Mean response times and mean accuracies (shown in brackets) in Experiment 2 for the interaction between Target Valence, Validity and Distractor Item Status. Error bars represent 95% confidence intervals.

Effects of Word Valence – Distractor Present Trials Only

Table 3: Mean response times (RT in ms), 95% confidence intervals for RT (CI), mean accuracies (Acc.), and 95% confidence intervals for Acc. for the main effects of Target and Distractor Valence, and the interaction between Target and Distractor Valence for only those trials in which a distractor item was present in Experiment 2.

	Negative Distractor				Positive Distractor				Main Effect			
	RT	CI	Acc.	CI	RT	CI	Acc.	CI	RT	CI	Acc.	CI
Negative Target	769	±22	.93	±.014	764	±24	.92	±.015	766	±22	.92	±.012
Positive Target	739	±21	.94	±.014	731	±21	.94	±.012	735	±19	.94	±.010
Main Effect	754	±20	.93	±.011	747	±21	.93	±.011				

RTs. The mean response times are summarized in Table 3. The main effect of Target Valence was significant, $F\ (1,130) = 41.875$, $MSE = 6235.124$, $p < .001$, $\eta^2 = .244$. Participants were slower to respond when the target was negative (766ms) compared to when the target was positive (735ms). The main effect of Distractor Valence, however, was non-significant, $F(1,130) = 2.008$, $MSE = 5309.212$, $p = .159$, $\eta^2 = .015$. There was no interaction between Target Valence and Distractor Valence, $F(1,130) = .037$, $MSE = 9012.810$, $p = .847$, $\eta^2 = .000$.

Accuracy. The mean accuracies are summarized in Table 3. The main effect of Target Valence was significant, $F(1,130) = 5.999$, $MSE = .013$, $p < .05$, $\eta^2 = .044$. Participants were more accurate when the target was positive (.94) compared to when it was negative (.92). The main effect of Distractor Valence, however, was non-significant $F(1,130) = .458$, $MSE = .008$, $p = .500$, $\eta^2 = .004$. There was no interaction between Target Valence and Distractor Valence, $F(1,130) = 1.673$, $MSE = .011$, $p = .198$, $\eta^2 = .013$.

Effects of Word Valence and Validity – Distractor Present Trials Only

Table 4: Mean response times (RT in ms), 95% confidence intervals for RT (CI), mean accuracies (Acc.), and 95% confidence intervals for Acc. (CI) for the three-way interaction Cue Validity x Target Valence x Distractor Valence for only those trials in which a distractor item was present in Experiment 2.

		Negative Distractor				Positive Distractor			
		RT	CI	Acc.	CI	RT	CI	Acc.	CI
Negative Target	Invalid	791	±25	.92	±.020	788	±29	.91	±.021
	Valid	747	±23	.94	±.018	739	±24	.92	±.023
Positive Target	Invalid	765	±24	.93	±.019	712	±22	.94	±.016
	Valid	755	±22	.94	±.018	707	±21	.95	±.017

RTs. The mean response times are summarized in Table 4. The two-way interactions between Target Valence and Validity, and Distractor Valence and Validity were non-significant, $F(1,130) = .308$, $MSE = 4784.908$, $p = .580$, $\eta^2 = .002$; $F(1,130) = .002$, $MSE = 4611.507$, $p = .963$, $\eta^2 = .000$, respectively. Unlike Experiment 1, there was no trend for negative word targets to be less affected by cueing compared to positive word targets. The three-way interaction between Target Valence, Distractor Valence, and Validity was non-significant, F (1,130) = .202, MSE = 8959.362, p = .654, η^2 = .002.

Accuracy. The mean accuracies are summarized in Table 4. The two-way interactions between Target Valence and Validity, and Distractor Valence and Validity were non-significant, F (1,130) = .009, MSE = .010, p = .923, η^2 = .000; F (1,130) = .000, MSE = .009, p = .992, η^2 = .000, respectively. The three-way interaction between Target Valence, Distractor Valence, and Validity was non-significant, F (1,130) = .008, MSE = .013, p = .930, η^2 = .000.

Cross-Experiment Analysis

A cross-experiment analysis was conducted in order to test the efficiency hypothesis that attentional focus is more lax, and therefore more affected by cueing, when trials without distractors were intermixed with those containing distractors relative to the case in which a distractor was always present and attention was therefore hypothesized to be highly focused.

A 2 (Experiment: 1 vs. 2) x 2 (Cue Validity: valid vs. invalid) mixed-design ANOVA was conducted on RT and accuracy data when targets and distractors, when present, were words. Experiment was treated as a between subjects factor, whereas Cue Validity was treated as a within subjects factor. This hypothesis predicts that cueing effects should be larger in Experiment 2 relative to Experiment 1, indicating the increased pliability of attention in Experiment 2.

For RTs, the main effect of Experiment was non-significant, F (1,258) = .724, MSE = 21356.035, p = .396, η^2 = .003. The main effect of Cue Validity was significant, F (1,258) = 79.081, MSE = 1084.488, p < .001, η^2 = .235. Response latencies were longer on invalid trials (754ms) compared to valid trials (728ms). Critically, the interaction between Experiment and

Cue Validity was also significant, F (1,258) = 7.242, MSE = 21356.035, $p < .01$, η^2 = .027. The cueing effect was larger in Experiment 2 (33ms) compared to Experiment 1 (18ms). The interaction is shown in Figure 7.

For accuracy, the main effect of Experiment was significant, F (1,258) = 3.912, MSE = .005, $p < .05$, η^2 = .015. Participants were slightly more accurate in Experiment 2 (.93) compared to Experiment 1 (.92). The main effect of Validity was non-significant, F (1,258) = .042, MSE = .002, p = .838, η^2 = .000. The interaction between Experiment and Validity was also non-significant, F (1,258) = .000, MSE = .005, p = .997, η^2 = .000.

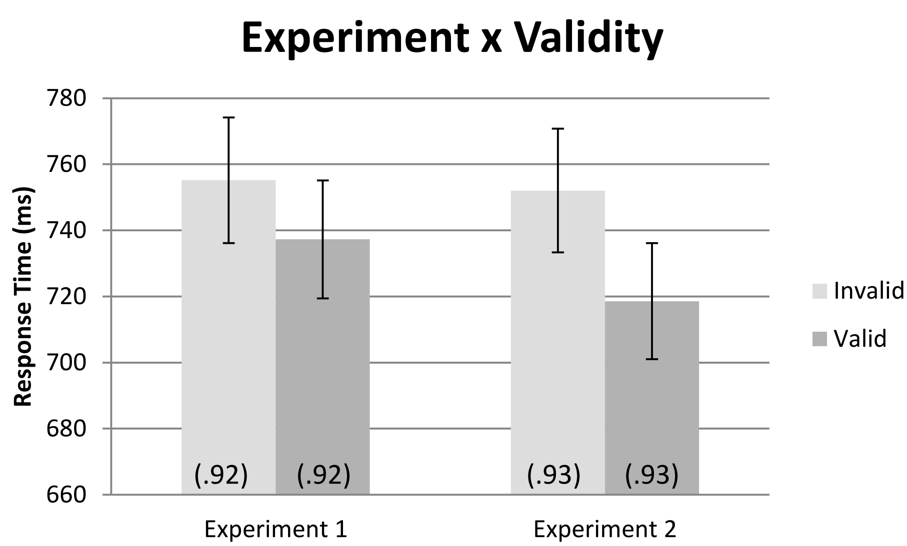

Figure 7: Mean response times and mean accuracies (shown in brackets) in Experiment 2 for the interaction between Experiment and Validity. Error bars represent the 95% confidence intervals.

Discussion

Experiment 2 investigated the effect of an explicit manipulation of spatial attention by validly cueing the target on 50% of the trials, the effect of target and distractor valence when the targets and distractors were words, and the effect of the presence of the distractor item on lexical decision response times. With respect to cue validity and target and distractor valence when the distractor word was present, Experiment 2 replicated the results of Experiment 1. Response latencies were longer on invalid trials compared to valid trials, and longer when the target valence was negative than when positive. Furthermore, participant responses were more accurate when the target was positive compared to when it was negative. In contrast, distractor valence had no effect on performance. This result provides further evidence that negative emotionally-laden words are not afforded priority processing in visual word recognition.

In Experiment 2, response latencies were longer when the distractor item was present compared to when it was absent. Moreover, the cueing effect was larger when the distractor was present relative to when it was absent indicating a greater reliance on the cue when there was distracting information in the visual field than when the target appeared alone. Additionally, response latencies were affected by target valence more so when the distractor was present compared to when the target was presented alone. Interestingly, despite the fact that both the magnitude of the cueing effect and the magnitude of the effect of target valence depended on the presence of the distractor item, the valence of the distractor item had no effect on performance. This likely suggests that the distractor item's presence affected performance by encouraging the participant to more efficiently focus attention on the target and process it, rather than indicating any processing of the distractor item, per se. A cross-experiment analysis demonstrated that the cueing effect was indeed larger in Experiment 2 compared to Experiment 1, thereby supporting the efficiency hypothesis. Curiously, however, the valence of the distractor item did not affect response times on invalidly cued trials.

GENERAL DISCUSSION

Table 5: Summary of significance for each factor/interaction in each experiment; a checkmark indicates the factor was significant, whereas an x indicates the factor was non-significant

Factor/Interaction	**Experiment 1**		**Experiment 2**	
	RT	Acc.	RT	Acc.
Target Colour	x	x	x	x
Cue Validity	✓	x	✓	x
Target Valence	✓	✓	✓	✓
Distractor Valence	x	x	x	x
Distractor Item Status	N/A	N/A	✓	x
Target Colour x Validity	x	x	✓	x
Target Valence x Distractor Valence	x	x	x	x
Target Valence x Cue Validity	x	x	x	x
Distractor Valence x Cue Validity	x	x	x	x
Distractor Item Status x Target Valence	N/A	N/A	✓	x
Distractor Item Status x Distractor Valence	N/A	N/A	x	x
Distractor Item Status x Cue Validity	N/A	N/A	✓	✓
Target Valence x Distractor Valence x Cue Validity	x	x	x	x
Target Colour x Distractor Item Status x Target Valence	N/A	N/A	x	x

The purpose of this thesis was to investigate whether negative emotionally-laden words are processed more automatically than positive emotionally-laden words. The two experiments reported here investigated the effect of an explicit manipulation of spatial attention on time to recognize emotionally laden words. Target location was validly cued on 50% of the trials. A distractor letter-string was always present in Experiment 1, and was present on 50% of the trials in Experiment 2.

Table 5 summarizes the results of Experiments 1 and 2. In the two experiments, when both targets and distractors were words, the main effect of cue validity was the same. Response latencies were shorter on valid trials (attention directed to the same location as the target) compared to invalid trials (attention misdirected), as is typically the case in experiments using Posner's (1980) spatial cueing paradigm (McCann, Folk, & Johnston, 1992; Stolz & McCann, 2000; Stolz & Stevanovski, 2004; Lachter, Forster, & Ruthruff, 2004; Waechter, Besner, & Stolz, 2011). This result supported early-selection models of visual word recognition, which hold that spatial attention is required in order for the processes involved in visual word recognition to begin (Kahneman, Treisman, & Burkell, 1983; Treisman & Souther, 1986). As such, our finding is contrary to late-selection models, which argue that words can be recognized in the absence of spatial attention (Allport, 1977; Marcel & Patterson, 1978; Posner & Snyder, 1975; Van der Heijden, Hagenaar, & Bloem, 1984). If late-selection theories were true, response times to word targets would be equivalent on valid and invalid trials.

In both experiments, when targets and distractors were words, response latencies to negative word targets were longer compared to those for positive word targets. This result parallels outcomes reported in research examining the processing of emotional faces, which has shown that responses to displays of negative (e.g., sad, angry) faces are slower than those to positive (happy) and neutral faces (Fox, et al., 2000). If negative words are afforded priority processing in visual word recognition, one might expect response latencies to be shorter to negative word targets compared to positive word targets. It has been shown, however, that relative to disengagement of attention from positive facial expressions, disengagement of attention from angry facial expressions is delayed (Fox, Russo, & Dutton, 2002). Therefore, it could be the case that negative words are processed more quickly than are positive words, but that response latencies to them are longer because of difficulty in disengaging attention from negative words. The difficulty of disengaging attention from negative stimuli slows response times by way of temporarily freezing all other ongoing behaviour as a defense mechanism to threatening stimuli (Algom, Chajut, & Lev, 2004; Fox, Russo, Bowles, & Dutton, 2001). Consequently, in the present experiments, participants may have taken longer to respond to negative targets because they were dwelling on the negative stimuli, and therefore took longer to disengage their attention (and thus disrupt the temporary freezing) in order to make a motor response indicating their lexical decision. Alternatively, as negative words appear less frequently in English than do positive words (Larsen, Mercer, & Balota, 2006), the slower response times to negative word targets compared to positive word targets may simply be a word frequency effect, or an additive effect of the effects of the observations discussed above and the effects of word frequency.

Extrapolating from the work with faces discussed above to the present experimental paradigm, if negative words were afforded priority processing, it would be expected that spatial attention would have little-to-no effect on response latencies to negative words. This would be the case because a stimulus afforded attentional priority should be less impacted by the validity of a spatial pre-cue than a stimulus that does not contain special attentionally-relevant characteristics (McCann, Folk, & Johnston, 1992; Stolz & McCann, 2000; Stolz & Stevanovski, 2004). In both experiments, when the targets were negative words, response latencies were shorter on valid trials compared to invalid trials, indicating that negative emotionally-laden words benefited from the accurate direction of spatial attention, just as positive word targets did. In Experiment 1, there was a trend for the cueing effect to be smaller for negative word targets compared to positive word targets. Negative words contain characteristics that are attentionally important to an individual (e.g., the quick and accurate recognition of personal threat) just as target words related to the prime word are attentionally important to an individual because of their familiarity. This result is therefore consistent with the findings of Stolz and McCann (2000) that demonstrated that the effect of cueing was smaller when a prime word was related to a target word compared to when it was unrelated. Although the cueing effect was smaller for negative word targets, they did benefit from the accurate direction of spatial attention. This finding demonstrates that spatial attention is still required for explicit recognition of negative emotionally-laden words.

With respect to distractor words, the valence of the distractor had no effect in either experiment. This result is partially consistent with the findings of Musch and Klauer (2001) that provided evidence that distractor items do not affect target processing when attention is not directed to them. Interestingly, though, in the present experiments the valence of the distractor had no effect on invalid trials when attention had presumably been directed to the location of the distractor item before being moved to the target. Whereas the valence of the distractor item had no effect in the present experiments, the presence of the distractor item did. A cross-experiment analysis showed that the cueing effect was larger when a distractor item was present 50% of the time (Experiment 2) compared to when it was always present (Experiment 1). This demonstrates that in Experiment 1 participants were efficient at focusing attention on fixation, potentially made a great deal of use of the target and distractor colours as they appeared on the screen, and were less affected by the spatial cue than they might have been in the absence of a distracting item. Although the distractor valence did not affect response times in Experiment 2, the effect of target valence was larger when a distractor item was present, suggesting that the presence of a distractor item encouraged participants to focus more attention on the target.

Summary & Conclusion

In summary, response times on valid trials were faster compared to invalid trials, response times to negative emotionally-laden words were slower compared to positive emotionally-laden words, and, though there were no effects of the valence of the distractor item, the effects of target valence were smaller when a distractor was absent compared to when it was present. The evidence suggested that the presence of a distractor item encouraged better focus on the target stimuli.

The present experiments presented some evidence that negative emotionally-laden words are not afforded priority processing in visual word recognition, and furthermore, added to the surmounting evidence against automaticity in visual word recognition.

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APPENDIX A: PILOT EXPERIMENT STIMULI

Sample Survey

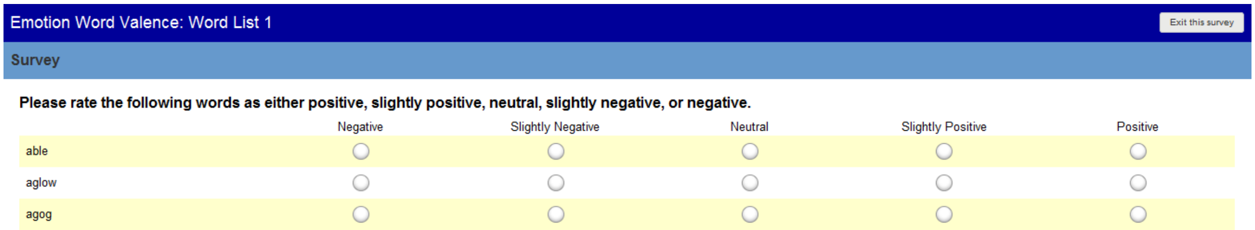

Figure 8: Screenshot of three items on the Emotion Word Valence: Word List 1 survey as participants saw it.

Emotion Word Valence: World List 1

able	critical	easy	inhumane	nosy
aglow	deceived	enslaved	insecure	obsessed
agog	defeated	excluded	insulted	offended
airy	deflated	faith	isolated	open
alert	degraded	firm	joy	paranoid
alive	dejected	free	keen	pathetic
aloof	delicate	full	kind	pride
awake	demeaned	fun	lax	provoked
aware	demented	gay	light	punished
awe	depleted	glad	lonesome	quick
awed	depraved	good	loose	quiet
bliss	deprived	great	love	rad
bold	deserted	grounded	loved	rejected
brave	desolate	happy	loveless	resented
calm	despised	harassed	loyal	retarded
chic	detached	hardy	lucky	sadistic
civil	detested	helpless	lured	savvy
clean	devalued	hesitant	lust	set
clear	disabled	high	meek	spiteful
close	disliked	hindered	merry	stressed
consumed	dismayed	hopeless	mistaken	suicidal
contempt	disowned	horrible	molested	sunny
cool	doubtful	ignorant	neat	sure
cornered	dramatic	impotent	negative	warm
cowardly	dreadful	inactive	neurotic	wise
cozy	eager	inferior	noble	yielding

Emotion Word Valence: World List 2

active	chaotic	disgust	hearty	opposed
addicted	charmed	dislike	heroic	passive
admired	cheated	distant	hideous	puzzled
adored	cheery	doubted	honest	rattled
allured	chicken	drained	hostile	relief
amazed	classy	elated	humble	rooted
amused	clever	elusive	hurried	scarred
anxious	clueless	enraged	idiotic	screwed
assured	coerced	evasive	ignored	secure
attacked	compared	evicted	injured	selfish
awesome	confined	exposed	intense	serene
badgered	confused	failful	intent	simple
betrayed	crafty	fearful	jazzed	smooth
blessed	cramped	fervor	jealous	snoopy
bonded	crowded	fragile	jovial	stable
bothered	crushed	frisky	joyful	strong
breezy	cynical	furious	joyless	tender
bright	damaged	genial	joyous	trust
bubbly	daring	gentle	kingly	unique
bullied	defamed	gifted	labeled	united
burdened	defiant	giggly	limited	upheld
capable	deluded	grouchy	longing	valuable
careful	desire	hassled	loving	valued
careless	despair	hateful	mature	virile
caring	deviant	haunted	modest	vital
certain	disdain	healed	nervous	worthy

Emotion Word Valence: World List 3

absolved	broken	dutiful	hatred	pushed
absorbed	bruised	dynamic	helpful	radiant
abundant	bugged	earnest	honored	regret
abused	bummed	edified	hopeful	relaxed
accepted	burned	elation	horror	release
accused	chafed	elegant	insane	restive
adequate	chased	empathy	invited	riveted
affected	chipper	evaded	jeered	robbed
affluent	clingy	excited	judged	sapient
afraid	closed	favored	little	sensual
amenable	clumsy	festive	lonely	settled
anguish	coaxed	flawed	miffed	sharing
annoyed	conned	flowing	mindful	sincere
anxious	content	focused	misled	smitten
ashamed	cordial	forced	mocked	soothed
avoided	crabby	frigid	nagged	special
awkward	cranky	genuine	patient	stuck
baffled	crappy	gleeful	perfect	stylish
banned	creepy	gloomy	pissed	sublime
barren	cruddy	glowing	playful	tactful
berated	crummy	gothic	pleased	touched
bitter	curious	growing	pooped	unbiased
bizzare	damned	grumpy	popular	valiant
blamed	detest	guarded	praised	wealthy
boring	devoted	guilty	present	willing
bounded	dumped	harmed	prudent	zealous

Emotion Word Valence: World List 4

alone	decisive	gracious	moody	rage
angry	deep	grateful	needy	raped
animated	defended	grey	numb	rational
attached	dirty	grief	nuts	redeemed
awful	dizzy	grim	nutty	reliable
bad	down	gross	odd	relieved
balanced	dread	grounded	outgoing	resolute
beat	drunk	hard	pacified	restored
bleak	dry	hate	pain	rewarded
blissful	dumb	humorous	pampered	sad
blur	duped	hurt	panic	selfless
bored	ecstatic	ill	pardoned	sensible
cautious	edgy	included	peaceful	shy
centered	elevated	innocent	phony	skillful
cheerful	empty	inspired	plain	slow
cold	euphoric	jaded	pleasant	small
complete	fake	jubilant	pleasure	spirited
composed	false	lazy	poor	splendid
constant	fear	learning	positive	stiff
crap	flexible	lost	powerful	superior
crazy	forceful	lousy	precious	sympathy
credible	forgiven	low	prepared	thankful
cross	friendly	mad	punctual	thrilled
dark	glorious	magnetic	purified	tolerant
dazed	glum	merciful	queer	tranquil
dead	graceful	messy	quiet	trusting

APPENDIX B: EXPERIMENTAL STIMULI

Practice Trials

Non-words – Dummy-coded Positive (Experiment 1 & Experiment 2)

zot	snypts	cwoove	psached	granched	trouthed
vuv	skorst	clarred	ghlarls	sploured	
geeved	thruff	stoozed	frieced	dwinched	

Non-words – Dummy-coded Negative (Experiment 1 & Experiment 2)

wheace	throrde	sprull	olk	dwurked	zaint
skatch	phlause	zerves	wurn	sprensed	
swinced	strissed	sog	pluts	nink	

Words

Table 6: Positive words that were utilized during the practice trials with their average valence ratings and standard deviations

Word	Average	SD	Word	Average	SD	Word	Average	SD
set	0.05	0.69	savvy	0.53	0.98	careful	0.58	0.71
lax	0.12	0.63	quick	0.40	0.78	allured	0.55	0.85
awed	0.67	0.91	jazzed	0.62	0.95	magnetic	0.58	0.73
deep	0.41	0.83	daring	0.57	0.73	constant	0.50	0.80
high	0.33	0.91	simple	0.50	0.91			
firm	0.46	0.71	release	0.60	0.76			

Table 7: Negative words that were utilized during the practice trials with their average valence ratings and standard deviations

Word	Average	SD	Word	Average	SD	Word	Average	SD
beat	-0.92	0.82	plain	-0.38	0.65	fragile	-0.48	0.80
lazy	-0.86	0.83	gothic	-0.78	0.73	chicken	-0.48	0.95
stiff	-0.61	0.75	clumsy	-0.78	0.79	mistaken	-0.98	0.61
dazed	-0.59	0.66	closed	-0.73	0.72	hesitant	-0.95	0.64
drunk	-0.53	1.07	snoopy	-0.64	1.07			
nutty	-0.44	0.97	chased	-0.62	0.73			

Experimental Trials

Non-words – Dummy-coded Positive

cig	poids	rhedge	snoaves	Ghwulged
ilt	skwem	hidged	skwelms	Scwirsts
jum	ziege	smafed	sckwulf	Scwoothe
wub	phrod	cymphs	stypped	Scroints
pows	zourn	glongs	ghwangs	Scwombed
dief	jonch	ghoaps	zeights	Kwanched
kweg	swone	skrett	phlerbs	Sckwikes
nusk	swoice	smauns	splinse	Klerched
snit	tapsed	threil	druilts	Sckarmed
grof	cwenge	teshed	thwurks	Sckryths
goll	ghwyed	felped	thresks	Spluints
vals	sckwal	thares	phlaned	Knanched
jolk	praffs	keaths	ghwokes	Streeped
blig	thaifs	thidge	troasts	Psourned
febe	scwign	krerfs	skwuice	Phlilled
kack	wrurks	kwulch	prissed	Skwounts
dwof	gwogue	greals	pliffed	Freathed
vots	slemes	boamed	sckwile	Spruzzed
kirp	solfed	splibed	cheized	Thraimed
jeel	troofs	thweige	gninged	Gnouched
mibe	yourth	sckroid	greaned	Sloached
slig	cwalms	kwooved	slulped	Ghrossed
gweil	qurged	ghlalbs	ploamed	Sckwipes
snups	wrarcs	scupped	sckrase	Phrobbed
borts	chifts	shrauds	splards	Shrusque
yeeds	strinn	thwills	skwowned	Throared
stuce	scwuid	sckedes	sckeezed	Scraimed
brobe	brolks	kwauled	phleafed	Ghlarmed
jains	groach	psepped	sckooths	Struzzed
kwoos	sweave	skwouth	phelched	Shromped
glerd	ghrang	gweched	throomed	Sckwurse
skriv	zordes	scwence	troathed	Skwourth
blunk	thodes	sckroaf	spleeled	Prutched
plast	scwict	prights	throoked	Greached
cusks	rummed	thagues	sprevved	Cwoothed
siths	rummed	phlawse	screffed	Sprebbed
kneps	shrirr	skweers	sckranch	
pilth	stasts	scroign	skrieced	
flome	yoiled	sckwurs	sckapsed	

Non-words – Dummy-coded Negative

zoy	hoats	phunch	sckrush	Ghwulsed
meg	krinc	glurke	sharced	Fleights
tam	firge	twoved	ghlodge	Ghlirque
olt	slaun	skompt	shoined	Shreamed
symn	freve	pimmed	sploons	Sckwived
pulb	verks	sloils	ghleague	Stooched
papt	splib	wrepth	spraived	Gwunched
halp	jeint	scrurk	phlempts	Thwabbed
pont	kwaugh	thwise	squessed	Ghroists
cliv	kweath	kleath	pleighth	Wrerthed
nybe	clorls	shrirs	ghreemed	Phlaught
zauk	cwusts	frorps	skwoaned	Prunched
dict	glusps	pinced	strirque	Ghrogues
crot	coofed	spelse	ghwoaled	Scwimpse
veck	shrung	ghweek	strirque	Ghrached
milm	sckeke	choved	ghwoaled	Shroared
ferv	tuints	psatts	strirled	Strourge
zoud	sckeef	snains	phloafed	Phleered
fafe	blighs	blealed	strirque	Ghwurned
grud	twalph	stroobs	ghwoaled	Clorgues
glet	clelps	kwepths	strirled	Sckraims
ould	skopts	spirped	phloafed	Thrursed
scwes	flyped	sckoams	spraists	Tweights
thurs	prarcs	croiced	proached	Bleethed
joove	veaved	gwoints	sckraged	Stremmed
wrarp	nalved	shround	screvved	Sckemmed
glerp	glowse	steaves	sckwutts	Sckymphs
frigs	gloars	twarked	sckruibs	Splunned
rorth	phroed	swaught	thwymphs	Sckrould
daved	skrulb	krirled	ghwarfed	Shrounge
smuct	twudge	shroons	sprurled	Ghlypped
skwie	spluip	skwyles	phlinged	Kweathed
jalse	gwilth	ghumped	skrossed	Sckorked
charp	gunked	phlands	sckroath	Ghlarmth
dwoft	cluick	swoists	phrached	Phlulged
zaffs	dwonde	knarves	sckreaks	Phreezed
gnupe	ghlims	gnulked	thwaults	
fleer	kneige	skwenes	sckwarge	
shule	phrybe	ghwiece	thweaped	

Words

Table 8: Positive words that were utilized during the experimental trials with their average valence ratings and standard deviations

Word	Average	SD	Word	Average	SD	Word	Average	SD
rad	0.82	0.80	classy	1.36	0.65	sincere	1.62	0.58
awe	0.96	0.87	active	1.38	0.78	elegant	1.63	0.60
fun	1.49	0.71	united	1.38	0.70	excited	1.67	0.65
joy	1.70	0.53	joyous	1.38	0.84	admired	1.75	0.47
easy	0.70	0.96	cheery	1.42	0.66	awesome	1.77	0.50
open	0.74	0.81	unique	1.42	0.73	centered	0.58	0.85
cool	0.74	0.79	amazed	1.44	0.79	tolerant	0.66	0.91
chic	0.81	0.85	strong	1.45	0.77	affluent	0.75	1.03
keen	0.93	0.75	caring	1.47	0.80	rational	0.80	0.98
sure	1.00	0.73	healed	1.48	0.66	decisive	0.81	0.96
bold	1.02	0.79	joyful	1.49	0.84	resolute	0.83	0.85
neat	1.02	0.65	worthy	1.49	0.69	merciful	0.88	0.81
calm	1.28	0.82	honest	1.49	0.81	innocent	0.89	0.82
cozy	1.28	0.73	heroic	1.54	0.90	animated	0.91	0.92
able	1.32	0.66	gifted	1.55	0.66	elevated	0.91	0.68
good	1.40	0.70	valued	1.57	0.75	redeemed	0.98	0.90
glad	1.40	0.59	adored	1.65	0.72	powerful	0.98	0.77
warm	1.41	0.63	loving	1.66	0.69	sympathy	0.98	0.88
kind	1.53	0.73	settled	0.62	0.77	composed	1.00	0.70
wise	1.53	0.60	touched	0.71	0.87	balanced	1.02	0.86
free	1.61	0.59	mindful	0.76	0.82	selfless	1.02	1.16
love	1.72	0.65	dutiful	0.77	1.17	jubilant	1.05	0.84
alert	0.65	0.99	zealous	0.78	1.10	tranquil	1.08	0.78
light	0.68	0.77	certain	0.80	0.83	flexible	1.11	0.72
pride	0.70	0.93	growing	0.81	0.86	unbiased	1.11	0.81
faith	0.70	0.96	cordial	0.84	0.79	restored	1.16	0.74
awake	0.73	0.75	tactful	0.87	0.75	sensible	1.17	0.72
clear	0.77	0.89	sublime	0.92	1.00	abundant	1.17	0.89
eager	0.81	0.74	chipper	0.97	0.88	outgoing	1.19	0.69
civil	0.82	0.73	assured	1.00	0.82	euphoric	1.19	1.02
aware	0.91	0.87	focused	1.00	0.79	forgiven	1.19	0.75
aglow	0.93	0.96	present	1.02	0.91	purified	1.19	0.69
vital	1.06	0.85	sensual	1.03	0.86	included	1.19	0.77

Table 8 continued

Word	Average	SD	Word	Average	SD	Word	Average	SD
merry	1.28	0.65	content	1.06	0.82	spirited	1.20	0.74
clean	1.32	0.71	capable	1.08	0.74	credible	1.21	0.72
noble	1.33	0.72	popular	1.10	0.80	relieved	1.28	0.72
lucky	1.46	0.73	wealthy	1.11	0.92	learning	1.28	0.65
loyal	1.56	0.60	empathy	1.16	0.88	prepared	1.31	0.69
happy	1.60	0.78	soothed	1.16	0.75	rewarded	1.32	0.88
brave	1.65	0.58	earnest	1.19	0.91	punctual	1.33	0.69
bliss	1.65	0.67	dynamic	1.19	0.72	complete	1.34	0.65
alive	1.65	0.58	willing	1.19	0.74	graceful	1.35	0.70
sunny	1.66	0.51	stylish	1.27	0.77	blissful	1.38	0.92
trust	1.66	0.64	glowing	1.29	0.81	precious	1.38	0.66
great	1.70	0.65	favored	1.29	0.83	skillful	1.39	0.61
loved	1.75	0.71	patient	1.30	0.82	gracious	1.40	0.77
upheld	0.75	1.05	playful	1.33	0.67	valuable	1.40	0.84
desire	0.85	0.75	devoted	1.35	1.03	pleasant	1.41	0.56
bonded	0.86	0.92	relaxed	1.40	0.71	ecstatic	1.48	0.67
elated	0.88	1.11	valiant	1.43	0.69	splendid	1.48	0.64
relief	1.05	0.87	pleased	1.43	0.80	reliable	1.48	0.78
stable	1.05	0.72	sharing	1.43	0.64	thankful	1.50	0.56
serene	1.08	0.99	special	1.44	0.69	grateful	1.50	0.67
bubbly	1.09	0.86	elation	1.48	0.78	inspired	1.54	0.53
modest	1.14	0.77	hopeful	1.49	0.78	pleasure	1.54	0.70
giggly	1.16	0.74	perfect	1.49	1.11	trusting	1.55	0.64
mature	1.20	0.72	honored	1.49	0.88	thrilled	1.56	0.59
humble	1.22	0.80	praised	1.51	0.72	peaceful	1.56	0.64
bright	1.23	0.70	festive	1.52	0.67	positive	1.58	0.64
secure	1.25	0.81	genuine	1.54	0.67	humorous	1.59	0.66
amused	1.25	0.78	blessed	1.57	0.81	cheerful	1.64	0.63
gentle	1.28	0.63	helpful	1.57	0.64	friendly	1.69	0.59
tender	1.31	0.75	radiant	1.60	0.66	glorious	1.69	0.69
clever	1.35	0.92	gleeful	1.62	0.71	accepted	1.69	0.64

Table 9: Negative words that were utilized during the experimental trials with their average valence ratings and standard deviations

Word	Average	SD	Word	Average	SD	Word	Average	SD
sad	-1.39	0.70	regret	-1.46	0.62	anguish	-1.67	0.57
ill	-1.42	0.69	broken	-1.46	0.59	ashamed	-1.68	0.71
mad	-1.42	0.75	guilty	-1.48	0.84	bullied	-1.72	0.67
bad	-1.67	0.47	burned	-1.48	0.64	hateful	-1.78	0.63
numb	-0.97	0.85	dumped	-1.51	0.69	badgered	-1.14	0.92
cold	-1.00	0.80	cranky	-1.52	0.56	hindered	-1.18	0.76
lost	-1.02	0.77	blamed	-1.52	0.59	addicted	-1.18	0.92
dark	-1.06	0.75	mocked	-1.54	0.80	confined	-1.19	0.75
poor	-1.13	0.68	crappy	-1.54	0.56	detached	-1.19	0.81
nosy	-1.14	0.62	bitter	-1.57	0.53	inactive	-1.23	0.73
glum	-1.16	0.70	robbed	-1.60	0.58	neurotic	-1.27	0.84
down	-1.16	0.63	pissed	-1.67	0.67	lonesome	-1.29	0.80
fear	-1.19	0.85	harmed	-1.68	0.56	disabled	-1.30	0.89
dumb	-1.31	0.69	damned	-1.73	0.65	loveless	-1.35	1.03
fake	-1.36	0.70	horror	-1.76	0.56	dismayed	-1.37	0.72
crap	-1.47	0.69	abused	-1.83	0.64	spiteful	-1.37	0.79
hurt	-1.48	0.71	detest	-1.84	0.41	depleted	-1.38	0.65
grim	-1.52	0.56	hatred	-1.87	0.52	offended	-1.38	0.65
pain	-1.55	0.75	hurried	-0.69	0.77	cornered	-1.38	0.78
rage	-1.64	0.57	bounded	-0.71	0.81	deflated	-1.42	0.71
hate	-1.66	0.88	chaotic	-0.80	0.99	paranoid	-1.44	0.60
dead	-1.84	0.45	limited	-0.91	0.84	impotent	-1.44	0.78
cross	-0.63	0.98	defamed	-0.92	0.85	retarded	-1.49	0.68
jaded	-0.75	0.69	crowded	-0.95	0.80	desolate	-1.51	0.73
dizzy	-0.75	0.62	cramped	-0.97	0.84	depraved	-1.51	0.66
lured	-0.84	0.80	rattled	-0.97	0.83	pathetic	-1.53	0.80
bored	-0.88	0.75	failful	-0.97	1.13	inferior	-1.53	0.71
messy	-0.91	0.68	coerced	-0.98	0.91	disliked	-1.54	0.60
duped	-0.98	0.75	awkward	-1.00	0.92	punished	-1.54	0.76
stuck	-1.05	0.81	deluded	-1.03	0.73	negative	-1.54	0.66
bleak	-1.11	0.80	doubted	-1.06	0.79	rejected	-1.56	0.63
false	-1.16	0.76	deviant	-1.11	0.88	insecure	-1.56	0.57
dirty	-1.19	0.75	anxious	-1.13	0.81	stressed	-1.56	0.57
empty	-1.20	0.78	grouchy	-1.15	0.80	burdened	-1.57	0.77

Table 9 continued

Word	Average	SD	Word	Average	SD	Word	Average	SD
moody	-1.22	0.60	disdain	-1.16	0.82	helpless	-1.58	0.63
needy	-1.27	0.74	drained	-1.17	0.78	deprived	-1.60	0.59
alone	-1.30	0.66	hassled	-1.23	0.68	cowardly	-1.60	0.73
gross	-1.32	0.64	berated	-1.27	0.81	attacked	-1.60	0.90
lousy	-1.36	0.68	jealous	-1.28	0.74	dejected	-1.61	0.70
phony	-1.41	0.66	accused	-1.30	0.80	resented	-1.63	0.59
grief	-1.50	0.62	injured	-1.32	0.94	excluded	-1.63	0.62
panic	-1.50	0.64	dislike	-1.32	0.92	demented	-1.63	0.67
dread	-1.59	0.61	cynical	-1.33	0.89	sadistic	-1.63	0.72
angry	-1.70	0.46	avoided	-1.33	0.67	demeaned	-1.65	0.61
awful	-1.81	0.39	enraged	-1.34	0.99	ignorant	-1.65	0.64
raped	-1.92	0.41	hostile	-1.34	0.96	deserted	-1.67	0.64
jeered	-1.00	0.88	scarred	-1.35	0.72	enslaved	-1.67	0.64
pooped	-1.05	0.68	screwed	-1.35	0.86	insulted	-1.68	0.60
bugged	-1.16	0.68	annoyed	-1.35	0.52	isolated	-1.68	0.57
judged	-1.17	0.66	hideous	-1.37	1.11	deceived	-1.68	0.54
frigid	-1.21	0.85	fearful	-1.38	0.70	harassed	-1.70	0.63
crummy	-1.24	0.69	idiotic	-1.40	0.86	dreadful	-1.70	0.53
conned	-1.25	0.76	selfish	-1.40	0.88	disowned	-1.72	0.49
bummed	-1.25	0.59	haunted	-1.42	0.85	devalued	-1.74	0.48
barren	-1.27	0.75	furious	-1.42	0.92	detested	-1.74	0.52
nagged	-1.27	0.85	evicted	-1.42	0.70	hopeless	-1.75	0.51
gloomy	-1.29	0.81	ignored	-1.43	0.73	degraded	-1.77	0.57
grumpy	-1.35	0.63	cheated	-1.46	0.92	defeated	-1.79	0.46
cruddy	-1.37	0.73	despair	-1.46	0.73	despised	-1.79	0.49
crabby	-1.38	0.55	damaged	-1.51	0.77	betrayed	-1.80	0.69
banned	-1.40	0.66	crushed	-1.51	0.83	horrible	-1.84	0.45
lonely	-1.44	0.64	joyless	-1.52	0.81	inhumane	-1.84	0.41
creepy	-1.44	0.62	bruised	-1.52	0.59	molested	-1.89	0.49
insane	-1.44	0.78	disgust	-1.55	0.81	suicidal	-1.89	0.59

APPENDIX C: PARTICIPANT RT AND ACCURACY DATA FROM EXPERIMENT 1

Table 10: Participant RT data from Experiment 1 when the target word was red

	Negative Target				Positive Target			
	Negative Distractor		Positive Distractor		Negative Distractor		Positive Distractor	
Participant #	Invalid	Valid	Invalid	Valid	Invalid	Valid	Invalid	Valid
1	559	514	548	614	561	508	550	514
3	949	992	1106	845	1098	1019	1163	1080
5	702	672	812	762	670	707	781	810
9	816	1011	955	922	880	851	925	800
11	785	802	818	693	788	805	744	724
13	847	838	867	812	859	774	765	881
15	806	827	839	767	808	659	881	722
18	790	869	877	1019	777	721	773	876
20	708	601	665	772	723	771	714	637
22	875	671	727	747	680	738	724	789
23	637	513	552	530	531	558	562	573
24	1077	1013	1108	934	1007	920	989	1015
26	629	647	668	668	551	684	608	678
28	711	639	607	633	642	684	623	668
30	689	668	619	626	624	668	795	551
32	793	614	739	666	629	663	731	629
33	917	698	744	801	745	687	754	759
35	321	510	545	574	422	594	503	403
37	718	643	639	627	663	778	705	786
39	655	545	536	561	659	509	562	603
41	651	605	766	670	635	615	593	663
43	1012	823	966	902	868	821	880	841
45	964	914	1053	1047	1005	888	791	1031
47	738	805	805	766	799	741	680	761
50	608	633	551	625	564	660	573	544
52	767	822	667	720	737	634	671	681
54	836	737	763	752	755	752	816	830
56	737	713	759	729	697	696	830	628
58	792	703	777	839	680	666	863	741
60	651	658	610	611	564	583	610	695
62	762	852	744	777	973	860	924	869
64	734	1046	989	820	877	815	810	713
65	675	614	699	757	650	663	680	615
67	687	645	656	712	689	617	685	672
69	868	1058	881	778	742	751	859	748

Table 10 continued

	Negative Target				**Positive Target**			
	Negative Distractor		**Positive Distractor**		**Negative Distractor**		**Positive Distractor**	
Participant #	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**
71	260	406	427	518	406	338	491	529
73	735	849	855	836	824	753	868	799
75	640	610	582	550	565	540	632	628
77	954	838	813	740	934	851	766	829
79	695	698	743	676	620	655	657	596
82	739	698	698	703	739	642	654	695
84	785	662	689	745	748	777	628	655
86	1128	957	880	902	975	997	1219	945
88	701	770	743	649	680	599	674	622
90	778	705	719	734	734	748	723	789
92	769	769	743	784	738	773	796	713
94	880	880	854	883	886	774	901	735
96	830	802	987	863	941	1080	844	712
97	891	836	886	963	775	712	729	760
99	592	665	741	646	671	705	654	710
101	626	621	659	615	667	574	633	620
103	877	780	731	812	705	718	778	830
105	863	786	895	711	845	650	766	823
107	717	724	738	706	725	656	697	712
109	945	900	813	830	792	799	742	828
111	649	793	846	768	776	792	737	661
114	742	847	848	796	781	739	792	776
116	748	692	845	808	896	814	915	740
118	697	696	630	698	650	672	617	769
120	815	756	877	805	915	748	953	703
122	825	857	756	843	693	663	773	840
124	649	637	688	622	605	617	642	644
126	928	957	902	968	904	995	951	668
128	700	640	633	726	758	721	705	673
129	1020	1067	979	1054	993	935	1020	879
131	713	748	806	682	810	766	692	710
Mean	**763**	**751**	**768**	**753**	**747**	**725**	**754**	**729**

Table 11: Participant RT data from Experiment 1 when the target word was green

	Negative Target				Positive Target			
	Negative Distractor		Positive Distractor		Negative Distractor		Positive Distractor	
Participant #	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**
2	686	783	775	731	695	640	724	745
4	765	857	808	776	814	812	801	728
6	706	816	790	875	828	760	798	772
8	780	701	742	664	688	689	777	755
10	762	815	686	750	700	710	685	779
12	596	668	604	594	644	601	565	632
14	727	684	933	795	798	774	718	662
16	1074	876	762	934	801	898	812	873
17	806	700	796	726	792	680	675	660
19	604	641	532	588	552	609	592	583
21	801	647	687	636	741	599	795	616
25	879	924	980	940	948	1034	1008	868
27	711	735	672	694	608	699	645	642
29	631	554	704	568	631	618	599	550
31	658	606	666	611	701	705	715	695
34	710	603	694	702	652	683	690	659
36	662	600	712	559	622	633	602	615
38	782	855	870	790	890	741	929	1040
40	663	656	618	606	575	529	680	618
42	926	1000	1061	1049	946	892	924	895
44	839	794	717	904	858	845	787	718
46	725	682	827	609	659	571	764	609
48	784	820	771	727	775	743	703	731
49	597	550	612	529	702	472	606	555
51	892	881	779	930	870	706	1022	819
53	623	639	713	651	630	677	664	630
55	709	677	654	685	577	726	680	661
57	629	714	817	768	707	764	627	708
59	607	591	616	641	697	636	608	726
61	829	974	824	842	836	846	856	876
63	674	722	740	677	727	681	776	610
66	631	647	692	571	614	635	596	680
68	886	940	802	779	840	776	854	733
70	781	832	888	770	922	837	728	750
72	906	1024	883	1052	1067	949	1025	936
74	923	800	993	798	667	766	875	785

Table 11 continued

	Negative Target				Positive Target			
	Negative Distractor		Positive Distractor		Negative Distractor		Positive Distractor	
Participant #	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**
76	740	770	671	819	793	830	776	779
78	691	744	828	765	691	715	658	701
80	866	893	885	916	945	808	827	778
81	589	547	547	642	571	563	564	581
83	777	813	822	776	770	757	850	705
85	686	661	728	701	679	683	676	639
87	624	700	672	729	659	706	689	598
89	716	757	651	735	609	721	727	658
91	628	621	661	711	696	587	722	594
93	824	771	949	781	753	782	809	777
95	872	710	726	776	821	758	904	903
98	652	509	584	624	625	546	602	540
100	746	704	739	788	816	701	790	778
102	790	756	761	798	716	582	847	692
104	768	863	818	705	880	790	771	821
108	801	881	976	813	872	753	807	933
110	733	793	747	764	769	663	644	687
112	942	877	1048	903	831	938	819	755
113	772	817	844	804	667	691	657	704
117	808	770	708	791	674	657	668	824
119	902	877	913	774	818	703	771	734
121	630	653	654	660	592	654	692	638
123	774	763	757	713	673	756	725	682
125	861	1064	901	766	887	899	794	818
127	683	690	817	668	732	841	818	738
130	839	799	790	716	881	812	886	798
Mean	**753**	**755**	**768**	**744**	**745**	**723**	**748**	**722**

Table 12: Participant accuracy data from Experiment 1 when the target word was red

	Negative Target				Positive Target			
	Negative Distractor		Positive Distractor		Negative Distractor		Positive Distractor	
Participant #	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**
1	1	1	0.92	1	1	1	1	0.92
3	0.92	0.92	0.92	1	1	0.83	1	1
5	1	0.92	0.92	0.92	1	0.92	1	0.92
9	1	1	1	0.67	1	1	0.92	0.92
11	1	1	1	1	1	1	1	1
13	0.92	0.92	1	1	0.92	0.92	1	0.92
15	0.92	1	0.67	1	1	1	1	1
18	1	0.83	0.92	1	1	1	0.83	0.92
20	1	1	1	0.92	0.92	0.92	1	0.92
22	0.83	0.92	1	0.92	1	1	0.92	0.83
23	0.83	0.92	0.92	0.83	0.92	0.83	1	0.92
24	0.92	0.92	1	0.92	0.92	0.92	1	1
26	1	1	1	1	1	1	1	1
28	1	0.92	1	0.83	1	0.75	1	1
30	0.83	0.67	0.92	1	1	1	1	1
32	0.92	0.83	1	0.92	0.83	1	1	0.92
33	0.92	1	0.92	0.92	0.75	1	0.83	1
35	0.75	0.75	0.83	0.83	0.67	0.75	0.92	1
37	0.92	0.92	0.75	1	0.92	0.83	0.92	0.75
39	0.83	0.92	1	0.92	0.83	0.75	0.92	0.83
41	0.92	1	0.92	1	0.92	1	0.92	1
43	1	1	0.83	0.92	1	0.83	1	1
45	0.92	0.75	1	0.92	0.92	1	1	0.83
47	1	0.92	0.92	1	1	0.92	1	1
50	0.92	0.75	0.75	1	1	0.83	0.92	0.75
52	0.92	0.92	0.92	0.92	0.83	1	1	0.92
54	1	1	1	0.75	1	0.92	0.92	0.83
56	0.92	0.83	0.75	0.92	0.83	1	1	0.92
58	0.83	0.92	0.92	0.67	1	1	1	0.83
60	1	1	0.92	0.67	0.92	0.67	0.92	0.75
62	0.92	0.67	0.92	0.92	0.83	0.92	0.75	1
64	0.75	0.58	0.5	0.58	0.92	0.83	1	0.83
65	0.92	1	1	1	1	1	0.92	1
67	1	0.92	1	0.92	0.92	0.92	0.75	0.92
69	0.83	0.67	0.83	1	1	0.92	0.58	0.92
71	0.83	0.83	0.67	0.75	0.83	0.5	0.75	0.5

Table 12 continued

	Negative Target				Positive Target			
	Negative Distractor		Positive Distractor		Negative Distractor		Positive Distractor	
Participant #	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**
73	1	0.92	1	0.83	1	1	0.92	1
75	1	1	1	1	0.92	1	0.92	0.92
77	1	0.92	1	1	1	0.92	1	1
79	0.83	0.67	0.75	0.75	0.67	0.42	0.83	0.67
82	0.92	1	0.92	0.92	0.92	0.75	0.83	0.92
84	0.92	0.92	1	1	0.83	1	0.92	0.92
86	0.92	0.83	0.83	0.83	0.83	1	0.83	0.83
88	0.83	0.92	0.92	1	0.92	0.92	1	1
90	1	1	1	0.92	1	0.83	0.92	1
92	1	0.92	0.92	1	0.92	0.92	0.92	1
94	0.83	0.83	1	1	0.92	1	0.83	1
96	1	0.92	1	0.92	1	1	1	1
97	1	1	1	1	0.92	1	0.83	1
99	1	0.92	1	1	0.92	0.92	1	1
101	1	0.92	0.75	1	0.92	0.83	0.92	1
103	0.83	0.92	1	1	0.92	0.92	1	0.83
105	0.92	1	0.75	0.75	1	0.92	0.83	1
107	1	1	0.67	1	0.75	1	0.92	0.92
109	0.83	0.75	0.83	1	1	1	0.83	0.75
111	0.67	1	0.83	1	1	1	0.92	0.92
114	0.92	0.83	0.75	0.67	1	0.92	0.83	0.92
116	0.92	0.92	1	0.92	0.92	0.92	0.92	0.92
118	1	1	0.92	0.83	1	0.83	1	0.92
120	1	0.92	0.92	1	0.92	0.92	1	1
122	0.92	1	0.83	1	0.83	1	1	0.75
124	1	0.83	0.92	0.92	1	0.83	0.92	0.92
126	0.83	0.83	1	0.92	1	1	0.92	1
128	0.67	0.67	0.92	1	0.75	0.92	1	0.92
129	1	1	0.92	0.75	1	1	1	1
131	0.83	0.92	0.92	1	1	0.83	0.92	1
Mean	**0.92**	**0.90**	**0.91**	**0.92**	**0.93**	**0.91**	**0.93**	**0.92**

Table 13: Participant accuracy data from Experiment 1 when the target word was green

	Negative Target				Positive Target			
	Negative Distractor		Positive Distractor		Negative Distractor		Positive Distractor	
Participant #	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**
2	1	1	1	1	1	1	1	0.92
4	1	1	0.92	0.92	1	1	1	1
6	0.83	0.92	0.92	1	0.92	0.83	1	0.92
8	0.75	1	1	1	1	1	1	1
10	1	0.92	0.67	0.92	0.92	0.92	0.83	0.92
12	1	0.92	1	1	1	1	1	1
14	0.75	0.83	0.75	1	0.83	0.83	0.83	0.83
16	0.92	1	0.92	0.92	0.92	1	0.92	1
17	0.83	0.92	0.92	1	0.83	0.92	1	0.92
19	1	0.92	0.83	1	0.92	0.92	1	1
21	0.67	0.92	0.83	0.92	0.83	0.75	0.92	0.92
25	0.83	0.83	1	0.83	1	1	0.92	1
27	0.67	0.92	1	0.92	1	0.92	0.67	1
29	1	0.92	1	0.92	1	1	1	0.92
31	0.83	0.92	1	1	0.83	0.83	1	0.92
34	0.92	1	0.83	1	1	0.92	1	0.92
36	1	1	0.92	0.92	1	0.92	0.92	0.92
38	0.92	0.83	0.83	1	0.83	1	1	1
40	1	0.83	1	0.83	0.67	0.92	0.92	0.92
42	0.92	1	0.92	0.92	0.92	1	1	0.83
44	0.83	0.83	0.83	0.92	0.92	1	0.83	1
46	1	0.92	0.92	0.92	1	0.83	0.92	1
48	1	0.92	1	0.92	0.83	0.92	1	1
49	1	1	0.92	1	0.92	0.92	0.83	1
51	0.92	1	1	1	0.92	1	0.83	1
53	0.92	0.83	1	0.83	1	0.92	1	1
55	0.92	0.92	1	1	1	0.92	0.92	1
57	0.92	0.83	0.83	1	0.92	1	0.92	0.83
59	0.83	0.83	0.92	0.75	0.83	0.83	0.75	0.83
61	1	0.92	1	0.92	0.92	1	1	0.92
63	1	1	0.92	0.92	1	0.92	1	1
66	0.83	1	0.92	0.92	0.75	1	1	1
68	0.92	0.67	1	0.92	1	1	1	0.92
70	0.92	1	1	0.92	1	1	1	1
72	1	0.83	0.92	0.83	0.92	0.92	1	0.92
74	0.83	0.83	0.92	1	0.92	0.75	0.92	0.92

Table 13 continued

	Negative Target				Positive Target			
	Negative Distractor		Positive Distractor		Negative Distractor		Positive Distractor	
Participant #	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**
76	1	0.92	0.83	0.67	0.92	0.75	1	1
78	1	1	1	0.92	0.83	1	0.83	1
80	0.92	0.92	1	0.83	0.83	1	0.92	1
81	0.92	1	1	0.92	1	0.92	1	1
83	0.92	0.83	1	1	1	0.92	1	1
85	1	0.92	0.67	0.92	1	0.92	1	1
87	0.92	1	1	1	1	0.83	1	0.92
89	0.75	0.83	0.92	0.92	0.83	1	0.92	1
91	1	0.92	0.67	0.92	1	0.92	0.83	0.83
93	0.92	1	0.92	1	0.92	1	1	0.92
95	0.92	0.83	1	0.83	1	0.75	0.83	0.92
98	0.83	1	0.92	1	0.92	1	0.92	0.92
100	1	0.92	1	1	1	0.83	0.75	0.92
102	0.92	0.92	0.67	1	1	0.83	1	1
104	0.92	0.83	0.92	0.92	1	0.75	1	0.75
108	1	1	0.92	0.92	0.92	1	0.83	0.92
110	0.92	0.83	1	0.92	1	0.92	1	1
112	0.83	0.92	0.92	0.92	0.92	1	0.92	1
113	0.83	1	0.92	0.83	1	1	0.92	0.92
117	1	0.75	1	1	0.92	1	0.92	1
119	0.33	1	0.58	0.42	0.83	0.92	0.58	0.83
121	1	0.92	1	1	1	1	1	0.92
123	0.83	1	1	0.92	1	1	1	1
125	0.83	0.92	1	0.92	1	1	0.92	1
127	0.83	0.58	0.75	0.75	1	0.92	0.92	0.75
130	0.83	0.92	0.75	1	0.92	0.92	0.75	0.83
Mean	**0.90**	**0.91**	**0.91**	**0.92**	**0.94**	**0.93**	**0.93**	**0.94**

APPENDIX D: PARTICIPANT RT AND ACCURACY DATA FROM EXPERIMENT 2

Table 14: Participant RT data from Experiment 2 when the target word was red

	Distractor Item Present								Distractor Item Absent							
	Negative Target				Positive Target				Negative Target				Positive Target			
	Negative Distractor		Positive Distractor		Negative Distractor		Positive Distractor		Negative Distractor		Positive Distractor		Negative Distractor		Positive Distractor	
Part. #	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**
1	813	761	718	798	740	653	782	666	663	645	680	695	692	561	650	620
3	686	769	1039	748	741	714	702	754	613	685	706	575	678	664	739	897
5	558	564	709	611	557	645	688	560	541	541	631	623	586	603	517	604
7	700	592	629	671	704	714	664	666	644	615	678	617	676	692	665	734
9	830	848	791	580	758	571	700	715	766	662	715	683	646	569	815	598
11	743	734	670	691	822	673	640	745	668	573	557	644	599	625	612	617
13	720	719	716	725	723	669	655	716	601	562	598	668	632	611	567	665
15	767	641	694	673	672	533	597	602	661	666	641	656	595	593	683	665
17	746	717	668	718	615	573	671	662	752	699	800	646	552	562	751	757
19	734	750	671	571	884	665	633	774	711	655	783	729	535	585	677	710
21	763	789	845	808	881	741	722	815	613	642	641	595	664	559	631	552
23	998	1035	1100	876	943	972	1051	970	911	1025	840	670	896	596	900	819
25	828	802	676	792	941	961	903	802	948	615	831	778	781	684	736	772
27	606	465	612	618	564	570	637	401	451	546	499	466	444	476	533	467
29	739	695	790	793	847	660	686	791	771	704	671	780	731	691	726	734
31	717	713	982	778	823	633	748	562	765	726	846	824	781	933	703	625
36	758	521	838	799	691	659	736	642	694	587	640	719	604	611	645	592
38	737	715	795	770	774	750	846	683	688	651	783	742	686	672	726	567
40	791	672	797	747	759	634	788	737	656	558	726	744	814	884	683	664
42	706	725	689	662	671	656	748	718	681	652	681	631	643	597	792	594
44	974	725	814	823	763	750	777	673	838	714	809	813	803	654	728	878
46	884	790	681	514	611	672	745	950	733	784	580	726	593	522	617	566
48	765	631	821	591	833	555	707	690	728	726	622	502	614	674	688	684
52	846	823	800	846	807	655	731	630	708	773	689	670	585	666	596	945
54	1025	1097	1126	803	1122	813	979	939	848	741	769	890	989	690	819	1058
56	638	634	624	629	651	787	636	550	588	607	498	610	621	627	633	625
58	696	738	622	663	576	640	734	730	619	683	616	535	595	532	543	587
60	790	885	720	925	759	718	776	674	793	732	858	682	703	658	751	727
62	986	787	941	952	880	862	858	718	847	898	856	807	738	683	687	672

Table 14 continued

	Distractor Item Present								Distractor Item Absent							
	Negative Target				Positive Target				Negative Target				Positive Target			
	Negative Distractor		Positive Distractor		Negative Distractor		Positive Distractor		Negative Distractor		Positive Distractor		Negative Distractor		Positive Distractor	
Part. #	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**
64	701	718	673	699	647	615	692	700	716	704	635	600	672	624	569	644
65	620	658	639	689	729	680	741	646	713	629	751	639	697	601	715	597
67	835	794	821	821	846	801	758	732	704	836	790	671	736	660	776	744
69	724	724	670	713	716	718	727	642	663	718	684	665	708	748	628	669
71	879	710	702	858	769	754	758	834	590	594	658	767	720	687	654	616
73	622	664	690	669	688	676	669	669	602	601	724	723	678	649	671	739
75	816	1004	1015	922	909	783	876	931	761	797	801	645	796	792	707	771
77	563	615	624	717	651	657	694	650	602	643	539	538	491	597	555	694
79	595	684	683	623	628	565	634	677	664	556	695	519	609	597	616	609
81	639	641	589	696	647	676	649	616	597	542	559	638	597	492	556	522
83	680	569	507	707	579	623	656	542	652	509	548	623	648	564	617	574
85	1119	887	1199	963	1038	668	1110	985	786	953	1015	808	1391	681	803	806
87	925	870	747	886	1003	674	730	715	793	661	859	1021	666	996	697	608
89	850	868	833	791	706	806	810	729	740	768	870	644	688	653	753	976
91	704	647	636	740	698	563	642	593	675	682	620	605	558	635	572	528
93	786	883	784	695	747	622	660	739	685	569	540	715	677	585	546	652
95	795	860	637	752	813	745	795	686	684	727	769	627	630	840	691	597
98	638	538	695	623	647	605	582	604	693	523	711	610	607	547	661	461
100	676	695	735	723	660	637	600	586	580	655	733	616	632	702	627	571
102	622	729	712	600	695	711	560	627	664	697	563	551	652	766	632	610
104	557	540	585	551	589	569	551	521	547	531	561	572	553	492	529	509
106	858	842	952	826	887	757	878	812	647	879	839	561	644	741	830	725
108	1087	917	831	790	915	895	888	769	743	997	673	979	788	772	737	754
110	663	579	626	721	688	587	688	608	586	589	615	691	552	637	623	597
112	745	597	889	539	716	642	846	771	700	664	737	733	666	592	720	661
116	653	604	654	748	634	646	632	672	541	655	581	521	557	564	708	586
118	776	908	898	811	963	603	603	719	780	642	642	757	787	899	745	858
120	803	602	686	732	720	836	771	657	606	647	682	645	579	694	727	637
122	1380	959	920	805	770	795	827	1021	846	854	865	1035	1067	871	669	865
124	557	633	525	551	558	618	724	541	611	519	607	669	630	555	627	504
126	767	646	867	728	760	708	644	737	710	690	690	803	687	732	595	586

Table 14 continued

	Distractor Item Present								Distractor Item Absent							
	Negative Target				Positive Target				Negative Target				Positive Target			
	Negative Distractor		Positive Distractor		Negative Distractor		Positive Distractor		Negative Distractor		Positive Distractor		Negative Distractor		Positive Distractor	
Part. #	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**
128	1231	1222	1526	1404	1265	1130	1086	1109	1382	992	1393	1128	1168	967	947	906
129	1090	847	850	1006	814	659	790	816	739	752	796	888	682	688	844	619
131	898	872	1016	706	767	793	766	926	847	838	756	799	769	722	702	760
133	641	731	670	703	668	755	701	698	568	680	645	606	742	667	566	608
135	904	695	787	732	899	742	724	592	731	767	581	698	673	630	684	771
137	1035	962	1000	927	929	1184	1186	948	765	729	730	773	887	910	1100	850
Mean	**788**	**746**	**779**	**748**	**765**	**706**	**745**	**717**	**703**	**689**	**708**	**694**	**693**	**667**	**685**	**678**

Table 15: Mean correct RT subject data from Experiment 2 when the target word was green

	Distractor Item Present								Distractor Item Absent							
	Negative Target				Positive Target				Negative Target				Positive Target			
	Negative Distractor		Positive Distractor		Negative Distractor		Positive Distractor		Negative Distractor		Positive Distractor		Negative Distractor		Positive Distractor	
Part. #	Invalid	Valid	Invalid	Valid	Invalid	Valid	Invalid	Valid	Invalid	Valid	Invalid	Valid	Invalid	Valid	Invalid	Valid
2	1009	743	1026	875	742	687	874	627	961	785	1042	859	867	681	776	660
4	635	665	600	668	648	639	653	582	580	675	812	652	753	596	562	595
6	870	887	1368	1146	1230	1196	1020	1072	808	828	958	964	1113	1236	832	1069
8	929	882	691	632	617	864	571	635	627	552	757	797	827	612	676	626
10	691	629	691	602	716	560	672	584	527	583	653	600	494	632	629	641
12	794	780	651	732	655	718	703	659	736	666	550	683	646	575	754	732
14	752	751	662	571	602	568	622	631	591	541	698	673	605	666	620	635
16	804	623	757	701	730	710	862	686	641	617	712	711	734	648	693	699
20	949	884	996	912	893	743	1039	819	960	954	812	854	716	657	858	744
22	864	883	925	775	880	745	694	899	891	763	696	775	774	732	831	916
24	632	606	669	662	626	539	658	614	678	605	646	586	615	548	593	556
26	665	756	813	552	607	529	641	645	673	528	585	633	770	494	593	585
28	794	674	629	581	626	579	749	605	705	598	656	568	639	666	605	594
30	738	595	746	648	684	636	698	640	659	633	708	669	630	637	641	635
32	768	658	849	972	730	756	803	635	596	736	781	646	739	807	720	574
33	895	601	736	832	754	655	643	494	650	557	660	640	632	545	644	604
35	693	706	727	660	803	674	623	623	656	606	660	705	614	572	595	683
37	735	679	719	791	710	802	817	718	750	713	692	618	704	740	710	597
39	693	656	788	718	783	741	771	592	746	583	785	631	707	685	635	627
41	822	810	1103	666	808	858	804	675	745	692	902	845	739	681	807	662
43	754	757	624	657	711	608	747	793	712	674	652	714	680	659	682	612
45	682	715	863	632	845	730	658	617	747	784	675	637	687	517	766	729
47	707	594	562	548	616	520	676	611	658	560	605	588	661	515	632	508
49	616	679	644	619	720	710	786	630	625	593	712	606	644	615	740	651
51	1170	832	828	960	897	899	1102	724	950	990	916	1107	889	714	1111	807
53	627	679	732	617	695	624	634	649	609	544	693	561	638	583	559	637
55	724	687	686	748	668	584	762	770	752	587	594	641	623	734	746	604
57	921	909	957	885	1012	1016	811	790	1074	793	837	755	860	824	838	961
59	776	746	769	790	788	763	752	623	706	775	692	696	582	633	787	557
61	911	928	767	765	670	697	813	808	545	713	837	764	818	841	784	729
63	783	691	849	733	854	680	884	661	698	618	755	737	709	674	669	649

Table 15 continued

	Distractor Item Present								Distractor Item Absent							
	Negative Target				Positive Target				Negative Target				Positive Target			
	Negative Distractor		Positive Distractor		Negative Distractor		Positive Distractor		Negative Distractor		Positive Distractor		Negative Distractor		Positive Distractor	
Part. #	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**
66	759	681	616	771	710	704	695	731	721	696	587	706	740	762	687	674
68	790	833	879	744	764	736	779	705	701	723	929	732	727	725	731	789
70	737	677	764	630	851	690	843	656	727	589	675	574	799	682	662	732
72	875	640	808	761	875	784	868	705	738	580	706	768	848	731	655	827
74	829	753	767	695	770	679	750	811	715	781	860	708	712	800	764	712
76	757	1023	806	978	850	784	915	848	850	622	632	974	912	944	912	699
78	503	372	551	468	447	542	391	504	388	371	225	347	450	374	508	323
80	800	779	858	724	756	796	806	677	752	713	764	622	752	714	708	631
82	946	1159	1360	889	953	982	860	1040	1065	898	1134	851	1074	1078	1173	834
84	998	791	829	971	751	811	889	877	758	804	702	814	815	713	704	762
86	701	688	828	628	838	613	730	596	702	685	755	678	798	613	701	663
88	850	661	750	847	802	751	826	665	664	735	903	648	660	697	853	690
90	851	641	792	578	638	697	718	597	704	641	684	667	658	655	619	619
92	822	815	819	588	651	635	766	616	719	708	608	641	671	690	703	654
96	783	663	728	692	652	687	747	592	742	660	724	656	737	746	661	573
97	823	689	822	814	801	670	790	736	744	639	769	848	731	745	705	588
99	717	774	759	718	822	576	716	643	819	628	768	664	722	748	739	661
101	693	719	832	678	895	670	798	680	689	720	692	563	665	654	707	682
103	754	631	668	674	820	668	657	600	747	597	721	609	634	704	734	701
105	634	762	723	648	635	560	640	621	579	603	611	575	613	539	534	627
107	883	810	725	807	800	873	848	759	747	636	756	796	696	772	796	732
109	625	724	661	671	630	517	640	669	667	554	651	552	690	644	689	610
111	689	588	697	535	734	584	656	613	622	627	576	548	640	558	628	579
113	836	888	727	684	622	700	744	867	702	692	760	707	762	879	799	728
115	597	644	669	631	679	647	741	618	708	672	592	629	660	682	676	794
117	983	895	944	867	893	760	1125	831	816	817	693	819	1015	652	772	783
119	913	877	732	737	652	859	584	636	794	724	587	685	544	712	644	577
121	734	681	706	672	722	685	611	722	630	672	573	652	596	626	564	689
123	979	852	839	623	857	761	800	704	964	841	652	699	627	807	805	873
125	843	840	861	771	833	746	809	829	748	733	738	747	820	705	731	729
127	1118	844	1038	982	864	828	958	780	826	877	781	1031	797	685	719	688

Table 15 continued

	Distractor Item Present								Distractor Item Absent							
	Negative Target				Positive Target				Negative Target				Positive Target			
	Negative Distractor		Positive Distractor		Negative Distractor		Positive Distractor		Negative Distractor		Positive Distractor		Negative Distractor		Positive Distractor	
Part. #	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**
130	777	694	740	719	792	747	662	602	705	671	656	772	707	673	712	638
132	850	863	882	854	863	769	871	802	776	793	813	1004	692	920	730	819
134	596	658	648	482	683	652	620	568	519	627	694	494	654	523	483	562
136	966	1067	1316	1076	1348	1158	1098	963	900	781	724	987	1007	1147	1018	837
Mean	**794**	**748**	**796**	**731**	**766**	**717**	**765**	**697**	**726**	**681**	**719**	**707**	**723**	**697**	**717**	**681**

Table 16: Proportion correct for subjects in Experiment 2 when the target word was red

	Distractor Item Present								Distractor Item Absent							
	Negative Target				Positive Target				Negative Target				Positive Target			
	Negative Distractor		Positive Distractor		Negative Distractor		Positive Distractor		Negative Distractor		Positive Distractor		Negative Distractor		Positive Distractor	
Part. #	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**
1	0.83	1	0.5	0.83	1	1	0.83	1	1	1	1	1	1	1	1	1
3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5	0.83	0.67	0.67	1	0.33	0.83	0.67	0.83	0.83	1	1	0.83	1	0.83	1	0.83
7	1	0.67	1	1	1	1	1	0.83	0.83	1	1	0.83	1	1	1	1
9	1	0.83	0.67	1	1	1	1	1	1	1	1	1	1	1	0.83	1
11	1	1	1	0.83	1	1	1	1	1	0.83	1	0.83	1	1	1	1
13	1	1	1	1	1	1	1	1	1	1	1	0.67	1	1	0.83	1
15	0.83	1	0.67	1	0.83	1	1	1	1	1	1	1	0.83	0.83	1	0.83
17	1	1	1	1	0.83	1	1	1	1	0.83	0.83	0.83	1	1	0.83	1
19	1	0.83	0.83	1	1	1	1	1	1	1	0.83	0.83	1	1	1	1
21	1	1	0.83	0.83	0.83	1	0.83	1	0.83	1	0.83	1	1	1	1	0.83
23	0.67	1	0.83	0.67	1	0.83	1	1	1	1	1	0.83	0.83	0.67	1	0.83
25	0.83	0.83	0.67	0.83	0.83	0.83	1	1	1	0.67	1	1	1	1	1	0.67
27	0.83	0.83	0.83	0.83	1	1	1	0.83	0.83	0.83	0.83	0.83	1	1	0.83	1
29	1	0.83	1	1	1	1	1	1	0.83	1	0.83	0.83	0.83	0.83	1	1
31	1	1	1	1	0.83	1	0.67	0.5	0.83	0.67	0.83	0.67	1	0.67	1	0.83
36	1	0.83	0.83	1	1	1	1	1	0.83	0.83	0.5	0.83	1	1	1	0.83
38	0.83	1	1	1	1	1	0.83	1	1	0.83	1	0.83	1	1	1	1
40	0.83	1	1	1	0.83	1	1	0.83	1	1	1	1	1	0.83	1	0.67
42	1	1	1	1	1	1	1	1	0.83	1	1	1	1	1	0.83	1
44	1	1	0.83	1	1	1	0.83	1	1	1	1	1	1	1	1	1
46	1	0.83	1	0.67	0.83	1	1	1	0.83	0.67	0.5	0.33	0.83	0.33	0.83	0.83
48	1	1	1	1	1	0.83	1	1	1	1	1	1	0.67	1	1	1
52	1	1	1	0.5	1	0.67	1	1	0.83	0.83	1	1	1	1	1	0.83
54	1	1	0.67	1	1	1	1	1	1	0.67	1	1	0.83	0.83	1	0.83
56	0.83	1	0.83	1	1	0.5	0.83	1	0.83	1	0.83	0.83	1	1	1	0.83
58	0.83	0.83	1	0.83	1	0.83	1	1	0.83	0.67	0.83	0.83	1	0.83	1	1
60	0.83	1	0.83	1	1	0.83	1	1	1	0.83	1	1	1	0.83	1	1
62	1	1	0.83	1	1	1	1	1	1	1	1	1	1	1	0.83	1
64	1	1	0.83	1	0.67	1	1	1	0.83	1	1	1	0.83	1	0.83	1
65	0.67	1	1	0.67	0.83	1	0.67	1	1	1	0.83	0.83	1	0.83	1	0.67

Table 16 continued

	Distractor Item Present								Distractor Item Absent							
	Negative Target				Positive Target				Negative Target				Positive Target			
	Negative Distractor		Positive Distractor		Negative Distractor		Positive Distractor		Negative Distractor		Positive Distractor		Negative Distractor		Positive Distractor	
Part. #	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**
67	1	1	1	1	1	1	1	0.83	1	1	1	1	1	0.83	1	1
69	0.83	1	1	1	0.83	0.83	0.83	1	1	0.83	1	1	1	1	1	1
71	0.5	1	0.83	0.83	1	1	0.83	1	1	1	1	1	1	1	1	1
73	1	1	1	1	1	0.83	1	0.83	1	0.83	1	1	1	0.83	0.83	1
75	1	0.67	1	1	1	1	1	1	1	1	1	1	1	1	1	1
77	1	0.83	1	1	1	0.83	1	1	1	1	1	1	1	0.83	0.83	1
79	1	1	1	1	1	1	1	0.83	0.83	1	0.83	1	1	1	1	1
81	0.83	1	1	1	0.83	1	1	1	1	1	1	0.83	1	0.83	1	0.67
83	1	1	0.83	1	1	0.83	1	0.83	1	0.83	1	1	1	1	0.83	1
85	0.67	0.67	0.83	1	1	1	0.67	0.83	0.83	0.83	0.83	1	0.5	1	0.83	1
87	1	1	0.83	1	1	1	1	0.83	0.83	1	1	0.67	0.83	0.5	1	1
89	1	1	0.83	0.83	1	1	1	0.67	0.83	0.83	1	1	1	1	1	0.83
91	0.83	1	1	1	1	1	0.83	1	1	1	1	1	1	1	1	1
93	1	1	1	1	1	0.83	1	1	0.83	0.83	1	1	1	0.83	1	1
95	1	1	1	1	1	1	1	1	0.83	1	1	1	1	1	1	1
98	1	1	1	1	1	1	1	1	0.83	1	1	1	1	1	0.83	1
100	1	1	1	1	1	1	0.83	1	1	0.83	0.83	1	1	1	1	0.83
102	1	1	1	1	1	1	0.67	0.83	1	1	1	1	0.83	1	1	1
104	1	1	1	1	0.83	1	1	1	1	1	1	1	1	1	1	1
106	1	0.83	0.83	1	1	1	1	1	1	0.83	0.33	1	1	1	0.83	1
108	1	1	1	1	1	1	1	1	1	0.67	1	1	1	0.83	1	1
110	1	1	1	0.83	0.83	1	1	1	1	0.83	0.67	1	1	1	1	1
112	1	1	0.83	0.67	1	1	1	1	1	1	1	1	1	1	1	1
116	1	1	0.83	0.83	0.83	1	1	1	0.83	1	1	1	1	1	1	1
118	1	1	0.67	1	0.83	1	0.83	1	0.83	1	1	1	1	1	1	1
120	1	1	1	0.83	1	0.67	0.83	1	1	1	1	0.83	1	1	1	1
122	0.67	0.83	1	1	1	1	1	0.83	1	1	1	1	1	1	1	1
124	0.83	1	1	1	1	1	0.83	1	0.67	0.83	1	1	1	1	0.67	0.83
126	0.83	0.83	0.83	1	1	1	1	1	1	0.83	1	0.83	1	0.67	1	1
128	0.83	0.83	1	0.5	0.83	0.67	1	1	0.5	1	0.5	0.83	0.83	1	1	0.83
129	0.83	1	1	0.67	1	1	0.83	1	1	1	0.83	0.83	1	1	1	0.67

Table 16 continued

	Distractor Item Present								Distractor Item Absent							
	Negative Target				Positive Target				Negative Target				Positive Target			
	Negative Distractor		Positive Distractor		Negative Distractor		Positive Distractor		Negative Distractor		Positive Distractor		Negative Distractor		Positive Distractor	
Part. #	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**
131	0.83	0.83	1	0.83	1	1	1	0.83	1	1	0.83	1	1	1	0.83	1
133	1	1	1	1	0.83	1	1	1	1	0.83	1	1	0.67	0.83	1	1
135	1	0.83	1	1	1	1	1	1	1	1	1	1	0.83	1	1	1
137	1	0.83	0.83	1	1	0.83	1	1	0.83	0.67	0.83	1	1	1	0.83	1
Mean	**0.93**	**0.94**	**0.91**	**0.93**	**0.94**	**0.95**	**0.94**	**0.95**	**0.93**	**0.92**	**0.92**	**0.93**	**0.96**	**0.93**	**0.95**	**0.94**

Table 17: Proportion correct in Experiment 2 for subjects when the target word was green

	Distractor Item Present								**Distractor Item Absent**							
	Negative Target				**Positive Target**				**Negative Target**				**Positive Target**			
	Negative Distractor		**Positive Distractor**		**Negative Distractor**		**Positive Distractor**		**Negative Distractor**		**Positive Distractor**		**Negative Distractor**		**Positive Distractor**	
Part. #	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**
2	1	0.83	1	1	1	1	1	0.83	1	1	0.83	1	1	1	0.67	1
4	0.83	1	0.83	1	1	1	1	1	1	0.83	1	0.83	0.83	0.83	1	0.83
6	0.67	0.67	0.5	0.5	0.83	0.67	1	0.83	1	0.67	1	1	0.5	0.83	0.83	1
8	0.83	1	0.83	0.83	0.83	1	0.83	1	1	0.83	1	1	1	0.67	1	0.83
10	1	0.83	1	1	1	0.83	0.83	1	1	1	1	1	1	0.83	1	1
12	1	1	1	1	0.83	0.83	1	0.83	0.83	0.83	1	1	1	1	0.83	0.5
14	1	1	1	1	0.83	1	1	1	1	0.83	1	0.83	1	1	1	0.83
16	1	1	1	1	1	1	1	0.83	1	0.83	1	1	0.83	1	1	0.83
20	1	1	0.67	1	0.83	0.83	0.83	1	1	1	1	1	1	0.83	1	1
22	1	0.83	0.67	1	0.67	1	1	1	0.83	1	0.83	0.67	0.67	1	0.83	0.83
24	1	1	1	1	1	1	1	1	0.83	1	1	0.83	1	0.83	1	1
26	1	1	0.67	1	1	1	1	0.83	1	0.67	1	0.67	0.83	0.83	0.83	0.83
28	0.83	1	0.83	1	1	1	1	1	1	1	1	1	1	1	1	1
30	1	1	1	1	0.83	1	1	1	1	1	1	1	1	1	1	1
32	1	0.83	0.83	1	1	1	1	1	0.67	1	0.67	1	0.83	1	1	1
33	1	0.83	1	0.83	1	1	0.83	0.83	1	0.83	0.83	1	1	1	1	1
35	1	1	1	0.83	1	1	1	0.83	1	1	1	1	1	1	1	1
37	0.83	0.83	1	0.83	0.83	0.83	0.83	1	1	1	0.83	0.83	1	1	1	1
39	0.83	1	1	0.83	1	0.83	0.83	0.83	0.67	1	1	1	1	0.83	0.67	1
41	1	1	1	1	1	1	0.83	1	1	1	1	1	0.83	1	1	1
43	0.83	0.67	1	0.5	0.67	0.83	0.83	1	0.83	1	0.83	0.83	0.83	0.83	1	0.83
45	1	1	1	0.83	1	0.67	0.83	0.83	1	0.67	1	0.67	1	0.67	0.83	1
47	0.83	1	0.83	1	0.83	1	1	1	1	1	1	1	1	0.83	1	1
49	1	1	1	0.83	0.83	1	1	1	1	1	1	0.83	1	1	1	1
51	0.83	0.83	0.67	1	0.83	0.83	1	0.83	0.83	1	0.5	1	0.83	0.83	1	0.67
53	1	1	1	1	1	0.83	1	1	1	1	1	1	1	1	1	1
55	1	0.83	1	1	0.83	1	0.83	1	1	1	0.83	0.83	1	0.83	1	1
57	1	0.83	0.83	0.83	1	0.83	1	0.83	1	0.83	0.83	1	1	1	1	0.5
59	1	1	0.83	1	0.83	0.83	1	1	1	1	1	1	1	1	1	1
61	0.83	1	1	0.83	0.83	0.83	0.83	1	0.5	1	0.67	0.83	0.83	1	1	1
63	1	1	1	1	1	1	0.83	1	1	1	1	0.83	1	1	1	1

Table 17 continued

	Distractor Item Present								Distractor Item Absent							
	Negative Target				Positive Target				Negative Target				Positive Target			
	Negative Distractor		Positive Distractor		Negative Distractor		Positive Distractor		Negative Distractor		Positive Distractor		Negative Distractor		Positive Distractor	
Part. #	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**
66	0.83	0.83	0.67	0.67	0.83	0.83	0.83	1	1	0.83	0.83	0.5	0.83	1	1	0.83
68	1	1	1	0.83	1	1	1	1	1	0.83	0.83	0.83	1	1	1	1
70	1	0.83	1	1	1	1	0.83	1	1	1	1	1	1	0.83	0.67	1
72	0.83	1	1	1	0.67	0.83	1	1	0.83	0.83	0.83	0.83	0.83	0.83	1	0.5
74	0.83	1	1	0.83	1	1	1	1	1	1	1	1	1	1	1	1
76	0.83	1	1	1	1	1	1	1	1	0.5	1	0.83	1	1	0.83	0.83
78	0.83	0.67	1	0.67	0.83	0.83	0.67	0.83	1	0.67	0.33	0.83	0.67	0.67	0.83	0.83
80	1	1	0.83	1	1	1	1	1	1	1	1	1	1	1	1	1
82	0.83	1	1	0.83	1	1	0.83	1	1	1	1	0.83	1	1	0.83	1
84	0.67	1	1	0.83	1	1	1	1	1	1	0.83	1	1	1	0.83	1
86	1	1	0.83	1	1	1	1	1	1	1	1	0.83	1	1	1	1
88	1	1	1	1	1	1	1	1	0.83	1	1	1	1	1	1	1
90	1	1	1	1	0.83	1	1	0.83	1	0.83	0.67	1	1	0.83	1	1
92	1	0.67	0.67	0.83	0.83	1	0.83	1	1	1	1	0.83	1	1	1	1
96	1	0.83	0.67	0.83	0.83	0.83	0.83	0.83	1	1	1	0.83	0.83	1	1	1
97	0.67	0.83	0.83	0.67	1	1	0.83	1	0.83	1	1	0.83	1	1	1	0.83
99	1	1	1	1	1	0.67	1	0.67	1	0.83	1	0.83	1	1	0.83	0.67
101	0.83	0.67	1	0.67	1	1	1	0.83	1	1	1	1	0.83	1	1	1
103	0.67	1	0.83	0.67	1	1	0.83	1	1	0.67	1	1	1	1	1	1
105	1	1	0.67	1	1	1	0.83	1	1	0.83	1	1	1	1	1	1
107	1	0.83	1	1	0.5	0.83	1	1	1	0.67	0.5	0.83	0.83	0.83	0.83	1
109	1	1	1	1	1	0.83	1	1	1	1	1	1	0.83	1	1	0.83
111	0.67	1	1	1	1	1	1	1	0.83	1	0.67	1	0.83	0.83	1	1
113	1	1	1	1	1	1	1	1	1	1	1	0.83	1	1	1	1
115	1	1	0.83	1	1	1	1	1	1	1	0.83	1	1	0.83	1	1
117	1	1	1	0.83	0.83	1	0.83	0.67	1	1	1	1	1	1	1	1
119	1	1	1	1	1	1	1	1	1	1	0.83	0.83	1	1	1	1
121	1	0.83	0.83	1	1	1	0.83	1	1	1	0.83	1	0.83	1	0.67	1
123	1	1	1	1	1	1	1	1	0.83	1	1	1	1	1	1	1
125	0.83	1	1	1	1	0.83	0.83	0.67	0.67	1	1	0.67	1	1	1	1
127	1	1	0.83	1	1	1	1	0.83	1	0.83	0.83	0.67	1	0.83	1	1

Table 17 continued

	Distractor Item Present								Distractor Item Absent							
	Negative Target				Positive Target				Negative Target				Positive Target			
	Negative Distractor		Positive Distractor		Negative Distractor		Positive Distractor		Negative Distractor		Positive Distractor		Negative Distractor		Positive Distractor	
Part. #	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**	**Invalid**	**Valid**
130	1	1	1	1	1	1	1	1	1	1	0.83	1	1	1	1	1
132	0.83	1	1	0.83	1	1	1	1	1	0.83	0.67	1	1	0.83	0.83	1
134	1	0.67	1	1	0.83	1	0.83	0.83	1	0.83	1	1	1	1	0.67	0.83
136	0.5	1	0.83	1	0.83	1	1	1	0.83	1	0.83	0.83	0.83	1	1	1
Mean	**0.92**	**0.93**	**0.91**	**0.92**	**0.92**	**0.94**	**0.93**	**0.94**	**0.95**	**0.92**	**0.91**	**0.91**	**0.94**	**0.94**	**0.94**	**0.93**

APPENDIX E: PARTICIPANT RT AND ACCURACY DATA FOR CROSS-EXPERIMENTAL ANALYSIS

Table 18: Correct mean RT for subjects by Validity in Experiment 1 and Experiment 2

Experiment 1			Experiment 2			Experiment 1			Experiment 2		
Part. #	**Invalid**	**Valid**	**Part. #**	**Invalid**	**Valid**	**Part. #**	**Invalid**	**Valid**	**Part. #**	**Invalid**	**Valid**
1	555	538	1	734	713	68	846	797	70	785	705
2	720	724	2	951	728	69	831	816	71	722	759
3	1081	982	3	770	726	70	831	798	72	818	744
4	797	793	4	651	648	71	392	449	73	666	673
5	740	738	5	635	619	72	970	988	74	783	760
6	782	805	6	993	1078	73	821	807	75	856	820
8	744	702	7	687	682	74	863	788	76	847	858
9	893	893	8	744	737	75	605	581	77	590	642
10	710	762	9	800	739	76	747	797	78	410	404
11	783	756	10	635	620	77	866	813	79	646	603
12	603	622	11	705	667	78	716	731	80	779	707
13	835	826	12	704	728	79	680	657	81	633	630
14	792	732	13	655	658	80	880	845	82	1009	947
15	834	746	14	682	629	81	567	582	83	628	709
16	862	894	15	664	637	82	707	686	84	835	810
17	766	692	16	798	676	83	805	760	85	968	846
18	804	871	17	687	702	84	711	709	86	763	644
19	572	605	19	715	678	85	689	670	87	828	787
20	701	693	20	860	801	86	1052	952	88	775	712
21	755	625	21	681	689	87	662	685	89	784	785
22	747	737	22	825	808	88	699	659	90	727	653
23	569	543	23	942	868	89	678	713	91	663	636
24	1045	972	24	640	636	90	739	745	92	736	649
25	956	943	25	850	816	91	676	629	93	671	682
26	614	669	26	666	588	92	762	758	95	742	729
27	657	690	27	549	520	93	831	778	96	729	670
28	646	656	28	675	608	94	879	815	97	828	705
29	641	573	29	762	759	95	829	790	98	649	564
30	680	624	30	728	645	96	901	866	99	761	746
31	685	653	31	851	768	97	825	818	100	684	664
32	726	644	32	824	820	98	614	555	101	795	664
33	795	735	33	743	646	99	664	681	102	649	663
34	686	661	35	686	681	100	771	745	103	744	684
35	454	513	36	723	646	101	645	609	104	578	563
36	649	602	37	740	696	102	780	710	105	661	642
37	683	701	38	802	727	103	767	785	106	844	773
38	869	857	39	780	679	104	811	794	107	777	792
39	597	556	40	758	709	105	839	747	108	833	863
40	638	601	41	841	736	107	717	699	109	666	664
41	659	638	42	705	694	108	863	844	110	648	659
42	963	960	43	691	680	109	815	836	111	729	583
43	930	847	44	821	790	110	722	726	112	766	693

Table 18 continued

Experiment 1			Experiment 2			Experiment 1			Experiment 2		
Part. #	**Invalid**	**Valid**	**Part. #**	**Invalid**	**Valid**	**Part. #**	**Invalid**	**Valid**	**Part. #**	**Invalid**	**Valid**
44	802	814	45	784	683	111	755	755	113	783	800
45	952	969	46	702	728	112	909	865	115	673	675
46	741	620	47	673	566	113	733	753	116	633	622
47	754	768	48	779	670	114	786	787	117	903	842
48	758	755	49	681	683	116	851	765	118	790	794
49	630	528	51	948	838	117	717	760	119	679	748
50	575	617	52	770	768	118	649	710	120	697	690
51	885	834	53	679	608	119	842	776	121	657	694
52	709	712	54	892	811	120	890	753	122	880	901
53	658	649	55	696	679	121	643	651	123	795	793
54	792	767	56	645	639	122	762	796	124	603	593
55	653	686	57	934	874	123	730	729	125	795	761
56	758	691	58	641	629	124	645	630	126	763	685
57	692	741	59	736	699	125	862	882	127	920	845
58	775	728	60	766	766	126	920	893	128	1037	970
59	630	648	61	805	800	127	761	743	129	841	792
60	609	641	62	832	811	128	696	695	130	715	703
61	836	885	63	805	688	129	1004	979	131	864	849
62	844	839	64	656	663	130	850	780	132	822	850
63	729	671	65	721	637	131	757	724	133	665	678
64	840	833	66	691	741				134	602	599
65	676	660	67	793	738				135	770	689
66	632	634	68	785	747				136	918	1009
67	679	665	69	698	713				137	997	930
Mean	-	-	-	-	-	**Mean**	**755**	**737**		**752**	**719**

Table 19: Proportion correct for subjects by Validity in Experiment 1 and Experiment 2

Experiment 1			Experiment 2			Experiment 1			Experiment 2		
Part. #	**Invalid**	**Valid**	**Part. #**	**Invalid**	**Valid**	**Part. #**	**Invalid**	**Valid**	**Part. #**	**Invalid**	**Valid**
1	0.98	0.98	1	0.9	0.98	68	0.98	0.88	70	0.94	0.96
2	1	0.98	2	0.94	0.96	69	0.81	0.88	71	0.9	0.98
3	0.96	0.94	3	1	1	70	0.98	0.98	72	0.88	0.85
4	0.98	0.98	4	0.94	0.92	71	0.77	0.65	73	0.98	0.92
5	0.98	0.92	5	0.79	0.85	72	0.96	0.88	74	0.98	0.98
6	0.92	0.92	6	0.79	0.77	73	0.98	0.94	75	1	0.96
8	0.94	1	7	0.98	0.92	74	0.9	0.88	76	0.96	0.9
9	0.98	0.9	8	0.92	0.9	75	0.96	0.98	77	0.98	0.94
10	0.85	0.92	9	0.94	0.98	76	0.94	0.83	78	0.77	0.75
11	1	1	10	0.98	0.94	77	1	0.96	79	0.96	0.98
12	1	0.98	11	1	0.94	78	0.92	0.98	80	0.98	1
13	0.96	0.94	12	0.94	0.88	79	0.77	0.63	81	0.96	0.92
14	0.79	0.88	13	0.98	0.96	80	0.92	0.94	82	0.94	0.96
15	0.9	1	14	0.98	0.94	81	0.98	0.96	83	0.96	0.94
16	0.92	0.98	15	0.9	0.96	82	0.9	0.9	84	0.92	0.98
17	0.9	0.94	16	0.98	0.94	83	0.98	0.94	85	0.77	0.92
18	0.94	0.94	17	0.94	0.96	84	0.92	0.96	86	0.98	0.98
19	0.94	0.96	19	0.96	0.96	85	0.92	0.94	87	0.94	0.88
20	0.98	0.94	20	0.92	0.96	86	0.85	0.88	88	0.98	1
21	0.81	0.88	21	0.9	0.96	87	0.98	0.94	89	0.96	0.9
22	0.94	0.92	22	0.81	0.92	88	0.92	0.96	90	0.94	0.94
23	0.92	0.88	23	0.92	0.85	89	0.85	0.94	91	0.96	1
24	0.96	0.94	24	0.98	0.96	90	0.98	0.94	92	0.92	0.92
25	0.94	0.92	25	0.92	0.85	91	0.88	0.9	93	0.98	0.94
26	1	1	26	0.92	0.85	92	0.94	0.96	95	0.98	1
27	0.83	0.94	27	0.9	0.9	93	0.94	0.98	96	0.9	0.9
28	1	0.88	28	0.96	1	94	0.9	0.96	97	0.9	0.9
29	1	0.94	29	0.94	0.94	95	0.94	0.83	98	0.96	1
30	0.94	0.92	30	0.98	1	96	1	0.96	99	0.98	0.83
31	0.92	0.92	31	0.9	0.79	97	0.94	1	100	0.96	0.96
32	0.94	0.92	32	0.88	0.98	98	0.9	0.98	101	0.96	0.9
33	0.85	0.98	33	0.96	0.92	99	0.98	0.96	102	0.94	0.98
34	0.94	0.96	35	1	0.96	100	0.94	0.92	103	0.92	0.92
35	0.79	0.83	36	0.9	0.92	101	0.9	0.94	104	0.98	1
36	0.96	0.94	37	0.92	0.92	102	0.9	0.94	105	0.94	0.98
37	0.88	0.88	38	0.96	0.96	103	0.94	0.92	106	0.88	0.96
38	0.9	0.96	39	0.88	0.92	104	0.96	0.81	107	0.83	0.88
39	0.9	0.85	40	0.96	0.92	105	0.88	0.92	108	1	0.94
40	0.9	0.88	41	0.96	1	107	0.83	0.98	109	0.98	0.96
41	0.92	1	42	0.96	1	108	0.92	0.96	110	0.94	0.96
42	0.94	0.94	43	0.85	0.81	109	0.88	0.88	111	0.88	0.98
43	0.96	0.94	44	0.96	1	110	0.98	0.92	112	0.98	0.96
44	0.85	0.94	45	0.96	0.79	111	0.85	0.98	113	1	0.98
45	0.96	0.88	46	0.85	0.71	112	0.9	0.96	115	0.96	0.98
46	0.96	0.92	47	0.94	0.98	113	0.92	0.94	116	0.94	0.98
47	0.98	0.96	48	0.96	0.98	114	0.88	0.83	117	0.96	0.94
48	0.96	0.94	49	0.98	0.96	116	0.94	0.92	118	0.9	1
49	0.92	0.98	51	0.81	0.88	117	0.96	0.94	119	0.98	0.98
50	0.9	0.83	52	0.98	0.85	118	0.98	0.9	120	0.98	0.92
51	0.92	1	53	1	0.98	119	0.58	0.79	121	0.88	0.98

Table 19 continued

Experiment 1			Experiment 2			Experiment 1			Experiment 2		
Part. #	**Invalid**	**Valid**	**Part. #**	**Invalid**	**Valid**	**Part. #**	**Invalid**	**Valid**	**Part. #**	**Invalid**	**Valid**
52	0.92	0.94	54	0.94	0.92	120	0.96	0.96	122	0.96	0.96
53	0.98	0.9	55	0.94	0.94	121	1	0.96	123	0.98	1
54	0.98	0.88	56	0.9	0.9	122	0.9	0.94	124	0.88	0.96
55	0.96	0.96	57	0.96	0.83	123	0.96	0.98	125	0.92	0.9
56	0.88	0.92	58	0.94	0.85	124	0.96	0.88	126	0.96	0.9
57	0.9	0.92	59	0.96	0.98	125	0.94	0.96	127	0.96	0.9
58	0.94	0.85	60	0.96	0.94	126	0.94	0.94	128	0.81	0.83
59	0.83	0.81	61	0.81	0.94	127	0.88	0.75	129	0.94	0.9
60	0.94	0.77	62	0.96	1	128	0.83	0.88	130	0.98	1
61	0.98	0.94	63	0.98	0.98	129	0.98	0.94	131	0.94	0.94
62	0.85	0.88	64	0.88	1	130	0.81	0.92	132	0.92	0.94
63	0.98	0.96	65	0.88	0.88	131	0.92	0.94	133	0.94	0.96
64	0.79	0.71	66	0.85	0.81				134	0.92	0.9
65	0.96	1	67	1	0.96				135	0.98	0.98
66	0.88	0.98	68	0.98	0.94				136	0.83	0.98
67	0.92	0.92	69	0.94	0.96				137	0.92	0.92
Mean	-	-	-	-	-	**Mean**	**0.92**	**0.92**		**0.93**	**0.93**

APPENDIX F: ANOVA ON PARTICIPANT RTs IN EXPERIMENT 1

2 (Target Colour: red vs. green) x 2 (Target Valence: positive vs. negative) x 2 (Distractor Valence: positive vs. negative) x 2 (Cue Validity: valid vs. invalid)

Tests of Between-Subjects Effects

Measure: RespTime

Transformed Variable: Average

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Intercept	570522339.501	1	570522339.501	5802.951	.000	.979
Tcolor	3842.837	1	3842.837	.039	.844	.000
Error	12387803.416	126	98315.900			

Tests of Within-Subjects Effects

Measure: RespTime

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
TarEmot	Sphericity Assumed	103846.973	1	103846.973	23.114	.000	.155
	Greenhouse-Geisser	103846.973	1.000	103846.973	23.114	.000	.155
	Huynh-Feldt	103846.973	1.000	103846.973	23.114	.000	.155
	Lower-bound	103846.973	1.000	103846.973	23.114	.000	.155
TarEmot * Tcolor	Sphericity Assumed	21.729	1	21.729	.005	.945	.000
	Greenhouse-Geisser	21.729	1.000	21.729	.005	.945	.000
	Huynh-Feldt	21.729	1.000	21.729	.005	.945	.000
	Lower-bound	21.729	1.000	21.729	.005	.945	.000
Error(TarEmot)	Sphericity Assumed	566094.492	126	4492.813			
	Greenhouse-Geisser	566094.492	126.000	4492.813			
	Huynh-Feldt	566094.492	126.000	4492.813			
	Lower-bound	566094.492	126.000	4492.813			

DistEmot	Sphericity Assumed	2457.171	1	2457.171	.774	.381	.006
	Greenhouse-Geisser	2457.171	1.000	2457.171	.774	.381	.006
	Huynh-Feldt	2457.171	1.000	2457.171	.774	.381	.006
	Lower-bound	2457.171	1.000	2457.171	.774	.381	.006
DistEmot * Tcolor	Sphericity Assumed	486.135	1	486.135	.153	.696	.001
	Greenhouse-Geisser	486.135	1.000	486.135	.153	.696	.001
	Huynh-Feldt	486.135	1.000	486.135	.153	.696	.001
	Lower-bound	486.135	1.000	486.135	.153	.696	.001
Error(DistEmot)	Sphericity Assumed	400241.191	126	3176.517			
	Greenhouse-Geisser	400241.191	126.000	3176.517			
	Huynh-Feldt	400241.191	126.000	3176.517			
	Lower-bound	400241.191	126.000	3176.517			
Validity	Sphericity Assumed	81427.901	1	81427.901	21.588	.000	.146
	Greenhouse-Geisser	81427.901	1.000	81427.901	21.588	.000	.146
	Huynh-Feldt	81427.901	1.000	81427.901	21.588	.000	.146
	Lower-bound	81427.901	1.000	81427.901	21.588	.000	.146
Validity * Tcolor	Sphericity Assumed	46.798	1	46.798	.012	.911	.000
	Greenhouse-Geisser	46.798	1.000	46.798	.012	.911	.000
	Huynh-Feldt	46.798	1.000	46.798	.012	.911	.000
	Lower-bound	46.798	1.000	46.798	.012	.911	.000
Error(Validity)	Sphericity Assumed	475251.398	126	3771.836			
	Greenhouse-Geisser	475251.398	126.000	3771.836			
	Huynh-Feldt	475251.398	126.000	3771.836			
	Lower-bound	475251.398	126.000	3771.836			
TarEmot * DistEmot	Sphericity Assumed	11.745	1	11.745	.003	.959	.000
	Greenhouse-Geisser	11.745	1.000	11.745	.003	.959	.000

	Huynh-Feldt	11.745	1.000	11.745	.003	.959	.000
	Lower-bound	11.745	1.000	11.745	.003	.959	.000
TarEmot * DistEmot * Tcolor	Sphericity Assumed	166.490	1	166.490	.038	.845	.000
	Greenhouse-Geisser	166.490	1.000	166.490	.038	.845	.000
	Huynh-Feldt	166.490	1.000	166.490	.038	.845	.000
	Lower-bound	166.490	1.000	166.490	.038	.845	.000
Error(TarEmot*DistEmot)	Sphericity Assumed	546290.951	126	4335.642			
	Greenhouse-Geisser	546290.951	126.000	4335.642			
	Huynh-Feldt	546290.951	126.000	4335.642			
	Lower-bound	546290.951	126.000	4335.642			
TarEmot * Validity	Sphericity Assumed	8867.655	1	8867.655	2.574	.111	.020
	Greenhouse-Geisser	8867.655	1.000	8867.655	2.574	.111	.020
	Huynh-Feldt	8867.655	1.000	8867.655	2.574	.111	.020
	Lower-bound	8867.655	1.000	8867.655	2.574	.111	.020
TarEmot * Validity * Tcolor	Sphericity Assumed	166.912	1	166.912	.048	.826	.000
	Greenhouse-Geisser	166.912	1.000	166.912	.048	.826	.000
	Huynh-Feldt	166.912	1.000	166.912	.048	.826	.000
	Lower-bound	166.912	1.000	166.912	.048	.826	.000
Error(TarEmot*Validity)	Sphericity Assumed	434101.207	126	3445.248			
	Greenhouse-Geisser	434101.207	126.000	3445.248			
	Huynh-Feldt	434101.207	126.000	3445.248			
	Lower-bound	434101.207	126.000	3445.248			
DistEmot * Validity	Sphericity Assumed	4977.456	1	4977.456	1.280	.260	.010
	Greenhouse-Geisser	4977.456	1.000	4977.456	1.280	.260	.010
	Huynh-Feldt	4977.456	1.000	4977.456	1.280	.260	.010
	Lower-bound	4977.456	1.000	4977.456	1.280	.260	.010
DistEmot * Validity * Tcolor	Sphericity Assumed	2397.479	1	2397.479	.617	.434	.005

	Greenhouse-Geisser	2397.479	1.000	2397.479	.617	.434	.005
	Huynh-Feldt	2397.479	1.000	2397.479	.617	.434	.005
	Lower-bound	2397.479	1.000	2397.479	.617	.434	.005
Error(DistEmot*Validity)	Sphericity Assumed	489942.629	126	3888.434			
	Greenhouse-Geisser	489942.629	126.000	3888.434			
	Huynh-Feldt	489942.629	126.000	3888.434			
	Lower-bound	489942.629	126.000	3888.434			
TarEmot * DistEmot * Validity	Sphericity Assumed	1663.825	1	1663.825	.414	.521	.003
	Greenhouse-Geisser	1663.825	1.000	1663.825	.414	.521	.003
	Huynh-Feldt	1663.825	1.000	1663.825	.414	.521	.003
	Lower-bound	1663.825	1.000	1663.825	.414	.521	.003
TarEmot * DistEmot * Validity * Tcolor	Sphericity Assumed	1894.587	1	1894.587	.472	.493	.004
	Greenhouse-Geisser	1894.587	1.000	1894.587	.472	.493	.004
	Huynh-Feldt	1894.587	1.000	1894.587	.472	.493	.004
	Lower-bound	1894.587	1.000	1894.587	.472	.493	.004
Error(TarEmot*DistEmot*Validity)	Sphericity Assumed	506123.177	126	4016.851			
	Greenhouse-Geisser	506123.177	126.000	4016.851			
	Huynh-Feldt	506123.177	126.000	4016.851			
	Lower-bound	506123.177	126.000	4016.851			

APPENDIX G: ANOVA ON PARTICIPANT ACCURACIES IN EXPERIMENT 1

2 (Target Colour: red vs. green) x 2 (Target Valence: positive vs. negative) x 2 (Distractor Valence: positive vs. negative) x 2 (Cue Validity: valid vs. invalid)

Tests of Between-Subjects Effects

Measure: RespTime

Transformed Variable: Average

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Intercept	866.900	1	866.900	35861.136	.000	.996
Tcolor	.012	1	.012	.514	.475	.004
Error	3.046	126	.024			

Tests of Within-Subjects Effects

Measure: RespTime

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
TarEmot	Sphericity Assumed	.076	1	.076	10.590	.001	.078
	Greenhouse-Geisser	.076	1.000	.076	10.590	.001	.078
	Huynh-Feldt	.076	1.000	.076	10.590	.001	.078
	Lower-bound	.076	1.000	.076	10.590	.001	.078
TarEmot * Tcolor	Sphericity Assumed	.006	1	.006	.823	.366	.006
	Greenhouse-Geisser	.006	1.000	.006	.823	.366	.006
	Huynh-Feldt	.006	1.000	.006	.823	.366	.006
	Lower-bound	.006	1.000	.006	.823	.366	.006
Error(TarEmot)	Sphericity Assumed	.909	126	.007			
	Greenhouse-Geisser	.909	126.000	.007			
	Huynh-Feldt	.909	126.000	.007			
	Lower-bound	.909	126.000	.007			

DistEmot	Sphericity Assumed	.007	1	.007	.921	.339	.007
	Greenhouse-Geisser	.007	1.000	.007	.921	.339	.007
	Huynh-Feldt	.007	1.000	.007	.921	.339	.007
	Lower-bound	.007	1.000	.007	.921	.339	.007
DistEmot * Tcolor	Sphericity Assumed	.002	1	.002	.226	.635	.002
	Greenhouse-Geisser	.002	1.000	.002	.226	.635	.002
	Huynh-Feldt	.002	1.000	.002	.226	.635	.002
	Lower-bound	.002	1.000	.002	.226	.635	.002
Error(DistEmot)	Sphericity Assumed	.938	126	.007			
	Greenhouse-Geisser	.938	126.000	.007			
	Huynh-Feldt	.938	126.000	.007			
	Lower-bound	.938	126.000	.007			
Validity	Sphericity Assumed	.000	1	.000	.023	.881	.000
	Greenhouse-Geisser	.000	1.000	.000	.023	.881	.000
	Huynh-Feldt	.000	1.000	.000	.023	.881	.000
	Lower-bound	.000	1.000	.000	.023	.881	.000
Validity * Tcolor	Sphericity Assumed	.019	1	.019	2.276	.134	.018
	Greenhouse-Geisser	.019	1.000	.019	2.276	.134	.018
	Huynh-Feldt	.019	1.000	.019	2.276	.134	.018
	Lower-bound	.019	1.000	.019	2.276	.134	.018
Error(Validity)	Sphericity Assumed	1.025	126	.008			
	Greenhouse-Geisser	1.025	126.000	.008			
	Huynh-Feldt	1.025	126.000	.008			
	Lower-bound	1.025	126.000	.008			
TarEmot * DistEmot	Sphericity Assumed	.000	1	.000	.057	.812	.000
	Greenhouse-Geisser	.000	1.000	.000	.057	.812	.000

	Huynh-Feldt	.000	1.000	.000	.057	.812	.000
	Lower-bound	.000	1.000	.000	.057	.812	.000
TarEmot * DistEmot * Tcolor	Sphericity Assumed	.002	1	.002	.352	.554	.003
	Greenhouse-Geisser	.002	1.000	.002	.352	.554	.003
	Huynh-Feldt	.002	1.000	.002	.352	.554	.003
	Lower-bound	.002	1.000	.002	.352	.554	.003
Error(TarEmot*DistEmot)	Sphericity Assumed	.882	126	.007			
	Greenhouse-Geisser	.882	126.000	.007			
	Huynh-Feldt	.882	126.000	.007			
	Lower-bound	.882	126.000	.007			
TarEmot * Validity	Sphericity Assumed	.003	1	.003	.429	.514	.003
	Greenhouse-Geisser	.003	1.000	.003	.429	.514	.003
	Huynh-Feldt	.003	1.000	.003	.429	.514	.003
	Lower-bound	.003	1.000	.003	.429	.514	.003
TarEmot * Validity * Tcolor	Sphericity Assumed	9.835E-005	1	9.835E-005	.015	.902	.000
	Greenhouse-Geisser	9.835E-005	1.000	9.835E-005	.015	.902	.000
	Huynh-Feldt	9.835E-005	1.000	9.835E-005	.015	.902	.000
	Lower-bound	9.835E-005	1.000	9.835E-005	.015	.902	.000
Error(TarEmot*Validity)	Sphericity Assumed	.809	126	.006			
	Greenhouse-Geisser	.809	126.000	.006			
	Huynh-Feldt	.809	126.000	.006			
	Lower-bound	.809	126.000	.006			
DistEmot * Validity	Sphericity Assumed	.013	1	.013	2.076	.152	.016
	Greenhouse-Geisser	.013	1.000	.013	2.076	.152	.016
	Huynh-Feldt	.013	1.000	.013	2.076	.152	.016
	Lower-bound	.013	1.000	.013	2.076	.152	.016

DistEmot * Validity * Tcolor	Sphericity Assumed	.002	1	.002	.364	.547	.003
	Greenhouse-Geisser	.002	1.000	.002	.364	.547	.003
	Huynh-Feldt	.002	1.000	.002	.364	.547	.003
	Lower-bound	.002	1.000	.002	.364	.547	.003
Error(DistEmot*Validity)	Sphericity Assumed	.777	126	.006			
	Greenhouse-Geisser	.777	126.000	.006			
	Huynh-Feldt	.777	126.000	.006			
	Lower-bound	.777	126.000	.006			
TarEmot * DistEmot * Validity	Sphericity Assumed	2.552E-005	1	2.552E-005	.004	.952	.000
	Greenhouse-Geisser	2.552E-005	1.000	2.552E-005	.004	.952	.000
	Huynh-Feldt	2.552E-005	1.000	2.552E-005	.004	.952	.000
	Lower-bound	2.552E-005	1.000	2.552E-005	.004	.952	.000
TarEmot * DistEmot * Validity * Tcolor	Sphericity Assumed	.008	1	.008	1.223	.271	.010
	Greenhouse-Geisser	.008	1.000	.008	1.223	.271	.010
	Huynh-Feldt	.008	1.000	.008	1.223	.271	.010
	Lower-bound	.008	1.000	.008	1.223	.271	.010
Error(TarEmot*DistEmot*Validity)	Sphericity Assumed	.866	126	.007			
	Greenhouse-Geisser	.866	126.000	.007			
	Huynh-Feldt	.866	126.000	.007			
	Lower-bound	.866	126.000	.007			

APPENDIX H: ANOVA ON PARTICIPANT RTs IN EXPERIMENT 2 FOR ALL TRIALS

2 (Distractor Item Status: absent vs. present) x 2 (Target Colour: red vs. green) x 2 (Target Valence: positive vs. negative) x 2 (Distractor Valence: positive vs. negative) x 2 (Cue Validity: valid vs. invalid)

Tests of Between-Subjects Effects

Measure: RespTime

Transformed Variable: Average

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Intercept	1107848259.409	1	1107848259.409	6011.722	.000	.979
Tcolor	49359.162	1	49359.162	.268	.606	.002
Error	23956576.901	130	184281.361			

Tests of Within-Subjects Effects

Measure: RespTime

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
DistPes	Sphericity Assumed	1457646.645	1	1457646.645	202.089	.000	.609
	Greenhouse-Geisser	1457646.645	1.000	1457646.645	202.089	.000	.609
	Huynh-Feldt	1457646.645	1.000	1457646.645	202.089	.000	.609
	Lower-bound	1457646.645	1.000	1457646.645	202.089	.000	.609
DistPes * Tcolor	Sphericity Assumed	26443.522	1	26443.522	3.666	.058	.027
	Greenhouse-Geisser	26443.522	1.000	26443.522	3.666	.058	.027
	Huynh-Feldt	26443.522	1.000	26443.522	3.666	.058	.027
	Lower-bound	26443.522	1.000	26443.522	3.666	.058	.027

Error(DistPes)	Sphericity Assumed	937677.879	130	7212.907			
	Greenhouse-Geisser	937677.879	130.000	7212.907			
	Huynh-Feldt	937677.879	130.000	7212.907			
	Lower-bound	937677.879	130.000	7212.907			
TarEmot	Sphericity Assumed	232055.296	1	232055.296	25.208	.000	.162
	Greenhouse-Geisser	232055.296	1.000	232055.296	25.208	.000	.162
	Huynh-Feldt	232055.296	1.000	232055.296	25.208	.000	.162
	Lower-bound	232055.296	1.000	232055.296	25.208	.000	.162
TarEmot * Tcolor	Sphericity Assumed	7115.176	1	7115.176	.773	.381	.006
	Greenhouse-Geisser	7115.176	1.000	7115.176	.773	.381	.006
	Huynh-Feldt	7115.176	1.000	7115.176	.773	.381	.006
	Lower-bound	7115.176	1.000	7115.176	.773	.381	.006
Error(TarEmot)	Sphericity Assumed	1196732.703	130	9205.636			
	Greenhouse-Geisser	1196732.703	130.000	9205.636			
	Huynh-Feldt	1196732.703	130.000	9205.636			
	Lower-bound	1196732.703	130.000	9205.636			
DistEmot	Sphericity Assumed	3574.118	1	3574.118	.837	.362	.006
	Greenhouse-Geisser	3574.118	1.000	3574.118	.837	.362	.006
	Huynh-Feldt	3574.118	1.000	3574.118	.837	.362	.006
	Lower-bound	3574.118	1.000	3574.118	.837	.362	.006

DistEmot * Tcolor	Sphericity Assumed	2936.644	1	2936.644	.688	.408	.005
	Greenhouse-Geisser	2936.644	1.000	2936.644	.688	.408	.005
	Huynh-Feldt	2936.644	1.000	2936.644	.688	.408	.005
	Lower-bound	2936.644	1.000	2936.644	.688	.408	.005
Error(DistEmot)	Sphericity Assumed	555027.704	130	4269.444			
	Greenhouse-Geisser	555027.704	130.000	4269.444			
	Huynh-Feldt	555027.704	130.000	4269.444			
	Lower-bound	555027.704	130.000	4269.444			
Validity	Sphericity Assumed	664468.745	1	664468.745	88.077	.000	.404
	Greenhouse-Geisser	664468.745	1.000	664468.745	88.077	.000	.404
	Huynh-Feldt	664468.745	1.000	664468.745	88.077	.000	.404
	Lower-bound	664468.745	1.000	664468.745	88.077	.000	.404
Validity * Tcolor	Sphericity Assumed	32561.020	1	32561.020	4.316	.040	.032
	Greenhouse-Geisser	32561.020	1.000	32561.020	4.316	.040	.032
	Huynh-Feldt	32561.020	1.000	32561.020	4.316	.040	.032
	Lower-bound	32561.020	1.000	32561.020	4.316	.040	.032
Error(Validity)	Sphericity Assumed	980744.556	130	7544.189			
	Greenhouse-Geisser	980744.556	130.000	7544.189			
	Huynh-Feldt	980744.556	130.000	7544.189			
	Lower-bound	980744.556	130.000	7544.189			

DistPes * TarEmot	Sphericity Assumed	58038.040	1	58038.040	12.940	.000	.091
	Greenhouse-Geisser	58038.040	1.000	58038.040	12.940	.000	.091
	Huynh-Feldt	58038.040	1.000	58038.040	12.940	.000	.091
	Lower-bound	58038.040	1.000	58038.040	12.940	.000	.091
DistPes * TarEmot * Tcolor	Sphericity Assumed	5573.036	1	5573.036	1.243	.267	.009
	Greenhouse-Geisser	5573.036	1.000	5573.036	1.243	.267	.009
	Huynh-Feldt	5573.036	1.000	5573.036	1.243	.267	.009
	Lower-bound	5573.036	1.000	5573.036	1.243	.267	.009
Error(DistPes*TarEmot)	Sphericity Assumed	583063.090	130	4485.101			
	Greenhouse-Geisser	583063.090	130.000	4485.101			
	Huynh-Feldt	583063.090	130.000	4485.101			
	Lower-bound	583063.090	130.000	4485.101			
DistPes * DistEmot	Sphericity Assumed	7435.729	1	7435.729	1.502	.223	.011
	Greenhouse-Geisser	7435.729	1.000	7435.729	1.502	.223	.011
	Huynh-Feldt	7435.729	1.000	7435.729	1.502	.223	.011
	Lower-bound	7435.729	1.000	7435.729	1.502	.223	.011
DistPes * DistEmot * Tcolor	Sphericity Assumed	77.640	1	77.640	.016	.901	.000
	Greenhouse-Geisser	77.640	1.000	77.640	.016	.901	.000
	Huynh-Feldt	77.640	1.000	77.640	.016	.901	.000
	Lower-bound	77.640	1.000	77.640	.016	.901	.000

Error(DistPes*DistEmot)	Sphericity Assumed	643413.766	130	4949.337			
	Greenhouse-Geisser	643413.766	130.000	4949.337			
	Huynh-Feldt	643413.766	130.000	4949.337			
	Lower-bound	643413.766	130.000	4949.337			
TarEmot * DistEmot	Sphericity Assumed	6671.029	1	6671.029	.666	.416	.005
	Greenhouse-Geisser	6671.029	1.000	6671.029	.666	.416	.005
	Huynh-Feldt	6671.029	1.000	6671.029	.666	.416	.005
	Lower-bound	6671.029	1.000	6671.029	.666	.416	.005
TarEmot * DistEmot * Tcolor	Sphericity Assumed	3544.156	1	3544.156	.354	.553	.003
	Greenhouse-Geisser	3544.156	1.000	3544.156	.354	.553	.003
	Huynh-Feldt	3544.156	1.000	3544.156	.354	.553	.003
	Lower-bound	3544.156	1.000	3544.156	.354	.553	.003
Error(TarEmot*DistEmot)	Sphericity Assumed	1302180.271	130	10016.771			
	Greenhouse-Geisser	1302180.271	130.000	10016.771			
	Huynh-Feldt	1302180.271	130.000	10016.771			
	Lower-bound	1302180.271	130.000	10016.771			
DistPes * TarEmot * DistEmot	Sphericity Assumed	3106.037	1	3106.037	.400	.528	.003
	Greenhouse-Geisser	3106.037	1.000	3106.037	.400	.528	.003
	Huynh-Feldt	3106.037	1.000	3106.037	.400	.528	.003
	Lower-bound	3106.037	1.000	3106.037	.400	.528	.003

DistPes * TarEmot * DistEmot * Tcolor	Sphericity Assumed	1672.773	1	1672.773	.216	.643	.002
	Greenhouse-Geisser	1672.773	1.000	1672.773	.216	.643	.002
	Huynh-Feldt	1672.773	1.000	1672.773	.216	.643	.002
	Lower-bound	1672.773	1.000	1672.773	.216	.643	.002
Error(DistPes*TarEmot*DistEmot)	Sphericity Assumed	1008756.037	130	7759.662			
	Greenhouse-Geisser	1008756.037	130.000	7759.662			
	Huynh-Feldt	1008756.037	130.000	7759.662			
	Lower-bound	1008756.037	130.000	7759.662			
DistPes * Validity	Sphericity Assumed	91105.148	1	91105.148	16.912	.000	.115
	Greenhouse-Geisser	91105.148	1.000	91105.148	16.912	.000	.115
	Huynh-Feldt	91105.148	1.000	91105.148	16.912	.000	.115
	Lower-bound	91105.148	1.000	91105.148	16.912	.000	.115
DistPes * Validity * Tcolor	Sphericity Assumed	338.416	1	338.416	.063	.802	.000
	Greenhouse-Geisser	338.416	1.000	338.416	.063	.802	.000
	Huynh-Feldt	338.416	1.000	338.416	.063	.802	.000
	Lower-bound	338.416	1.000	338.416	.063	.802	.000
Error(DistPes*Validity)	Sphericity Assumed	700331.615	130	5387.166			
	Greenhouse-Geisser	700331.615	130.000	5387.166			
	Huynh-Feldt	700331.615	130.000	5387.166			
	Lower-bound	700331.615	130.000	5387.166			

TarEmot * Validity	Sphericity Assumed	1784.360	1	1784.360	.402	.527	.003
	Greenhouse-Geisser	1784.360	1.000	1784.360	.402	.527	.003
	Huynh-Feldt	1784.360	1.000	1784.360	.402	.527	.003
	Lower-bound	1784.360	1.000	1784.360	.402	.527	.003
TarEmot * Validity * Tcolor	Sphericity Assumed	82.050	1	82.050	.019	.892	.000
	Greenhouse-Geisser	82.050	1.000	82.050	.019	.892	.000
	Huynh-Feldt	82.050	1.000	82.050	.019	.892	.000
	Lower-bound	82.050	1.000	82.050	.019	.892	.000
Error(TarEmot*Validity)	Sphericity Assumed	576536.584	130	4434.897			
	Greenhouse-Geisser	576536.584	130.000	4434.897			
	Huynh-Feldt	576536.584	130.000	4434.897			
	Lower-bound	576536.584	130.000	4434.897			
DistPes * TarEmot * Validity	Sphericity Assumed	144.503	1	144.503	.026	.872	.000
	Greenhouse-Geisser	144.503	1.000	144.503	.026	.872	.000
	Huynh-Feldt	144.503	1.000	144.503	.026	.872	.000
	Lower-bound	144.503	1.000	144.503	.026	.872	.000
DistPes * TarEmot * Validity * Tcolor	Sphericity Assumed	151.341	1	151.341	.027	.869	.000
	Greenhouse-Geisser	151.341	1.000	151.341	.027	.869	.000
	Huynh-Feldt	151.341	1.000	151.341	.027	.869	.000
	Lower-bound	151.341	1.000	151.341	.027	.869	.000

Error(DistPes*TarEmot*Validity)	Sphericity Assumed	716863.942	130	5514.338			
	Greenhouse-Geisser	716863.942	130.000	5514.338			
	Huynh-Feldt	716863.942	130.000	5514.338			
	Lower-bound	716863.942	130.000	5514.338			
DistEmot * Validity	Sphericity Assumed	4298.033	1	4298.033	.683	.410	.005
	Greenhouse-Geisser	4298.033	1.000	4298.033	.683	.410	.005
	Huynh-Feldt	4298.033	1.000	4298.033	.683	.410	.005
	Lower-bound	4298.033	1.000	4298.033	.683	.410	.005
DistEmot * Validity * Tcolor	Sphericity Assumed	11876.358	1	11876.358	1.886	.172	.014
	Greenhouse-Geisser	11876.358	1.000	11876.358	1.886	.172	.014
	Huynh-Feldt	11876.358	1.000	11876.358	1.886	.172	.014
	Lower-bound	11876.358	1.000	11876.358	1.886	.172	.014
Error(DistEmot*Validity)	Sphericity Assumed	818495.726	130	6296.121			
	Greenhouse-Geisser	818495.726	130.000	6296.121			
	Huynh-Feldt	818495.726	130.000	6296.121			
	Lower-bound	818495.726	130.000	6296.121			
DistPes * DistEmot * Validity	Sphericity Assumed	3727.835	1	3727.835	.804	.371	.006
	Greenhouse-Geisser	3727.835	1.000	3727.835	.804	.371	.006
	Huynh-Feldt	3727.835	1.000	3727.835	.804	.371	.006
	Lower-bound	3727.835	1.000	3727.835	.804	.371	.006

DistPes * DistEmot * Validity * Tcolor	Sphericity Assumed	13904.559	1	13904.559	3.001	.086	.023
	Greenhouse-Geisser	13904.559	1.000	13904.559	3.001	.086	.023
	Huynh-Feldt	13904.559	1.000	13904.559	3.001	.086	.023
	Lower-bound	13904.559	1.000	13904.559	3.001	.086	.023
Error(DistPes*DistEmot*Validity)	Sphericity Assumed	602425.779	130	4634.044			
	Greenhouse-Geisser	602425.779	130.000	4634.044			
	Huynh-Feldt	602425.779	130.000	4634.044			
	Lower-bound	602425.779	130.000	4634.044			
TarEmot * DistEmot * Validity	Sphericity Assumed	20.261	1	20.261	.002	.962	.000
	Greenhouse-Geisser	20.261	1.000	20.261	.002	.962	.000
	Huynh-Feldt	20.261	1.000	20.261	.002	.962	.000
	Lower-bound	20.261	1.000	20.261	.002	.962	.000
TarEmot * DistEmot * Validity * Tcolor	Sphericity Assumed	14472.367	1	14472.367	1.636	.203	.012
	Greenhouse-Geisser	14472.367	1.000	14472.367	1.636	.203	.012
	Huynh-Feldt	14472.367	1.000	14472.367	1.636	.203	.012
	Lower-bound	14472.367	1.000	14472.367	1.636	.203	.012
Error(TarEmot*DistEmot*Validity)	Sphericity Assumed	1149882.278	130	8845.248			
	Greenhouse-Geisser	1149882.278	130.000	8845.248			
	Huynh-Feldt	1149882.278	130.000	8845.248			
	Lower-bound	1149882.278	130.000	8845.248			

DistPes * TarEmot * DistEmot * Validity	Sphericity Assumed	4181.458	1	4181.458	.587	.445	.004
	Greenhouse-Geisser	4181.458	1.000	4181.458	.587	.445	.004
	Huynh-Feldt	4181.458	1.000	4181.458	.587	.445	.004
	Lower-bound	4181.458	1.000	4181.458	.587	.445	.004
DistPes * TarEmot * DistEmot * Validity * Tcolor	Sphericity Assumed	3305.753	1	3305.753	.464	.497	.004
	Greenhouse-Geisser	3305.753	1.000	3305.753	.464	.497	.004
	Huynh-Feldt	3305.753	1.000	3305.753	.464	.497	.004
	Lower-bound	3305.753	1.000	3305.753	.464	.497	.004
Error(DistPes*TarEmot*DistEmot*Validity)	Sphericity Assumed	925310.921	130	7117.776			
	Greenhouse-Geisser	925310.921	130.000	7117.776			
	Huynh-Feldt	925310.921	130.000	7117.776			
	Lower-bound	925310.921	130.000	7117.776			

APPENDIX I: ANOVA ON PARTICIPANT ACCURACIES IN EXPERIMENT 2 FOR ALL TRIALS

2 (Distractor Item Status: absent vs. present) x 2 (Target Colour: red vs. green) x 2 (Target Valence: positive vs. negative) x 2 (Distractor Valence: positive vs. negative) x 2 (Cue Validity: valid vs. invalid)

Tests of Between-Subjects Effects

Measure: RespTime

Transformed Variable: Average

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Intercept	1834.060	1	1834.060	51896.547	.000	.998
Tcolor	.024	1	.024	.693	.407	.005
Error	4.594	130	.035			

Tests of Within-Subjects Effects

Measure: RespTime

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
DistPres	Sphericity Assumed	1.065E-005	1	1.065E-005	.001	.979	.000
	Greenhouse-Geisser	1.065E-005	1.000	1.065E-005	.001	.979	.000
	Huynh-Feldt	1.065E-005	1.000	1.065E-005	.001	.979	.000
	Lower-bound	1.065E-005	1.000	1.065E-005	.001	.979	.000
DistPres * Tcolor	Sphericity Assumed	.002	1	.002	.160	.690	.001
	Greenhouse-Geisser	.002	1.000	.002	.160	.690	.001
	Huynh-Feldt	.002	1.000	.002	.160	.690	.001
	Lower-bound	.002	1.000	.002	.160	.690	.001
Error(DistPres)	Sphericity Assumed	1.982	130	.015			
	Greenhouse-Geisser	1.982	130.000	.015			

	Huynh-Feldt	1.982	130.000	.015			
	Lower-bound	1.982	130.000	.015			
TarEmot	Sphericity Assumed	.168	1	.168	14.835	.000	.102
	Greenhouse-Geisser	.168	1.000	.168	14.835	.000	.102
	Huynh-Feldt	.168	1.000	.168	14.835	.000	.102
	Lower-bound	.168	1.000	.168	14.835	.000	.102
TarEmot * Tcolor	Sphericity Assumed	.003	1	.003	.299	.586	.002
	Greenhouse-Geisser	.003	1.000	.003	.299	.586	.002
	Huynh-Feldt	.003	1.000	.003	.299	.586	.002
	Lower-bound	.003	1.000	.003	.299	.586	.002
Error(TarEmot)	Sphericity Assumed	1.468	130	.011			
	Greenhouse-Geisser	1.468	130.000	.011			
	Huynh-Feldt	1.468	130.000	.011			
	Lower-bound	1.468	130.000	.011			
DistEmot	Sphericity Assumed	.009	1	.009	1.228	.270	.009
	Greenhouse-Geisser	.009	1.000	.009	1.228	.270	.009
	Huynh-Feldt	.009	1.000	.009	1.228	.270	.009
	Lower-bound	.009	1.000	.009	1.228	.270	.009
DistEmot * Tcolor	Sphericity Assumed	.007	1	.007	.920	.339	.007
	Greenhouse-Geisser	.007	1.000	.007	.920	.339	.007
	Huynh-Feldt	.007	1.000	.007	.920	.339	.007
	Lower-bound	.007	1.000	.007	.920	.339	.007
Error(DistEmot)	Sphericity Assumed	1.002	130	.008			
	Greenhouse-Geisser	1.002	130.000	.008			
	Huynh-Feldt	1.002	130.000	.008			
	Lower-bound	1.002	130.000	.008			
Validity	Sphericity Assumed	8.755E-005	1	8.755E-005	.007	.935	.000

	Greenhouse-Geisser	8.755E-005	1.000	8.755E-005	.007	.935	.000
	Huynh-Feldt	8.755E-005	1.000	8.755E-005	.007	.935	.000
	Lower-bound	8.755E-005	1.000	8.755E-005	.007	.935	.000
Validity * Tcolor	Sphericity Assumed	3.835E-006	1	3.835E-006	.000	.986	.000
	Greenhouse-Geisser	3.835E-006	1.000	3.835E-006	.000	.986	.000
	Huynh-Feldt	3.835E-006	1.000	3.835E-006	.000	.986	.000
	Lower-bound	3.835E-006	1.000	3.835E-006	.000	.986	.000
Error(Validity)	Sphericity Assumed	1.692	130	.013			
	Greenhouse-Geisser	1.692	130.000	.013			
	Huynh-Feldt	1.692	130.000	.013			
	Lower-bound	1.692	130.000	.013			
DistPres * TarEmot	Sphericity Assumed	.000	1	.000	.041	.840	.000
	Greenhouse-Geisser	.000	1.000	.000	.041	.840	.000
	Huynh-Feldt	.000	1.000	.000	.041	.840	.000
	Lower-bound	.000	1.000	.000	.041	.840	.000
DistPres * TarEmot * Tcolor	Sphericity Assumed	.000	1	.000	.032	.859	.000
	Greenhouse-Geisser	.000	1.000	.000	.032	.859	.000
	Huynh-Feldt	.000	1.000	.000	.032	.859	.000
	Lower-bound	.000	1.000	.000	.032	.859	.000
Error(DistPres*TarEmot)	Sphericity Assumed	1.476	130	.011			
	Greenhouse-Geisser	1.476	130.000	.011			
	Huynh-Feldt	1.476	130.000	.011			
	Lower-bound	1.476	130.000	.011			
DistPres * DistEmot	Sphericity Assumed	.000	1	.000	.015	.902	.000

	Greenhouse-Geisser	.000	1.000	.000	.015	.902	.000
	Huynh-Feldt	.000	1.000	.000	.015	.902	.000
	Lower-bound	.000	1.000	.000	.015	.902	.000
DistPres * DistEmot * Tcolor	Sphericity Assumed	.012	1	.012	1.426	.235	.011
	Greenhouse-Geisser	.012	1.000	.012	1.426	.235	.011
	Huynh-Feldt	.012	1.000	.012	1.426	.235	.011
	Lower-bound	.012	1.000	.012	1.426	.235	.011
Error(DistPres*DistEmot)	Sphericity Assumed	1.136	130	.009			
	Greenhouse-Geisser	1.136	130.000	.009			
	Huynh-Feldt	1.136	130.000	.009			
	Lower-bound	1.136	130.000	.009			
TarEmot * DistEmot	Sphericity Assumed	.032	1	.032	2.722	.101	.021
	Greenhouse-Geisser	.032	1.000	.032	2.722	.101	.021
	Huynh-Feldt	.032	1.000	.032	2.722	.101	.021
	Lower-bound	.032	1.000	.032	2.722	.101	.021
TarEmot * DistEmot * Tcolor	Sphericity Assumed	.009	1	.009	.730	.395	.006
	Greenhouse-Geisser	.009	1.000	.009	.730	.395	.006
	Huynh-Feldt	.009	1.000	.009	.730	.395	.006
	Lower-bound	.009	1.000	.009	.730	.395	.006
Error(TarEmot*DistEmot)	Sphericity Assumed	1.524	130	.012			
	Greenhouse-Geisser	1.524	130.000	.012			
	Huynh-Feldt	1.524	130.000	.012			
	Lower-bound	1.524	130.000	.012			
DistPres * TarEmot * DistEmot	Sphericity Assumed	7.959E-005	1	7.959E-005	.007	.932	.000
	Greenhouse-Geisser	7.959E-005	1.000	7.959E-005	.007	.932	.000
	Huynh-Feldt	7.959E-005	1.000	7.959E-005	.007	.932	.000

	Lower-bound	7.959E-005	1.000	7.959E-005	.007	.932	.000
DistPres * TarEmot * DistEmot * Tcolor	Sphericity Assumed	.006	1	.006	.565	.453	.004
	Greenhouse-Geisser	.006	1.000	.006	.565	.453	.004
	Huynh-Feldt	.006	1.000	.006	.565	.453	.004
	Lower-bound	.006	1.000	.006	.565	.453	.004
Error(DistPres*TarEmot*DistEmot)	Sphericity Assumed	1.435	130	.011			
	Greenhouse-Geisser	1.435	130.000	.011			
	Huynh-Feldt	1.435	130.000	.011			
	Lower-bound	1.435	130.000	.011			
DistPres * Validity	Sphericity Assumed	.060	1	.060	4.342	.039	.032
	Greenhouse-Geisser	.060	1.000	.060	4.342	.039	.032
	Huynh-Feldt	.060	1.000	.060	4.342	.039	.032
	Lower-bound	.060	1.000	.060	4.342	.039	.032
DistPres * Validity * Tcolor	Sphericity Assumed	.001	1	.001	.070	.792	.001
	Greenhouse-Geisser	.001	1.000	.001	.070	.792	.001
	Huynh-Feldt	.001	1.000	.001	.070	.792	.001
	Lower-bound	.001	1.000	.001	.070	.792	.001
Error(DistPres*Validity)	Sphericity Assumed	1.794	130	.014			
	Greenhouse-Geisser	1.794	130.000	.014			
	Huynh-Feldt	1.794	130.000	.014			
	Lower-bound	1.794	130.000	.014			
TarEmot * Validity	Sphericity Assumed	.002	1	.002	.176	.676	.001
	Greenhouse-Geisser	.002	1.000	.002	.176	.676	.001
	Huynh-Feldt	.002	1.000	.002	.176	.676	.001
	Lower-bound	.002	1.000	.002	.176	.676	.001
TarEmot * Validity * Tcolor	Sphericity Assumed	.012	1	.012	1.274	.261	.010

	Greenhouse-Geisser	.012	1.000	.012	1.274	.261	.010
	Huynh-Feldt	.012	1.000	.012	1.274	.261	.010
	Lower-bound	.012	1.000	.012	1.274	.261	.010
Error(TarEmot*Validity)	Sphericity Assumed	1.174	130	.009			
	Greenhouse-Geisser	1.174	130.000	.009			
	Huynh-Feldt	1.174	130.000	.009			
	Lower-bound	1.174	130.000	.009			
DistPres * TarEmot * Validity	Sphericity Assumed	.001	1	.001	.065	.800	.000
	Greenhouse-Geisser	.001	1.000	.001	.065	.800	.000
	Huynh-Feldt	.001	1.000	.001	.065	.800	.000
	Lower-bound	.001	1.000	.001	.065	.800	.000
DistPres * TarEmot * Validity * Tcolor	Sphericity Assumed	.001	1	.001	.095	.758	.001
	Greenhouse-Geisser	.001	1.000	.001	.095	.758	.001
	Huynh-Feldt	.001	1.000	.001	.095	.758	.001
	Lower-bound	.001	1.000	.001	.095	.758	.001
Error(DistPres*TarEmot*Validity)	Sphericity Assumed	1.394	130	.011			
	Greenhouse-Geisser	1.394	130.000	.011			
	Huynh-Feldt	1.394	130.000	.011			
	Lower-bound	1.394	130.000	.011			
DistEmot * Validity	Sphericity Assumed	.006	1	.006	.528	.469	.004
	Greenhouse-Geisser	.006	1.000	.006	.528	.469	.004
	Huynh-Feldt	.006	1.000	.006	.528	.469	.004
	Lower-bound	.006	1.000	.006	.528	.469	.004
DistEmot * Validity * Tcolor	Sphericity Assumed	.003	1	.003	.279	.598	.002
	Greenhouse-Geisser	.003	1.000	.003	.279	.598	.002
	Huynh-Feldt	.003	1.000	.003	.279	.598	.002
	Lower-bound	.003	1.000	.003	.279	.598	.002

Error(DistEmot*Validity)	Sphericity Assumed	1.388	130	.011			
	Greenhouse-Geisser	1.388	130.000	.011			
	Huynh-Feldt	1.388	130.000	.011			
	Lower-bound	1.388	130.000	.011			
DistPres * DistEmot * Validity	Sphericity Assumed	.006	1	.006	.614	.435	.005
	Greenhouse-Geisser	.006	1.000	.006	.614	.435	.005
	Huynh-Feldt	.006	1.000	.006	.614	.435	.005
	Lower-bound	.006	1.000	.006	.614	.435	.005
DistPres * DistEmot * Validity * Tcolor	Sphericity Assumed	.001	1	.001	.108	.743	.001
	Greenhouse-Geisser	.001	1.000	.001	.108	.743	.001
	Huynh-Feldt	.001	1.000	.001	.108	.743	.001
	Lower-bound	.001	1.000	.001	.108	.743	.001
Error(DistPres*DistEmot*Validity)	Sphericity Assumed	1.235	130	.010			
	Greenhouse-Geisser	1.235	130.000	.010			
	Huynh-Feldt	1.235	130.000	.010			
	Lower-bound	1.235	130.000	.010			
TarEmot * DistEmot * Validity	Sphericity Assumed	.003	1	.003	.225	.636	.002
	Greenhouse-Geisser	.003	1.000	.003	.225	.636	.002
	Huynh-Feldt	.003	1.000	.003	.225	.636	.002
	Lower-bound	.003	1.000	.003	.225	.636	.002
TarEmot * DistEmot * Validity * Tcolor	Sphericity Assumed	.003	1	.003	.232	.631	.002
	Greenhouse-Geisser	.003	1.000	.003	.232	.631	.002
	Huynh-Feldt	.003	1.000	.003	.232	.631	.002
	Lower-bound	.003	1.000	.003	.232	.631	.002
Error(TarEmot*DistEmot*Validity)	Sphericity Assumed	1.616	130	.012			
	Greenhouse-Geisser	1.616	130.000	.012			

	Huynh-Feldt	1.616	130.000	.012			
	Lower-bound	1.616	130.000	.012			
DistPres * TarEmot * DistEmot * Validity	Sphericity Assumed	.005	1	.005	.389	.534	.003
	Greenhouse-Geisser	.005	1.000	.005	.389	.534	.003
	Huynh-Feldt	.005	1.000	.005	.389	.534	.003
	Lower-bound	.005	1.000	.005	.389	.534	.003
DistPres * TarEmot * DistEmot * Validity * Tcolor	Sphericity Assumed	.002	1	.002	.164	.686	.001
	Greenhouse-Geisser	.002	1.000	.002	.164	.686	.001
	Huynh-Feldt	.002	1.000	.002	.164	.686	.001
	Lower-bound	.002	1.000	.002	.164	.686	.001
Error(DistPres*TarEmot*DistEmot*Validity)	Sphericity Assumed	1.513	130	.012			
	Greenhouse-Geisser	1.513	130.000	.012			
	Huynh-Feldt	1.513	130.000	.012			
	Lower-bound	1.513	130.000	.012			

APPENDIX J: ANOVA ON PARTICIPANT RTs IN EXPERIMENT 2 FOR ONLY TRIALS IN WHICH THE DISTRACTOR ITEM WAS PRESENT

Tests of Between-Subjects Effects

Measure: RespTime

Transformed Variable: Average

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Intercept	594838165.466	1	594838165.466	5390.695	.000	.976
Tcolor	1773.374	1	1773.374	.016	.899	.000
Error	14344896.964	130	110345.361			

Tests of Within-Subjects Effects

Measure: RespTime

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
TarEmot	Sphericity Assumed	261098.530	1	261098.530	41.875	.000	.244
	Greenhouse-Geisser	261098.530	1.000	261098.530	41.875	.000	.244
	Huynh-Feldt	261098.530	1.000	261098.530	41.875	.000	.244
	Lower-bound	261098.530	1.000	261098.530	41.875	.000	.244
TarEmot * Tcolor	Sphericity Assumed	47.033	1	47.033	.008	.931	.000
	Greenhouse-Geisser	47.033	1.000	47.033	.008	.931	.000
	Huynh-Feldt	47.033	1.000	47.033	.008	.931	.000
	Lower-bound	47.033	1.000	47.033	.008	.931	.000
Error(TarEmot)	Sphericity Assumed	810566.058	130	6235.124			
	Greenhouse-Geisser	810566.058	130.000	6235.124			
	Huynh-Feldt	810566.058	130.000	6235.124			
	Lower-bound	810566.058	130.000	6235.124			
DistEmot	Sphericity Assumed	10660.131	1	10660.131	2.008	.159	.015

	Greenhouse-Geisser	10660.131	1.000	10660.131	2.008	.159	.015
	Huynh-Feldt	10660.131	1.000	10660.131	2.008	.159	.015
	Lower-bound	10660.131	1.000	10660.131	2.008	.159	.015
DistEmot * Tcolor	Sphericity Assumed	1984.638	1	1984.638	.374	.542	.003
	Greenhouse-Geisser	1984.638	1.000	1984.638	.374	.542	.003
	Huynh-Feldt	1984.638	1.000	1984.638	.374	.542	.003
	Lower-bound	1984.638	1.000	1984.638	.374	.542	.003
Error(DistEmot)	Sphericity Assumed	690197.608	130	5309.212			
	Greenhouse-Geisser	690197.608	130.000	5309.212			
	Huynh-Feldt	690197.608	130.000	5309.212			
	Lower-bound	690197.608	130.000	5309.212			
Validity	Sphericity Assumed	623828.657	1	623828.657	95.996	.000	.425
	Greenhouse-Geisser	623828.657	1.000	623828.657	95.996	.000	.425
	Huynh-Feldt	623828.657	1.000	623828.657	95.996	.000	.425
	Lower-bound	623828.657	1.000	623828.657	95.996	.000	.425
Validity * Tcolor	Sphericity Assumed	19769.232	1	19769.232	3.042	.083	.023
	Greenhouse-Geisser	19769.232	1.000	19769.232	3.042	.083	.023
	Huynh-Feldt	19769.232	1.000	19769.232	3.042	.083	.023
	Lower-bound	19769.232	1.000	19769.232	3.042	.083	.023
Error(Validity)	Sphericity Assumed	844806.657	130	6498.513			
	Greenhouse-Geisser	844806.657	130.000	6498.513			
	Huynh-Feldt	844806.657	130.000	6498.513			
	Lower-bound	844806.657	130.000	6498.513			
TarEmot * DistEmot	Sphericity Assumed	336.559	1	336.559	.037	.847	.000
	Greenhouse-Geisser	336.559	1.000	336.559	.037	.847	.000
	Huynh-Feldt	336.559	1.000	336.559	.037	.847	.000
	Lower-bound	336.559	1.000	336.559	.037	.847	.000

TarEmot * DistEmot * Tcolor	Sphericity Assumed	173.599	1	173.599	.019	.890	.000
	Greenhouse-Geisser	173.599	1.000	173.599	.019	.890	.000
	Huynh-Feldt	173.599	1.000	173.599	.019	.890	.000
	Lower-bound	173.599	1.000	173.599	.019	.890	.000
Error(TarEmot*DistEmot)	Sphericity Assumed	1171665.307	130	9012.810			
	Greenhouse-Geisser	1171665.307	130.000	9012.810			
	Huynh-Feldt	1171665.307	130.000	9012.810			
	Lower-bound	1171665.307	130.000	9012.810			
TarEmot * Validity	Sphericity Assumed	1472.216	1	1472.216	.308	.580	.002
	Greenhouse-Geisser	1472.216	1.000	1472.216	.308	.580	.002
	Huynh-Feldt	1472.216	1.000	1472.216	.308	.580	.002
	Lower-bound	1472.216	1.000	1472.216	.308	.580	.002
TarEmot * Validity * Tcolor	Sphericity Assumed	228.129	1	228.129	.048	.827	.000
	Greenhouse-Geisser	228.129	1.000	228.129	.048	.827	.000
	Huynh-Feldt	228.129	1.000	228.129	.048	.827	.000
	Lower-bound	228.129	1.000	228.129	.048	.827	.000
Error(TarEmot*Validity)	Sphericity Assumed	622038.065	130	4784.908			
	Greenhouse-Geisser	622038.065	130.000	4784.908			
	Huynh-Feldt	622038.065	130.000	4784.908			
	Lower-bound	622038.065	130.000	4784.908			
DistEmot * Validity	Sphericity Assumed	10.140	1	10.140	.002	.963	.000
	Greenhouse-Geisser	10.140	1.000	10.140	.002	.963	.000
	Huynh-Feldt	10.140	1.000	10.140	.002	.963	.000
	Lower-bound	10.140	1.000	10.140	.002	.963	.000
DistEmot * Validity * Tcolor	Sphericity Assumed	25740.965	1	25740.965	5.582	.020	.041
	Greenhouse-Geisser	25740.965	1.000	25740.965	5.582	.020	.041

	Huynh-Feldt	25740.965	1.000	25740.965	5.582	.020	.041
	Lower-bound	25740.965	1.000	25740.965	5.582	.020	.041
Error(DistEmot*Validity)	Sphericity Assumed	599495.909	130	4611.507			
	Greenhouse-Geisser	599495.909	130.000	4611.507			
	Huynh-Feldt	599495.909	130.000	4611.507			
	Lower-bound	599495.909	130.000	4611.507			
TarEmot * DistEmot * Validity	Sphericity Assumed	1809.792	1	1809.792	.202	.654	.002
	Greenhouse-Geisser	1809.792	1.000	1809.792	.202	.654	.002
	Huynh-Feldt	1809.792	1.000	1809.792	.202	.654	.002
	Lower-bound	1809.792	1.000	1809.792	.202	.654	.002
TarEmot * DistEmot * Validity * Tcolor	Sphericity Assumed	1972.264	1	1972.264	.220	.640	.002
	Greenhouse-Geisser	1972.264	1.000	1972.264	.220	.640	.002
	Huynh-Feldt	1972.264	1.000	1972.264	.220	.640	.002
	Lower-bound	1972.264	1.000	1972.264	.220	.640	.002
Error(TarEmot*DistEmot*Validity)	Sphericity Assumed	1164717.050	130	8959.362			
	Greenhouse-Geisser	1164717.050	130.000	8959.362			
	Huynh-Feldt	1164717.050	130.000	8959.362			
	Lower-bound	1164717.050	130.000	8959.362			

APPENDIX K: ANOVA ON PARTICIPANT ACCURACIES IN EXPERIMENT 2 FOR ONLY TRIALS IN WHICH THE DISTRACTOR ITEM WAS PRESENT

Tests of Between-Subjects Effects

Measure: RespTime

Transformed Variable: Average

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Intercept	916.890	1	916.890	39359.365	.000	.997
Tcolor	.021	1	.021	.909	.342	.007
Error	3.028	130	.023			

Tests of Within-Subjects Effects

Measure: RespTime

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
TarEmot	Sphericity Assumed	.075	1	.075	5.999	.016	.044
	Greenhouse-Geisser	.075	1.000	.075	5.999	.016	.044
	Huynh-Feldt	.075	1.000	.075	5.999	.016	.044
	Lower-bound	.075	1.000	.075	5.999	.016	.044
TarEmot * Tcolor	Sphericity Assumed	.003	1	.003	.237	.627	.002
	Greenhouse-Geisser	.003	1.000	.003	.237	.627	.002
	Huynh-Feldt	.003	1.000	.003	.237	.627	.002
	Lower-bound	.003	1.000	.003	.237	.627	.002
Error(TarEmot)	Sphericity Assumed	1.629	130	.013			
	Greenhouse-Geisser	1.629	130.000	.013			
	Huynh-Feldt	1.629	130.000	.013			
	Lower-bound	1.629	130.000	.013			
DistEmot	Sphericity Assumed	.004	1	.004	.458	.500	.004

	Greenhouse-Geisser	.004	1.000	.004	.458	.500	.004
	Huynh-Feldt	.004	1.000	.004	.458	.500	.004
	Lower-bound	.004	1.000	.004	.458	.500	.004
DistEmot * Tcolor	Sphericity Assumed	.000	1	.000	.047	.829	.000
	Greenhouse-Geisser	.000	1.000	.000	.047	.829	.000
	Huynh-Feldt	.000	1.000	.000	.047	.829	.000
	Lower-bound	.000	1.000	.000	.047	.829	.000
Error(DistEmot)	Sphericity Assumed	1.044	130	.008			
	Greenhouse-Geisser	1.044	130.000	.008			
	Huynh-Feldt	1.044	130.000	.008			
	Lower-bound	1.044	130.000	.008			
Validity	Sphericity Assumed	.028	1	.028	2.374	.126	.018
	Greenhouse-Geisser	.028	1.000	.028	2.374	.126	.018
	Huynh-Feldt	.028	1.000	.028	2.374	.126	.018
	Lower-bound	.028	1.000	.028	2.374	.126	.018
Validity * Tcolor	Sphericity Assumed	.000	1	.000	.036	.849	.000
	Greenhouse-Geisser	.000	1.000	.000	.036	.849	.000
	Huynh-Feldt	.000	1.000	.000	.036	.849	.000
	Lower-bound	.000	1.000	.000	.036	.849	.000
Error(Validity)	Sphericity Assumed	1.517	130	.012			
	Greenhouse-Geisser	1.517	130.000	.012			
	Huynh-Feldt	1.517	130.000	.012			
	Lower-bound	1.517	130.000	.012			
TarEmot * DistEmot	Sphericity Assumed	.018	1	.018	1.673	.198	.013
	Greenhouse-Geisser	.018	1.000	.018	1.673	.198	.013
	Huynh-Feldt	.018	1.000	.018	1.673	.198	.013
	Lower-bound	.018	1.000	.018	1.673	.198	.013

TarEmot * DistEmot * Tcolor	Sphericity Assumed	9.100E-005	1	9.100E-005	.009	.926	.000
	Greenhouse-Geisser	9.100E-005	1.000	9.100E-005	.009	.926	.000
	Huynh-Feldt	9.100E-005	1.000	9.100E-005	.009	.926	.000
	Lower-bound	9.100E-005	1.000	9.100E-005	.009	.926	.000
Error(TarEmot*DistEmot)	Sphericity Assumed	1.367	130	.011			
	Greenhouse-Geisser	1.367	130.000	.011			
	Huynh-Feldt	1.367	130.000	.011			
	Lower-bound	1.367	130.000	.011			
TarEmot * Validity	Sphericity Assumed	9.100E-005	1	9.100E-005	.009	.923	.000
	Greenhouse-Geisser	9.100E-005	1.000	9.100E-005	.009	.923	.000
	Huynh-Feldt	9.100E-005	1.000	9.100E-005	.009	.923	.000
	Lower-bound	9.100E-005	1.000	9.100E-005	.009	.923	.000
TarEmot * Validity * Tcolor	Sphericity Assumed	.003	1	.003	.296	.588	.002
	Greenhouse-Geisser	.003	1.000	.003	.296	.588	.002
	Huynh-Feldt	.003	1.000	.003	.296	.588	.002
	Lower-bound	.003	1.000	.003	.296	.588	.002
Error(TarEmot*Validity)	Sphericity Assumed	1.246	130	.010			
	Greenhouse-Geisser	1.246	130.000	.010			
	Huynh-Feldt	1.246	130.000	.010			
	Lower-bound	1.246	130.000	.010			
DistEmot * Validity	Sphericity Assumed	8.523E-007	1	8.523E-007	.000	.992	.000
	Greenhouse-Geisser	8.523E-007	1.000	8.523E-007	.000	.992	.000
	Huynh-Feldt	8.523E-007	1.000	8.523E-007	.000	.992	.000

	Lower-bound	8.523E-007	1.000	8.523E-007	.000	.992	.000
DistEmot * Validity * Tcolor	Sphericity Assumed	.004	1	.004	.439	.509	.003
	Greenhouse-Geisser	.004	1.000	.004	.439	.509	.003
	Huynh-Feldt	.004	1.000	.004	.439	.509	.003
	Lower-bound	.004	1.000	.004	.439	.509	.003
Error(DistEmot*Validity)	Sphericity Assumed	1.110	130	.009			
	Greenhouse-Geisser	1.110	130.000	.009			
	Huynh-Feldt	1.110	130.000	.009			
	Lower-bound	1.110	130.000	.009			
TarEmot * DistEmot * Validity	Sphericity Assumed	.000	1	.000	.008	.930	.000
	Greenhouse-Geisser	.000	1.000	.000	.008	.930	.000
	Huynh-Feldt	.000	1.000	.000	.008	.930	.000
	Lower-bound	.000	1.000	.000	.008	.930	.000
TarEmot * DistEmot * Validity * Tcolor	Sphericity Assumed	5.009E-005	1	5.009E-005	.004	.951	.000
	Greenhouse-Geisser	5.009E-005	1.000	5.009E-005	.004	.951	.000
	Huynh-Feldt	5.009E-005	1.000	5.009E-005	.004	.951	.000
	Lower-bound	5.009E-005	1.000	5.009E-005	.004	.951	.000
Error(TarEmot*DistEmot*Validity)	Sphericity Assumed	1.710	130	.013			
	Greenhouse-Geisser	1.710	130.000	.013			
	Huynh-Feldt	1.710	130.000	.013			
	Lower-bound	1.710	130.000	.013			

APPENDIX L: CROSS-EXPERIMENTAL ANOVA ON PARTICIPANT RTs

2 (Experiment: 1 vs. 2) x 2 (Cue Validity: valid vs. invalid)

Tests of Between-Subjects Effects

Measure: RespTime

Transformed Variable: Average

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Intercept	285275108.838	1	285275108.838	13358.056	.000	.981
Exp	15454.469	1	15454.469	.724	.396	.003
Error	5509857.142	258	21356.035			

Tests of Within-Subjects Effects

Measure: RespTime

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Validity	Sphericity Assumed	85762.872	1	85762.872	79.081	.000	.235
	Greenhouse-Geisser	85762.872	1.000	85762.872	79.081	.000	.235
	Huynh-Feldt	85762.872	1.000	85762.872	79.081	.000	.235
	Lower-bound	85762.872	1.000	85762.872	79.081	.000	.235
Validity * Exp	Sphericity Assumed	7853.676	1	7853.676	7.242	.008	.027
	Greenhouse-Geisser	7853.676	1.000	7853.676	7.242	.008	.027
	Huynh-Feldt	7853.676	1.000	7853.676	7.242	.008	.027
	Lower-bound	7853.676	1.000	7853.676	7.242	.008	.027
Error(Validity)	Sphericity Assumed	279797.993	258	1084.488			
	Greenhouse-Geisser	279797.993	258.000	1084.488			
	Huynh-Feldt	279797.993	258.000	1084.488			
	Lower-bound	279797.993	258.000	1084.488			

APPENDIX M: CROSS-EXPERIMENTAL ANOVA ON PARTICIPANT ACCURACIES

2 (Experiment: 1 vs. 2) x 2 (Cue Validity: valid vs. invalid)

Tests of Between-Subjects Effects

Measure: RespTime

Transformed Variable: Average

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Intercept	447.542	1	447.542	85812.774	.000	.997
Exp	.020	1	.020	3.912	.049	.015
Error	1.346	258	.005			

Tests of Within-Subjects Effects

Measure: RespTime

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Validity	Sphericity Assumed	7.694E-005	1	7.694E-005	.042	.838	.000
	Greenhouse-Geisser	7.694E-005	1.000	7.694E-005	.042	.838	.000
	Huynh-Feldt	7.694E-005	1.000	7.694E-005	.042	.838	.000
	Lower-bound	7.694E-005	1.000	7.694E-005	.042	.838	.000
Validity * Exp	Sphericity Assumed	1.821E-008	1	1.821E-008	.000	.997	.000
	Greenhouse-Geisser	1.821E-008	1.000	1.821E-008	.000	.997	.000
	Huynh-Feldt	1.821E-008	1.000	1.821E-008	.000	.997	.000
	Lower-bound	1.821E-008	1.000	1.821E-008	.000	.997	.000
Error(Validity)	Sphericity Assumed	.472	258	.002			
	Greenhouse-Geisser	.472	258.000	.002			
	Huynh-Feldt	.472	258.000	.002			
	Lower-bound	.472	258.000	.002			