

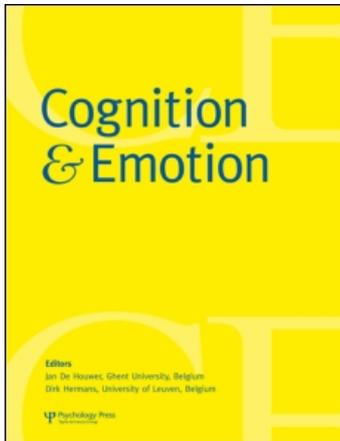
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There is a fire burning in my heart: The role of causal attribution in affect transfer

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BRIEF REPORT

There is a fire burning in my heart: The role of causal attribution in affect transfer

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The role of causal attribution in affect transfer of primes was addressed by examining the consequences of explicit evaluation of primes within the framework of the affect misattribution procedure (AMP; Payne, Cheng, Govorun, & Stewart, 2005). We reasoned that affect transfer occurs when primed affect remains diffuse and not bound to a specific object, hence capable of freely colouring subsequent evaluations of ambiguous objects. Accordingly, we propose that when people explicitly evaluate the prime, affect is clearly bound to the prime and becomes less capable of influencing subsequent judgements. Supporting this notion, affect transfer in the AMP was observed when participants ignored the primes, thereby keeping the primed affect relatively unbound. However, this effect disappeared when participants explicitly evaluated the primes before target stimuli were presented. Implications of these findings in determining how and when affect arising from one object carries over to another is discussed.

Keywords: Affect transfer; Attribution; Affective priming; Affect misattribution procedure; Diffuseness/distinctness of affect.

Every day people are faced with various emotional cues which, despite conscious attempts to ignore or hide the affective responses they evoke, automatically influence subsequent evaluations of unrelated objects (e.g., Murphy & Zajonc, 1993; Payne,

Cheng, Govorun, & Stewart, 2005). Although a great deal of attention has been devoted to studying the automatic influences of affective responses, it is not entirely clear, however, how and when affect arising from one object influences judgement of

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other objects (see Stapel, Koomen, & Ruys, 2002, for a similar discussion).

The automatic influence of affective reactions to primes is often studied in an affective priming paradigm (e.g., Fazio, Sanbonmatsu, Powell, & Kardes, 1986), typically showing faster responses to positive (or negative) target words after brief exposure to positive (or negative) prime words, and slower responses after negative (or positive) prime words. This affective priming effect is commonly explained in terms of the compatibility of the valence (e.g., Fazio et al., 1986) or the response readiness (e.g., De Houwer, 2003) prompted by the prime and the target. However, these two accounts may not be the only mechanisms by which automatic affective responses influence subsequent judgements. Payne et al. (2005) have developed a variant to the affective priming paradigm that does not rely on the compatibility of the prime and the target. In a typical affect misattribution procedure (AMP) paradigm, participants are asked to ignore an affect-laden picture prime presented briefly in the centre of the computer screen, and then to judge the pleasantness of an ambiguous target (e.g., Chinese symbols) that usually should evoke random evaluative responses. Although the target stimuli in this paradigm are ambiguous and therefore prompt no accessible knowledge or responses, automatic influence of affective reactions evoked by the prime is nonetheless observed; Chinese symbols are more likely to be evaluated as positive following positive picture primes compared to following negative picture primes (Payne et al., 2005).

According to Payne et al. (2005), the AMP relies on the idea that people lack the ability to distinguish the proper cause of their momentary affect (cf. Wilson & Brekke, 1994), and therefore misattribute the affect evoked by the prime to the subsequent judgement of a neutral target. It is assumed that the neutral feature of targets with no clear valence deployed in the AMP is a crucial difference with the more traditional affective priming paradigm (Fazio et al., 1986), making primed affect more susceptible to misattribution effects while at the same time undermining the

occurrence of compatibility effects (cf. Deutsch & Gawronski, 2009).

However, the mechanism driving the AMP is largely untested, and whether the inability to disentangle the source of affect is a crucial mediator of the AMP effect lacks empirical grounding. The present study sought to resolve this ambiguity by directly testing the claim that the confusability of the source of affect is a key in determining whether or not affect transfer in the AMP should be observed. If the AMP is indeed a measure of affect misattribution, then encouraging participants to attribute affect to the prime, such as by asking participants to explicitly evaluate the prime before evaluating the neutral target should undermine the occurrence of the AMP effect. Alternatively, if the transfer of affect remains to ensue even after affect has been attributed to the prime, the AMP may be less reliant on affect misattribution.

We reason that numerous stimulations evoke affective responses without necessarily provoking explicit evaluations or attention to the cause of affect (cf. Aarts, Custers, & Marien, 2008; Dijksterhuis & Aarts, 2003; Murphy & Zajonc, 1993; Zajonc, 1980). This is in line with the notion of affective primacy, which suggests that early affective reactions are cognitively unappraised and thus diffuse and unspecified. Such early affect is said to be “free-floating” and “undecided” (Murphy & Zajonc, 1993, p. 591; Zajonc, 2000, p. 48), which readily spills over to evaluations of other objects. For instance, when one is not sure where one’s feelings come from or belong to, affect is readily carried over to other objects (cf. Jacoby, Kelley, Brown, & Jasechko, 1989). This diffuse affect may become more distinct and dedicated to a specific object through additional descriptive appraisals, such as by forming more fully fledged recognition of what the object represents or what valence it has (see Gawronski & Bodenhausen, 2006; Strack & Deutsch, 2004, for a propositional process account of such dedication of affect to primes). When the primed affect is dedicated to a specific object, and therefore it is clear where affect belongs, misattribution to other objects should become less likely. In previous research on the AMP, however, it was (albeit explicitly or implicitly)

assumed that affective primes influence subsequent target judgements somewhat unconditionally (e.g., Deutsch & Gawronski, 2009; Oikawa, Oikawa, & Aobayashi, 2009; Payne et al., 2005) without considering the role of participant's notion about the source of affect in modulating affect misattribution effects.

We assume that explicitly evaluating the prime should clarify in people's mind where the primed affect belongs. Specifically, whereas an affect-laden prime or object may evoke associated affect automatically (e.g., Murphy & Zajonc, 1993; Zajonc, 1980), we propose that the explicit evaluation of the object will bind affect to the object. Consequently, once affect is attributed to a specific object there should be less room for affect to be (mis)attributed to other objects (cf. Kelley, 1967). There is research pointing to this possibility. For example, a now classic study by Schwarz and Clore (1983) has shown that directing people's attention to the pleasantness of the weather eliminates carryover effects of their mood on various unrelated evaluative judgements. Whereas directing attention to sources that may be responsible for one's own affective state is clearly different from explicitly evaluating a prime (non-target) stimulus, these findings suggest that mood effects are attenuated when affect is attributed to a potentially relevant source (cf. Gawronski & Bodenhausen, 2006; Strack & Deutsch, 2004).

It is important to note that our prediction may hold only for the AMP effect (impact of affect-laden primes on the evaluative content of neutral targets; Payne et al., 2005) but not for other affective priming effects as tested in the traditional affective priming paradigm (impact of affect-laden primes on the speed or accuracy with which the affect-laden targets are evaluated; Fazio et al., 1986). In fact, there is evidence to suggest that allocating attention to the affective feature of the prime will not eliminate but rather lead to magnified priming effects in the traditional affective priming paradigm (Spruyt, De Houwer, Hermans, & Eelen, 2007; Spruyt, De Houwer, & Hermans, 2009). These findings are consistent with the general idea that increasing the salience of a specific feature of the prime magnifies accessibility effects (e.g.,

Deutsch & Gawronski, 2009; Fazio, 2007). We propose, however, that allocating attention to the prime may do just the opposite for affect transfer in the AMP. That is, affect misattribution effects should be undermined when the primes are attended to as a source of affect.

To summarise our line of reasoning, we posit that clarity of attribution plays a crucial role in determining the diffuseness/distinctness of affect, which has important consequences for subsequent judgement of unrelated neutral objects. We propose that the affect misattribution effect occurs when affect primed by exposure to an affect-laden object remains unbound, hence capable of freely colouring subsequent evaluative judgements of ambiguous stimuli. However, when the object is explicitly evaluated affect is bound and attributed to the object. Thus we hypothesise that when people explicitly evaluate the primes, then affect becomes less capable of colouring subsequent judgements.

To examine this intriguing idea, we carried out an adapted AMP (Payne et al., 2005), which varied the responses towards the primes. In a typical AMP paradigm, pleasant or unpleasant picture primes (e.g., puppy or shark) influence subsequent evaluations of unrelated neutral targets (e.g., Chinese symbols), despite blatant warning to ignore the primes. We suggest that this happens precisely because the affect primed by the pictures remains relatively diffuse and thus spills over to subsequent evaluative judgements of unrelated objects. Although this affect misattribution effect has been observed to be quite robust in the previous research (e.g., Payne et al., 2005), we predict that when people explicitly evaluate the prime and thus affect is bound to an object, affect should cease to influence subsequent judgements of ambiguous stimuli.

Accordingly, in the present experiment some participants were asked to ignore the primes as in the original AMP (thereby keeping affect relatively unbound), while other participants were asked to explicitly evaluate the primes (thereby binding affect to the prime). Furthermore, one extra condition was added where participants were asked to give non-affective responses towards the primes, in order to account for the possibility that simply

giving any responses towards the primes is sufficient to disrupt the priming effect.

METHOD

Participants, design, and procedure

Eighty-six Dutch undergraduate students were randomly assigned to one of three response conditions; *ignore* condition ($n = 29$), *evaluate* condition ($n = 29$) or *non-affective response* condition ($n = 28$), and performed an adapted affect misattribution procedure programmed on a computer. All participants were told that pictures and Chinese symbols would be presented repeatedly. In the *ignore* condition, which resembles a typical AMP, participants were asked to ignore the pictures and indicate whether they liked or disliked the Chinese symbols (by pressing one of two designated keys on the computer keyboard) as they appeared on the screen. In the *evaluate* condition, participants were first asked to explicitly indicate whether they liked or disliked the pictures before they responded to the Chinese symbols as they appeared on the screen. The same keys were used for prime response and target response. In the *non-affective response* condition, participants were first asked to indicate which one of two letters (corresponding to the same keys used for judging Chinese symbols) was presented on the picture (superimposed on the centre of the pictures) and then to indicate whether they liked or disliked the Chinese symbols. These letters were marked independently of the valence of the picture primes.

After completing the practice trials using different sets of pictures and symbols, participants completed a total of 24 randomly ordered experimental trials, with 12 positive and 12 negative picture primes. Affect-laden pictures were chosen from the *International Affective Picture System* (IAPS, Lang, Bradley, & Cuthbert, 1995). Twenty-four different Chinese symbols were used as targets. Each symbol was paired with a prime picture in a new random order for each participant. The timing of events on each of 24 trials was as follows: An affect-laden picture appeared for 150 ms, followed by “mask 1”

(a pattern mask consisting of black and white dots) for 1350 ms, a Chinese symbol for 150 ms, and “mask 2” (the same pattern mask as mask 1) for 1350 ms. The inter-trial interval was 1.5 seconds. Depending on the experimental condition to which they were assigned, participants ignored or responded to the picture primes during mask 1 and evaluated the Chinese symbols during mask 2. Masks were programmed to remain on the screen until a response was made and the allotted time had elapsed. Although SOAs (Stimulus Onset Asynchrony) for typical affective priming paradigms are usually much shorter, we extended our SOA to enable participants to respond to the prime, provided that previous study has shown that priming effect on AMP is rather unaffected by variations in SOA as long as 1500 ms (Payne et al., 2005).

RESULTS

Most responses (94%) were made within the allotted time frame. The number of responses not made within the allowed time frame was equally distributed across the two (evaluative and non-affective response) conditions, $F < 1$, and thus all response data were used for further analyses. Exclusion of delayed responses did not change the overall pattern of the results. The proportions of dislike and like responses to the Chinese symbols was subjected to a 3 (Response Condition: ignore vs. evaluate vs. non-affective response) between-participants \times 2 (Valence of the Prime: negative vs. positive) within-participants analysis of variance (ANOVA). This analysis yielded a significant interaction effect, $F(2, 83) = 3.10$, $p < .05$, $\eta^2 = .059$ (see Figure 1).

To examine our hypothesis we conducted tests of simple effects. These analyses revealed that participants in the *ignore* condition were more likely to evaluate the Chinese symbols as pleasant following positive primes ($M = 0.55$, $SD = 0.23$) compared to following negative primes ($M = 0.42$, $SD = 0.26$), $F(2, 83) = 12.13$, $p < .01$, $\eta^2 = .302$.

In line with our predictions, however, in the *evaluate* condition the proportion of positively evaluated Chinese symbols was unaffected by

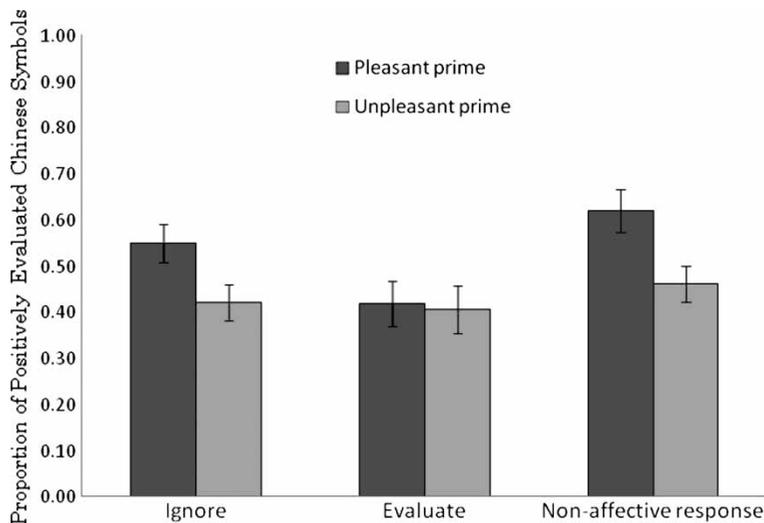


Figure 1. Proportion of positively evaluated Chinese symbols as a function of positive or negative primes and response conditions. Error bars represent the standard error.

positive primes ($M = 0.42$, $SD = 0.26$) or negative primes ($M = 0.41$, $SD = 0.28$), $F < 1$.

Importantly, as was observed in the *ignore* condition, a significant affect transfer was also evident in the *non-affective response* condition; the proportion of positively evaluated Chinese symbols in the *non-affective response* condition was significantly higher following positive primes ($M = 0.62$, $SD = 0.25$) compared to following negative primes ($M = 0.46$, $SD = 0.21$), $F(2, 83) = 8.39$, $p < .01$, $\eta^2 = .237$.

DISCUSSION

The goal of the present study was to directly test the hypothesis that affect transfer from one stimulus to another as observed in the AMP (Payne et al., 2005) depends on the fact that primed affect remains relatively unbound and diffuse, thus capable of freely spilling over to subsequent evaluation of ambiguous objects. Whereas it is common practice in the AMP to explicitly ask participants to ignore the primes, we argue that this should only blur the participant's notion about the source of the primed affect. We reasoned that instead of attempting to ignore the primes, if the primes are

explicitly evaluated, this should clarify in people's mind where the affect should be distinctly bound (the prime), which in turn undermines the occurrence of misattribution effects.

The results of the present research confirmed this prediction. When participants were asked to ignore the primes—thereby keeping affect relatively unbound—primed affect nevertheless manifested itself by seeping into subsequent evaluative judgements of ambiguous stimuli. This affect transfer effect occurred even though the time between prime and target was 1350 ms. This finding is consistent with previous findings within the AMP, showing that under varied prime–target delays as long as 1500 ms, the affect-laden primes influence the subsequent judgement of neutral stimuli (e.g., Payne et al., 2005). However, when participants were asked to explicitly evaluate the primes, the affect transfer effect ceased to ensue. This disappearance of affect transfer is in line with our hypothesis, according to which the explicit evaluation of an affect-laden object causes the primed affect to become bound to the specific object (the prime), which should make affect less capable of spilling over to evaluative judgements of other objects. Importantly, non-affective responses towards the primes also led to the AMP effect,

which suggests that it is not just any response to the primes or the distraction that such responses may induce that takes the transfer of affect away. More likely, it was the attribution of affect that extinguished the automatic transfer of primed affect. These results are consistent with earlier research suggesting that diffuse affect relatively unbound to a specific object is more easily carried over to evaluations of other objects (e.g., Murphy & Zajonc, 1993; Stapel et al., 2002).

The present findings are interesting and novel in several regards. First, our study offers initial empirical data that directly demonstrate that the priming effect observed in the AMP is in fact a misattribution effect. As the name implies, the AMP is a measure developed based on the idea that affect evoked by the prime is misattributed to evaluative judgement of subsequent target objects. However, although the AMP has been used in other recent studies (e.g., Deutsch & Gawronski, 2009; Oikawa et al., 2009; Payne, Burkley, & Stokes, 2008) until now the mechanism underlying the AMP effect has not been directly tested, and therefore it was unclear whether affect misattribution let alone affect transfer was really taking place in the framework of the AMP. By demonstrating sensitivity to the attribution (via explicit evaluation) manipulation, the present findings provide empirical grounding for interpreting the AMP effects as affect transfer emanating from misattribution of affect.

These findings are especially important in light of previous theorising that predicts that explicitly evaluating the primes or otherwise devoting attention to them will not eliminate the affective priming effect. That is, whereas affect-laden primes are often assumed to evoke associated affect regardless of participant's notion about the source of affect, recent studies within the traditional affective priming paradigm (Fazio et al., 1986) suggest that attending to affective features of the primes even leads to stronger priming effects (e.g., Spruyt et al., 2007, 2009). The contrasting results that we obtained in the present study could be explained in terms of differences in task-specific mediators (cf. Deutsch & Gawronski, 2009). Because the typical affective priming paradigm

deals with facilitation/inhibition effects due to the compatibility of the salient features of the prime and the target, feature-specific attention allocation towards the prime should increase affective priming effects. Although increasing salience of a specific feature of the prime enhances accessibility effects in general (cf. Fazio, 2007), affect transfer due to misattribution as observed in the AMP may be a notable exception to this rule.

As was demonstrated in the present study, explicitly attending to the affective feature of the prime, albeit increasing accessibility of primed affect, may encourage attribution of the affect to the prime, thereby undermining affect misattribution effects. Thus, the present finding suggests that in addition to mere strength of the primed affect, people's notion about the source of the affect should be taken into account when considering boundary conditions of affect transfer (but not necessarily affective priming effects in general).

Whereas the present study capitalises on the idea that the explicit evaluation of affect-laden primes causes people to attribute affect to the primes, it is worthwhile to speculate on other potential processes that may moderate affective transfer effects in the AMP as a result of explicit evaluations. One possibility may be that explicit evaluations serve an emotion expression function. Expressing one's emotions has been given a central role in the process of reducing emotional tension and preventing one's emotion towards a specific event from influencing other aspects of one's life (Foa & Meadows, 1997; Pennebaker, 1997; Smyth, 1998). Thus, expressing one's emotion towards primes may reduce AMP effects as well. However, work on catharsis suggests that things may be more complicated (Bushman, Baumeister, & Stack, 1999; Denzler, Förster, & Liberman, 2009). Whereas the common logic of catharsis posits that release of aggression can be achieved via expression of aggression against objects and persons not at fault (e.g., Lee, 1993), research by Bushman et al. (1999) and Denzler et al. (2009) shows that venting out one's aggressive state (e.g., by punching a bag) may even increase future acts of aggression. Given this mixed state of affairs in the expression of emotion literature, we consider the

present results in favour of an attribution account rather than an expression account. However, future studies could consider these two processes to examine whether they independently or concurrently downplay the occurrence of affect transfer.

Another possible account for the present findings is that the cessation of the affect transfer effect in the *evaluate* condition may be explained in terms of a comparison process. That is, asking participants to explicitly evaluate the primes might have caused them to develop more conservative standards of what a positive or negative stimulus is. In comparison to the primes, the Chinese symbols must therefore seem quite neutral. This might lead to random evaluative responses to these targets. Although it is plausible that explicitly evaluating one object could set a standard for evaluating another object (e.g., Moskowitz & Skurnik, 1999), it should be noted that the neutral feature of the targets (which usually should evoke random evaluative responses) in the AMP is a crucial aspect of the procedure that determines its susceptibility to affect transfer (Payne et al., 2005). Indeed, the AMP effects observed in spite of neutral targets used in the *ignore condition* and the *non-affective response* condition indicate that participants rarely resort to random responses when diffuse affect is present at the time of judgement. Thus, whereas our findings suggest that explicit evaluations of the primes extinguished the automatic transfer of primed affect as a result of attributing affect to the primes, it may be that such evaluations render the neutral targets even more neutral as well.

Finally, our findings may also shed some insight into the control of automatic influences of affective responses. The difficulty people face when attempting to exert control over automatic affective responses has received a great deal of attention in previous psychological research (cf. Gross, 1999). It has been well documented that emotional cues automatically influence subsequent evaluations of unrelated objects, despite conscious attempts to ignore the affective stimuli or the responses they evoke (e.g., Murphy & Zajonc, 1993; Payne et al., 2005). Consistent with this view, the present findings suggest that attempting to ignore the affect-laden stimuli does not help to extinguish

“the fire in our hearts”. However, by attending to, and attributing affect to, the associated stimulus we may prevent it from spreading to other objects.

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