# Fanning the Flames of Prejudice: The Influence of Specific Incidental Emotions on Implicit Prejudice

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Three experiments examined the impact of incidental emotions on implicit intergroup evaluations. Experiment 1 demonstrated that for unknown social groups, two negative emotions that are broadly applicable to intergroup conflict (anger and disgust) both created implicit bias where none had existed before. However, for known groups about which perceivers had prior knowledge, emotions increased implicit prejudice only if the induced emotion was applicable to the outgroup stereotype. Disgust increased bias against disgust-relevant groups (e.g., homosexuals) but anger did not (Experiment 2); anger increased bias against anger-relevant groups (e.g., Arabs) but disgust did not (Experiment 3). Consistent with functional theories of emotion, these findings suggest that negative intergroup emotions signal specific types of threat. If the emotion-specific threat is applicable to prior expectations of a group, the emotion ratchets up implicit prejudice toward that group. However, if the emotion-specific threat is not applicable to the target group, evaluations remain unchanged.

*Keywords:* intergroup emotion, prejudice, implicit, automatic, social cognition

Since the heyday of frustration-aggression and scapegoating theories of prejudice (Dollard, Miller, Doob, Mowrer, & Sears, 1939), social psychologists have recognized that intergroup relations are inextricably linked to emotions. Appraisals of particular groups arouse specific emotions (i.e., *integral emotions*; Cottrell & Neuberg, 2005; Fiske, Cuddy, & Glick, 2002; Mackie & Smith, 2002). So too, emotions aroused by sources unrelated to intergroup relations (*incidental emotions*) spill over and bias outgroup judgments and information processing (Bodenhausen, Mussweiler, Gabriel, & Moreno, 2001).

The link between emotion and intergroup relations is consistent with functional theories that view emotion as adaptive mechanisms that produce specific cognitive, physiological, and behavioral responses to challenging environmental stimuli (Damasio, 1994; Frijda, 1986; LeDoux, 1996; Schwarz & Clore, 1996). For human beings, social groups can be sources of challenge if they instigate competition and conflict (Brewer & Brown, 1998). If emotions are adaptive, they should serve as internal signals that help individuals navigate such outgroup threats.

Consistent with this idea, past research shows that emotions, even when aroused incidentally, influence how people process information about outgroups (Bodenhausen et al., 2001; Fiske, 1998). Both anger, which signals the need for rapid action, and happiness, which signals satisfaction, promote a heuristic style of information processing, increasing reliance on stereotypes while making judgments (Bodenhausen, Kramer, & Süsser, 1994; Bodenhausen, Sheppard, & Kramer, 1994; Tiedens & Linton, 2001). However, sadness, which signals personal loss and the need for caution, promotes a systematic style of information processing, decreasing reliance on stereotypes (Lambert, Khan, Lickel, & Fricke, 1997; Park & Banaji, 2000).

These findings raise two important unanswered questions that are investigated in the present research. First, if the primary way in which emotions increase versus decrease stereotyping is by activating heuristic versus systematic information processing respectively, what will happen when social judgments are rendered under time pressure such that information processing is uniformly constrained to be heuristic (i.e., implicit judgments)? Here, will discrete emotions have any spill-over effect on outgroup judgments? Second, will incidental emotions have differential effects on evaluations of specific groups depending on the degree to which an emotion is applicable to perceivers' expectations of that group? While past research implies that judgments of all outgroups will become equally biased as long as an emotion induces heuristic processing, we propose an emotion-specific hypothesis: an incidentally experienced emotion (e.g., anger) will increase implicit outgroup bias only if the emotion is applicable to a specific outgroup in terms of the pre-existing stereotypes of the group (e.g., stereotypes about hostility), anticipated threats (e.g., aggression), and activated goals (e.g., approach motivation). This hypothesis

fits with past research on construct accessibility and the applicability principle which shows that semantic constructs, once mentally primed, unknowingly bias subsequent social judgments, but only when the primed construct is semantically applicable to the target being judged (cf. Higgins, 1996; Schaller, Park, & Mueller, 2003).

Consider disgust, which is elicited by the threat of physical or moral contamination. In the intergroup context, gays and lesbians are associated with disgust because many Americans perceive gay individuals as violating moral values about "appropriate" sexual behavior (Cottrell & Neuberg, 2005; Herek, 1996; Mosher & O'Grady, 1979). Even if disgust is aroused by incidental sources, the emotion may nonetheless bias appraisals of homosexuals because it is closely associated with gay stereotypes. However, a different negative emotion (anger) may not exacerbate antigay bias if it signals threats irrelevant to gay stereotypes.

Similarly, consider anger, which is elicited when an outgroup is seen as threatening ingroup resources and property, compromising ingroup freedoms and rights, or betraying ingroup trust (Cottrell & Neuberg, 2005; Goodwin & Devos, 2002; Fiske et al., 2002; Mackie & Smith, 2002). Several past studies show that Arabs as a group consistently elicit anger-based emotional responses and trait inferences (e.g., aggressive, brutal, terrorist; De Oliveira & Dambrun, 2007; Johnson, 1992; Oswald, 2005; Skitka, Bauman, Aramovich, & Morgan, 2006). These findings are consistent with content analyses of over 900 Hollywood films which found that the core stereotype of Arabs involves aggression and religious fanaticism (Shaheen, 2003). Of course, in specific contexts, other emotions might be associated with a group (e.g., one might feel disgusted if Arabs are portrayed as dirty). However, in the present work we focused on dominant prototypical emotions associated with specific groups in the absence of contextual manipulations. Because anger more than any other emotion is the core component of Arab stereotypes, we predicted that incidental anger would exacerbate implicit bias against Arabs encountered in a subsequent context. However, a different emotion like disgust would not have the same effect because it is less prototypically applicable to Arab stereotypes, but instead is more applicable to other outgroups (i.e., homosexuals).

Given our emotion-specific hypothesis, a related question emerges: What will happen when people have no preexisting knowledge about an outgroup? Because mental representations of novel groups are, by definition, virtually tabulae rasae, at most they activate a general "us = good" reaction (cf. Van Bavel & Cunningham, 2009) and perhaps also a "them = bad" reaction. Thus, the incidental arousal of any negative intergroup emotion may be applied to any target group that is not the perceiver's ingroup. Our past research provided an initial test of this hypothesis by focusing on implicit evaluations of unknown "minimal groups" (DeSteno, Dasgupta, Bartlett, & Cajdric, 2004). We demonstrated that anger created implicit bias against an unknown outgroup where none had previously existed. However, sadness, an emotion that is typically not applicable to intergroup relations, did not affect outgroup evaluations. Thus, the applicability of an emotion to groups (rather than simply emotional valence) was the primary factor influencing outgroup evaluations.

## Research Goals

Three experiments investigated the emotion-specific hypothesis in the context of known and novel outgroups. We predicted that incidental disgust (but not anger) would increase implicit prejudice against gays and lesbians. However, incidental anger (but not disgust) would increase implicit prejudice against Arabs. When outgroups are unknown, both anger and disgust were predicted to increase outgroup bias given that both emotions generically signal problematic intergroup relations. These predictions stand in contrast to a viable alternative: any negative emotion that is broadly relevant to any type of intergroup conflict might increase bias against all outgroups equally.

## Experiment 1

### Method

#### Participants

A sample of 121 students (75 women, 46 men) participated in exchange for extra credit.

#### Procedure

Participants were told that this was an experiment on personality and memory. First, they completed an alleged personality measure, which was actually the minimal group manipulation. Then they completed practice blocks of an Implicit Association Test (IAT; Greenwald, McGhee, & Schwartz, 1998) designed to measure their implicit attitudes toward the minimal ingroup and outgroup. This task was introduced as measuring "hand-eye coordination" that was allegedly necessary as a baseline measure of people's comfort with computers. After the practice blocks, participants received one of three emotion inductions (anger, disgust, or neutral state). Emotion induction was followed by two data collection blocks of the IAT, a second emotion induction to reinstantiate the state, and two more data collection blocks. Finally, participants completed an emotion manipulation check.

#### Manipulations and Measures

*Creation of minimal groups.* Participants completed a bogus personality test in which they estimated the frequency of various events (e.g., "How many people ride the New York subway every day?"). After the test, the computer ostensibly analyzed their responses and informed them that they were either an "overestimator" or "underestimator." In reality, participants had been randomly assigned to one of these groups. Group assignment was counterbalanced: for half of the participants, underestimators were the ingroup; for the other half, overestimators were the ingroup. To ensure that participants remembered their group membership, they were instructed to wear red or blue wristbands designating their group. Next, participants were shown pictures of six ingroup members and six outgroup members. Individual head shots assigned to overestimator and underestimator groups were counterbalanced between subjects. These pictures were color coded with red or blue backdrops to mark group affiliation.

*Assessment of implicit intergroup attitudes.* Implicit attitudes were measured with an IAT. Participants completed three practice

blocks of an IAT during which they categorized pictures of ingroup and outgroup members and words representing positive and negative concepts using two response keys (see Appendix A for stimuli). Participants first classified positive and negative words (20 trials); next classified pictures of ingroup and outgroup members (20 trials); and then combined the previous two tasks by classifying all four types of stimuli simultaneously (20 trials). Practice tasks were counterbalanced such that half the participants learned to categorize ingroup + good and outgroup + bad first, whereas the remaining participants learned the opposite pairings first.

Participants then completed the first emotion induction, which was followed by one data collection block of the IAT (50 trials). For half the participants, this block involved categorizing ingroup + good stimuli using the same key and outgroup + bad stimuli using a different key; for the remaining participants, stimulus pairing was reversed. Next, additional practice was given so that participants learned to categorize stimuli in a combination opposite to what they had learned before. They first classified pictures of ingroup versus outgroup members using response keys that were opposite to those they had used previously (20 trials). Next, they classified all four types of stimuli simultaneously such that those who had previously paired ingroup + good and outgroup + bad now learned to associate ingroup + bad and outgroup + good (20 trials). They then completed another round of emotion induction to reinstantiate their feeling followed by the second data collection block of the IAT (50 trials).

*Emotion induction.* This task was introduced as a study of memory. Participants were asked to write about an autobiographical event that had made them very angry, disgusted, or emotionally neutral (e.g., describe their dorm room). To help them recall an appropriate memory, participants were shown three pictures that captured the emotion condition to which they were assigned. Each picture was presented twice for 5 s each. Participants in the angry condition saw pictures depicting individuals who were clearly very angry. Those in the disgust condition saw pictures of disgusting objects (e.g., cockroach on food). Participants in the neutral condition saw pictures of neutral objects (e.g., a chair).[1] Next, participants wrote about their memory for 4 min, after which they were told that they would continue writing later.

In the second emotion induction, participants were told to continue writing from where they had left off for another 2 min. To avoid confounding emotion induction with priming outgroup threat, we screened participants' memories for information relevant to intergroup conflict (4 participants were excluded for this reason).

*Emotion manipulation check.* Emotions were assessed using 5-point scales that tap disgust and anger (cf. DeSteno et al., 2000). The anger index included *angry, annoyed, frustrated,* and *irritated* ($\alpha = .93$). The disgust index included *disgusted, queasy,* and *sick* ($\alpha = .89$).

## Results and Discussion

### Manipulation Check

The emotion manipulations were successful in producing the expected states, $F_{interaction}(2, 118) = 28.23, p < .001$. Participants in the angry condition reported more anger ($M = 3.51$) than disgust ($M = 2.46, t(44) = 7.13, p < .001, d = 1.03$); participants in the disgust condition reported more disgust ($M = 3.21$) than anger ($M = 2.54, t(41) = 3.18, p = .003, d = 0.61$). Neutral participants reported low levels of both emotions ($M_{anger} = 1.63$, $M_{disgust} = 1.23$).

### Implicit Attitudes Toward Minimal Ingroups and Outgroups

Implicit attitudes were measured as the differential speed with which participants completed the block that paired outgroup + good and ingroup + bad compared with the block that paired the opposite stimuli. These difference scores were analyzed in terms of effect size or modified Cohen's *d* (IAT *D*; see Greenwald, Nosek, & Banaji, 2003). Larger effect sizes indicate greater implicit bias against the outgroup relative to the ingroup. As predicted, a planned contrast confirmed that participants who were made to feel angry or disgusted exhibited an equivalent increase in intergroup bias, IAT effect$_{anger}$ = 83 ms, IAT $D_{anger}$ = .23; IAT effect$_{disgust}$ = 84 ms, IAT $D_{disgust}$ = .24, compared with others who were made to feel neutral, IAT effect$_{neutral}$ = 13 ms, IAT $D_{neutral}$ = .05; $F(1, 118) = 4.45, p = .037, d = .47$, see Figure 1. Those in the neutral condition showed no discernable intergroup bias. Thus, this experiment replicated and extended our past research (DeSteno et al., 2004) by showing that two discrete intergroup emotions (anger and disgust) created implicit bias against an unknown outgroup even though none had existed previously.

Although anger and disgust had similar effects on implicit attitudes toward unknown outgroups, the question remains—will this finding generalize to real groups about which people have prior knowledge? Moreover, will the effect be constrained by the applicability of the specific emotions to the threats stereotypically associated with particular known groups?

## Experiment 2

Experiment 2 manipulated disgust as the focal emotion (compared with anger and a neutral state) and used homosexuals as the target outgroup. In keeping with the emotion-specific hypothesis, we predicted that compared with a neutral state, incidental disgust would increase implicit bias against any group relevant to moral disgust (in this case, gays and lesbians) as a way of repelling the threat of contamination, but incidental anger would not do so because the threat signaled by anger is less applicable to gays and lesbians. However, as an alternative hypothesis one might predict that both anger and disgust could increase antigay bias given that both emotions generically signal intergroup conflict.

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[1] We used pictures to supplement our emotion instructions to ensure that participants would not conflate the meaning of disgust with anger. In colloquial English people sometimes use the word "disgust" to mean "anger" (e.g., "I am disgusted with you" may actually mean "I am angry with you"). It is important to note that the different types of images used to depict disgust versus anger cannot explain this pattern of findings because across Experiments 2 and 3, these two emotions produced systematic and predicted effects on implicit attitudes depending on its "fit" with the target outgroup.
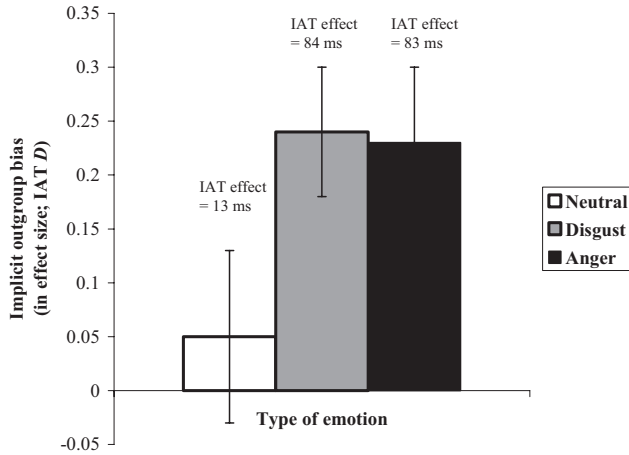
*Figure 1.* The influence of anger, disgust, and a neutral state on implicit attitudes toward fictitious ingroups and outgroups. All error bars represent $+/-$ 1 *SE*. IAT = Implicit Association Test.

## Method

### Participants

A sample of 130 students (82 women, 48 men) participated in exchange for extra credit.

### Procedure and Measures

Participants first completed practice blocks of an IAT designed to measure their implicit attitudes toward gays versus heterosexuals. This was virtually identical to the IAT in Experiment 1, except that we used symbols to represent homosexuals and heterosexuals rather than minimal in- versus outgroups (see Appendix B). Participants categorized symbols of homosexuality versus heterosexuality and words representing positive versus negative concepts (see Appendix A). After IAT practice, they received one of three emotion inductions (anger, disgust, or neutral state; see Experiment 1 for details), followed by one data collection block of the IAT. For half the participants this block involved categorizing homosexual + good stimuli using one response key and heterosexual + bad stimuli using a different key; for the remaining participants, stimulus pairing was reversed. Next, additional practice was given to teach participants to categorize stimuli in the opposite combination to what they had learned before. Participants then completed a second emotion induction to reinstantiate their mood, followed by the second data collection block of the IAT. Finally, they completed an emotion manipulation check before being debriefed.

## Results and Discussion

### Manipulation Check

The emotion manipulations successfully produced the expected states, $F_{interaction}(2, 127) = 65.82$, $p < .001$. Participants in the disgust condition reported more disgust ($M = 3.69$) than anger ($M = 2.63$, $t(35) = 5.81$, $p < .001$, $d = 0.99$); participants in the anger condition reported more anger ($M = 3.42$) than disgust ($M =$

2.17, $t(44) = 8.91$, $p < .001$, $d = 1.01$). Neutral participants reported low levels of both emotions ($M_{anger} = 2.07$, $M_{disgust} = 1.43$). None of the participants described intergroup memories.

### Implicit Attitudes Toward Gays Versus Heterosexuals

Implicit attitudes were measured as the differential speed with which participants completed the block that paired homosexual + good and heterosexual + bad compared with the block that paired heterosexual + good and homosexual + bad. Larger difference scores in terms of effect size (IAT *D*) indicate stronger antigay bias. Results supported the emotion specific hypothesis (Figure 2A). A planned contrast confirmed that participants expressed significantly more implicit antigay bias and relative preference for heterosexuals when they felt disgusted (IAT effect = 249 ms, IAT *D* = .73) rather than angry (IAT effect = 182 ms, IAT *D* = .51) or neutral (IAT effect = 174 ms, IAT *D* = .52; $F(1, 127) = 4.04$, $p = .047$, $d = .43$).
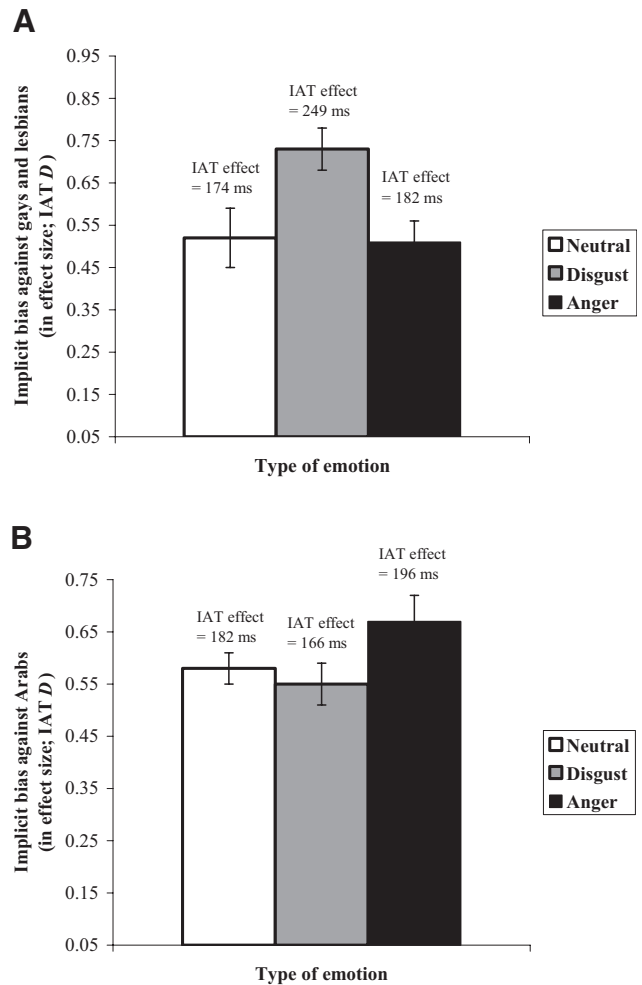


*Figure 2.* Panel A, The influence of anger, disgust, and a neutral state on implicit attitudes toward gays and lesbians versus heterosexuals. All error bars represent $+/-$ 1 *SE*. Panel B, The influence of anger, disgust, and a neutral state on implicit attitudes toward Arabs versus Americans. All error bars represent $+/-$ 1 *SE*. IAT = Implicit Association Test.

Experiment 2 provides initial evidence showing that for known outgroups, incidental emotions work in a more nuanced way compared with unknown outgroups. Rather than serving as a general warning that orients perceivers to generic dangers thereby increasing bias against any outgroup, emotions exacerbate bias only when the feeling warns of a specific threat that is directly applicable to the outgroup being appraised (cf. Mackie & Smith, 2002). The present finding rules out the possible role of increased arousal or negative valence as sole determinants of outgroup bias. Because both anger and disgust are characterized by similar negativity and arousal, these factors cannot explain the emotion-specificity finding.

## Experiment 3

To confirm the veracity of the emotion-specific hypothesis, we conducted another experiment using a different outgroup (Arab men) and a different focal emotion (anger). To the extent that Arabs arouse anger-related thoughts and feelings more than any other emotion in the current geopolitical climate, incidental anger (but not disgust) is likely to spill over and increase anti-Arab evaluations.

### Method

#### Participants

A sample of 192 students (136 women, 56 men) participated in exchange for extra credit.

#### Measures and Procedure

The measures and procedure in this study were virtually identical to Experiment 2. The only exception was that the target groups in the IAT were changed to Arab men (outgroup) and White American men (ingroup). The two groups were represented with pictures of Arab and White men borrowed from Goodwin and Devos (2002).

### Results and Discussion

#### Manipulation Check

The emotion manipulations were successful in producing the expected states, $F_{\text{interaction}}(2, 189) = 66.38$, $p < .001$. Participants in the angry condition reported more anger ($M = 3.53$; $\alpha = .93$) than disgust ($M = 2.40$; $\alpha = .89$; $t(67) = 10.95$, $p < .001$, $d = 1.07$). Participants in the disgust condition reported more disgust ($M = 3.32$) than anger ($M = 2.57$; $t(63) = 5.13$, $p < .001$, $d = 0.63$). Neutral participants reported low levels of both emotions ($M_{\text{anger}} = 2.10$, $M_{\text{disgust}} = 1.60$). Five participants were excluded because they wrote about memories with intergroup themes.

#### Implicit Attitudes Toward Arabs Versus Americans

Implicit attitudes were measured as the differential speed with which participants classified Arab + good and American + bad compared with the reverse combinations. Larger difference scores correspond to stronger bias against Arabs and relative preference for Americans. Results again supported the emotion specificity hypothesis (see Figure 2B). A planned contrast revealed that participants expressed significantly more implicit bias against Arabs and relative preference for Americans in the angry condition (IAT effect = 196 ms, IAT $D = .67$) compared with the disgust condition (IAT effect = 166 ms, IAT $D = .55$) and neutral condition (IAT effect = 182 ms, IAT $D = .58$; $F(1, 189) = 4.45$, $p = .036$, $d = 0.37$).

### Coda

Taken together, these findings demonstrate that the impact of emotions on implicit outgroup evaluations is not general, but rather is functionally specific. At the most basic level, classification of individuals into an outgroup, even a novel one, identifies them as a potential source of danger (Brewer & Brown, 1998). Consequently, it makes sense that the informational value of threat-relevant emotions such as anger or disgust comes from increasing perceivers' wariness of and negativity toward novel outgroups. However, when the target outgroup is a known entity, the influence of emotions is constrained by the applicability of one's feelings to the characteristics and anticipated threats associated with that outgroup. Accordingly, negative emotions will only exacerbate implicit bias if they are applicable to the stereotypes and threats attached to the group. Such specificity makes functional sense in that there would be little benefit in applying discriminatory feelings of anger (e.g., an approach-oriented emotion) toward groups characterized by contamination concerns, which should trigger a withdrawal action tendency.

The nature of the processes underlying the applicability bias remains an open question. Although past research on applicability-enhanced biases have not specified the mechanisms underlying modulation of judgments, we suspect that emotions may focus attention on semantically applicable features of outgroups (cf. Schaller et al., 2003). Increased attention to stereotypically negative features may, in turn, increase subsequent negative evaluations of the group. Irrespective of the underlying mechanism, the specificity and subtlety with which incidental emotions exert a pernicious influence on implicit outgroup judgments stands as a cautionary note for decision-makers making individual and policy judgments about social groups.

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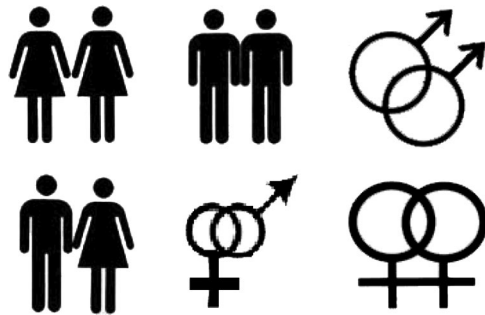
## Appendix A

### Evaluative Stimuli Used in the IAT

| Good | Bad |
| --- | --- |
| Evaluative stimuli used in Experiment 1 | |
| Gift | Cancer |
| Joy | Poison |
| Laughter | Sickness |
| Paradise | Vomit |
| Rainbow | War |
| Evaluative stimuli used in Experiments 2 and 3 | |
| Gift | Filth |
| Joy | Poison |
| Laugh | Ugly |
| Paradise | Vomit |
| Beauty | War |

## Appendix B

### Sample Gay and Heterosexual Stimuli Used in Experiment 2