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Why is disgust a more unreasoned emotion than anger?
An examination of the cognitive processes that accompany
moral anger and disgust

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Thesis submitted in partial fulfilment of the requirements for the degree of
Doctor of Philosophy in Psychology

University of Kent

September 2009

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MEMORANDUM

The experiments that are reported within this thesis were carried out when the author was a full-time postgraduate student in the Department of Psychology at the University of Kent on a departmental studentship. The theoretical and empirical work presented within this thesis is the independent work of the author. Intellectual debts are acknowledged in the text. The author has not been awarded a degree by this, or any other, university for the work included in the thesis.

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ABSTRACT

The purpose of this thesis was to compare the cognitive processes that accompany moral anger and disgust. Experiment 1 indicated that anger responds to the contextual cues of harm and intent, while disgust responds uniquely to the categorical judgement of whether or not a bodily norm violation has occurred. Experiments 2 and 3 supported the assumption that disgust more so than anger is an unreasoned emotion, bodily moral disgust was justified with non-elaborated reasons, while non-bodily moral disgust and anger were justified with more cognitively elaborated reasons. The next line of research tested possible explanations for why these differences may occur. Experiment 4 was carried out in order to determine whether inherent features of anger and disgust would influence participants' willingness to describe their social attitudes. It was found that an environmental manipulation of disgust decreased participants' willingness to describe their thoughts and feelings about a social group, particularly when the group can be perceived as violating a bodily norm. However, the results failed to support the predictions for the anger manipulation. Experiments 5 and 6 examined whether the asymmetry in reasoning occurs due to social norms that are associated with moral anger and disgust. The results suggested that people are aware of social norms concerning how anger and disgust should be explained; however, personal feelings of moral anger and disgust modify the applicability of these social norms in some instances. The theoretical and practical implications for the results of this thesis are also discussed.

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CHAPTER 1

GENERAL INTRODUCTION

Disgust is all about putting the object at a distance and drawing boundaries. It imputes to the object properties that make it no longer a member of the subject's own community or world a kind of alien species of thing. Indignation works in the opposite direction: by imputing blame to its object, and by focusing on the wrongful nature of the person's act it presupposes the ascription of humanity and responsibility (Nussbaum, 2004, p.166).

As displayed in this quote by Martha Nussbaum, a philosopher on law, the target of disgust often experiences detrimental effects because of this emotion. In contrast, anger (indignation) can have more positive effects for the target of this emotion, once the appropriate individual is being blamed. The object of anger will be appropriately punished for what they have done because the focus of this emotion is on the wrongdoing that has occurred. This thesis compares moral anger and disgust because both of these emotions often drive our moral disapproval of other individuals and/or groups; however, these specific emotions underlie our disapproval for different reasons and have different consequences as the quote above displays.

Recently, the role of emotions in various social attitudes has gained empirical and theoretical advancements. There has been a positive step forward in social psychological research, changing focus from examining global prejudice toward examining the specific emotions, cognitions and

behaviours that are part of these global attitudes (Alexander, Brewer, & Herrmann, 1999; Cottrell & Neuberg, 2005; Esses, Haddock, & Zanna, 1993; Fiske, Cuddy, Glick, & Xu, 2002; Mackie, Devos, & Smith, 2000). It is beneficial to understand the underlying emotion of a particular attitude because this will indicate the behavioural tendency that is likely to occur. For example, if persons feel anger towards individuals of another race it is likely that they will react in a hostile manner toward this group of persons. On the other hand, if persons feel fear towards immigrants it is likely that they will avoid immigrants. Therefore, group-based emotion theories provide a classification that is useful in mapping rough estimations between groups, emotions and behavioural tendencies. However, problematically researchers that study group-based emotions have mainly focused on how emotions arise in response to appraisals within a given situation, when there are clear instances in which our emotions do not arise from an appraisal but our emotional response may instead be based on previous associations.

The influence of emotions on moral judgments has also gained more research attention (Greene & Haidt, 2002; Haidt, 2001; Haidt & Hersh, 2001; Haidt, Koller, & Dias, 1993), which contrasts with previous views that emphasize reasoning as playing a primary role (Kohlberg, 1969; Piaget, 1932; Turiel, 2002). The social intuitionist model as proposed by Haidt (2001) maintains that gut feelings can have a primary influence on our moral judgments and reasoning only occurs as a post-hoc process. Within this field of research, general negative affect and specific emotions have been examined in relation to moral judgments. Nevertheless, little research has directly compared the influence of different emotions on moral judgments,

which is important in order to bring understanding as to why individuals react so differently to moral violations.

The current research has integrated both of these considerations on group and moral emotions; examining the emotional attitudes (focusing on moral anger and disgust) that individuals have toward other individuals and groups, which often have moral significance to individuals who hold these emotional attitudes.

The main aim of this research has been to compare the cognitive processes that accompany moral anger and disgust; specifically comparing the quality of these processes. As a by-product of this aim the current thesis will provide initial insight into two novel differences that can be useful in differentiating between moral emotions and emotions in general: 1) the ability to engage in post-hoc reasoning based on a specific emotional response and 2) the ability to consider differences in context. Therefore, this thesis is different from the majority of emotion research in that there is not only a focus on the cognitions that typically accompany these emotions but importantly on the consequences of these moral emotions.

This research provides further clarification that anger and disgust are distinct concepts, and can have implications for two practical problems as well. Firstly, the results of this thesis can be used to address the issue of how these emotions should be best counteracted. These insights may be of interest to other social psychologists who aim to change attitudes based on underlying emotions. These findings are then useful because anger and disgust are often a partial basis of the prejudice that is felt toward other individuals and groups. Secondly, this research provides initial empirical

evidence for the role that these two emotions should have in legal judgements, which should be influential to individuals who are directly involved in criminal court cases that may elicit feelings of anger and/or disgust. Beyond these two practical points other benefits may come from this research; however, these implications appear to be most relevant.

Core Hypotheses

The following hypotheses are directly tested within the first line of research that is presented within this thesis. They are also used as the foundation for the hypotheses that are examined within the second line of research. This thesis makes an important conceptual distinction in order to differentiate effects of anger from disgust, which needs to be outlined before presenting the core hypotheses. For the purpose of this research, it is necessary to examine disgust, which arises in response to bodily and non-bodily moral violations separately. Throughout the thesis, disgust that arises due to a bodily norm violation will be labelled bodily moral disgust. On the other hand, disgust that is elicited by a non-bodily norm violation will be called non-bodily moral disgust.

Research evidence has suggested that disgust is uniquely concerned with monitoring norms regarding the body (a full review of this topic can be found in Chapter 4). Conversely, it is unclear whether disgust, which arises due to non-bodily violations, is truly disgust, or if it is a blend of anger and disgust or simply anger. Therefore, making this conceptual distinction will not only be beneficial in testing the core hypotheses, but will shed light on what

non-bodily moral disgust is and how it differs from bodily moral disgust and anger.

- 1) *Contextual cue hypothesis*: Anger is concerned with the contextual cues of harm and intent. On the other hand, disgust is not concerned with these contextual cues, but responds uniquely to the categorical judgment of whether or not a bodily norm violation has occurred.

- 2) *Unreasoning disgust hypothesis*: Bodily moral disgust will be justified more through non-elaborated reasons, while moral anger and non-bodily moral disgust should be justified with more cognitively elaborated reasons.

Overview

This thesis presents research that indicates two novel differences between moral anger and disgust; it also presents an explanation for why these differences may occur. The presentation of this thesis is divided into two parts: The first part begins with an overview of relevant theoretical background which inspired this research on moral anger and disgust (Chapters 2-4). Then empirical support for the two novel differences that are proposed will be reported (Chapter 5). The second part provides a theoretical background for possible explanations of why these differences may occur (Chapter 6) and presents experiments which test these explanations (Chapter 7), followed by a general discussion of what was found in this thesis

and implications of the current research (Chapter 8). A more detailed description of what will be covered within each chapter will be outlined below.

Chapter 2 will describe various theories that have been influential to the current research on moral anger and disgust. This chapter will begin from a very broad perspective outlining the debate of what triggers emotions in the first place because this debate should be influential to all emotion researchers alike. Next two perspectives will be summarized, which are essential to understanding moral anger and disgust, the dual-process and functional perspectives. It can be argued that these perspectives are essential to understanding any specific emotion because they help explain the variability in emotional responses.

Chapter 3 will then outline some of the group-based emotion theories and give a definition of what constitutes a moral emotion. This chapter will shed light on how group and moral emotions not only differ from individual emotional experiences but also how they differ from one another.

Chapter 4 will then discuss the key differences between anger and disgust. The purpose of this chapter is to highlight some of the differences between anger and disgust as suggested by previous research. These differences have inspired the core hypotheses of this thesis and led to the comparison of these two novel differences.

This theoretical overview should bring forth possible answers to some important issues that are related to the research topic of emotion. First, emotions are primarily a social construct; however, one cannot deny the influence of appraisals in novel situations and the influence of evolution in some instances. Second, emotions are not simple concepts displaying

variability in the following ways: a) they can occur for different reasons; b) they can occur as a by-product of automatic or deliberative thought, and c) they can be transient states or represent longstanding associations. Third, emotions are functional and it is particularly important to understand the role of emotions in social relationships.

Chapter 5 will then report three experiments which cumulatively display the two novel differences between moral anger and disgust. First, a study will be reported which compares the cognitive elicitors or modifiers of these moral emotions. As previously mentioned the research presented within this thesis predominately examined anger and disgust toward various social groups; however, in order to distinguish the cognitive elicitors or modifiers of these moral emotions one experiment was carried out in which participants were evaluating a single individual that violated a moral norm. It was necessary to examine an individual's behaviour in order to manipulate the variables that elicit anger as opposed to disgust and vice versa. Within this experiment intentionality, harm and bodily norm violation were orthogonally manipulated in order to test the contextual cue hypothesis. If this hypothesis is supported, this will provide preliminary evidence that anger is more likely to be influenced by changes in context than disgust is. Then two experiments will be reported which were designed in order to test the unreasoning disgust hypothesis. In the two reason experiments participants were asked to give reasons for why they felt either anger or disgust toward various social groups, which will then indicate the quality of post-hoc reasons that individuals give for each emotion.

Chapter 6 outlines the theoretical background which suggests whether an internal and/or social norm explanation can clarify the contextual cue and reason differences. Since the differences highlighted in the previous chapter were novel there was no relevant literature that would directly suggest which of these explanations are more applicable; however, inferences are made based on known capabilities of each emotion and the social scripts that are associated with these emotions.

Following this overview of relevant literature three experiments will be presented within Chapter 7, which examine the applicability of these possible explanations. First, an experiment will be presented that was carried out in order to determine how appropriate the internal explanation is. The internal explanation implies that the 'feelings' themselves cause the differences between anger and disgust. This experiment will examine if disgust discourages individuals from describing their thoughts and feelings about a social group. On the other hand, anger should encourage individuals to describe their thoughts and feelings about a social group. Therefore, the focus of this experiment is not on the quality of the cognitive processes but on the inherent motivational tendencies.

Then two experiments will be reported which were carried out in order to examine if the social norm explanation can clarify the post-hoc reason difference. This research should indicate whether the asymmetry in reasoning is caused by a lack of knowledge about elaborated reasons that are relevant to disgust. The acceptability and convincingness of cognitively elaborated reasons and non-elaborated reasons for each emotion was also

studied, in order to see if there are social scripts which individuals use to explain these emotions.

CHAPTER 2

CRITICAL PERSPECTIVES ON EMOTION

This chapter will outline the various perspectives on emotions that have influenced the current research on moral anger and disgust. First, the major sources of emotions will be outlined according to previous accounts. Measurements and manipulations of emotions across various experiments suggests that not all emotion researchers agree on what constitutes an emotion or what is the source of an emotion. Therefore, it is essential to understand and distinguish these sources of emotion as outlined by previous theories. Primarily, these theories rely on unitary explanations of emotions which cannot explain all instances of emotion; however, this problem can be resolved by examining emotions from a dual-process and functional perspective. The dual-process account of emotions will then be outlined because this perspective is crucial to understanding different instances of emotion. Emotions can reflect different levels in processing and can either be transient or be based on longstanding associations. To conclude this chapter the functional perspective will then be summarized. The functional perspective can help emotion researchers to avoid rigid explanations of emotions, which cannot explain why individuals experience different emotions in reaction to the same situation and often have co-occurring emotions. Therefore, the functional perspective can help explain the variability in emotional responses by using a flexible standpoint.

Sources of Emotion

Evolutionary theory

The founder of evolutionary theory was Darwin (1872) who argued that emotions are biologically based and provide adaptive functions to the individual experiencing the emotion. Darwin (1872) focused his research on examining the functions of emotional facial expressions, in which his primary argument was that emotional expressions are primarily universal and serve a communicative function.

Ekman (1999), another influential theorist, has argued that there are basic emotions that occur universally and that evolution has shaped the life of these emotions. Ekman (1999) theorized that in order for an emotion to be considered basic it must have a universal signal, a specific physiological response, a specific antecedent and an automatic appraisal. Thus, basic emotions as theorized by Ekman (1999) not only differ in facial expressions but in other dimensions, such as the appraisal and behavioural tendency associated with the emotion. However, researchers have debated about the exact number of basic emotions that exist and what specific characteristics make up these emotions. From this perspective one can infer that there are universal basic emotions that exist which have specific adaptive functions, but theorists differ about the components that make up these emotional responses.

Other evolutionary theorists, such as Plutchik (1984) and MacLean (1993), have derived a list of behaviours that are used to deal with opportunities and threats to reproduction (e.g., attacking and freezing

behaviours) and these abstract behaviours are related to a few emotions (e.g., anger, disgust and fear). Therefore, based on these theories individuals experience specific emotions which are related to adaptive problem solving behaviours.

Evolutionary theorists would generally argue that certain events are predetermined to elicit specific emotions. Adaptive problems appear to be quite abstract; however, this is because they are meant to spread across a vast amount of human behaviours that are intricately related (Niedenthal, Krauth-Gruber, & Ric, 2006). Thus, evolutionary theory presents a cookbook or dictionary that outlines relationships between eliciting events, specific emotions and behaviours.

However, it can be argued that not all emotional responses are functional from an evolutionary perspective, but rather emotions can reflect the needs of an ever changing society. Certain behaviours may elicit emotions that are counterintuitive to the original emotions that were elicited by these specific situations. For example, some people can experience disgust in reaction to seeing a woman breastfeeding her child; however, in the past individuals were probably more likely to experience pride or admiration in reaction to this event. Based on this example, it can be argued that evolutionary theory cannot fully explain why individuals react differently over time, also, why new responses are sometimes dysfunctional from an evolutionary perspective. Therefore, it is questionable whether evolutionary theory can explain all instances of emotion. This view of emotions occurring in reaction to cultural adaptations will be outlined in further detail within the functional perspective of emotions.

Cognitive appraisal theory

Classic appraisal theory predicts that based on the specific evaluations that an individual makes within a given situation this will lead to the experience of different emotions (Lazarus, 1991, 1995, 1999; Roseman, Antoniou, & Jose 1996; Roseman, Wiest, & Swartz, 1994; Scherer, 1997, 1999, 2007; Smith & Ellsworth, 1985). Magda Arnold (1960), one of the founders of appraisal theory, argued that emotions arise due to the evaluation of relevance of a given situation and the attributions that are made regarding the context. Therefore, according to this account a fundamental feature of emotions is whether or not individuals believe that a situation will impact them.

An appraisal is defined as an assessment of the current situation in which an individual can make evaluations along several dimensions. Some of the common appraisal dimensions, as outlined by previous theories, have included an evaluation of importance and/or controllability; see Smith and Ellsworth (1985) or Scherer (1999) for a comprehensive review of appraisal dimensions. Appraisals generally fall into two categories either concerning themselves with the current situation or the person or group that is responsible for the event (Parrott, 2001a). Appraisal theorists then predict that different patterns of appraisals will elicit specific emotions. As a result, appraisals link persons to the current situation establishing meaning and encouraging an assessment of the current situation.

Even though appraisal theory has been a popular stance it has still attracted its fair share of criticisms. For example, some critics have questioned whether or not the methods that are used to test this theory are

reliable. Emotion research conducted from an appraisal point of view tends to begin with participants evaluating a hypothetical vignette or recalling past emotions; however, some researchers have been particularly sceptical about this recall method (Parrott, 2001a). Parkinson (1999, 2007) has also questioned the reliance on questionnaires to assess emotions, arguing that it causes participants to have to respond under a forced format, in which participants respond stereotypically about their emotions. As a result, participants will respond how they think they should respond to the emotion instead of recording their actual thoughts and feelings.

There are not only methodological criticisms, there has also been a longstanding debate as to whether or not an appraisal is a necessary factor for emotion occurrence (Lazarus, 1982, 1984; Zajonc, 1980). Zajonc (1980) has argued that emotion and cognition are independent systems, which can work together but sometimes conflict with one another. Alternatively, Lazarus (1982, 1984) has argued that emotion is always linked to cognition. This debate has been partially resolved by recent models which stress that appraisals can reflect either automatic or deliberative processes (for a review see Moors & De Houwer, 2001) and that appraisals do not necessarily need to precede emotions, but can occur after the emotion has been elicited (Evers, Fischer, Rodriguez Mosquera, & Manstead, 2005).

From this debate researchers have begun to question whether or not an appraisal is a necessary condition for emotion occurrence. Kuppens et al found that appraisals varied according to individual and contextual differences; also, that no single appraisal is necessary or sufficient for anger (Kuppens, Van Mechelen, Smits, & De Boeck, 2003; Kuppens,

Van-Mechelen, Smits, De Boek, & Ceulemans, 2007). Similarly, Parkinson (1999) has found that appraisals varied for reasonable and unreasonable instances of both anger and guilt.

In conclusion, even though appraisal theory is a popular stance in the research field of emotion in general, it is essential to consider the previously mentioned critiques when designing and implementing emotion research. Since, based on previous research, it is apparent that not all emotion experiences can be linked to an appraisal (Kuppens et al., 2003, 2007; Parkinson, 1999).

Socio-cultural theory

According to cultural theories our emotions are shaped by social learning, therefore, emotions are constructions of the society that individuals live in. Emotions can be transmitted through societies both passively and actively (Parrott, 2001a). Some researchers have examined how emotions are passed through society by a phenomenon known as emotion contagion (Hatfield, Cacioppo, & Rapson, 1994; Wild, Erb, & Bartels, 2001). Emotion contagion is when one person comes to experience an emotion by mimicking another individual's facial expression and bodily posture. Distinct emotions, such as anger, fear and disgust, have also been found to be transmitted through touch (Hertenstein, Keltner, App, Bulleit, & Jaskolka, 2006). Across two experiments, these researchers have found that emotions can be transmitted through direct touch in two cultural samples; United States and Spain. Then in a subsequent experiment it was found that distinct emotions can be communicated merely by watching other individuals

communicate their emotions to others. Cumulatively, this research provides evidence that distinct emotions can be transmitted through both direct and indirect communication. As a result, emotions appear to serve a communicative function and are used to align or at least bring understanding to other persons' emotions in a given social context.

A commonly applied theory is the social constructivist account (Harre, 1986; Lupton, 1998; Lutz, 1986; Saarni, 1993), which argues that emotions are relative to the cultural context. Social constructivist theorists believe that emotions are so deeply imbedded within cultures that they cannot exist without the cultural context (Parrot, 2001a). James Averill is one of the most representative researchers of this stance; defining emotion as a social role that is constructed by society. According to Averill (1980) "there is no single response or subset of responses, which is essential to an emotional syndrome" (p.146). Thus, unlike the other two theories, emotions do not depend on any specific circumstance in order for the emotion to be present. These emotional syndromes are learned, based on the norms and values that are important within a given society.

Evidence that emotions are culturally relative can be supported by the finding that persons are likely to endorse certain emotions during specific historical contexts (Parrot, 2001a). For example, when Western societies were more religious they were more likely to experience disgust, which indicates that emotions can be changed or dropped within specific historical contexts. It has also been argued that emotions are influenced by whether members of a society are independent or interdependent (Markus & Kitayama, 1991). Ego-focused emotions are associated with individualistic

societies, while other societies are more likely to display other-focused emotions. Thus, it can be predicted that the type of society influences the likelihood of certain emotions occurring, and whether specific emotions are encouraged or suppressed (Harre, 1986). Evidence that emotions are culturally relative can also be found in the differences that exist across cultures in the emotional language that is used (Wizerbeka, 1992). From this perspective emotions are influenced by the cultural context and the underlying principles that are important with a given society.

Conclusion

All of these theories on the source of emotions attempt to come up with overarching explanations that can clarify why all emotions occur; however, it needs to be recognized that not every emotion experience is the same. Therefore, in the remainder of this chapter two perspectives will be outlined, dual-process and functional, which can help explain the variability in emotional experiences and also the different reasons for why an emotion might occur within a given situation.

Dual-process Perspective of Emotions

Emotions influence our thoughts and perceptions of various persons and acts within our social environment, and can have a fleeting or longstanding influence on how individuals think about others. In the research field of emotions and social cognition it has been found that emotions influence both the content of thought and how persons process information

(e.g., Damasio, 1994; Schwarz & Clore, 1983). Therefore, emotions can play an integral role in our longstanding attitudes toward other persons. Previous definitions of attitudes made the assumption that an attitude reflects a dichotomous evaluation- e.g., good/ bad (Allport, 1935). However, researchers are beginning to accept a broader definition in which an attitude can also be comprised of beliefs and emotions (e.g., Eagly & Chaiken, 1993; Greenwald, 1968).

Associative network models can then explain how various components can make up an attitude, in which our memory is comprised of a web of informational nodes (Anderson & Bower, 1973). Bower (1981) has highlighted that specific emotions can be integrated into associative memory representing a specific node. Emotions can then have a longstanding association with a person or behaviour, reflecting a specific emotional attitude. However, like past research on attitudes and other social phenomena it is important to examine emotional attitudes from a dual-process perspective, which will be argued for below.

Initial support for dual-process models came from empirical studies that examined human memory and learning (Smith & Neumann, 2005). Other social phenomena have also been examined using this account, such as stereotypes (Devine, 1989). However, psychologists are beginning to recognize the need to examine emotions from a dual-process perspective because it is apparent that emotions are sometimes subject to deliberative thinking, while in other instances emotions are impulsive (Baumeister, Vohs, DeWall, & Zhang, 2007; Giner-Sorolla, 1999; Smith & Neumann, 2005).

Applying a dual-process perspective to emotions is useful because this will help resolve some of the ambiguities that have been created by unitary explanations, such as appraisal theory (Smith & Neumann, 2005). Dual-process models will not only help explain how emotions are generated and unfolded, but also clarify the mechanisms by which emotions can be regulated. For example, previous literature has indicated that emotions must be controlled through conscious processes which are sometimes costly to the individual (Butler et al., 2003; Gross & John, 2003). However, recent evidence has indicated that emotions can be controlled through implicit processes which are less likely to have detrimental effects for the individual that is trying to control their emotion (Mauss, Cook, & Gross, 2007).

Various theoretical accounts are beginning to suggest the need to examine emotions using a dual-process perspective; however, the majority of these theories have not explicitly made the distinction between the two modes of processing. For example, Keltner and Haidt (2001) have made a distinction between primordial and elaborated emotions. These researchers theorized that primordial emotions are biologically based, while elaborated emotions have developed through cultures assignment of meaning to various old and new problems. Therefore, elaborated emotions may require more cognitive effort in order to maintain them. Russell and Barrett (2003) have made a distinction between core affect and conscious emotion, indicating that conscious emotions are slower. Thus, these two theories indicate that some emotions are simpler, whether they are specific or generic, while other emotions appear to be more complex and are influenced by cognitions and cultural differences.

Kahan and Nussbaum (1996) argue that emotions can either be mechanistic or evaluative concepts. If emotions are viewed as mechanistic they are then seen as forces that lead directly to action which individuals have little control over, these emotions typically do not respond to reasoning. If emotions are evaluative in nature, they are then likely to be intertwined with cognition, which makes them more perceptible to change.

Baumeister, Vohs, DeWall, and Zhang (2007) have theorized that emotions role in behaviour takes place within a feedback loop, in which emotions generally influence behaviour indirectly. Within this model it is predicted that full blown conscious emotions promote reflection or retrospective appraisal, which will then influence future behaviour or lead to avoidance of future emotional episodes. On the other hand, automatic affect can be both conscious and unconscious reflecting specific emotions as well, and these experiences can directly influence current behaviour and cognitions. These authors argue that full blown emotions are “inextricably intertwined with cognition” (p. 168); whereas automatic affect only requires perception and an association.

Therefore, all of these past theories have suggested that emotions are not a unitary concept, and that the two types of emotion differ by whether or not they are directly linked with cognition, and this has a direct influence on immediate and future behavioural outcomes.

Further evidence for the need to study emotions from a dual-process account can be inferred from the fields of prejudice and moral judgement, in that within both fields affect has been found to play an important role in

these judgements, which contrasts with previous views that emphasize deliberative reasoning.

For example, a recent study by Livingston and Drwecki (2007) indicated that prejudice is a product of underlying negative affect. Specifically, it was found that participants showed different levels of prejudice depending on their susceptibility to affective conditioning. Affective conditioning can be described as an occurrence in which an affective response becomes associated with an attitude object due to classical conditioning. Across two studies it was found that participants' susceptibility to affective conditioning was influenced by whether or not they held prejudicial attitudes. White participants that were not racially biased, according to both implicit and explicit measures, were less likely to form a negative affective association. However, these nonbiased participants were more likely to project positive associations onto previously neutral stimuli. As a result, this research supports the notion that racial biases are influenced by an individual's susceptibility to affective conditioning. This research also suggests that prejudice results from lower level affect and not always from higher ordered reasoning. These results indicate that some persons cannot help their prejudice because their negative attitudes are based on underlying negative affect. These studies also present the possibility that it might be best to change prejudicial attitudes by reconditioning the affective response because this is the root of the problem. Therefore, it may be less useful to try to change explicit beliefs and values because they are not the source of the problem.

Recently, in the field of moral judgement there has also been a focus on how our gut feelings or intuitions shape our judgements, shifting the focus away from theories that emphasize reasoning as the source of our moral judgements (Kohlberg, 1969; Piaget, 1932; Turiel, 2002). Haidt's (2001) social intuitionist model theorizes that persons are first influenced by rapid intuitions, which are based on gut feelings not rational emotions, and it is only after these intuitions have been elicited that persons then make post-hoc judgements and use deliberative reasoning. Support for this theory can be displayed in persons' everyday moral reactions to specific situations, particularly in their reactions to sexual behaviours. For example, persons are quick to say that they feel that incest is wrong; however, when asked to explain their moral position they have trouble coming up with reasons.

Conclusion

When examining evidence from these related fields it is apparent that automatic affect can directly inform our judgements, and that reasoning is a separate process which sometimes accompanies emotional responses but does not always need to occur. Theoretical accounts have made predictions of how automatic and full blown emotions differ; however, empirical research that directly applies a dual-process account in order to study emotions needs to be carried out. This application is crucial in order to shed light on the different mental processes that are likely to accompany specific emotions, whether deliberative or automatic, which also has direct implications for how these emotions can be changed.

Functional Perspective of Emotions

The functionalist approach gives us a big picture of things and allows us, in essence, to maintain our view of the forest (proximity avoidance) in the midst of analyzing specific trees (fleeing, freezing, or hiding) (Witherington & Crichton, 2007, p. 631).

Throughout history there has been a debate by psychologists and philosophers as to whether or not emotions are functional or dysfunctional. For example, ancient philosophers, such as Plato and Aristotle, have argued that emotions are always harmful to the individual and have no place in rational thought (an overview of the dysfunctionalist account can be found in Parrott, 2001b). Parrott (2001b) has argued that whether an emotion is functional or dysfunctional is dependent on specific determinants, including the following: the accuracy and importance of appraisal, priority of goals, suitability of the response, and the ability of persons to cope with their emotions. According to this view, emotions are not always functional but are dependent on certain requirements being fulfilled in order for them to be useful. However, other theorists have argued that emotions are always necessary because they help guide our thoughts and behaviours within certain situations (e.g., Fridja, 1986; Johnson-Laid & Oatley, 1992; Keltner & Haidt, 1999, 2001; Plutchik, 1984).

As stated in the quote at the beginning of this section a functional perspective can be very useful because it allows emotion researchers to be more flexible in their research of emotions, since from this perspective

emotions are not dependent on a certain sequence of events. Therefore, according to this view emotions can be examined from any start point of analysis because it is not dependent on any characteristics having to be present. Below the functional perspective will be outlined, starting broadly with what it means for something to be functional and the benefits of examining emotions from a functional perspective. Then brief definitions will be provided for the evolutionary and cultural adaptations that have been defined in order to better understand emotions, which will lead into a discussion on the importance of understanding an emotion's social function. Within this section the specific functions of moral anger and disgust will not be covered because a more detailed account of these specific emotions' social functions will be outlined in Chapter 4.

The general meaning of a function is to examine the impact of a smaller component on other areas. For example, when examining the function of emotion researchers are investigating the effects of emotions on the individual and more broadly on the group and cultural level. Functionalist accounts of emotion argue that emotions are organized by the functions that they serve, not by facial expressions or body movements, which allows for a global perspective (Witherington & Crichton, 2007).

Within this paper these authors, Witherington and Crichton (2007), highlighted the benefits of taking a functional view and the assumptions that can be made when applying a functional account to the study of emotions. It was argued that the functionalist perspective concerns itself not with any specific components but rather how these components interact with one

another. The functional perspective also interests itself with the organism's relationship to the environment and the final cause of the emotion.

Researchers who take a functional account of emotions can examine emotions from any starting point of analysis. As a result, the functionalist perspective is beneficial because it gives researchers a global view of analyzing emotions, with a goal that can be similar across many different situations. Therefore, the functional view not only highlights that emotions occur in response to different situations, but that emotions can have important consequences for individuals that experience them and other surrounding persons. For example, instead of examining the cognitive elicitors of a specific emotion an emotion researcher can examine how a particular emotion impacts future interactions between individuals or groups, using a functional account.

Emotions can be viewed as responses to both evolutionary and cultural concerns. From an evolutionary perspective, emotions are created by natural selection and the core of emotional responses is biological. Therefore, the emotional response is predetermined and benefits the individual experiencing the emotion and individuals that this person interacts with (Darwin, 1872; Ekman, 1999). According to this view there are hardwired emotional responses that occur as a result of continuing threats.

From a cultural standpoint (Keltner & Haidt, 2001), emotions can occur in response to new situations and problems that take place within a given culture. Emotions can also come to serve different purposes. Emotions are then functional because they help maintain the norms and values that are important for a given society. The norms that are maintained

can include norms that have only recently become important. Therefore, according to this view emotional responses are constructed by the societies that they occur in.

Emotions are not only functional for the individual experiencing the emotion but also for other individuals within a given situation, such as other group members, and in some instances for whole societies (Fischer & Roseman, 2007; Keltner & Haidt, 1999; Keltner & Haidt, 2001), thus, emotions can serve important social functions. Persons are social and solve problems together and emotions are a means of facilitating social coordination and guiding behaviour (Keltner & Haidt, 1999). Emotions exist to deal with group problems and bring people together as a cohesive unit. Emotions then help guide persons' behaviours and cognitions, indicating when it is necessary to break off ties or form stronger social bonds. In consequence, emotions are necessary for our social existence because emotions serve a fundamental role in our everyday interactions.

Keltner and Haidt (1999) state that the social function of emotions operates on four levels becoming more complex with the number of people involved: individual, dyadic, group and cultural. The first level of analysis is at the individual level which is concerned with intra-individual effects. For example, at this level the social function of emotion is concerned with an individual's ability to recognize changes in his or her physiological responses and cognitions. This function then allows individuals to appropriately communicate their emotions to others and respond properly to a given situation.

The second level of analysis occurs at the dyadic level, which is more complex because it involves an examination of how two people interact. At this level emotions exist to communicate intentions, as a result influencing relationships. Therefore, at this level, emotions help individuals to understand other individuals that they are interacting with, enabling them to align their emotions with persons that they are interacting with and teach other people what the appropriate emotional response is within a given situation.

At the group level emotions are analyzed based on how they impact the group and its members' well-being. At this level emotions can serve several functions such as: defining group boundaries, identifying group members, establishing a hierarchy; assigning roles and statuses.

Finally, emotions can serve a social function at the cultural level, which requires more understanding of history and change. At this level it is assumed that emotions are embedded within cultures; thus, it is important to understand the reciprocal relationship between emotions with institutions, practices and norms. At the cultural level emotions are said to play a role in developing cultural identities, teaching of norms and values, as well as maintaining power structures. However, the functions served by emotions at the cultural level often overlaps with the functions at the group level. Even though the levels that are outlined by this theoretical account can overlap, this theory is still useful because it helps to distinguish the social purpose of emotions depending on different levels of analysis, emphasising that emotions are necessary for our social relationships.

Conclusion

Analyzing emotions from a functional perspective is very useful because this perspective helps explain the variability in emotional responses within various social situations. Other unitary explanations, such as appraisal theory, rely on certain characteristics being present within a particular situation in order to make predictions about specific emotions. However, the functional view can allow a researcher to analyze emotions from any starting point and does not dictate that any particular factors need to be present for an emotion to occur. It is particularly useful to understand the social function of emotions because this function explains why specific emotions are necessary for our social existence, and how specific emotions not only impact the individual experiencing the emotion but also other individuals in their group and/or society. From this perspective, emotions are a reflection of the norms and values that are important for a given group or society.

CHAPTER 3

GROUP-BASED AND MORAL EMOTIONS

Emotions impact everyday social events and are often shared by members of a group and in some instances members of a whole society, thus, emotions can reflect our shared values and norms. Emotions also often reflect longstanding associations that we have with individuals and/or groups, and our morals often influence the emotional associations that are formed and maintained. These emotional attitudes can even be transmitted through generations by social learning.

The very existence of moral and group-based emotions lends evidence that individuals do not always need to be directly involved within a given situation in order to feel an emotion. However, most group-based emotion theories have assumed that an individual must at least feel connected to the group, thus identify with a group, in order to experience an emotion. Most of these theories also rest on the assumption that a distinct appraisal or pattern of appraisals predicts a specific emotion.

Moral emotions represent a broader concept because it can be assumed that an individual does not need to have a personal connection with the situation that elicits the emotion, which is an assumption that is not made by group-based emotion theories distinctively. For example, individuals can become angry when they have heard of an injustice on the news. Also, the concerns of moral emotions are important not only for specific groups but sometimes for whole communities. Therefore, this next chapter will outline some of the theories that have been used to explain the

occurrence of group-based emotions and will then define what a moral emotion is.

Theories of Group-based Emotions

A common theory used to explain group emotions has been the intergroup emotion theory (IET) which gains insight from social identity theory and appraisal theory (Devos, Silver, Mackie, & Smith, 2002; Mackie, Devos, & Smith, 2000). The basis of the IET is that when persons are highly identified with their ingroup they will then experience emotions when the ingroup is affected. Specifically, it is stated that: "appraisals of the outgroup in relation to the ingroup are likely to generate group-based emotions" (Devos, Silver, Mackie, & Smith, 2002, p.113). For example, disgust is likely to arise when the outgroup is perceived as violating moral norms. This theory has predicted and found relationships between specific emotions and patterns of appraisal. It has also been found that specific emotions predict different action tendencies.

Smith, Seger and Mackie (2007) have tested four different criteria in order to establish whether or not emotions truly exist at the group level, which include the following: 1) group emotions and individual emotions are separate constructs, 2) group emotions are dependent on group identification, 3) group emotions are socially shared and 4) group emotions help with regulating intragroup and intergroup relations. Thus, the IET reflects the assumptions of socio-functional theory; however, this theory also maintains that an individual must identify with a group in order to

experience an emotion and emotions are elicited by specific appraisals within a given situation.

Cottrell and Neuberg (2005) proposed a sociofunctional account in order to map relationships between intergroup emotions and threats. These authors predict that when a group, which is often interdependent with the other group, poses a specific threat this will increase the likelihood that the other group will experience specific emotions. These authors argue that specific emotions will arise if the group perceives another group as “posing specific tangible threats” (p.770). Thus, certain evaluations about the groups’ actions must occur in order for group emotions to be experienced by the other group members.

For example, it is predicted that when a group presents obstacles to another group, the other group is then likely to feel anger towards them. Conversely, when a group poses a threat of contagion metaphorically or literally this will elicit disgust in members of another group. Unsurprisingly, this threat is the least dependent on a situational appraisal out of the whole list of threats that are proposed. This theory not only makes predictions about the primary emotions that will arise from specific threats, but this theory also predicts that secondary emotions are likely to arise from specific threats. For instance, disgust is likely to be the primary response to a threat to group values, but anger and fear are predicted to be secondary emotions. On the other hand, anger is likely to be the primary response to a threat of reciprocity relations, and disgust is likely to occur as a secondary emotion to this threat.

Within this correlational study many cross-predictions were found in both theory and results. For example, anger theoretically and empirically mapped onto every threat, when realistically persons do not experience anger with every threat that they perceive. However, one can conclude that this account provides a useful contribution to the intergroup literature because it presents an initial hypothesis of how to categorize emotions. Nevertheless, this area of literature needs to be refined before conclusive results are found. For instance, more stringent methods need to be employed in order to test if the relationships between specific threats and emotions truly exist.

Kurzban and Leary (2001) are another set of researchers that have outlined a functional account in order to explain group emotions. From this perspective certain individuals will be stigmatized because they are perceived as representing specific threats. The threat that group members pose will influence the likelihood that they will be excluded in different ways (e.g., avoidance, punishment and exploitation), and these cognitive adaptations are associated with specific emotions (e.g., disgust, anger and fear). These researchers hypothesized that persons use three categories (dyadic cooperation, coalitional exploitation and parasite avoidance) in order to decide whether or not someone should be socially excluded. It is then predicted that specific emotions will be elicited when individuals perceive different threats. For example, if someone is perceived to have a disease this would lead others to feel disgust toward this person. These authors have argued that these distinctions do not have to be literal but can be metaphorical. For instance, some individuals or groups can represent threats of contagion even though they do not pose a real threat of disease,

such as someone with a physical disability. Even though these authors made these hypotheses there is no empirical support to confirm these specific categories to date.

Fiske, Cuddy, Glick and Xu (2002) also made predictions about specific group emotions based on ingroup members' perceptions of others using their stereotype content model (SCM). According to this view prejudice is not a one dimensional concept, but different groups can elicit different emotions and behaviours. These authors proposed that group emotions are based on our perceptions of other persons' warmth and competence, arguing that for many groups we have mixed stereotypes. Specifically, it is stated that: "prejudices follow from perceptions of relative status, threat and intent" (Fiske, Cuddy, & Glick, 2002, p.248). Therefore, the combination of competence and warmth that a specific group represents will then make it likely that others will experience specific emotions.

From this assumption the researchers have outlined four quadrants that outgroup members can be placed in, it is then predicted that the quadrant that a group is placed in will make it more likely that other individuals will experience specific emotions towards them. For example, if someone is perceived as being incompetent and not warm they will most likely elicit contempt, disgust or anger.

The concept of stereotype itself assumes that some groups consistently represent certain characteristics; however, it can be argued that the dimensions which are outlined by this theory can be easily modified within specific situations. Thus, this theory does not directly indicate that appraisals of the situation influence emotions but it can be assumed that the

perceptions of warmth and competence can vary by context. For example, a welfare recipient that watches daytime television will probably elicit contempt in reaction to his or her behaviour for this individual's peers. However, the same peers will probably feel envious when they watch this individual play and win a skilful game of table tennis. Therefore, the crucial dimensions of this model are meant to represent fairly stable perceptions; conversely, it can also be argued that these perceptions are dependent on the situation.

Conclusion

All group models to date rely on appraisal theory to some degree, either arguing that an emotion occurs due to an appraisal of group characteristics or an evaluation of intergroup relations. Therefore, group emotions according to these theories rest on the assumption that a group or situation is evaluated in a specific way. However, these theories vary in how much they rely on situational appraisals taking place and whether they can explain irrational emotions.

The IET appears to be the most reliant on appraisal theory since the situation needs to be relevant for the group and the appraisals that are made within the situation predict what emotion will be experienced. Cottrell and Neuberg's (2005) model relies on appraisal theory as well; it is assumed that the specific threats that a group poses will elicit primary and secondary emotions in another group.

The stereotype content model predicts that certain groups will elicit specific emotions depending on the combination of warmth and competence

that they represent. However, the crucial dimensions of this model seem to be dependent, or at least influenced by appraisals that are made within a given situation.

Similar to the stereotype content model, Kurzban and Leary (2001) argue that individuals have cognitive structures which indicate how other people should be stigmatized, and specific emotions are often associated with these different types of stigmatization. The three categories that are applied in order to distinguish between different forms of stigmatization can vary in how much they are reliant on appraisals. The category of dyadic cooperation is most reliant on appraisals in comparison to the other two categories. The authors hypothesize that this category can be distinguished from the others because it is linked with the appraisal of controllability. On the other hand, the category of parasite avoidance does not depend on appraisals, but this category can explain why some individuals elicit disgust irrationally. This category includes real threats of contagion and includes false alarms as well. Therefore, some groups may represent these categories as a rule; however, for some but not all of the proposed categories an appraisal appears to be a necessary factor.

In general, it is problematic to rely uniquely on classic appraisal theory because a prototypical appraisal may not exist for every emotion. For example, researchers have struggled to define an appraisal that relates to disgust, often merely using tautological statements to explain the source of this emotion, e.g. 'distasteful stimuli' (Ortony, Clore, & Collins, 1988). Thus, some emotions may not be dependent on evaluations about the situation but some objects may by themselves come to elicit specific emotions through

learned associations. Emotions also appear to be influenced by individual and contextual differences (Kuppens et al., 2003, 2007) and appraisals may not even be present under certain conditions (Parkinson, 1999), therefore, relying on appraisals to predict group-based emotions may not always be beneficial.

Group-based emotion models in some instances have also failed to distinguish anger and disgust, either theoretically linking them together (Fiske et al., 2002; Cottrell & Neuberg, 2005) or finding cross predictions in the elicitors of anger and disgust in empirical studies (Cottrell & Neuberg, 2005). Group-based emotion theories primarily use unitary explanations, which cannot fully explain how anger and disgust are elicited in certain social situations, because these emotions vary according to how much they are dependent on specific situational appraisals (Ortony, Clore, & Collins, 1988). In conclusion, these theories provide suggestions of the specific emotions that particular groups should elicit; however, future research would benefit by taking into account that group emotions can be irrational and are not always dependent on situational appraisals.

Moral Emotions

Previously, research on morality has focused on how reasoning impacts our moral judgments (Kohlberg, 1969; Piaget, 1932; Turiel, 2002); however, recently more attention has been paid to the role of emotions in morality. For example, it has been theorized that gut feelings are primary to moral judgment and reasoning only occurs post-hoc (Haidt, 2001). Hoffman

(2000) argues that moral emotions are what cause the initial inclination toward moral action. Therefore, it is necessary to understand what a moral emotion is and why they occur, since emotions may play a fundamental role in our morality. It is also useful to understand the role of emotions in morality because this can help explain cultural variation (Keltner, Horberg, & Oveis, 2006). Thus, the emotional responses that have been learned appear to impact the morals that are most important to individuals within a given society.

Haidt (2003) defines moral emotions as “those emotions that are linked to the interests or welfare either of society as a whole or at least of persons other than the judge or agent” (p. 276). Similarly, Tangney, Stuewig, and Mashek (2007) have argued that moral emotions respond to violations of norms that are supported by groups and sometimes by whole societies. Therefore, moral emotions are crucial to social functioning because individuals often feel socially shared emotions in reaction to various events. Unlike other emotion experiences an individual does not need to feel connected with a specific situation in order to feel a moral emotion (Haidt, 2003). Most theorists who study moral emotions take the view that these emotions are shaped by evolution and cultural factors, and are used to express these universal and cultural specific laws (Tagney, Stuewig, & Mashek, 2007). Thus, moral emotions are used to express norms that are important within a given society and in some instances are universally shared.

The two main families of moral emotions include the self-conscious emotions; shame, embarrassment and guilt, and the other-condemning

emotions; contempt, anger and disgust (Haidt, 2003; Rozin et al., 1999).

The current research focuses on this second triad because of the influential role that these emotions have within various social situations. A brief definition of contempt will now be provided because this emotion was used as a comparison emotion within one of the experiments presented within this thesis and belongs to the other-condemning triad. However, a more in depth theoretical background of moral anger and disgust will be outlined within the next chapter because these two emotions have been the focus of this thesis.

Within hierarchal societies contempt is perceived as an expression that an individual views someone as beneath them and not even worthy of strong feelings such as anger. On the other hand, in more egalitarian societies contempt is seen as an expression that an individual does not measure up (Haidt, 2003). The CAD hypothesis links contempt with ethics of community, which includes concerns such as caring that a certain hierarchy exists, and that everyone has a particular role in society that they must fulfill (Rozin et al., 1999). This emotion is said to be much cooler than anger and disgust (Ekman, 1994; Izard, 1977; Rozin et al., 1999), not motivating specific action tendencies but leading to cognitive changes in which an individual is treated as having less worth within future interactions (Oatley & Johnson-Laird, 1996).

However, less research has been carried out on contempt and many ambiguities are still connected to this emotion, such as what exactly is driving this emotion and if it is even a distinct emotion. Contempt is also viewed as a confusing emotion to the average English speaking individual. For example, using different methods of labeling contempt it was found that

people often cannot identify the facial expression that matches this emotion (e.g., Russell, 1991). On the other hand, it has been argued that individuals may not be able to label contempt because English speakers often do not know what the term means (Ekman, O'Sullivan, & Matsumoto, 1991). These researchers found that there was a higher agreement for the contempt expression within other languages than within the English language. It was also found that the distinction between disgust and contempt within English speaking cultures is less obvious than within other cultures, which speak other languages. Due to these methodological problems and the apparent overlap between disgust and contempt for English speakers, the choice was made to treat contempt as a comparison emotion within one experiment.

Conclusion

Moral emotions are useful to individuals because they express the norms and values that are important for a given society, and sometimes the values that are essential to most human beings. Moral emotions are a broader concept than group-based emotions because individuals do not need a personal connection with a given situation in order to experience a moral emotion.

CHAPTER 4

DIFFERENCES BETWEEN DISGUST AND ANGER

Anger and disgust are distinct emotions with fundamental differences. Anger and disgust impact individuals who experience them, as well as their targets, and in some instances they impact whole societies in differential ways. However, two main problems have made it difficult to distinguish these two emotions from each other, especially in the moral realm.

First, these emotions are closely linked in the emotion lexicon and often reported together. Empirical evidence has shown that the terms “anger” and “disgust” are highly correlated and often used interchangeably (Johnson-Laird, & Oatley, 1989; Russell & Fehr, 1994), especially when examining moral emotions (Haidt, 2003; Rozin et al., 1999). Some researchers have even argued that “disgust” which arises in response to moral offenses is not just different from core disgust, but is actually only a metaphorical use of disgust language to display the true emotion of anger (Bloom, 2004; Nabi, 2002).

Second, when defining what elicits moral disgust, definitions have been too broad, encompassing violations that are just as likely to elicit anger, making it difficult to distinguish their individual effects. For example, moral disgust has been linked broadly with any moral violation and/or deceptive behaviour (e.g., Rozin, Haidt, & McCauley, 1993). However, this problem can be resolved by conceptualizing moral disgust as having a more specific function, which is to govern norms regarding the body. Therefore, it is

necessary to examine bodily moral violations and non-bodily moral violations separately, in order to distinguish anger and disgust's individual effects.

It is also important to take into account that moral anger and disgust have different social functions, this enables the researcher to not be entangled in the debate of what is the source of anger and disgust. Instead the focus should be on the consequences of these moral emotions, which will help the researcher to uncover specific differences between these two emotions.

Based on an examination of past theoretical accounts and empirical findings the following differences can be inferred between anger and disgust: they differ in their appropriate cognitive elicitors; they differ in whether they are rational versus irrational in nature; they differ in whether they are contextual versus non-contextual in nature, and they differ in whether they encourage approach versus avoidance behaviours. Most of the research evidence does not directly compare moral anger and disgust; however, these differences have been implied from previous findings related to each specific emotion separately.

Cognitive Elicitors

Anger and appraisals of wrongdoing

Over decades of research a clear connection has been made between anger and its cognitive elicitors. Research on personal anger has linked this emotion with goal blockage, other blame and unfairness (Lazarus, 1991; Roseman, Antoniou, & Jose, 1996; Smith & Ellsworth, 1985). In the

moral realm, anger has been found to be elicited in response to actual or symbolic harm (Rozin et al., 1999). Anger has also been associated with further attributions of responsibility and blame (Alicke, 2000; Goldberg, Lerner & Tetlock, 1999; Tetlock et al., 2007). Alicke's (2000) culpable control model predicts that the presence of either harm or responsibility will make it more likely that the other factor will be perceived as well. According to this view the appraisals associated with anger are then very likely to co-occur and influence one another.

Previously, Averill (1983) has examined what lay persons believe are the appropriate causes and consequences of anger, which indicated that lay persons believe that anger is most likely to arise when intentional wrongdoing has occurred, therefore, anger is not merely dependent on harm. To the average lay person it is not only important to determine who is to blame and whether their actions are harmful, but whether or not their actions are intentional. Broadly, anger is then linked to concerns of other blame and assessing the wrongdoing that has occurred.

Disgust and its ambiguous appraisals

Appraisal theorists who have tried to capture what elicits disgust have struggled to do so, often resulting in near tautologies, for example, definitions of the appraisals that elicit disgust include, "distasteful stimuli" (Ortony, Clore & Collins, 1988) and "poisonous ideas" (Lazarus, 1991).

Researchers who examine moral disgust have not been able to clearly define what elicits moral disgust either. Rozin, Haidt and McCauley (1993) argue that the core of disgust is the avoidance of ingesting

contaminating or offensive objects in the mouth and this response has evolved to include socio-moral elicitors in which disgust is used as a form of social control. Core disgust includes anything that is considered unfit for oral incorporation, such as a body product or something that is animal in origin. This level of disgust has a literal function because persons want to avoid the threat of ingesting something harmful into their body. The next category of disgusting objects includes any object that reminds humans of their animal nature; as a result, persons come to avoid anything that violates the division between humans and animals. Humans are just like animals in that they must eat, excrete and have sex; however, culture prescribes that persons must engage in these acts in specific ways and people who fail to do so are perceived as being disgusting, animal like and immoral. The simpler forms of disgust, core and animal nature, are then expanded to include interpersonal contaminants, such as strangers and undesirable persons, and these judgments are dependent on culture. Disgust at this level functions to determine which persons are either fit or unfit for social relations. Finally, disgust can also come to function as an agent of preserving the social order, known as socio-moral disgust. At this level disgust is elicited in response to individuals who are perceived as violating social norms. Individuals who appear as if they cannot give back to society are included in this category and persons also seek to avoid individuals who have deep character flaws. Based on this general morality hypothesis, individuals or groups can elicit disgust once they have done something that is morally wrong or does not fit in with their society.

More specifically, Jones and Fitness (2008) argue that individuals are physically repulsed by moral transgressors that use deception and abuse their power. Therefore, according to this definition an individual or group can be deemed as disgusting if they have engaged in a despicable behaviour. However, both of these theories, Rozin et al., (1993) and Jones and Fitness (2008), make it difficult to distinguish moral disgust from anger, by associating disgust broadly to most norm violations and/or deceptive behaviour. These definitions are then problematic because anger is just as likely to arise in these situations making it difficult to distinguish anger and disgust's individual effects.

A more specific definition proposed by Rozin, Lowery, Imada and Haidt, (1999) has associated moral disgust with purity concerns. A purity violation is defined as an act that is deemed as polluting the body or soul, while a purity virtue is protecting the body and soul from contamination and/or engaging in cleansing behaviours. Theoretically the concept of purity can then encompass many different behaviours; however, empirical evidence that links disgust to purity concerns that do not involve the body is limited.

For example, Haidt, Koller and Dias (1993) presented Brazilian and American participants with stories that were meant to elicit disgust. Participants' reactions to these stories were then recorded through engaging in structured interviews. The stories that were presented to participants included the following: 1) a family that eats their pet dog after it has been run over by a car, 2) a brother and sister that kiss on the mouth when no one is around, 3) a man who masturbates with a store bought chicken and then he eats it. Therefore, all of the stories that were used in this research involved a

violation of a bodily norm. Similarly, Haidt (2001) begins his social intuitionist paper with a description about a brother and sister that engage in harmless sexual relations. These are the type of vignettes that have been frequently used to elicit disgust within experimental psychology, but there are little or no stories that do not involve the body. Thus, empirically it has not been shown that disgust arises in response to purity violations that do not involve the body, such as spiritual violations that do not involve sex or eating. Based on this observation, it can be argued that disgust serves a very specific function, which is to govern norms regarding the body. This theoretical standpoint and the empirical evidence which supports this assumption will be outlined below.

Disgust as the regulator of bodily norms

One view of disgust suggests that this emotion is ideational or abstract, therefore, “disgust elicitors are disgusting because of what they mean or symbolize” (Oaten, Stevenson & Case, 2009, p. 315). Douglas (1966), Rozin and colleagues (1993, 1999) and Miller (1997) all conceptualize disgust in accordance with this view. According to this view, in the moral realm disgust can be elicited in response to numerous violations and can explain the expansion of disgust to encompass a variety of norm violations. The second view of disgust suggests that disgust is a concrete emotion, which is stimulus driven, thus, objects are disgusting because of their physical properties (Curtis & Biran, 2001; Royzman & Sabini, 2001). However, research has found that disgust elicitors do not always need to be present for disgust to be elicited, and in the moral realm the connection between disgust elicitors and disgust is not always direct (Oaten, Stevenson

& Case, 2009). Thus, this debate about whether disgust is concrete or abstract then leaves open the question as to what exactly elicits disgust in the moral realm.

It can be argued that disgust has a very specific function, which is to govern norms regarding the body, particularly sexual norms (e.g., bestiality, incest and paedophilia). There is normally a large consensus that these behaviours are wrong, and reactions to these behaviours appear to be fairly inflexible. Also, these behaviours will only lose their stigmatization after cultural shifts in emotional associations. For example, attitudes toward homosexuality have very gradually become more favorable within specific cultures, which suggests that due to specific factors (e.g., exposure) the negative emotional associations have been changed.

Therefore, in the moral realm disgust responds to the categorical judgment of whether or not a bodily behaviour is inappropriate according to previous experiences and social learning. Based on previous findings it can also be inferred that a clear connection must exist between disgust and specific concrete elicitors. For example, concrete norms regarding sexual behaviour and abnormal eating, which are based on a given society's social standards, can elicit disgust. This type of response will then be more representative of core disgust and will be easier to separate from feelings of anger.

This assumption is supported by previous experimental findings; for example, neuroscience research has found differences in the brain systems that respond to sexual and non-sexual norms (Moll et al., 2005; Schaich Borg, Lieberman, & Kiehl, 2008). Also, Simpson, Carter, Anthony and

Overton (2006) have found a difference between socio-moral and core disgust, in that feelings of disgust towards social moral violations increased over time and were inseparable from feelings of anger, whilst feelings of core disgust were distinct from anger and decreased over time. Only one of the eight pictures used to elicit social moral disgust in this research involved the body, sexual infidelity (which is known to normally involve deception), while the other pictures depicted non-bodily violations, e.g. racism and disloyalty. This research then provides initial support that non-bodily violations elicit a response that is more similar to anger than core disgust. Thus, conceptualizing disgust as responding to all types of norm violations makes it difficult to distinguish the effects of disgust as distinct from anger.

The physiological responses that are linked with core disgust have been shown in response to sexual norm violations. For example, Royzman, Leeman and Sabini (2008) have found that third party reactions toward sibling incest were accompanied by physical repulsion, in the form of nausea, gagging and diminished appetite; importantly this response was more common than anger or fear responses. The authors attributed these feelings of disgust to the cultural transmission that this type of behaviour is inherently wrong and disgusting. In a pre-test these researchers also found that a photo of Hitler led participants to report feelings of disgust that were related to the need to lash out, but their feelings of disgust were not related to oral inhibition (feelings of revulsion). However, pictures of gore, body waste and incest showed a reversed pattern, in that feelings of disgust were associated with oral inhibition but not to the need to lash out. Based on these results, it can be assumed that the disgust which was elicited in response to a photo of

Hitler was characterized more by feelings that were akin to anger and separate from disgust.

When analyzing the reliability of the disgust sensitivity scale it can also be inferred that bodily and non-bodily violations should be examined separately. The disgust sensitivity scale (DS) is a measure that is meant to assess the likelihood that individuals will experience disgust to an array of stimuli. When creating the original scale, it became apparent that socio-moral disgust is a distinct form of disgust (Haidt, McCauley, & Rozin, 1994). In the domain of socio-moral disgust it was found that only sexual violations (e.g., incest) correlated reliably with the total score. Conversely, moral violations that were removed from the body (e.g., stealing from a blind beggar) did not correlate reliably with the total score. These social moral violation items were then removed from the final scale. This final scale now includes 32 items and is comprised of 8 domains of disgust (food, animals, body products, body envelope violations, death, sex, hygiene and sympathetic magic).

When examining how the various domains of disgust are related to negative attitudes toward homosexuals, it has been found that core disgust was the only type of disgust that uniquely predicted negative attitudes (Olatunji, 2008). It was also uncovered that the relationship between negative attitudes toward homosexuals and disgust could not be fully accounted for by contamination fears, but rather this relationship is partially accounted for by conservative and religious beliefs. Thus, this research indicates that social learning plays a large role in whether or not someone is disgusted by homosexuality.

Cumulatively, across these findings it appears that disgust is most likely to arise uniquely when a bodily norm violation has occurred. However, from these empirical findings it is ambiguous as to whether the emotional response that is elicited in response to non-bodily violations is a different form of disgust, a blend of disgust and anger, or just simply anger. Nevertheless, in order to disentangle the effects of anger from disgust it is useful to examine bodily and non-bodily violations separately. However, further research will have to be carried out in order to fully determine whether disgust which is elicited by non-bodily violations is a different form of disgust or just simply anger.

Rational versus Irrational Nature

Rationality of anger

As outlined above moral anger, appears to be heavily intertwined with numerous appraisals which are concerned with assessing the wrongdoing that has occurred. However, it is debatable whether or not these specific appraisals have to occur before anger arises. Berkowitz and Harmon Jones (2004) have argued that no appraisals are necessary for anger to occur. These researchers assume that frustration is the only factor that needs to be present for anger to be elicited and that appraisals only heighten the anger experience. Parkinson (1999), in his studies on reasonable and unreasonable situations of anger and guilt, found that appraisals were variable and in some instances absent from the situation in different instances of anger. Thus, this research indicates that an appraisal is not necessary for anger to be elicited and that a prototypical appraisal for anger

does not exist. Kuppens et al (2003, 2007) also argued that no appraisal is necessary or sufficient for anger to be elicited. In this research it was found that appraisals varied by contextual and individual differences, for example, some people appeared less reliant on appraisals, while others felt the need to evaluate their anger. Cumulatively, these results suggest that a rational appraisal does not always need to precede anger; instead appraisals may only modify the anger experience.

Empirical evidence has also shown that anger can arise irrationally when a behaviour has been previously associated with anger but is nevertheless harmless (Gutierrez & Giner-Sorolla, 2007). This presumption of harm is most likely to occur when the violation is bodily in nature, and this finding is explained by feelings of anger but not disgust. It was also found that when participants were given the option they would describe harm as being symbolic rather than as actual. When under cognitive load it was found that participants who evaluated harmless behaviours were less likely to presume harm. However, cognitive load did not influence ratings of disapproval and emotions. These findings then indicate that this application of harm is an effortful post-hoc justification, which is associated with feelings of anger but not disgust. From this research it can be inferred that even when anger arises irrationally, individuals who feel anger will still try to appear rational in their response by offering a post-hoc justification.

Based on previous research it is apparent that a rational appraisal does not always need to precede anger, but this response can be elicited in response to previous associations, and rational appraisals can instead either modify one's anger and/or follow anger as a post-hoc justification.

Irrationality of disgust

The research evidence which indicates that disgust is an automatic emotion that is not linked with a rational appraisal is vast. It can be argued that disgust displays the four qualities (awareness, intentionality, controllability and efficiency), which signal automaticity (Bargh, 1994). Disgust does not seem to require a lot of cognitive resources. Individuals are often unaware that disgust influences their thoughts and behaviours. Persons are also unaware of the magnitude of this influence and they cannot control this influence. The literature which suggests that disgust is an automatic emotion will be outlined below.

Rozin and colleagues have found that disgusting qualities can be transferred to objects based on the laws of sympathetic magic (Rozin, Markwith & Ross, 1990; Rozin, Millman, & Nemeroff, 1986; Rozin & Nemeroff, 2002). The first law of sympathetic magic holds that 'once in contact, always in contact'; therefore, disgusting qualities cannot be diminished once they have been transferred. The second law of similarity holds that 'the image equals the object', this law can then explain why an object that is similar in shape and form would be deemed as disgusting and then avoided. These laws of sympathetic magic also maintain that the effects of contagion are insensitive to dose. Based on this law it can then be inferred that a large amount of a substance is not needed in order for an object to be deemed as disgusting, any amount will do. All of these principles share a common ground, which is that they are based on irrational thinking and go against common reasoning and science.

Using various experimental methods, Rozin, Millman and Nemeroff (1986) found that persons would engage in avoidance and purification behaviours when disgusting qualities had been transferred onto a previously neutral object. However, when asked to explain these behaviours persons admitted that they could not come up with reasons and could not deny that their behaviours were based on irrational thoughts. For example, persons refused to drink orange juice that had come into contact with a sterilized plastic cockroach (law of contagion). From this research it can be concluded that neutral objects very easily become associated with disgusting qualities and this process is irreversible and persons do not care if they appear to be irrational.

Across a series of six studies the contaminating nature of disgust was also exhibited in consumer evaluations (Moralez & Fitzsimons, 2007). It was found that an object placed near a disgusting object, e.g. a sanitary pad, in a shopping basket lead to evaluations of the target products to be lowered. It was also found that actual contact was not required and that the negative influence carried on over time.

Disgust has also been theoretically and empirically related to blood injection phobia which is an irrational fear (Olatunji, Lohr, Sawchuk, & Westendorf, 2005); therefore, impulsive and hard to regulate. It was also found that both disgust and fear can arise as a result of associative learning, in that an evaluative conditioning effect was found between pictures that capture these emotions and neutral facial expressions. These evaluative conditioning effects were shown based on post-exposure ratings of these emotions.

An evaluative conditioning effect has also been found between unpleasant odours and neutral facial photographs. Interestingly, this effect only occurred if the odours were plausibly connected to humans, such as sweat, which is often viewed as being disgusting (Todrank, Byrnes, Wrzesniewski, & Rozin, 1995). Therefore, this research indicates that disgust can arise because of associative learning and a rational appraisal does not need to take place.

Disgust has also been found to have an automatic influence on moral judgement. For example, Wheatley and Haidt (2005) unconsciously elicited disgust using hypnosis, which made moral judgements more severe. Similarly, Schnall, Haidt, Clore and Jordan (2008) found that disgust from an outside source made moral judgements more severe. Using four different manipulations of disgust (exposure to a disgusting smell, being in a disgusting room, emotion recall and a video induction) it was found that participants who were exposed to a disgust manipulation evaluated vignettes as being more wrong, in comparison to a neutral condition and a manipulation of sadness within one experiment. Recently, the reverse effect has also been shown in that incidental priming of purity made moral judgments less severe (Schnall, Benton, & Harvey, 2009).

Based on previous research it is apparent that disgust is commonly elicited in response to irrational thinking and persons are often fully aware that they are being irrational but will not modify their response. On the other hand, research has indicated that a rational appraisal does not always need to precede anger, but the angry individual wants to appear as if they are being rational, even in instances when their anger is not warranted.

However, the type of reasoning that is associated with moral anger and disgust has not been compared within prior research, but will be carried out as part of this thesis.

Disgust's association with defensive processes

Disgust has also been associated with specific psychological concepts, existential threat and dehumanization, within previous research. As outlined within the remainder of this section, these empirical findings provide further evidence that disgust is an irrational emotion which encourages defensive processes.

As explained from a psychodynamic approach, the ego-defensive function operates using unconscious strategies to resolve feelings of uneasiness and revulsion, protecting the ego from anxiety (Freud, 1894; Herek, 1987). Specifically, the defensive function can also be used to resolve the negative feelings associated with existential threat, such as fears of confronting our animal nature and mortality (Cox, Goldenberg, Pyszczynski, & Weise, 2007). Therefore, defensive mechanisms are used to maintain our feelings and beliefs without confronting what is bothering us. Sarnoff (1960) argued that frequently our attitudes are driven by defensive processes, in which persons are trying to escape a threat; thus, maintaining their negative beliefs without dealing with the object of their attitude.

Based on previous literature, existential threat appears to be related to feelings of disgust both directly and indirectly. Direct evidence has been found by Cox, Goldenberg, Pyszczynski and Weise (2007), in which a relationship was found between death accessibility and disgust across two

experimental studies. In the first study, it was found that priming disgust using picture stimuli increased death accessibility, regardless of whether or not participants had been primed with similarities between human and animals or just human nature. On the other hand, within the second study when persons were primed with disgust words the relationship with death accessibility depended on whether or not participants were primed with similarities between humans and animals, since individuals who were primed uniquely with human nature did not show this same relationship. It can be argued that the first study tapped into more impulsive responses, while the second study indicates that the effects were subject to cognitive control and the shortcomings of the emotion language. The second study primed disgust by making the semantic category salient, while the first study may have elicited the visceral reaction. However, it was necessary to conduct this second study because it can be argued that the first study may have manipulated thoughts of mortality directly through gory pictures instead of manipulating disgust. It has also been found in another study that by making mortality salient this led participants to have an increased sensitivity across several disgust domains, including animal nature (Greenberg, Pyszczynski, Greenberg, Solomon, Kluck, & Cornwell, 2001).

A connection can also be seen between disgust and existential threat because empirical evidence has shown that they share some of the same elicitors. For example, Cox, Greenberg, Arndt and Pyszczynski (2007) examined whether or not a breastfeeding woman was associated with existential fears. It was proposed that there would be a relationship between breastfeeding and existential threat because the act of breastfeeding reminds

persons of their animal nature. The reasoning behind this link is that persons often view breastfeeding as something that is disgusting and something that they do not want to be exposed to. In a series of four studies, it was found that by making mortality salient this increased person's negative reactions toward a breastfeeding woman, decreased liking of the woman and encouraged avoidance. The manipulation of mortality salience also increased the accessibility of cognitions about creatureliness. Therefore, this existential fear, breastfeeding, has an obvious connection with the predictors of disgust by being a reminder of our animal nature.

Existential threat has also been linked to discomfort with sexuality, which is a factor that has been found to be related to the disgust response (Haidt & Hersh, 2001). For example, Goldenberg, Pyszczynski, McCoy, Greenberg and Solomon (1997) found that persons resolve their existential fears about sex by attaching symbolic meaning to their intimate relationships. Therefore, these studies found that persons like to regulate and romanticize their sexuality because sex reminds them of their animal nature; however, persons who were neurotic had greater difficulty being able to transform the meaning of their relationships.

Not only does existential threat and disgust share similar predictors but they also both result in avoidance and separation. For example, Case and Williams (2004) hypothesized that existential threat promotes a need to ostracise certain people. Similarly, Dechesne, Janssen, and van Knippenberg (2000) have found that existential threat is related to both derogation and distancing strategies.

Dehumanization has also been related to feelings of disgust. Dehumanization can be defined as the denial of full humanness to another individual, in which this person is automatically treated as being inferior (Boccatto, Cortes, Demoulin, & Leyens, 2007). However, many conceptualizations have failed to define exactly what “humanness” is. A recent review by Haslam (2006) defines two different types of dehumanization, mechanistic and animalistic. According to this conceptualization, the denial of full humanness can take two different forms and this psychological concept has been previously associated with feelings of disgust.

Targets of extreme prejudice can be denied full humanity; therefore, Harris and Fiske (2006) examined which extreme outgroups are objects of dehumanization. Specifically, it was predicted that groups in the low-low quadrant of the SCM, individuals that are perceived as being low in competence and warmth (e.g., drug addicts and homeless people), are subjected to this extreme prejudice, which was supported through neurological imaging. Groups in the low-low quadrant did not activate the medial prefrontal cortex, which is essential for social cognition, while groups that belonged to the other three quadrants did activate this area. However, the insula and amygdala, which are two parts of the brain that are related to feelings of disgust were activated in reaction to groups from the low-low quadrant.

Interpersonal disgust sensitivity has been found to be a predictor of disliking toward unfamiliar groups, for example, immigrants and foreigners. However, it was found that dehumanization and ideological orientations

mediated the relationship between disgust sensitivity and prejudice (Hodson & Costello, 2007). The main connection between these two factors- dehumanization and ideological orientations- with disgust is that they share similar motivations and action tendencies. Right wing authoritarianism, RW (Altemeyer, 1996) is an ideological orientation which promotes avoidance strategies and adherence to social norms. Social dominance orientation, SDO (Sidanius & Pratto, 2001) is characterized by a motivation to maintain social hierarchies. Persons that were high on social dominance orientation SDO are also more likely to dehumanize refugees (Esses, Veenvliet, Hodson & Mihic, 2008). Therefore, it can be inferred that the action tendencies and motivations behind these factors are similar to disgust, thus, it is logical that these mediation effects were found.

Based on these empirical findings it is apparent that disgust shares a common basis with the psychological concepts of dehumanization and existential threat, which is that they are all devoid of rational thoughts as to whether or not an individual or group is worthy of being treated unfavourably. These empirical associations suggest that disgust encourages avoidance behaviours and negative judgements; however, problematically individuals who feel disgust do not stop and think as to whether or not their disgust is warranted.

Contextual versus Non-contextual Nature

Contextual nature of anger

As outlined previously anger and the associated appraisals can often vary within different situations (Parkinson, 1999; Kuppens et al., 2003, 2004, 2007). This suggests that the anger experience itself is modifiable depending on the presence of certain contextual evaluations.

Goldberg, Lerner and Tetlock (1999) found specific evidence that anger can vary by whether or not contextual cues are present. These researchers examined under what factors persons attributed responsibility, in their model it is argued that individuals become 'intuitive prosecutors' who lower their threshold of judgement and ascribe harsher punishment when certain factors are present, e.g. norm violations. It was found that individuals were most likely to respond in this manner when it was perceived that harmful actions were intentional, when a social norm had been violated or when someone had escaped punishment. They also found that previous judgements of harm influenced later judgements. Most importantly, these authors found that unresolved anger led participants to make greater inferences of harm in subsequent judgements. However, when participants learned that justice had been served this decreased individuals anger and attributions of blame, also, diminishing carry over effects of this emotion. Thus, based on this research it can be inferred that the cue of justice can modify the anger experience.

In addition to this cue of justice, other research evidence has indicated that other situational cues can influence both the intensity of anger and the

likelihood that anger will be experienced in the first place. For example, it has been found that individuals' perception of their own power and how much control they believe they have over the situation influences whether or not they will feel angry and whether they approach the situation (Mackie, Devos, & Smith, 2000). Another factor that is influential in predicting the likelihood of feeling anger is closeness or intimacy to the target, which influences the likelihood of experiencing anger as well as the intensity of one's anger (Fischer & Roseman, 2007; Kuppens et al., 2004; Weber, 2004). Thus, specific contextual cues have been identified that appear to influence the likelihood of experiencing anger in the first place and the intensity of one's anger.

Non-contextual nature of disgust

On the other hand, disgust appears to be less able to be modified by the current situation instead the intensity and frequency of this emotion appears to be based on a fairly stable trait characteristic: disgust sensitivity. Disgust sensitivity is a trait characteristic, which predicts the likelihood that certain individuals will experience disgust in reaction to a variety of stimuli (Haidt, McCauley, & Rozin, 1994). To my knowledge no empirical research has identified a contextual cue that modifies disgust. Disgust appears to be more concerned with the object and not with the action (Ortony, Clore, & Collins, 1988), thus, an individual is less likely to focus on the event or agent. It can be argued that different aspects of the situation will not influence the disgust experience but characteristics about the object will determine whether or not disgust is experienced and the intensity of this emotion. For example, if a man has sex with his daughter this will probably elicit disgust

for most people because this behaviour is considered to violate a sacred taboo. If the father is described as being dirty in appearance this is likely to intensify disgust. Conversely, if the sexual act is portrayed as being consensual this is less likely to decrease or mitigate feelings of disgust.

The reason why disgust may have such a blanket effect, not responding to changes in context, is because when disgust is involved individuals are especially prone to avoid false alarms (Oaten, Stevenson, & Case, 2009). Thus, predictive signals of disease or contagion may be benign; however, we will still avoid individuals who show signs of disease because it is better to avoid false alarms. For example, Park, Faulkner and Schaller (2003) have found that people automatically react with disgust and avoidance to a person with a disability, even if the person cannot help his or her disability and/or it is not contagious. Therefore, even though persons with disabilities are harmless, others will still automatically react with revulsion and avoidance. Based on this lack of regard for context, it can be inferred that disgust is an emotion that relies on associative networks and is not concerned with different aspects of the context (e.g., whether the behaviour is harmless), some objects are just disgusting.

Approach versus Avoidance Behaviours

Anger encourages approach behaviours

The social function of anger is attained by “forcing a change in another persons’ behaviour”, in hopes to achieve a better outcome (Fischer & Roseman, 2007, p.104). This function can be served by maintaining a hostile approach, but it is not present in all instances of anger. In actuality, the goal

of social cohesion or reparation is more common than previously thought in connection to anger (Averill, 1983; Fischer & Roseman, 2007). Thus, under certain conditions the function of anger can be positive, leading to beneficial outcomes for persons involved (Averill, 1983). Whether or not the behaviour is hostile, it can nevertheless be argued that anger in general motivates persons to approach the cause of their anger. Numerous studies have highlighted aggression as a common response, with individuals choosing to engage in different forms of aggression, verbal and/or physical (Izard, 1977). In many instances, persons are motivated to attack, humiliate or otherwise get back at the person who has offended them (Haidt, 2003). Anger also encourages the person experiencing the emotion to either punish or rebuke verbally the person who has done them wrong (Haidt, 2003; Nussbaum, 2004). However, in contrast to this it has also been found that anger encourages persons to engage in reparative behaviours, such as talking things over (Fischer & Roseman, 2007; Weber, 2004). Thus, it leads one to question how persons can respond to their anger with such different behaviours. The reason that anger can lead to such different behaviours is because anger varies depending on the current context.

For example, relationship to the target is a factor that strongly influences one's behavioural outcome after becoming angry (Fischer & Roseman, 2007; Kuppens, Van Mechelen & Meulders, 2004; Kuppens, Van-Mechelen, Smits, De Boek, & Ceulemans 2007; Weber, 2004), in that relationship to the target determines both the intensity of anger and also the actions that one is willing to engage in. Kuppens et al. (2007) found that the action tendency that is exhibited is dependent on one's relationship with the

target, in that persons will engage in either approach or avoidance social sharing. In this research it was found that participants would respond with approach responses when the person or group was lower status or liked. On the other hand, when the target was higher status or disliked this made individuals more likely to respond with avoidance strategies. Gordijn, Yzerbyt, Wigboldus, and Dumont, (2006) have found that manipulating whether or not a participant could relate to the victim or perpetrator influenced their judgements, intensity of anger and subsequent behaviours, in reaction to a scenario that described a harmful behaviour that one group inflicted on another group. Specifically, it was found that when persons were reminded of their similarities to the victims this would increase their judgements of unfairness, increase their anger and make it more likely that they would take action toward the perpetrator. Alternatively, when participants similarities to the perpetrator were made salient this reversed the pattern of relationships, individuals were less likely to perceive the harmful behaviour as being wrong and were less likely to feel anger.

There are also sex differences in the expression of anger due to the social appraisal that is related to anger (Evers, Fischer, Mosquera, Rodriquez, & Manstead, 2005), in that individuals of each gender have been taught that there are appropriate ways to respond to their anger. Within this research it has been found that women are more concerned about the impact of their expression of anger and relate to the victim; thereby, leading to suppression. Alternatively, men do not anticipate negative reactions making it more likely that they will express their anger. The authors suggested that this difference may occur because men and women learn different display rules, which

implies that social learning plays a large role in how individuals express their anger.

Another factor that might influence the way persons respond to their anger is how socially accountable they feel in their response (Averill, 1983). The anger experience is influenced by whether or not individuals feel that their actions will impact others. Thus, when persons feel accountable they will be less likely to respond automatically and thoughtlessly to their anger. It has been argued that social accountability reduces the impact of anger (Lerner, Goldberg, & Tetlock, 1998). Therefore, persons are motivated to respond appropriately and constructively to their anger because if they do not it can have extremely negative consequences for themselves and others around them (Izard, 1977). Anger is then maintained because of its consequences, in that persons learn about the appropriate instances in which it is acceptable to respond with anger (Averill, 1983). Thus, anger comes with a social script, which is modified to fit the current context (Weber, 2004).

This social script perspective suggests another possible function of anger, which is to be a mechanism of learning. According to Averill (1983), anger serves the function of correcting wrongdoing and enforcing norms of conduct, which signals to others the appropriate ways to respond within particular situations. These rules then enforce the appropriate causes and outcomes of anger, which are well known in most Western societies. As a result, anger can serve a positive function in the current moment by mending relationships and breaking ties when it is appropriate to do so. Anger can also be useful for future relations by teaching persons the appropriate

instances in which to become angry, resulting in persons having congruent expectations of their anger experience.

Disgust encourages avoidance behaviours

The primary function of disgust is to be a separation tool; thus, disgust is primarily a defensive emotion, encouraging individuals who feel disgust to avoid and break off all ties from the source of their disgust. Persons normally respond to their disgust with avoidance and/or purification strategies (Haidt, 2003). However, the most common behavioural tendency is avoidance in which someone is motivated to either expel or break off contact with the offender (Haidt, 2003). This action tendency can be helpful to society because it helps establish norms and builds a cohesive society, in which persons know that if they do wrong they will be punished and excluded (Haidt, 2003). On the other hand, when persons purify themselves they are trying to remove any residue of contact (Rozin & Nemeroff, 2002). Therefore, both action tendencies are motivated by the need to break off all ties.

In theory, individuals who feel disgust should seek to establish whether or not this type of response is warranted; however, it appears as if the disgust response can be unreasonable. For example, it has been argued that persons utilize the disgust reaction because of who a person is, not because of what they have done (Haidt, 2003; Nussbaum, 2004). Hence, persons will feel disgust toward persons just for who they are instead of engaging in rational thought processes as to whether or not the person did something that is wrong and/or harmful.

As a result, the action tendencies associated with disgust appear to be fairly automatic and do not take into account the actions of the individual in question. Therefore, this emotion can be dangerous because in many instances it leads to unwarranted exclusion (Nussbaum, 2004) and does not appear to vary by context. On the other hand, the behavioural responses that accompany anger appear to be much more variable because anger responds to changes in context. Also, anger's social function promotes correcting wrongdoing, which can result in different types of behaviour depending on the current circumstance.

Conclusion

Across these differences it is apparent that anger is more concerned with the current context, while disgust is concerned with whether predetermined norms regarding the appropriate use of the body are violated. Therefore, disgust seems to be an irrational emotion, which does not respond to reasoning and has little concern for the current context. On the other hand, anger is concerned with assessing the wrongdoing that has occurred and individuals who feel anger want to appear as if they are being rational. These differences prompted me to compare moral anger and disgust because there are fundamental differences between these emotions. However, little research has directly compared the cognitive processes that are associated with anger and disgust, which was the main aim of the research presented within the next chapter.

CHAPTER 5

NOVEL DIFFERENCES BETWEEN MORAL ANGER AND DISGUST

The following chapter reports three experiments which were designed to directly test the core hypotheses of this thesis. The first experiment examines the cognitive elicitors or modifiers of moral anger and disgust, comparing whether anger or disgust will be influenced by the presence of specific contextual cues. As indicated within the previous chapter, the cognitions that are associated with moral anger and disgust suggest that these emotions may differ in whether or not they are contextual in nature. The cognitions that are associated with anger are more abstract and they tend to be relative to the context. Disgust on the other hand, is concerned with a categorical judgement, whether or not a bodily norm violation has occurred, which is normally based on prior learning and tends to be resistant to changes in context. Therefore, it was predicted that anger would be more likely to respond to changes in context than disgust.

Then two studies will be reported which directly examine the unreasoning nature of disgust, comparing whether disgust or anger encourages individuals to justify their emotional response with cognitively elaborated reasons. Previous research has suggested that disgust is a particularly irrational emotion, but a comparison of the type of reasoning that accompanies moral anger and disgust has not been examined previously. These experiments will then compare the post-hoc reasons that individuals give for feeling anger or disgust. Experiments 2 and 3 should show support for the unreasoning disgust hypothesis, indicating whether anger and/or

disgust will encourage individuals to give cognitively elaborated post-hoc reasons. Evidence for this hypothesis will be shown if participants give less cognitively elaborated reasons when justifying their disgust in comparison to anger. This distinction will be most apparent when participants are justifying why they feel disgust toward other individuals that can be perceived as violating a bodily norm.

These experiments will then indicate the cognitive processes that accompany moral anger and disgust. Importantly, the cognitive processes that are associated with moral anger and disgust will indicate that they are distinct emotions, which have differential influences on social relations.

Experiment 1

The focus of this experiment was on the cognitions that elicit or modify moral anger and disgust. Gutierrez and Giner-Sorolla (2007) have found that disgust at a scientific experiment responded to a manipulation of whether or not it technically violated a taboo against eating human flesh, while anger responded primarily to manipulations of whether or not the experiment symbolically harmed others, in the form of violating others' rights. It was also found that individuals presumed harm in reaction to a harmless taboo violation. However, this presumption of harm was found to be an effortful post-hoc justification that was driven by feelings of anger and not disgust. Also, when the choice could be made, this presumption of harm was found on the more appropriate measures of symbolic rather than actual

harm. These differences were most apparent when controlling for variance shared by reports of anger and disgust.

The present study builds on this research by examining an additional factor that might influence moral anger but not moral disgust- whether or not one's actions are intentional. Moral anger has been associated not just with attributions of harm, but also with the concept of blame or responsibility (Alicke, 2000; Goldberg, Lerner, & Tetlock, 1999; Tetlock et al., 2007) and these attributions can be influenced by mitigating considerations within a given situation, such as whether actions are intentional (Schlenker, 1997).

It was predicted that disgust would be insensitive to intentionality, as well as to harm, because an action that violates a bodily norm is disgusting whether or not it was done intentionally; however, because intent is a component of blame, it has the potential to intensify angry responses. Therefore, while intent and harm should predict anger, only the fact that someone has committed a bodily norm violation, and associated concepts such as abnormality and impurity, should predict disgust.

The present experiment looked at moral judgments of a scientist's actions, three elements of which were manipulated in a crossed design: a) whether the scientist violated a *taboo* bodily norm against the eating of human flesh (vs. a more normal kind of meat); b) whether the scientist symbolically *harmed* other people by violating their rights or not; c) whether the scientist acted *intentionally*, or unknowingly because of someone else's mistake.

Method

Participants

This study consisted of 266 participants. From this number, 25 participants were excluded because they reported themselves to be vegetarians, and thus might have moral objections even to the conditions in which eating of animal instead of human meat was described. The final data set included 241 participants (196 females, 41 males, and 4 who did not identify their sex) between the ages of 18 to 43 ($M= 19.70$, $SD=3.81$). Individuals were recruited from the departmental research scheme and received course credit for participating.

Design, Materials, and Procedure

This study was a 2 x 2 x 2 between participants design, manipulating Taboo (vs. No Taboo) x Harm (vs. No Harm) x Intent (vs. No Intent). Participants first read a short hypothetical story, containing the manipulations, and adapted from Gutierrez and Giner-Sorolla's (2007) materials in which the main character, a scientist, technically violated the bodily norm of cannibalism by creating an artificial steak made out of cloned human cells. Eight different versions of this story orthogonally varied the three characteristics of taboo, harm and intent (the stories that were used can be found in Appendix A). Taboo - that is, whether the action constituted cannibalism, a bodily norm violation - was manipulated by having the cells in question come either from lamb, or from a human source. Harm, in the symbolic form of rights violation, was manipulated by the scientist either eating the steak personally, or feeding it to friends while telling them untruthfully it was beef. Intent was manipulated by the scientist's knowledge

of the true nature of the steak – in the no intent conditions she believed the steak to be beef due to someone else’s error, while in the intent conditions she knew it was either lamb (No Taboo) or human tissue (Taboo).

Individuals then responded to several measures of disgust and anger reactions. These emotions were examined using both words and endorsement of facial expressions because past research has shown that anger and disgust terms in English are often used as synonyms (Russell & Fehr, 1994; Johnson & Laird-Oatley, 1989; Nabi, 2002). As in Gutierrez and Giner-Sorolla’s (2007) measures, the face items were black-and-white photos taken from Rozin et al., (1999). Emotion terms for anger were *angry*, *infuriated*, *outraged*, and for disgust, *disgusted*, *repulsed*, *sickened*, *grossed-out*. These items were assessed on a 9-point scale that ranged from 1, *not at all* to 9, *very*, and were interspersed among a number of filler positive and negative emotion terms that were not of theoretical interest.

Individuals then responded to specific measures of appraisals of the scientist’s actions. All of these measures were examined using a 9-point scale that ranged from 1, *very strongly disagree* to 9, *very strongly agree*. Two items assessed the evaluation of harm to others (e.g., “The scientist violated other people’s rights”). Three items assessed intentionality (e.g., “The scientist meant to do what she did”). As appraisals related to the manipulation of taboo violation, items based on a number of existing theories of moral disgust were included. However, it was difficult to create these variables because previous theories do not explicitly articulate what makes something disgusting. This variable was labeled as the abnormality appraisal because all of the items make reference that the scientist does not fit in with

others. Based on the idea that disgusting acts violate a bodily norm, the following item was included "The scientist is abnormal because of what she has done". Based on the CAD hypothesis (Rozin et al., 1999) and its connection between purity violations and disgust, the following item was included "The scientist is impure because of what she has done". Finally, because disgusting individuals are often deemed as having character flaws (Rozin et al., 1993; Miller, 1997), the following items were included "The scientist appears to be mentally unstable" and "The scientist is a lesser human being because of what she has done".

Results

Data Preparation

The anger word items (angry, infuriated, outraged), were a reliable scale, Cronbach $\alpha = .91$; as were the four disgust word items (disgusted, repulsed, sickened, grossed-out), Cronbach $\alpha = .93$. Although the negative emotion measures were significantly intercorrelated, the face measurements had their strongest correlations with the corresponding emotion word scales. Anger face endorsement correlated more strongly with the anger word scale, $r(241) = .68, p < .01$, than with the disgust word scale, $r(241) = .51, p < .01$, and the difference between dependent correlations was significant, $t(238) = 4.75, p < .001$. Disgust face endorsement was more strongly correlated with the disgust word scale, $r(241) = .54, p < .01$ than with anger words, $r(241) = .35, p < .01$ and the difference between dependent correlations was significant, $t(238) = 4.65, p < .001$. As in Gutierrez and Giner-Sorolla (2007), the facial endorsement and the word mean were both standardized, and then

averaged together, to create two general measures of anger and disgust. The three appraisal variables were also found to be reliable measures: harm appraisal, Cronbach α =.90; intent appraisal, Cronbach α =.78; abnormality appraisal, Cronbach α =.87. Also, in a principal components factor analysis with varimax rotation, each set of appraisal items loaded on its own factor at .72 or higher, with no cross-loadings over .31.

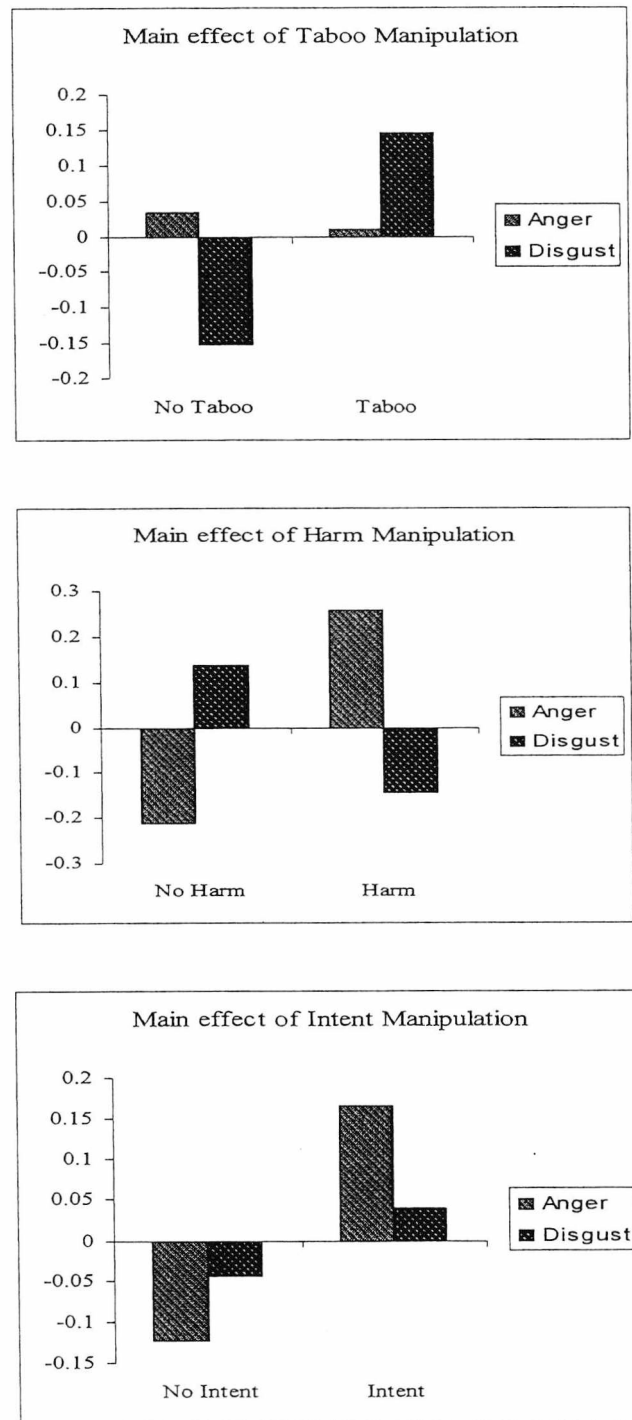
Hypotheses Testing

As in other research on these moral emotions, the composite measures of anger and disgust were correlated overall, $r(241) = .62, p < .01$, therefore, general linear model based ANOVAs testing the experimental design were carried out on each emotion using the other emotion as a covariate. Harm (No Harm vs. Harm), Taboo (No Taboo vs. Taboo), and Intent (No Intent vs. Intent) were entered as fixed effects in a 2 x 2 x 2 design. When entering anger as the DV and controlling for disgust, there were significant main effects for intent, $F(1, 232) = 10.54, p=.001$, partial $\eta^2=.04$, and harm, $F(1,232) = 29.72, p<.001$, partial $\eta^2=.11$ (see Figure 1 for means). No other main effects or interactions of the manipulations were significant, all $p > .10$.

When this analysis was repeated using disgust as the DV and controlling for anger, there were significant main effects for taboo, $F(1,232) = 12.01, p=.001$, partial $\eta^2=.05$, and harm, $F(1,232) = 10.15, p<.005$, partial $\eta^2=.04$. Although the effect of harm was unexpected, looking at the means, harm actually reduced disgust reactions; whereas it had increased anger (see Figure 1 for means). The main effect of intent was not significant, $F(1,232) = .88, p=.35$, partial $\eta^2=.004$, and no interactions were significant, all

$p > .12$. Therefore, taboo was the only factor that had a positive relationship with disgust.

Figure 1. Main Effects of Manipulations on Anger and Disgust



Note. Adjusted means are shown, each controlling for the other emotion.

Appraisals

To examine the effects of the manipulations on appraisals, three separate ANOVA analyses were carried out with each appraisal in turn as the DV (abnormality, harm, intent). The three experimental factors again served as fixed effects for each 2 x 2 x 2 analysis. There was a significant main effect of taboo for the abnormality appraisal, $F(1,233) = 11.69, p < .001$, partial $\eta^2 = .05$ (No Taboo: $M = 3.06, S.E. = 0.15$; Taboo: $M = 3.80, S.E. = 0.15$) and a significant main effect of harm for the harm appraisal, $F(1,233) = 129.56, p < .001$, partial $\eta^2 = .36$ (No Harm: $M = 3.12, S.E. = 0.18$; Harm: $M = 6.09, S.E. = 0.19$); no other effects on these appraisals were significant.

The strongest main effect of the intent manipulation was seen on the intent appraisal, $F(1,233) = 238.05, p < .001$, partial $\eta^2 = .51$ (No Intent: $M = 3.25, S.E. = 0.15$; Intent: $M = 6.46, S.E. = 0.15$), but the intent manipulation also had secondary effects on the harm appraisal, $F(1,233) = 19.45, p < .001$, partial $\eta^2 = .08$ (No Intent: $M = 4.02, S.E. = 0.18$; Intent: $M = 5.17, S.E. = 0.18$) and abnormality appraisal, $F(1,233) = 39.24, p < .001$, partial $\eta^2 = .14$ (No Intent: $M = 2.76, S.E. = 0.15$; Intent: $M = 4.11, S.E. = 0.15$).

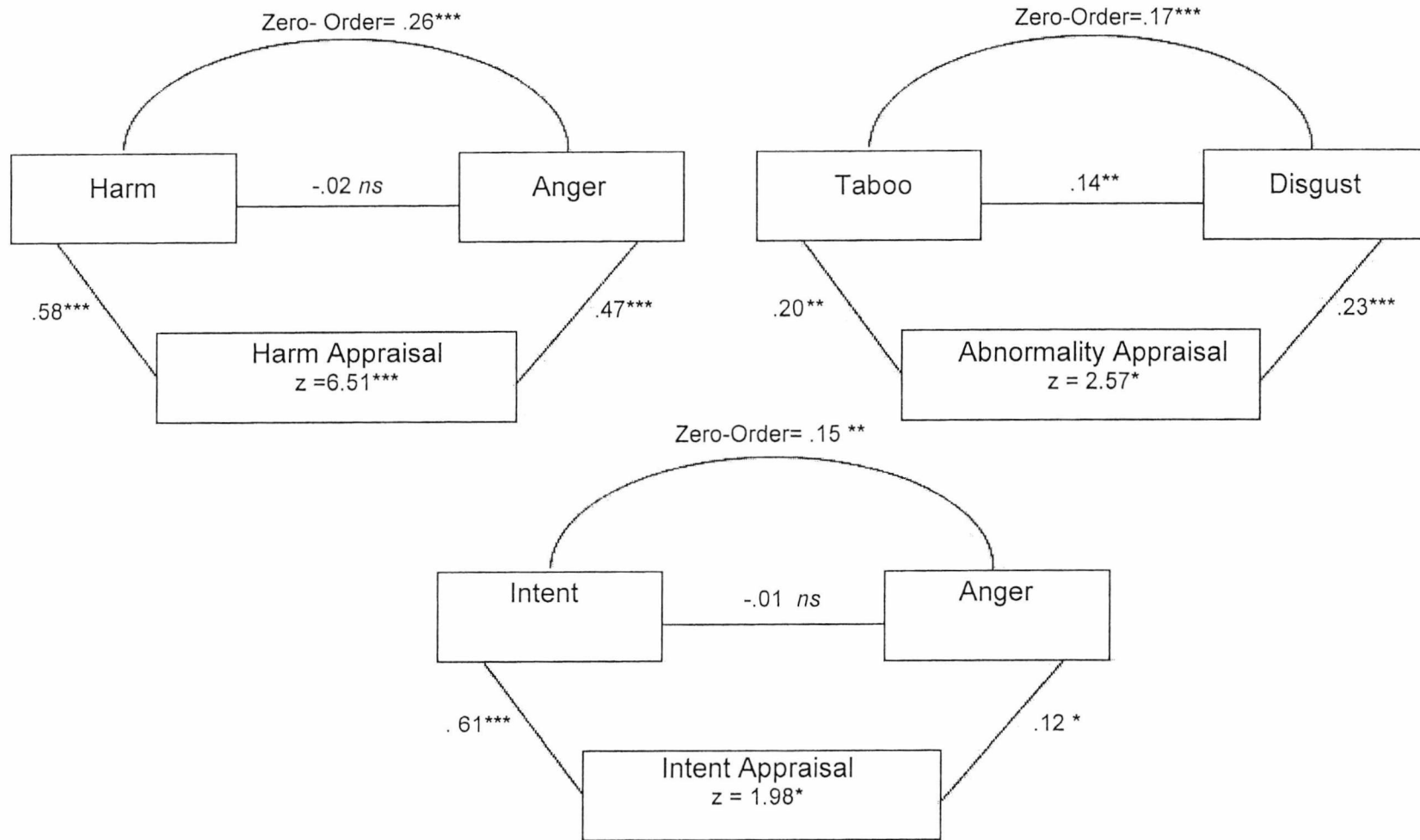
An unexpected interaction was also found between intent and taboo for the abnormality appraisal (A): $F(1,233) = 7.62, p < .01$, partial $\eta^2 = .03$, and for the intent appraisal (I): $F(1,233) = 6.94, p < .01$, partial $\eta^2 = .03$, on inspection of the means it appeared as if the combination of intent and taboo intensified both judgments (No Intent/No Taboo: $A = 2.69, I = 3.64$; No Intent/Taboo: $A = 2.83, I = 2.86$; Intent/No Taboo: $A = 3.44, I = 6.31$; Taboo/No Intent: $A = 4.77, I = 6.62$). Overall, however, each manipulation primarily influenced its corresponding appraisal variable.

As an internal analysis, two multiple regression analyses, one for each of the emotion variables, were conducted for the whole data set across conditions, using the appraisals of abnormality, harm, and intent as predictors. The other emotion was controlled for by entering it as a predictor, so that scores for anger excluded the influence of disgust and vice versa. When anger was the DV and disgust was controlled for, intent ($\beta = .12, p < .05$) and particularly harm ($\beta = .42, p < .001$) most reliably predicted anger; abnormality was a secondary, marginally significant predictor ($\beta = .10, p = .07$). When this analysis was repeated on disgust controlling for anger, the abnormality appraisal was the only significant predictor, $\beta = .26, p < .001$, and the other two variables were not significant (intent $\beta = -.01, p = .85$, harm $\beta = -.02, p = .79$).

To see whether appraisals could account for the significant effects of the manipulations on each emotion, mediation analyses were carried out, controlling again for the other emotion in each analysis where an emotion was a DV (see Figure 2). The harm appraisal fully accounted for the relationship between the harm manipulation and anger, while the abnormality appraisal was a partial mediator between the taboo manipulation and disgust. Because all three appraisals (abnormality, harm, intent) were related to the intent manipulation, three regression analyses were conducted examining each appraisal as a possible mediator, controlling for the other two appraisals. When controlling for the other two appraisals, the abnormality appraisal ($\beta = .07, p = .39$) and the harm appraisal ($\beta = .02, p = .79$) were no longer related to the intent manipulation; therefore, these appraisals were no longer potential mediators for this relationship. However, the intent appraisal was

related to the intent manipulation when controlling for the other appraisals, and this appraisal fully accounted for the relationship between the intent manipulation and anger.

Figure 2. Analyses of appraisals as mediators in manipulation-emotion effects



Note. ***, $p < .001$; **, $p < .01$; *, $p < .05$. Mediation analysis for the intent appraisal's effects was conducted controlling for the effects of the other appraisals, which were influenced to a lesser extent by the intent.

Discussion

The following results support the hypothesis that anger but not disgust responds to the contextual cues of harm and intent. As in Gutierrez and Giner-Sorolla (2007), disgust specifically responds to whether or not a bodily violation has occurred, while anger and not disgust responds to harm. However, in extension to this it was also found that anger was influenced by both the manipulation and measured variable of intentionality, while disgust was not. When examining how measured appraisals related to these moral emotions, it was found that appraisals of harm and intentionality predicted anger. The abnormality appraisal was also slightly related to anger; however, this was expected based on prior findings, in that anger and presumptions of harm often arise in response to bodily norm violations, but to a lesser extent than disgust responses (Gutierrez & Giner-Sorolla, 2007). Moreover, the appraisals of harm and intentionality fully accounted for the effects of their respective manipulations on anger, while abnormality did not similarly explain the effect of the intent manipulation on anger.

In comparison, the abnormality appraisal variable was correlated with disgust overall and was the only appraisal that was related to the taboo manipulation. At the same time, this appraisal variable could not fully account for the effect of the taboo manipulation on disgust. The measure of abnormality incorporated a number of items, with good internal reliability that accounted for many of the existing theoretical appraisals that would cause moral disgust toward a bodily violation: purity concerns, abnormality, and negative judgments of the character of the violator. Therefore, although

it is always possible that these items missed out a crucial appraisal, it is difficult to see what that appraisal might be. It may also be that disgust is elicited by the categorical perception of a taboo violation such as cannibalism, so that more abstract appraisals such as impurity and abnormality may not completely account for the response, or may in fact be post-hoc justifications of it.

This experiment displays initial evidence that anger is concerned with the current context, while disgust is based on prior social learning. The appraisals that are related to anger are more abstract and are relative to the current context because they refer to assessing the wrongdoing that has occurred. For example, the appraisal of intentionality is not a stable judgment, but instead varies by specific cases depending on the behaviour that has occurred. On the other hand, something about an object is deemed as disgusting because of prior learning, and this is a fairly inflexible response, which does not vary by context. This difference in the cognitions that elicit or modify anger and disgust provide evidence that anger and disgust differ in whether or not they are likely to respond to changes in context.

Reason Experiments

The following experiments were carried out in order to examine the *unreasoning disgust hypothesis*. Support for this hypothesis is drawn from the differences that were outlined in Chapter 4, which indicate that distinct features of anger and disgust may influence the likelihood that individuals

will be able to give cognitively elaborated post-hoc reasons for why they feel these emotions. These differences suggest that persons who feel disgust are not concerned with the current situation, but are focused on previously learned norms regarding the body. Feelings of disgust also tend to be irrational and they motivate individuals to turn their attention away from a given situation. On the other hand, individuals who feel anger are more concerned with the current context and in many instances feel socially accountable. Based on these premises, it appears logical that individuals who feel disgust would be less likely to support their disgust response with cognitively elaborated reasons, while individuals who feel anger should be able to justify their anger with cognitively elaborated reasons.

The *unreasoning disgust hypothesis* is also displayed in recent thought as to whether emotions or reasoning drives our moral judgments. The social intuitionist model proposes that our moral judgments are guided by gut feelings, and these judgments are only *post hoc* justified with reasons (Haidt, 2001). In support of the moral intuitionist position, research has found a *moral dumbfounding* effect: people often fail to come up with reasons for strongly and quickly expressed moral judgments (Bjorklund, Haidt, & Murphy, 2000). These researchers presented participants with morally distasteful acts whose scenarios eliminated potential justifications for negative judgments (for example, brother-sister incest in which nobody gets hurt, nobody finds out, and there is complete consent). This research did not assess anger and disgust specifically; however, it is suggesting that moral dumbfounding was mainly shown among violations of bodily norms, for

example, the incest taboo. A scenario in which participants symbolically sold their soul did not produce dumbfounding effects as strongly.

The *unreasoning disgust hypothesis* distinguishes between forms of disgust involving the violation of bodily moral norms and those that involve the violation of non-bodily moral norms, in which the post-hoc reasons for these two different forms of disgust are compared. The elicitors of bodily moral disgust are learned as inflexible rules or “shalt nots” and are generally not open to controversy in a homogeneous society. These features then explain why persons are not motivated to give elaborated reasons for their bodily moral disgust because they normally do not need to provide a justification for this emotion. Non-bodily moral disgust, on the other hand, involves more complex judgments about human behaviour involving attributions and theory of mind, and unlike bodily moral disgust, even members of a homogeneous society can disagree over whether a given action should evoke non-bodily moral disgust. Therefore, persons are more practiced in discussing how they feel about individuals who have violated a non-bodily norm. It is for these reasons that it is predicted that non-bodily moral disgust without any bodily element will show a similar pattern of reasoning as moral anger.

Overview of present research

Moral anger, non-bodily moral disgust and bodily moral disgust should show differences in the quality of reasoning offered to justify these emotions. Bodily moral disgust should tend to be justified with non-elaborated reasons, which are evaluative or emotional in nature. Non-elaborated reasons reiterate

subjective feelings but ignore their causes and consequences; for example, “I don’t like them” or “They are disgusting.” However, for anger, non-bodily moral disgust and other emotions, participants may offer a greater proportion of cognitively elaborated reasons, justifying their feelings with external concepts beyond mere evaluation; for example, “They make me feel angry because they abuse the power they have been given”.

In this research, participants expressed their own reasons for feeling anger, disgust, and sometimes other comparison emotions. These free-responses were then content coded. Terms for disgust and anger are sometimes confused within the English language (Nabi, 2002; Russell & Fehr, 1994); therefore, both the emotion term and the corresponding facial expression were presented, clarifying what emotion participants were meant to explain. This technique has worked to reduce correlations between ratings of anger and disgust in similar moral contexts (Gutierrez & Giner-Sorolla, 2007).

Experiment 2 was a within-participant design in which participants gave reasons for feeling angry or disgusted. In Experiment 3 emotion was treated as a between-participants variable and added a within-participants variable of group type (bodily versus non-bodily groups), in order to examine differences between bodily moral and non-bodily moral disgust.

Experiment 2

This experiment looked at anger and disgust toward the group of paedophiles. This group was chosen because it evokes the moral emotions anger, disgust, contempt and fear (Marzillier & Davey, 2004) and because it violates a sexual, bodily norm. Two other emotions were included primarily for comparison purposes: contempt, as the third member of the other-condemning triad of emotions (Haidt, 2003) and fear, as a negative other-centered emotion that is not primarily moral in nature. The primary focus, however, was on the comparison between anger and disgust.

Method

Participants

This study recruited 52 participants (12 males, 39 females and 1 who did not complete the gender item) between the ages of 18 to 58 ($M = 23.02$, $SD = 7.37$), all students at the University of Kent. The incentive for participating was entry into a raffle to win a £50 cash prize.

Materials and Procedure

Individuals were first given a brief definition of paedophilia, and then completed the questionnaire. The questionnaire's four sections each presented one of the four emotions- anger, disgust, contempt and fear- with a picture of a woman displaying the appropriate emotional facial expression, taken from Tracy & Robins (2008), and the emotion's name as a label. Participants were asked whether they experienced the emotion toward pedophiles (yes or no) and to write down the reasons why they felt each

emotion. They were told to give reasons for each emotion in particular, as distinct from other emotions; that their responses could be detailed or as basic as they wished; and that they could write down as many or as few of them as they wish. The emotions were presented in a counterbalanced order.

Coding Scheme

When participants wrote multiple judgments in a single response, usually by using multiple sentences, these were split into separate statements. Three independent graduate student coders then rated each participant's statements. Coders were native English speakers and were not aware of our hypothesis (instructions and examples that were given to coders can be found in Appendix B). Statements were coded as a 1 if they contained an elaborated reason or 0 if they did not contain an elaborated reason. Coders were told that merely giving an adjective or a subjective feeling as a reason did not count as an appropriate reason, and that reasons must be fairly objective. Therefore, an elaborated reason was defined as an objectively rather than subjectively argued justification. Elaborated reasons are then external reasons, which go beyond participants' evaluations/feelings and make reference to the causes and/or consequences of the group or its behaviour. For example, the statement "pedophiles violate others' human rights", would count as an elaborated reason. On the other hand, a statement was coded as a non-elaborated reason if a participant merely stated a subjective feeling or evaluation: for example, "pedophiles are bad people." The coders had good agreement, with an intraclass correlation of .81.

A non-elaborated reason could further be judged as *tautological* if it referred only to a literal synonym of the emotion (e.g., “Because they are gross” as a reason for disgust). This was assessed by a single coder, using Johnson-Laird and Oatley’s (1989) emotion lexicon as an *a priori* way to determine emotion synonyms.

Results

Frequency of experiencing emotions

In six cases (participant-emotion combinations), the written responses either explicitly indicated a different emotion than asked for, or denied feeling the emotion despite having indicated “yes” in the dichotomous response. These cases, in addition to all dichotomous “no” responses to feeling the emotion, were excluded from the final data set, which thus included 42 cases for disgust, 35 cases for anger, 14 cases for fear and 27 cases for contempt.

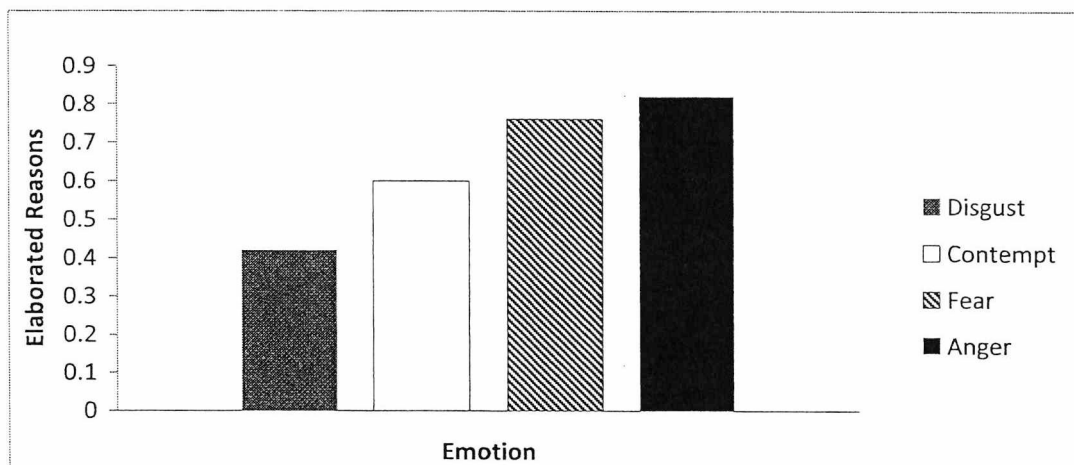
Elaborated reasons

The number of elaborated reasons given for each case was calculated based on the mean of all three coders’ judgments. The amount of elaborated reasons per case was analyzed using a mixed model procedure in SPSS version 16, with emotion as a fixed factor, participant as a random factor, and total number of statements as a covariate to ensure that results did not merely reflect a tendency to write more. The mixed model procedure was chosen due to the amount of missing data from participants who did not feel particular emotions (Kenny, Kashy & Bolger, 1998).

There was a main effect of emotion, $F(3,113) = 5.54, p = .001$, indicating that there was a significant difference between the amount of

elaborated reasons for the different emotions (adjusted means see Figure 3). Contrasts within this main effect indicated the following estimates in comparison to fear: disgust $\gamma = -.33$, anger $\gamma = .07$, and contempt $\gamma = -.16$. Post hoc comparisons using the Dunn-Sidak correction revealed a significant difference between anger and disgust ($p < .001$), no other comparisons were significant. Because the number of statements was controlled for as a covariate, the differences found among emotions were due to the quality (elaborated versus non-elaborated reason) and not the quantity of statements.

Figure 3. Adjusted Means for Experiment 2



A separate analysis was carried out using the total amount of statements as the DV, entering emotion as a fixed factor. There were no differences in the total amount of statements among emotions, $F(3, 114) = 0.22$, $p = .88$, indicating that participants did not write more for any of the emotions. Therefore, across the emotions participants explanations were

comprised of roughly the same amount of statements; however, when explaining disgust participants gave the least amount of elaborated reasons.

To further focus on the comparison between anger and disgust, a paired samples t-test was carried out upon only those 29 participants who reported feeling both those emotions. Again, participants used more elaborated reasons to explain their anger than their disgust, $t(27) = 3.63$, $d = 0.86$, $p = .001$ (Disgust: $M = 0.38$, $SD = 0.40$; Anger: $M = 0.71$, $SD = 0.37$).

Finally, ten participants gave a tautological response explaining their disgust, while only one participant gave a tautological response for anger; this differed from a proportional distribution of tautologies between the two conditions, $\chi^2(1, N = 22) = 5.87$, $p = .02$. Neither of the other two conditions elicited tautological statements.

Experiment 3

When judging a group that could be expected to raise bodily moral concerns, participants within Experiment 2 were less likely to give elaborated reasons when explaining their disgust than when explaining their anger. However, the current experiment examined a further prediction of the *unreasoning disgust hypothesis*: that this difference in the quality of reasoning would be limited to bodily moral domains of disgust. Also, because participants within the previous experiment could compare their reasons for anger and for disgust in a within-participants design, it was important to demonstrate that the effect would remain when emotion was varied between participants, making the difference between the two emotions less obvious.

Only anger and disgust were focused on in this experiment. This experiment also extended the number of groups under consideration. Each participant evaluated multiple groups, some of which could be seen as violating a bodily moral norm and others which violated a non-bodily moral norm. It was predicted that participants would be least likely to offer elaborated reasons when explaining disgust felt toward bodily groups, compared to non-bodily groups or to explanations of anger. The current experiment also excluded the possibility that more elaborated reasons were given for anger simply because it was experienced more intensely than disgust, emotions were now assessed on a continuous scale, as well as by a dichotomous yes or no.

Method

Participants

This study recruited 70 students at the University of Kent in the same way as in Experiment 1, 20 men and 50 women between the ages of 18 and 43 ($M=21.11$, $SD=4.99$). None of them had participated in the prior experiment.

Materials and Procedure

The first page of the questionnaire showed the emotion word and the corresponding emotion face using the same instructions, pictures and words same as Experiment 2. Participants were randomly assigned to the anger or disgust condition. Each page of the questionnaire presented the emotion face from the instruction sheet, gave the name of the group, and asked for a yes/no rating and a scaled rating of their intensity of that emotion toward the group (9 point scale from 1: "Not at all" to 9: "Completely"). After rating the

emotion, individuals were asked to give reasons for experiencing this emotion, separately from any other emotions felt. The seven groups used were expected to elicit moral emotions. Four of these groups might elicit negative emotions because they were seen to violate a bodily norm (prostitutes, homosexuals, voyeurists, necrophiliacs; these last two groups were briefly explained to participants), while the other three groups might elicit negative emotions because they were seen to violate a non-bodily norm (activist feminists, Islamic religious fundamentalists, crooked politicians).

Coding Scheme

Two of the three independent coders involved in Experiment 2 rated responses using the same coding scheme as in that experiment on a subsample of the data set (150 statements). The main variable, elaborated reasons code, was found to be fairly reliable within this study, intraclass correlation = .79. One of the coders then rated the full data set.

Results

Frequency of experiencing emotions

Each response toward a specific group in which the participant did not report feeling the emotion (anger or disgust) was excluded from analysis, on the same grounds as in Experiment 2. The final data set consisted of 253 responses, with 125 responses (72 bodily; 53 non-bodily) in the disgust condition, and 128 responses (59 bodily; 69 for non-bodily) in the anger condition, emotion intensities for these responses are displayed in Table 1. This pattern of yes/no responses also showed that people tended to report disgust proportionally more than anger toward bodily versus non-bodily

groups, $\chi^2 (1, N = 253) = 7.18, p < .01$; however, this difference was not large, $\phi = .17$, and left an adequate number of cases in all cells.

Table 1

Emotion Intensity by Group Type and Emotion

	Bodily Groups	Non-Bodily Groups
Anger	5.25 (2.26)	5.32 (2.17)
Disgust	6.33 (2.40)	5.51(1.98)

Note. Standard deviations are in parentheses

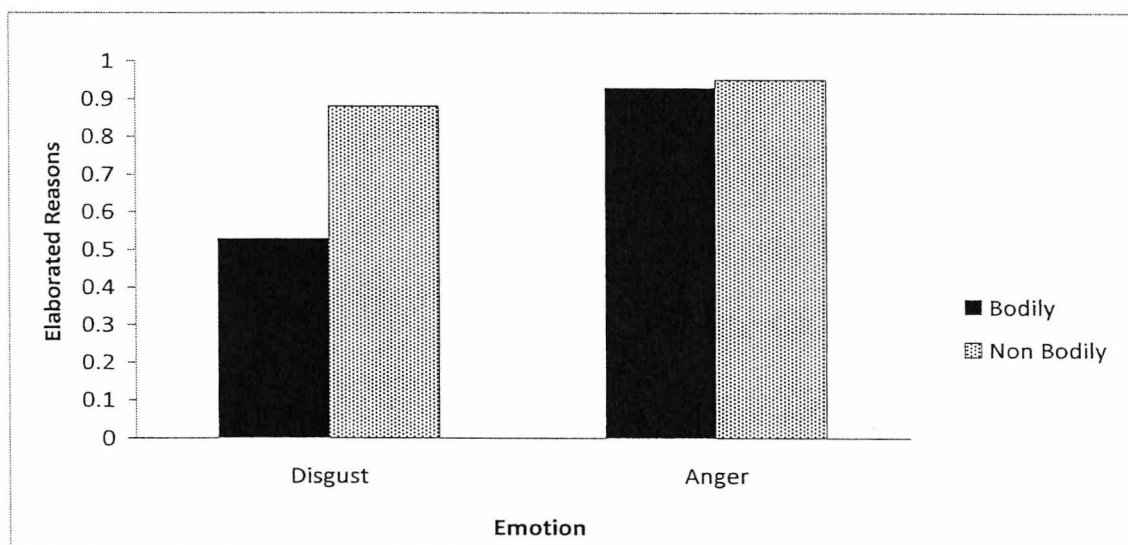
Elaborated reasons

Mixed model analysis was again used, including a random term for the participant and fixed terms for the effects of theoretical interest: main effects of emotion (anger vs. disgust), group type (bodily vs. non-bodily), and specific group nested within group type; the interactions Emotion x Group Type, and Emotion x Specific Group; the total number of statements and the emotion intensity rating as covariates to control for possible confounds.

Emotion had a main effect, $F (1,237) = 8.87, \eta^2 = .02, p < .01$, such that anger elicited more elaborated reasons (adj. $M = 0.94$) than did disgust (adj. $M = 0.72$). The type of group also had a main effect, $F (1, 237) = 5.23, \eta^2 = .35, p < .05$, such that bodily norm violators elicited fewer elaborated reasons (adj. $M = 0.76$) than did non-bodily norm violators (adj. $M = 0.91$). As expected, the interaction between these two factors was also significant, $F (1, 237) =$

4.11, $\eta^2 = .16$, $p < .05$. In simple effects analyses, there was a significant effect of group type toward disgust, $F(1, 237) = 8.85$, $p = .003$, such that non-bodily norm violators elicited more elaborated reasons than bodily norm violators. For anger there was no group type effect, $F(1, 237) = 0.03$, $p = .85$; the two group types had roughly equal, relatively high levels of elaborated reasons. Adjusted means for these effects are displayed in Figure 4. Neither the nested main effect of the specific group nor the interaction of that effect with emotion condition was significant, both $F < 1$, suggesting that effects generalized across groups within each category.

Figure 4. Adjusted Means for Experiment 3



A separate analysis was carried out using the total amount of statements as the DV, entering emotion, group type and the interaction (Emotion x Group type) as fixed factors, in order to ensure that participants did not write particularly more for either emotion. The interaction and main

effects were not found to be significant (all $p > .44$), which suggests that there was no difference in how many statements participants gave.

Statements were again coded for tautologies. No tautological answers were used to justify anger; however, 14 disgust responses were tautological, 12 for bodily groups and 2 for non-bodily groups. This difference between group types within disgust was different from a proportionally equal distribution of tautologies within disgust, $\chi^2 (1, N = 28) = 4.53, p < .05$. Thus, only for disgust did people offer the emotion itself as a justification, and they were most likely to do so when explaining disgust toward groups that might violate a bodily norm.

Discussion

These results support the *unreasoning disgust hypothesis*, in that anger was more likely to elicit elaborated reasons, compared to bodily moral disgust. These effects were found using a variety of social groups as targets and two different experimental designs. Also, importantly, they occurred independently of emotion intensity or how much participants wrote overall. Moral disgust at groups whose violation was non-bodily; however, was more similar to anger than to bodily disgust in the proportion of elaborated reasons elicited, while overall, non-bodily violations tended to elicit more overall anger than disgust responses, relative to bodily violations. These findings, and the relatively high levels of reasoning exhibited by the comparison emotions in Experiment 2, suggest that there is something special about bodily-moral disgust that leads to a lower level of elaborated reasons, and greater

presentation of tautological justifications, replicating and clarifying the scope of the moral dumbfounding effect.

Conclusion

The reported experiments in this chapter display two novel differences between moral anger and disgust. The first experiment provides evidence that anger is more likely to respond to changes in context than disgust is. Anger is concerned with the contextual cues of harm and intent, while disgust is not. Disgust appears to be concerned with the categorical judgement of whether or not a bodily norm violation has occurred. Two experiments were then reported which display the unreasoning nature of disgust, particularly bodily moral disgust, in which individuals struggle to give post-hoc reasons for their disgust that actually explain why they feel the way they do.

CHAPTER 6

INTERNAL VERSUS SOCIAL NORM EXPLANATION

The previous empirical chapter presented two novel differences between moral anger and disgust. The first experiment suggests that anger is more likely than disgust to be influenced by changes in context. Anger was found to respond to the contextual cues of harm and intent. Disgust did not respond to these contextual cues but was concerned with the categorical judgement of whether or not a bodily norm violation has occurred. Across two experiments (Experiments 2 and 3), it was then found that moral anger and non-bodily moral disgust were more likely to be justified with cognitively elaborated reasons in comparison to bodily moral disgust.

Cumulatively, these findings suggest that disgust is a more unreasoned emotion than anger, particularly when disgust has arisen in response to a bodily norm violation. The cognitive processes that accompany disgust are distinct, in that they are unconcerned with the current context and seem to reflect learned associations. The current line of research then aims to examine why disgust is a more unreasoned emotion than anger. The following chapter will then provide an overview of two explanations that may help clarify why moral anger and disgust are associated with different cognitive processes.

Internal Explanation

Based on an internal explanation, one can infer that there is something intrinsic about these emotions, which causes disgust to be a more unreasoned emotion than anger. Applying this explanation, it can be argued that disgust automatically turns an individual's attention away from the situation. When individuals feel disgust they are not able to consider why a particular individual/group makes them feel disgust. On the other hand, anger motivates persons to approach the situation and consider the appropriateness of their anger. When individuals feel anger they will be able to evaluate the context and consider why they feel anger in the first place. Based on this logic, it can be argued that disgust is a more unreasoned emotion because persons are both unwilling and unable to evaluate why they feel disgust in the first place.

It can also be inferred from this explanation that anger and disgust have inherent motivational tendencies which oppose one another. This explanation would support the view of embodied cognition (e.g., Niedenthal, Barsalou, Winkielman, Krauth-Gruber & Ric, 2005; Prinz, 2004), in which the feeling itself drives the judgements that are made and the basic motivational states that occur: approach versus avoidance. Also, based on an internal explanation this would mean that it does not matter whether or not persons are consciously aware of their feelings, the emotion itself orients individuals into particular states.

Previous research is unclear as to whether or not the internal explanation can fully explain why disgust is a more unreasoned emotion than

anger because research is uncertain as to how anger relates to automatic judgements and behaviours. Disgust has consistently been found to be related to unreasoning, while anger in some instances appears to be a more rational emotion relative to disgust. For example, disgust has been found to have an automatic influence on moral judgements (Schnall et al., 2008; Wheatley & Haidt, 2005), but parallel results have not been shown for anger. Therefore, it is questionable whether anger can have an automatic influence on our moral judgements.

The relationship between disgust and the behavioural tendency of avoidance seems to be fairly stable (refer to Chapter 4 for a review on this topic). Little to no research has identified other behaviours that are likely to occur as a by-product of disgust. On the other hand, the behaviours that follow anger seem to be fairly automatic within some instances, whilst in other occurrences the behaviours seem to be strategically controlled. This assumption is reflected in the way that many different behaviours can occur as a consequence of anger (see Chapter 4 for a full review). Also, some of the behaviours that accompany anger appear to oppose one another. For example, Weber (2004) has found that an individual who feels anger often wants to engage in reparative behaviours, such as talking things over. Conversely, anger is also known to cause hostile behaviours, such as verbal or physical aggression (Haidt, 2003; Izard, 1977).

Previous research also indicates that different contextual cues can modify the anger experience. For instance, closeness to the target has been found to influence the likelihood that an individual who feels anger will

engage in different behaviours (e.g., Fischer & Roseman, 2007; Kuppens, Van Mechelen, & Meulders, 2004; Weber, 2004).

These findings suggest that anger may not always motivate individuals to engage in the same behaviours; instead anger may be influenced by deliberative reasoning which takes into account how one's behaviour will impact others. Therefore, based on previous research, it is apparent that when individuals feel anger they are more likely to consider the consequences of their behaviour and the social context. However, it is unknown whether this motivation is an intrinsic feature of anger. On the other hand, individuals who feel disgust seem to be destined to avoid the target of their disgust, displaying a consistent motivation that is rarely influenced by rational thought.

Previous research is also uncertain as to whether or not moral anger encourages automatic or deliberative reasoning. Anger has been associated with heuristic processing within previous research, in which only shallow judgements about the situation were made when anger was elicited (refer to Lerner & Tiedens, 2006, for a review on this topic). For example, Tiedens and Linton (2001) have found that participants induced to feel a certainty emotion (e.g., anger) based their judgements on superficial cues, while participants induced to feel an uncertainty emotion (e.g., worry) paid attention to the quality of the argument. Also, an anger induction in comparison to sad and neutral conditions has been shown to create more automatic prejudice (DeSteno, Dasgupta, Barlett, & Cagdric, 2004).

Nevertheless, most of the studies that were outlined by Lerner and Tiedens (2006) in their review relied on emotion inductions and carry-over

effects. These studies did not test the relationship between integral anger and depth of processing. Thus, they did not examine whether anger which arises directly from the target of anger is likely to cause more heuristic processing. This observation can lead one to question whether integral anger would also have the same relationship with heuristic processing.

When discussing possible mechanisms behind the appraisal tendency framework effects, Lerner and Tiedens (2006) bring forth the assumption that if the object of anger is related to appraisals of injustice or harm, this may reverse the relationship between anger and shallow processing. They argue that an individual who feels anger will be motivated to restore justice; thus, he or she may take greater lengths to process information. Based on Lerner and Tiedens' (2006) assumption, it can be said that moral anger but not mere frustration leads to more in depth processing. However, this difference between frustration, and moral anger has not been examined previously. Since the relationship between anger and reasoning is unclear, based on prior research, further investigation is required in order to examine the cognitive consequences of feeling moral anger, and to see if anger needs to be directed at the target.

In summary, prior research is unclear as to how the anger feeling itself is likely to influence our judgements and behaviours. However, disgust appears to consistently have a more stable influence on judgements and behaviours, always encouraging avoidance. Thus, one aim of this research is to determine whether there is something inherent about anger and disgust, which causes disgust to be a more unreasoned emotion than anger. Another aim of this research is to see whether awareness is necessary in order for

anger and disgust to show differences in the cognitive processes that accompany these emotions.

Social Norm Explanation

Based on a social norm explanation, disgust is a more unreasoned emotion than anger because of the social knowledge that individuals have about these two emotions. People generally learn what objects are disgusting, but despite this knowledge individuals are still not equipped with a set of reasons to defend their disgust (Nussbaum, 2004). It can also be argued that individuals know that they are not expected to consider why they feel disgust because they are taught that this is socially acceptable. On the other hand, anger comes with a social script, which encourages individuals to evaluate the situation and they are motivated to justify their anger. Persons are also aware of the appropriate causes and consequences of anger (Averill, 1983). Therefore, these two emotions appear to have distinct social scripts, which cause disgust to be a more unreasoned emotion than anger. The distinct social scripts of anger and disgust will be described in more detail below.

Disgust's social script

Even though some objects are disgusting due to evolutionary adaptations, research evidence indicates that what individuals think is disgusting is largely determined by social learning. It has been found that culture influences what individuals consider to be disgusting through

personal experiences, but also what objects are deemed to be disgusting to a society as a whole (Olatunji & Sawchuk, 2005). Developmental evidence has indicated that even primary objects which elicit disgust, are not deemed to be disgusting until after toilet training (Anygal, 1941). Specifically, research has shown that children do not exhibit the disgust response to primary objects, such as faeces, until about the ages of 5-7 years old (Anygal, 1941; Rozin et al., 1993).

Recent research has supported the view that moral disgust is learned as well (Danovitch & Bloom, 2009). Children were found to be more likely to label moral violations as disgusting, in comparison to neutral and non-physically disgusting scenarios, but less often than physically disgusting scenarios. Individual differences and differences between verbal and facial responses suggested that this effect was strongly influenced by social learning and participants' exposure to the disgust response. It has also been suggested that in the moral realm it may be particularly relevant and useful for members of society to learn norms about the body because these norms can serve a disease avoidance mechanism (Oaten, Stevenson, & Case, 2009).

However, individuals within a given society rarely discuss why they are disgusted, and because of this, persons are not equipped with a set of reasons to use for public persuasion (Nussbaum, 2004). This may occur because there is an underlying assumption that when you experience disgust others around you agree with your response and know what triggered this response because you belong to the same culture. Therefore, disgust can be dangerous because persons fail to assess the current

situation and determine why they are disgusted in the first place; instead individuals rely on prior learning of what objects are disgusting. This stubborn response is then maintained because individuals who feel disgust assume that other persons in their society feel the same way, and are rarely challenged to explain why they feel disgust in the first place. This social maintenance effect can also be seen in Nussbaums (2004) argument on the rationalization of disgust, in which she argues that it is extremely difficult to teach individuals that something is disgusting when they do not have the previous association. Reversely, she argues it is just as hard to get someone to change their feelings of disgust through rationalization.

Therefore, theoretical evidence indicates that disgust is an emotion that discourages reasoning and encourages persons to base their disgust on a learned response. Society may teach individuals what to be disgusted at; however, individuals are not encouraged to consider why they feel disgust in the first place and they are not equipped with a set of reasons that are suitable for public persuasion.

Anger's social script

Anger comes with a social script in which individuals are aware of the appropriate causes and consequences of their anger (Averill, 1982). For example, Stein and Levine (1990, 1999) have found that adults and older children are aware that they should assess whether one's harmful actions are intentional. However, for younger children intentional harm was not a strong predictor for anger, but these children could distinguish between accidental

and intentional harm. This suggests that because of social learning individuals learn under what circumstances it is appropriate to become angry.

Based on a social constructionist approach, Weber (2004) has found that some participants considered the utility of their anger, evaluating the costs and benefits of their anger. When asked about the appropriate causes of anger, participants' responses showed that they considered whether or not their anger would have beneficial consequences. On the other hand, anger was deemed as inappropriate when becoming angry would not change the situation. These findings suggest that when individuals reflect on whether or not their anger is appropriate, the utility of anger is considered to be an additional factor to blame.

It was also found that anger norms regarding the appropriate cognitive elicitors and behavioural outcomes varied by context. Weber (2004) has found evidence for the social norm that anger is better directed at someone you know than at an acquaintance. It was also found that anger and the appropriate behavioural response varied by the nature of the instigation. Participants reported that they would be more likely to respond in an aggressive manner in reaction to a frustration (task interference) than to an unjustified evaluation (personal slight). This effect was found to be the same for normative and actual responses, meaning that participants who were asked how they would respond versus participants who were asked how the target should respond to the instigation showed the same pattern of responses. Social rules about anger then appear to present general guidelines that are modified to fit a given situation and for this reason anger is deemed to be appropriate within many different situations.

Anger has also been found to create social accountability, driving an individual to evaluate the appropriateness of their anger. Averill (1982) has suggested that anger's social script creates social accountability; thus, social learning leads to the association between anger and social accountability. Goldberg, Lerner and Tetlock (1998) have found that making individuals feel accountable attenuated punitiveness and led to more systematic processing, in that participants paid more attention to the cues presented within fictional tort cases. Conversely, accountability did not influence the intensity of participants' anger. Thus, making people feel accountable did not influence their punitiveness by reducing participants' anger, but accountability influenced how participants dealt with their anger. Social relationships then appear to modify the connection between anger and blame.

In conclusion, the research that examines anger from a social constructivist approach (e.g., Averill, 1983; Weber 2004) suggests that accountability is a feature of anger because of social learning. Nussbaum (2004) has argued that anger is more likely to encourage assessments of the situation because the core cognitive content of anger is harm, which is an appraisal that often leads to, or needs, social justification. From this perspective, it can be argued that individuals learn that they should justify their anger, and the type of cognitive content that is associated with anger encourages further justification as well. People also appear to be equipped with a set of reasons to use when they are angry because most individuals are aware of the appropriate causes and consequences of anger; thus, individuals share a common language that they can use to justify their anger.

Conclusion

Previous literature has suggested that both anger and disgust are influenced by social learning; however, the known causes and consequences of anger are abstract and variable depending on the situation. On the other hand, disgust has concrete elicitors and people seem to be unmotivated to give reasons for why they are disgusted because they are rarely required to do so. In particular, this review has indicated that disgust is more likely to always be an irrational emotion, while anger seems to be more rational under some circumstances.

It is possible that there may be inherent features about anger and disgust which cause these emotions to be linked with different cognitive processes. Anger and disgust also appear to have distinct social scripts, which are likely to influence how these emotions are justified. Therefore, the next chapter will present three experiments which test whether social norms or inherent features of anger and disgust are more likely to explain why disgust is a more unreasoned emotion than anger. This research will then give further insights into the motivational factors that cause anger and disgust to be associated with different cognitive processes.

CHAPTER 7

AN EXAMINATION OF THE INTERNAL AND SOCIAL NORM EXPLANATIONS

Both the internal and social norm explanations can be applied to explain why disgust is a more unreasoned emotion than anger. Therefore, the current line of research tests whether either of these explanations is more likely to be applicable.

First, an experiment will be reported which was carried out in order to determine whether or not the internal explanation can clarify why disgust and anger are associated with different cognitive processes. Based on this explanation, one can predict that individuals who feel disgust will avoid making evaluations of the current context and will not consider why they feel disgust in the first place. Disgust will then cause individuals to avoid the situation, decreasing the likelihood that individuals will describe their thoughts and feelings about a particular social group. On the other hand, anger may encourage individuals to approach the situation, increasing the likelihood that they will describe their social attitudes. This is likely to occur because individuals who feel anger will be more likely to evaluate the current context and consider why they feel anger in the first place. Based on this explanation, it can be assumed that it is not necessary to be aware that you feel either anger or disgust toward a group in order for the distinct features of these emotions to arise.

Therefore, this experiment tests whether awareness is a necessary factor in order for disgust and anger to have differential effects. This research

will then indicate whether there are inherent features which cause disgust and anger to be associated with different cognitive processes.

Then two experiments will be presented, which were carried out in order to uncover whether the social norm explanation can be used to explain the asymmetry in reasoning specifically. One aim of these experiments was to see whether the asymmetry in reasoning is caused by a lack of knowledge about the elaborated reasons that can be used to justify disgust. It can be assumed that individuals do not give elaborated reasons for disgust because these reasons are normally unavailable, since it is not common practice to explain why you feel disgust. Therefore, making elaborated reasons for disgust available should eliminate the advantage that anger has over disgust. These experiments were also designed in order to determine whether individuals have distinct social scripts about how anger and disgust should be explained. Thus, individuals may believe that certain types of reasons, elaborated versus non-elaborated, are more acceptable and convincing when explaining either anger or disgust.

Experiment 4

The internal explanation maintains that the emotion 'feelings' themselves motivate individuals to either approach or avoid the situation. Therefore, this study intended to see if a manipulation of either incidental anger or disgust would influence the likelihood that participants would describe their thoughts and feelings about a social group. If moral anger and disgust show differential effects, even when participants are not aware that

they feel either anger or disgust toward a particular social group this will lend evidence for the internal explanation. From this perspective, it is not required that anger and disgust be directed at the group and that individuals are aware that they feel either one of these emotions toward the group. If this assumption is true, this would mean that an environmental prime of anger and disgust can also create differences in the cognitive processes that are likely to occur.

Previously, Schnall et al. (2008) have found that an environmental manipulation of disgust made moral judgements more severe; thus, participants appeared to base their moral judgements on their feelings of disgust. For the purpose of this experiment the authors' manipulation of a disgusting smell was used because it has previously been found to influence participants' judgements. The manipulation of an environmental smell was also desirable because then a parallel manipulation of frustration could be used. Even though frustration is not synonymous with anger it was decided to use this manipulation because mere frustration often develops into anger (Berkowitz & Harmon-Jones, 2004).

Finding equal manipulations was a hurdle to the current study because, based on past experimental research, it is apparent that anger and disgust are best elicited by different types of elicitors: concrete versus abstract. Research evidence has suggested that disgust can be elicited unconsciously and is elicited in response to concrete pictures. However, similar effects have not been shown for anger. In actuality the stimuli that elicits anger appears to be dependent on the situation.

For example, it has recently been found that disgust can be induced without awareness of the source of the emotion using pictures (Ruys & Stapel, 2008). Conversely, little to no research has examined whether anger, and not just frustration, can be elicited without awareness. The lack of findings for anger may then exist because beyond mere frustration anger is intertwined with cognition.

Researchers have also attempted to categorize pictures from the IAPS that are meant to elicit discrete emotions (Mikels, Fredrickson, Larkin, Lindenberg, Maglio, & Reuter-Lorenz, 2005); however, anger was the only emotion that was not felt independently of any other negative emotion. On the other hand, there were photographs that were found to elicit disgust and fear distinctively. These findings provide evidence that it is hard to capture anger with a static picture, while disgust can be easily captured with a photograph. Lobbestael, Arntz and Wierz (2008) also found support for this view by comparing four different methods of manipulating anger: film, stress interview, punishment and harassment. It was found that all four methods produced similar levels of self reported anger; however, film created the least amount of physiological changes, whilst the manipulations that entailed direct contact, interview and harassment, led to more physiological changes. Therefore, in order to become angry an individual needs to be engaged with the current situation, as shown by the more successful manipulations of anger in this research.

Additionally, within the current experiment participants could not be presented with emotion cues (word or face), in order to ensure that social knowledge about the semantic categories of anger and disgust did not

influence the results. For example, it may be possible that when participants see either a disgust face or word they then assume it is unnecessary to explain why they feel disgust because persons believe that their peers will agree with their response. Thus, participants within the previous experiments may have given fewer elaborated reasons for disgust because of the social knowledge that they have about how disgust should be explained. Also, it was desirable to determine whether incidental instances of these emotions can lead to the differences, or if these emotions need to be directed at the target of anger or disgust in order to show differences.

Due to these points, it was not desirable to ask participants to give reasons for either anger or disgust within this experiment, since participants could not be given emotion cues. Therefore, instead of examining the type of reasons given for each emotion this study looked at how much participants would be willing to describe their thoughts and feelings about two social groups. This experiment did not distinguish by the quality of reasoning (non-elaborated reasons versus cognitively elaborated reasons) but would merely indicate whether participants are able and willing to describe their social attitudes. Thus, the focus was not on whether or not participants would provide elaborated reasons for why they feel a particular emotion, but this study looked at whether or not participants would describe either their thoughts and/or feelings about a social group.

The main purpose of this experiment was to determine whether manipulating anger and disgust would lead to differences across the conditions in the length of descriptions. The current findings would then capture whether basic motivational tendencies cause disgust to be a more

unreasoned emotion in comparison to anger. This experiment can also indicate whether participants are unwilling to explain why they are disgusted, or if they are merely unable to because social norms have caused disgust to be a more unreasoned emotion in comparison to anger. This experiment can possibly show support for the internal explanation if the emotion manipulations lead to similar trends in the length of descriptions as the means that were found within the previous reason experiments. Thus, participants should give shorter descriptions of their thoughts and feelings about a social group when exposed to a disgusting smell, and their descriptions should be particularly short when the group can be perceived as violating a bodily norm.

The emotion manipulation would also suggest whether awareness is a crucial factor when detecting differences between moral anger and disgust. If awareness is required this would suggest that social norms dictate how anger and disgust are explained. Based on this assumption, incidental instances of anger and disgust will not lead to the desired differences in description.

It was predicted that the manipulations of anger and disgust would lead to the following effects in comparison to a control condition: Participants within the disgust condition would be less likely to describe their thoughts and feelings than participants within the control condition. On the other hand, participants within the anger condition would be more likely to describe their social attitudes in comparison to participants within the control condition. It was also predicted that these differences would be more apparent for the appropriate group types. Thus, participants within the disgust condition would

give the shortest descriptions when describing how they think and feel about a bodily group and in the anger condition participants would give longer descriptions when describing how they think and feel about a non-bodily group.

A secondary goal of this experiment was to replicate Schnall et al's (2008) finding that disgust makes moral judgements more severe. Sadness was used as a comparison emotion within one of Schnall et al's (2008) experiments; however, it can be argued that anger is a more prototypical moral emotion, thus, it was desirable to compare the effects of anger and disgust. This research will then provide clarification of why disgust may influence our moral judgements, by indicating whether any moral emotion can lead to moral judgements being more severe or if this effect is specific for disgust.

Method

Participants

Two participants from the neutral condition were excluded because they reported that they smelled an odour within the lab above the midpoint on any of the manipulation check questions. This indicates that these participants smelled an unpleasant smell within the lab; however, it is not possible to determine what they smelt. Therefore, these two participants were excluded from the analyses in order to ensure that they did not smell either a disgusting or frustrating smell. There were then 54 participants (9 males, 45 females) between the ages of 18 and 50 ($M= 19.80$, $SD= 4.60$).

Participants were recruited using the departmental research participation scheme and were awarded course credit for their participation.

Research design

This study was a 3 emotion manipulation (disgust, anger and control) x 2 group type (bodily versus non-bodily group) mixed model design. There were 18 participants within each of the three emotion manipulation conditions. Group type was treated as a within participants factor in this experiment. For the bodily group paedophiles was used and for the non-bodily group Islamic religious fundamentalists was used because these groups had been used within previous experiments.

Materials

Emotion manipulation. Similar to Schnall et al. (2008) a commercially available fart spray was used for the disgust manipulation. For the anger manipulation Flash spray with bleach was used because this smell is annoying but not harmful (Tanner & Zieler, 1975). It was necessary to use a smell that was annoying but not out of the ordinary; therefore, an everyday cleaning product was used.

Measures. For the free-response participants were asked to describe their thoughts and feelings toward individuals who engage in Paedophilia/ Islamic religious fundamentalist behaviours. The instructions for this task were different from the previous reason experiments because it was desirable not to mention any specific emotions. From this, the length of response toward each group was measured using a conventional word count. It was not possible to record the amount of statements that were given

because participants frequently did not write complete thoughts/sentences but rather free listed words.

Participants also responded to measures of appraisals, general disapproval, desire for punishment, and specific emotions toward the two groups, using a 7 point scale (0: *Not at all* to 6: *Extremely*). However, these measures were not the focus of the experiment but were included in order to see if the emotion manipulations would have an influence on any of these measures. The measures used for this experiment are included in Appendices C and D. The order of the presentation of the groups was counterbalanced, in order to control for order effects that could have possibly influenced participants' responses.

Manipulation checks. All of the manipulation check variables were adapted from Schnall et al. (2008), adding additional questions to suit the current experiment. Participants were asked the following questions in order to ensure that the emotion manipulations were successful, using a 7 point scale (0: *Not at all* to 6: *Extremely*) : 1) were you consciously aware of any unpleasant odours while completing the study; 2) did the odour bother you; 3) did the odour disgust you 4) did the odour frustrate you; 5) do you think that any environmental odour affected your answers (this was not a manipulation check); 6) at this present moment do you detect any unpleasant odours.

Procedure

Participants arrived at the lab (one person at a time) and were asked to wait outside the lab room, the door was then closed, and during this time four sprays of either of the products (fart spray, flash) were sprayed into a

plastic bowl and placed within a rubbish tin hidden under a desk within the room. For the control condition no smell was placed in the room. In order to ensure that the smells were of roughly equal potency, two psychology PhD students were asked to smell the odours before testing began.

Participants then entered the lab, read the information sheet, gave their informed consent, and completed the measures and manipulation check questions. Upon completion participants were fully debriefed and thanked for their participation. The plastic bowl was removed from the lab after testing each participant and was put in a larger closed receptacle on another floor of the building. In between testing each participant, the window was opened and the experimenter waited a minimum of 10 minutes before testing another participant in order to ensure that the smell dissipated. Testing was carried out for seven consecutive working days, a day or half day was dedicated to each emotion condition in order to ensure that smells did not overlap, repeating this process until all of the data was collected.

Results

Manipulation checks

Self reported conscious awareness of any unpleasant odours during the experiment significantly differed by condition, $F(2,51) = 6.66, p=.003$, partial $\eta^2=.21$. Post-hoc comparisons using the Dunn Sidak correction, indicated a significant difference between the disgust and control conditions ($p=.002$), and a marginal difference between the anger and control conditions ($p=.08$). Self reported disgust also significantly differed by condition, $F(2,51) = 4.42, p<.05$, partial $\eta^2=.15$. Post hoc comparisons using the Dunn Sidak

correction revealed a significant difference between the disgust and control conditions ($p < .05$), and a marginal difference between the disgust and anger conditions ($p = .096$). However, there was no difference between the anger and control conditions. Unfortunately, there was no statistical difference by condition on reported frustration, which makes it difficult to interpret whether or not the anger manipulation was successful.

The disgust condition did bother participants more than the control condition, as indicated by a significant main effect, $F(2,51) = 4.47$, $p < .05$, partial $\eta^2 = .15$, in which the post-hoc comparison (Dunn Sidak correction) between the disgust and control conditions was significant ($p < .05$); however, no other comparisons were significant. Finally, participants were more likely to detect odours at the end of the experiment when in the disgust condition, as indicated by a significant main effect, $F(2,51) = 4.52$, $p < .05$, partial $\eta^2 = .15$, in which the post-hoc comparison between the disgust and control conditions was significant ($p < .05$); however, no other comparisons were significant.

Therefore, the disgust manipulation appeared to be slightly stronger than the anger manipulation; however, participants were still aware of a smell if they were in the anger condition. Means for the manipulation check variables across the conditions can be found in Table 2. Only two participants within the whole experiment reported that they thought the smell affected their results, which is less than the reported amount in Schnall et al's (2008) research (one or two participants within each condition). Based on these measures it appeared as if both emotion manipulations were reasonably successful, however, the disgust manipulation worked slightly better.

Table 2

Means for the Manipulation Check Variables

	Disgust Condition	Anger Condition	Control Condition
Conscious Awareness	2.44 (0.45)	1.61 (0.45)	0.17 (0.45)
Bother	1.61 (0.34)	0.83 (0.34)	0.17 (0.34)
Disgust	1.39 (0.31)	0.44 (0.31)	0.17 (0.31)
Frustrate	0.78 (0.21)	0.28 (0.21)	0.17 (0.21)
Smell at Present	1.00 (0.22)	0.56 (0.22)	0.06 (0.22)

Note: Standard errors are in parentheses.

Length of free-responses

A 2 x 3 mixed model GLM analysis was carried out, using length of free-response (bodily versus non-bodily group) as the within participant variable and emotion manipulation as the between participant variable. The within participants effects indicated that the main effect of group type and the interaction (emotion manipulation x group type) were not statistically significant.

However, the between participants effect of emotion manipulation was found to be significant, $F(2,51) = 4.14$, $p < .05$, partial $\eta^2 = .14$ (see Table 3 for means). A post-hoc comparison revealed that the difference between the disgust and control conditions was statistically significant using the Dunn Sidak correction, $p < .05$; however, no other comparisons were significant. This indicates that the length of free-responses in the disgust condition did not statistically differ from the anger condition and the anger condition did not

differ from the control condition. Thus, across both group types it was found that participants in the disgust condition gave the shortest free-responses. However, contrary to predictions participants did not give longer free-responses if they were in the anger condition.

Further analyses were then carried out in order to examine the differences by conditions for the specific groups. When using the length of free-responses toward the bodily group (paedophiles) as the dependent variable, and emotion manipulation as a fixed effect, there was a main effect of emotion manipulation, $F(2,51) = 3.93$, $p < .05$, partial $\eta^2 = .13$ (see Table 3 for means). The post-hoc comparison between the disgust and control condition was significant using the Dunn Sidak correction ($p < .05$) but no other comparisons were significant. This analysis was repeated using the length of free-responses toward the non-bodily group (Islamic Religious Fundamentalist) as the dependent variable, which indicated a marginal main effect for the emotion manipulation, $F(2,51) = 2.53$, $p = .09$, partial $\eta^2 = .09$ (means are displayed in Table 3); however, for this group none of the post-hoc comparisons were significant using the Dunn Sidak correction. These analyses indicate that participants were more likely to give shorter free-responses when describing their thoughts and feelings about a group that can be perceived as violating a bodily norm, when exposed to a disgusting smell.

Table 3

Means for Length of Free- responses

	Disgust Condition	Anger Condition	Control Condition
Overall	40.00 (5.60)	45.83 (5.60)	62.00 (5.60)
Bodily	34.94 (7.03)	45.67 (7.03)	62.56 (7.03)
Non- Bodily	45.06 (5.79)	46.00 (5.79)	61.44 (5.79)

Note: Standard errors are in parentheses.

The previous analyses were then carried out controlling for the variable of how much the smell bothered participants. This covariate was entered into the analysis in order to determine whether the effects can merely be explained by the fact that participants felt more uncomfortable; therefore, they did not want to be in the lab room anymore. When length of free- responses was entered as a within participants variable (bodily versus non-bodily group), the between participant effect of emotion manipulation remained significant, $F(2,50) = 4.21$, $p < .05$, partial $\eta^2 = .14$. The covariate of how much the smell bothered participants was not found to have a significant effect, $p = .51$.

The effect of the emotion manipulation also remained significant when looking at the length of free-responses toward the bodily group, $F(2,50) = 4.05$, $p < .05$, partial $\eta^2 = .14$, covariate ($p = .48$), and the non-bodily group, $F(2,50) = 2.51$, $p = .09$, partial $\eta^2 = .09$, covariate ($p = .68$), separately. Therefore, these results suggest that participants did not write less within the disgust condition because they merely felt more uncomfortable.

Disapproval

First, a variable for general disapproval was created by taking the mean of the following variables for the two group types: I disapprove of their actions; I think they did something wrong; I think they are morally wrong. A 2 x 3 mixed model GLM analysis was then carried out using this measure of disapproval (bodily versus non-bodily group) as the within participant variable and emotion manipulation as the between participant variable.

The main effect of group type was found to be significant, $F(1,51) = 38.52$, $p < .001$, partial $\eta^2 = .44$, indicating that participants disapproved of the bodily group more (Bodily: $M = 5.69$, $SE = 0.09$; Non-Bodily: $M = 4.17$, $SE = 0.23$). However, the interaction (group type x emotion manipulation) was not found to be significant. The between participant effect of emotion manipulation was not found to be significant either (Disgust: $M = 4.94$, $SE = 0.21$; Anger: $M = 4.95$, $SE = 0.21$; Control: $M = 4.91$, $SE = 0.22$). Therefore, the emotion manipulation did not significantly increase disapproval within any of the emotion conditions. However, there may have been no significant differences between the conditions because of ceiling effects. Results for self reported appraisals and emotions also suggested possible ceiling effects; thus, these effects are not reported.

Discussion

The results failed to support Schnall et al's (2008) finding that disgust makes moral judgements more severe. Significant differences were not found on measures of moral disapproval across the three conditions; however, this may have occurred because of ceiling effects, especially for the bodily group.

Thus, these findings do not support the assumption that any moral emotion can make moral judgements more severe, or that disgust specifically can have this effect. Nevertheless, participants may have already felt extremely negative toward both groups leaving little room for the emotion manipulations to influence their moral judgements; therefore, the lack of differences probably occurred because of the groups that were used within this experiment.

However, there was some indication that the manipulation of disgust decreased participants' willingness to describe their thoughts and feelings about two social groups. Based on the following results, it was apparent that participants were particularly less likely to describe their thoughts and feelings about a bodily group when exposed to a disgusting smell. This effect remained significant when controlling for how much participants were bothered by the smell in the room, which suggests that participants did not write less merely because they felt uncomfortable.

The results may suggest that feelings of disgust were used as a cue to participants that they did not need to explain how they think and feel about a group that has violated a bodily (sexual) norm. On the other hand, it may be that the environmental cue of disgust in combination with participants' actual feelings of disgust toward this group led to this inhibition. However, these two explanations cannot be teased apart based on these results, but using a novel group in future research may lead to some clarification on this point. Using a novel group will minimize the possibility that previous emotional associations influenced participants' responses.

The following results failed to support the predictions for the anger manipulation. Participants within the anger condition did not describe their thoughts and feelings more than participants within the disgust or control conditions. Instead, the anger manipulation elicited slightly longer descriptions than the disgust condition and slightly shorter descriptions than the control condition; however, these differences were not statistically significant.

Future research would benefit from trying different emotion manipulations. This is especially important since some research suggests that the anger manipulation may not have been appropriate. For example, research on the appraisal tendency framework has found that anger encourages participants to rely on heuristic processing (see Lerner & Tiedens, 2006, for a review of the results on this topic). These effects were found based on incidental primes and carry over effects. However, it can be argued that these manipulations are more likely to reflect mere frustration or a more global mood, but not moral anger specifically. Based on the current research it seems that a manipulation of frustration may elicit effects that are more similar to disgust. Therefore, even if the manipulation was successful only frustration would have been elicited, which does not guarantee whether anger would be elicited as well. Also, the anger manipulation may have elicited purity concerns, which are the cognitions that are typically associated with disgust (Rozin et al., 1999). Holland, Hendriks and Aarts (2005) have found that when the smell of all purpose cleaner was placed in the lab this increased participants thoughts and behaviours about cleanliness. Therefore, this research suggests that the anger manipulation

may have elicited cognitions that are related to disgust, which is also problematic.

Besides improving the emotion manipulations, the results would have been more clear if an ambiguous or a novel group was used (such as the groups that are used in subsequent experiments), minimizing the possibility that groups differed on more points than the norm violation and that participants did not have previous emotional associations. Using a novel group would have also made it more likely that Schnall et al's (2008) results would be replicated because then external associations would not have an influence on participants' moral judgements.

In summary, future research would benefit from trying different emotion manipulations even if it means losing parallelism, because this difference between how anger and disgust should be elicited may be a feature of these emotions, which should not be avoided. It would also be desirable to use novel groups that participants will not have previous emotional associations with. Once these methodological problems are dealt with then attempts can also be made to examine the quality of the responses that participants gave, instead of just looking at participants ability or willingness to describe their social attitudes. For example, a new coding scheme can be designed for the purpose of this research. Therefore, future research is required before a conclusive answer can be drawn as to whether or not there is something intrinsic about anger and disgust, which causes disgust to be a more unreasoned emotion than anger.

Experiment 5

Previously, across two studies the *unreasoning disgust hypothesis* was supported, which predicts that bodily moral disgust will be justified through more non-elaborated reasons, while moral anger and non-bodily moral disgust should be justified with more cognitively elaborated reasons. The current research examined whether or not this asymmetry in reasoning occurs due to social norms that are associated with moral anger and disgust.

The first aim of this experiment was to examine how participants would respond if elaborated reasons were made available when justifying anger or disgust. Disgust may normally be justified with non-elaborated reasons because individuals are less used to having to justify disgust than anger, so elaborated reasons for disgust would be cognitively less available than elaborated reasons for anger. This *availability hypothesis* implies that if plausible elaborated reasons for disgust were made available to people, they would be used just as much as elaborated reasons for anger.

The second aim of this experiment was to examine how acceptable and convincing disgust versus anger elaborated reasons are. Based on the *social norm hypothesis* it is functional in society to justify one's anger with elaborated reasons. Therefore, persons are familiar with the appropriate elaborated reasons for anger and find these reasons to be acceptable and convincing. On the other hand, persons are less familiar with the appropriate elaborated reasons to justify their disgust, because they are less used to having to justify their disgust. Elaborated reasons for disgust will then be less acceptable and convincing than elaborated reasons for anger.

To test the *availability hypothesis*, it was manipulated whether or not emotion explanations were provided when participants were justifying these emotions. The statements that were provided included both elaborated and non-elaborated reasons for both disgust and anger. If disgust evokes fewer elaborated reasons because the reasons are simply not available or accessible, making such reasons available should eliminate the advantage that anger has over disgust.

To examine the *social norm hypothesis*, participants were asked to rate how acceptable and convincing elaborated reason and non-elaborated reason statements are for anger and disgust. If disgust evokes fewer reasons because it does not need as many reasons to be socially justified, then people should find anger elaborated reasons to be more acceptable and convincing as explanations of anger, than disgust elaborated reasons as explanations of disgust. Moreover, people should also find appropriate non-elaborated reasons to be more acceptable and convincing than appropriate elaborated reasons as explanations of disgust.

Continuing to eliminate reactivity concerns, group type was now treated as a between participants variable, so that participants could not compare the reasons that they were giving for the two group types. An effort was also made to manipulate the type of norm violation by describing two social groups that were identical except for the nature of their violation, reducing the possibility that other differences between groups could account for the effects.

If these hypotheses are supported this will show evidence for the social norm explanation, indicating that persons did not offer elaborated

reasons for disgust within the previous experiments because they were not cognitively available. From this it can be inferred that the social norm about how disgust should be explained is maintained because it is not common practice to give elaborated reasons for disgust. This social norm is also maintained because individuals are not challenged to explain why they feel disgust. If support is shown for the social norm explanation this will suggest that individuals are not unwilling to justify their disgust, it is just that they are unable to because they are not familiar with elaborated reasons that can be used to justify their disgust. However, most individuals are aware that it is socially acceptable to make statements, such as 'that is just disgusting'. Since, these statements are used more often in everyday language it remains the norm to justify disgust in this manner. On the other hand, individuals are familiar with elaborated reasons for anger and are more often expected to explain why they feel anger, which maintains the common norm that anger should be justified and not be felt haphazardly. Therefore, the results of this experiment may not only suggest that social norms exist, but, also how they are maintained.

Pretest

In order to obtain a list of statements that could be used for this experiment, 44 statements were rated in a pretest according to a single complexity scale, which was a 9 point scale ranging from 1: *Not at all complex* to 9: *Extremely complex*. The statements were rated by 10 psychology postgraduate students (five males, five females) between the

ages of 22 and 32 ($M=26$, $SD=3.33$). Instructions for the pretest are included in Appendix E. These statements were either taken from the scripts of the first two studies, or when necessary new statements were created. An effort was made to ensure that there were an equal number of statements that would be coded as non-elaborated reasons and elaborated reasons in the pretest. Based on the results, statements were retained ensuring that for each type of reason (non-elaborated reason and elaborated reason) anger and disgust reasons were equally complex and that there was an equal amount of statements for each reason type. The list of statements that were used for this experiment is included within Table 4.

It was particularly important that the list of statements included elaborated reasons for both anger and disgust in order to test the *availability hypothesis*. These statements needed to have a mean score equal or greater than 2.5 based on the pretest. This would then ensure that these statements were not rated as being evaluative or emotional in nature, but captured either a simple judgment that went beyond mere evaluation or a judgment that was more complex in nature, mentioning causes and consequences of the group or its behaviour.

This classification would be similar to the previous coding scheme; however, it would be more sensitive. This classification would not only indicate which statements merely represent subjective evaluations but would also capture the complexity of reasons. Providing specific complexity scores for each statement (elaborated and non-elaborated reason statements) would then be more sensitive than the previous dichotomous scheme, in which every elaborated reason was given a score of 1.

Within the pretest participants also rated six hypothetical groups on the following variables: disapproval, human rights violation, bodily norm violation, social norm violation and wrongness. All measures were 9 point scales that ranged from 1: *Not at all* to 9: *Completely*. Two of the six groups were chosen because they were closely matched on overall disapproval (mean value of disapproval and wrongness for each group was calculated), $t(9) = 0.35$, $d = 0.09$, $p = .74$. However, one scored high on bodily norm violation, while the other did not, $t(9) = 3.73$, $d = 1.39$, $p = .005$. Table 5 presents a description of the two groups and gives the means for the two groups based on the dependent measures.

Table 4

Mean complexity score for each statement based on pretest

Disgust Non-Elaborated Reasons	
They sicken me	1.5
They are disgusting	1.9
They make me feel disgusted	2.2
Disgust Elaborated Reasons	
They are inferior human specimens	2.7
They are less worthy human beings	3.1
What they do is unnatural	2.6
Their behaviour is odd	1.6
Their actions are not normal	2.6
They are weird	1.2
What they do is impure	2.6
Their actions contaminate them	3.4
They violate socially imposed boundaries	4.9
They blur boundaries within our society	4.6

Anger Non-Elaborated Reasons	
They outrage me	2.0
They make me feel angry	2.4
They are infuriating	2.0
Anger Elaborated Reasons	
Their actions are harmful	3.0
They are cruel	1.8
They demonstrate a lack of respect	3.2
They ruin person's lives	3.1
They hurt others by their actions	2.8
They do cruel things to other human beings	3.2
They are disrespectful toward others	3.2
Their actions violate others basic human rights	4.2
They abuse the power they have been given	4.5
Disapproval (filler statements)	
Their actions are just plain wrong	2.1
I don't like them	1.7
They are horrible	1.5
What they do is morally repugnant	3.7
Their actions are just morally wrong	3.0
Additional Statements for Acceptability and Convincingness Ratings	
Disgust Elaborated Reasons	
They violate the natural laws of the world and social norms as well	5.7
They are abnormal and offensive because what they do does not fit in with the prescribed norms of our society	6.7
Anger Elaborated Reasons	
Their actions are far reaching and destructive	4.5
They abuse other people's basic human rights and privacy	5.4
They abuse the power that has been given to them and violate others' rights because they feel that it is socially acceptable to do so	7.5
Their behaviours are far reaching and destructive because the harm they cause leads to permanent damage to the persons they come into contact with	7.9

Table 5

Means for Group Types

	Bodily Group	Non-Bodily Group
	Description: A social group of people whose common interest is that they like to rub their genitals on their co-workers as they walk past them because they feel it adds excitement to their job. The persons in this group have bonded over this shared interest.	Description: A social group of people whose common interest is that they like to send death threats to their co-workers anonymously because they feel it adds excitement to their job. The persons in this group have bonded over this shared interest.
Disapproval	7.50 (2.46)	7.50 (2.95)
Human Rights	6.90 (3.04)	7.70 (2.50)
Social Norm	8.00 (2.21)	8.20 (1.87)
Bodily Norm	8.00 (2.21)	4.10 (3.28)
Wrongness	7.00 (2.79)	7.50 (2.95)

Note: Standard Deviations are in parentheses.

Method

Participants and Research Design

There were 155 participants (39 males, 117 females and 2 participants did not identify their sex) between the ages of 17 and 43 ($M=20.85$, $SD=4.27$). Participants were recruited using the departmental and university wide research participation schemes. The design of this study was a 2

(Explanations: provided or not provided) x 2 (Emotion: anger or disgust) x 2 (Group type: bodily vs. non-bodily violation) between participants design.

Materials and Procedure

Participants arrived at the lab (one to three persons at a time), read the information sheet and gave their informed consent. They then began the study which consisted of three parts: emotion explanation, rating of statements and rating of emotions. In the emotion explanation stage, participants were randomly assigned to either an explanations provided or explanations not provided condition. Participants that were assigned to an explanations provided condition were given a list of statements and asked to build an emotion explanation with the statements in order to explain the anger/disgust they might feel toward one of the groups (bodily or non-bodily). On the other hand, participants within the explanations not provided condition were asked to provide a list of statements that they would use to explain their anger/disgust toward one of the groups (bodily or non-bodily). However, after completing the free listing, participants in the explanations not provided condition were asked to look over the same list provided to participants in the other condition, and to tick off any explanations whose gist matched ones they had themselves provided.

Before these instructions, both the emotion word and face were presented as a cue to what emotion participants were to explain, using the same stimuli as the previously conducted reason experiments. The instructions also emphasized that they were explaining their emotion to other persons. The instructions that were given to participants for each part of this experiment are included in Appendix F.

In the statement rating stage, participants were asked to imagine that the statements came from another person and were asked to rate how acceptable and convincing the statements would be coming from someone else. Both measures were on a 9 point scale that ranged from 0: *Not at all* to 8: *Extremely*. Participants rated all 36 statements that were selected based on the pretest (see Table 4). The acceptable (Cronbach $\alpha=.91$) and convincing (Cronbach $\alpha=.89$) rating scales were found to be reliable measures.

Finally, for the last section participants rated how much they felt the following emotions toward the group: sickened, outraged, moral disgust, inspired, sympathy, infuriated, proud, physical disgust, hatred, contempt, angry and afraid, on a 7 point scale (0 = *Not at all* to 6 = *Extremely*). The disgust words (sickened, moral disgust and physical disgust) were found to be a reliable scale (Cronbach $\alpha=.78$). The anger words (outraged, infuriated, angry) were also found to be a reliable scale (Cronbach $\alpha=.87$). An appropriate emotion intensity variable was then created by calculating the mean of disgust words for individuals within the disgust conditions and the mean of anger words for persons within the anger conditions.

Results

Emotion explanation

After examining participants responses the choice was made to analyze the two different emotion explanation conditions separately, because participants within the explanations not provided condition did not appear to

follow the instructions when coding their free-responses. Participants ticked multiple judgements that did not capture what they actually wrote.

Analysis indicated that participants within the emotion explanations not provided condition ticked more statements than participants within the emotion explanations provided condition, $F(1,153) = 41.51, p < .001$, partial $\eta^2 = .21$, (emotion explanations provided: $M=4.80, SE=0.40$; emotion explanations not provided: $M=8.38, SD=0.39$). Also, the main purpose of this part of the experiment was to examine what participants would do when elaborated reasons were made available making it suitable to analyze the emotion explanation conditions separately. Therefore, when testing the *availability hypothesis* the data set was split by whether or not emotion explanations were provided.

To appropriately test the *availability hypothesis*, a mixed model GLM analysis was carried out using reason type (disgust elaborated reason versus anger elaborated reason) as a within participants variable. The total complexity score of elaborated reasons (disgust versus anger) was used as the dependent variable. Emotion (disgust versus anger) and group type (bodily versus non-bodily) were entered as between participants variables in this analysis. The total complexity score of the whole emotion explanation and the appropriate emotion intensity variables were entered as covariates to control for possible confounds.

Emotion explanations provided conditions. The main effect of reason type was not found to be significant based on this analysis. The interaction between emotion and reason type was not found to be significant either. However, the interaction between group type and reason type was observed,

$F(1,70) = 12.04, p=.001, \text{partial } \eta^2 = .15$ (Disgust elaborated reason for bodily group type: $M= 2.92, SE=0.30$; Anger elaborated reason for bodily group type: $M= 6.19, SE=0.50$; Disgust elaborated reason for non-bodily group type: $M= 1.29, SE= 0.30$; Anger elaborated reason for non-bodily group type: $M= 8.15, SE=0.50$). Simple effects analyses indicated that the complexity score for disgust elaborated reasons was significantly higher within the bodily group type conditions than within the non-bodily group type conditions, $F(1,70) = 13.66, p<.001, \text{partial } \eta^2 = .16$. On the other hand, the complexity score for anger elaborated reasons was higher for the non-bodily group type conditions than for the bodily group type conditions, $F(1,70) = 7.23, p=.009, \text{partial } \eta^2 = .09$.

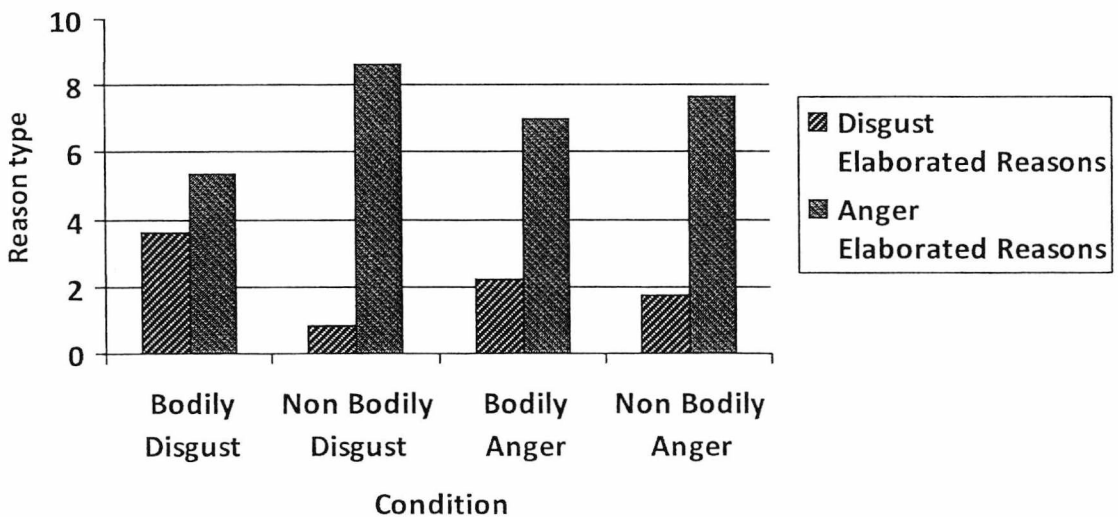
Reason type was also found to interact with the covariate total complexity of the whole emotion explanation, $F(1,70) = 12.36, p=.001, \text{partial } \eta^2 = .15$, but not with the appropriate emotion intensity variable. The between participants effects for emotion, group type and the interaction (emotion x group type) were not found to be statistically significant. Therefore, when the experiment made elaborated reasons available this eliminated the asymmetry in reasoning that had been found within the previous reason experiments.

However, the three-way interaction between emotion, reason type and group type was found to be significant, $F(1,70) = 5.94, p=.02, \text{partial } \eta^2 = .08$ (adjusted means are displayed in Figure 5). Simple effects analyses revealed that the complexity score for disgust elaborated reasons was significantly higher for the bodily disgust condition than for the non-bodily disgust condition, $F(1,70) = 21.18, p<.001, \text{partial } \eta^2 = .23$. Conversely, the

complexity score for anger elaborated reasons was higher for the non-bodily disgust condition than for the bodily disgust condition, $F(1,70) = 10.45$, $p=.002$, partial $\eta^2= .13$. The anger conditions did not differ by the complexity of the anger and disgust elaborated reasons that were used. This suggests that the disgust conditions, but not the anger conditions, differed by the pattern of elaborated reasons that were used.

To sum up, when elaborated reasons were made available, this eliminated the asymmetry in reasoning between anger and disgust that had been found within the previous reason experiments. However, it was also apparent that when elaborated reasons were made available participants were strategically using appropriate reasons for disgust, which accounted for the difference in reasoning.

Figure 5. Complexity of Disgust and Anger Elaborated Reasons Used for Experiment 5.



Emotion explanation not provided conditions. When examining the total complexity score of the elaborated reasons that participants ticked as capturing what they wrote within their free-response, a significant interaction between reason type and the covariate total complexity of the whole emotion explanation was found to be significant, $F(1,73) = 6.58, p < .05$, partial $\eta^2 = .08$. However, no other within or between participants effects were significant based on this analysis. Thus, when looking at the complexity of the elaborated reasons that participants thought captured what they wrote there were no significant differences across conditions.

Participants' free-responses were then coded by the researcher using the same coding scheme as the previous reason experiments. The data was only coded by one person because this coding scheme achieved reliability across two experiments previously. Before coding began all of the numbers that could identify which condition the statements came from were eliminated. Then each statement was given a unique identification number and the statements were put in a random order.

A 2 x 2 general linear model based ANOVA was carried out on the total amount of statements (elaborated reasons + non-elaborated reasons), controlling for appropriate emotion intensity. The main effect of emotion was found to be significant, $F(1,74) = 7.50, p = .008$, partial $\eta^2 = .09$, (Disgust: $M = 3.48, SE = 0.23$; Anger: $M = 4.37, SE = 0.23$), indicating that longer free-responses were given for the anger conditions than for the disgust conditions. A main effect was not observed for group type ($p = .92$) and for the covariate of appropriate emotion intensity ($p = .56$).

The interaction between emotion and group type was found to be significant as well, $F(1,74) = 4.84, p < .05$, partial $\eta^2 = .06$ (Disgust/Bodily: $M=3.14, SE=0.31$; Disgust/Non-bodily: $M= 3.82, SE=0.34$; Anger/Bodily: $M= 4.75, SE=0.33$; Anger/Non-bodily: $M= 4.00, SE=0.32$). Simple effects analyses revealed that longer free-responses were given for the disgust bodily condition than for the anger bodily condition, $F(1,74) = 12.66, p = .001$, partial $\eta^2 = .15$. This suggests that participants within the bodily disgust condition gave shorter emotion explanations than participants within the other three conditions. Therefore, unlike the previous reason experiments, there was now a difference in how much participants wrote overall, which may be due to the changes in the instructions that were given to participants. It then appeared reasonable to examine if there were differences in the raw amount of reasons that participants gave across the conditions.

The previous analysis was then repeated on the amount of elaborated reasons given within participants' free-responses. The main effect of emotion was observed, $F(1,74) = 6.85, p = .01$, partial $\eta^2 = .09$, (Disgust: $M=1.79, SE=0.27$; Anger: $M= 2.78, SE=0.27$), indicating the disgust conditions elicited fewer elaborated reasons than the anger conditions. However, the main effect of group type was not found to be statistically significant ($p = .73$). The covariate of appropriate emotion intensity was not found to have a significant effect either ($p = .45$).

The interaction between emotion and group type was found to be marginally significant, $F(1,74) = 3.42, p = .07$, partial $\eta^2 = .04$. An inspection of the means suggested that the number of elaborated reasons given was in a similar direction as the proportion of elaborated reasons within the previous

reason experiments, (Disgust/ Bodily: $M=1.37$, $SE=0.36$; Disgust/Non-bodily: $M=2.20$, $SE=0.40$; Anger/Bodily: $M= 3.07$, $SE=0.39$; Anger/Non-bodily: $M=2.50$, $SE=0.38$). Simple effects analyses revealed that more elaborated reasons were given for the bodily disgust condition than for the bodily anger condition, $F(1,74) = 10.36$, $p=.002$, partial $\eta^2= .12$. The means for the raw amount of reasons suggested that participants were least likely to give elaborated reasons if they were in the bodily disgust condition.

The previous analysis was then repeated looking at the amount of non-elaborated reasons as the DV. This analysis indicated that there were no differences in the amount of non-elaborated reasons that were given across the conditions, all $p >.62$. This suggests that the conditions differed by how many elaborated reasons participants chose to give, not by how many non-elaborated reasons they chose to give. Thus, there was a difference in the amount of statements across conditions because participants differed by how many elaborated reasons they gave within their emotion explanation.

Acceptability and Convincingness Ratings

In order to examine the *social norm hypothesis* a variable was created that included the mean acceptability ratings for the disgust elaborated reasons within the disgust conditions, and the mean acceptability ratings for the anger elaborated reasons within the anger conditions. Then another variable was created that included the mean acceptability ratings for the disgust non-elaborated reasons within the disgust conditions, and the mean acceptability ratings for the anger non-elaborated reasons within the anger conditions. These two variables were also created for the convincingness ratings. These variables did not include the mean for anger reasons within

the disgust conditions and the mean for disgust reasons within the anger conditions; therefore, this variable only included theoretically relevant reasons for each emotion.

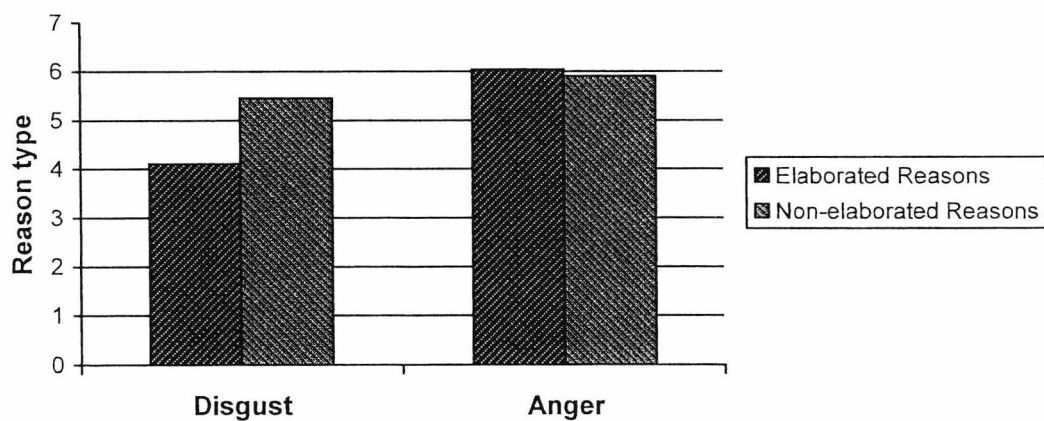
Acceptability ratings. To test the *social norm hypothesis*, a mixed model GLM analysis was carried out entering appropriate reason type (elaborated reason versus non-elaborated reason) as a within participant variable; emotion (disgust versus anger) and group type (bodily versus non-bodily) were entered as between participant variables.

The main effect of appropriate reason type was found to be significant, $F(1,151) = 21.47, p < .001, \text{partial } \eta^2 = .13$, indicating that overall non-elaborated reasons were more acceptable than elaborated reasons (Elaborated reasons: $M=5.07, SE=0.09$; Non-elaborated reasons: $M=5.68, SE=0.13$). This analysis also revealed a significant interaction between emotion and appropriate reason type, $F(1,151) = 31.05, p < .001, \text{partial } \eta^2 = .17$ (see Figure 6 for means). Supporting the *social norm hypothesis*, simple effects analyses revealed that appropriate non-elaborated reasons were more acceptable than appropriate elaborated reasons within the disgust conditions, $F(1,151) = 53.06, p < .001, \text{partial } \eta^2 = .26$. There was not a significant difference between appropriate elaborated reasons and appropriate non-elaborated reasons within the anger conditions. As predicted, appropriate elaborated reasons were more acceptable within the anger conditions than within the disgust conditions, $F(1,151) = 121.35, p < .001, \text{partial } \eta^2 = .45$. The three way interaction (emotion x group type x appropriate reason type) was not found to be statistically significant. These effects

indicate that there are general social norms for how anger and disgust should be explained; however, the norms do not differ by group type.

The between participants effect of emotion was found to be statistically significant, $F(1,151) = 47.69, p < .001$, partial $\eta^2 = .24$, indicating that overall statements were more acceptable within the anger conditions (Disgust: $M=4.78, SE=0.12$; Anger: $M=5.97, SE=0.12$). The main effect of group type and the interaction (emotion x group type) were not found to be statistically significant. This may suggest a general social norm that anger should be justified and persons find statements about anger to be more acceptable.

Figure 6. Acceptability Ratings



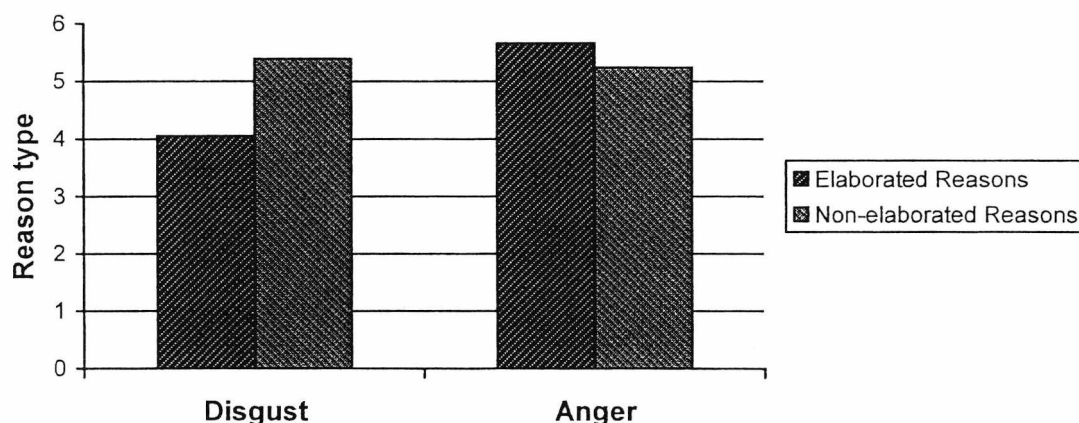
Convincingness ratings. The previous analysis was repeated using convincingness of appropriate reason type (elaborated reasons versus non-elaborated reasons) as the within participant variable. The main effect of appropriate reason type was observed, $F(1,151) = 10.62, p < .001$, partial $\eta^2 = .07$, indicating that overall non-elaborated reasons were more convincing

than elaborated reasons (Elaborated reason: $M= 4.86$ $SE=0.09$;
Non-elaborated reason: $M=5.32$, $SE=0.13$).

The interaction between emotion and appropriate reason type was also found to be significant, $F(1,151) = 39.26$, $p<.001$, partial $\eta^2= .21$ (see Figure 7 for means). Simple effects analyses revealed that appropriate non-elaborated reasons were more convincing than appropriate elaborated reasons within the disgust conditions, $F(1,151) = 46.22$, $p<.001$, partial $\eta^2= .23$. On the other hand, appropriate elaborated reasons were more convincing than appropriate non-elaborated reasons within the anger conditions, $F(1,151) = 4.44$, $p<.05$, partial $\eta^2= .03$. Similar to acceptability ratings, appropriate elaborated reasons were more convincing within the anger conditions than within the disgust conditions, $F(1,151) = 75.60$, $p<.001$, partial $\eta^2= .33$. The three way interaction (emotion x group type x appropriate reason type) was not found to be significant. These results suggest that people believe particular types of reasons are more convincing for each emotion; however, these ratings do not differ depending on the group type.

The between participant effect of emotion was found to be significant, $F(1,151) = 15.17$, $p<.001$, partial $\eta^2= .09$, indicating that statements were more convincing within the anger conditions (Disgust: $M=4.72$, $SE=0.13$; Anger: $M=5.45$, $SE= 0.14$). The main effect of group type and the interaction between emotion and group type were not found to be statistically significant. Thus, overall participants find statements of anger to be more convincing, and this perception does not differ by the group type that is being justified.

Figure 7. Convincingness Ratings



Emotion intensities

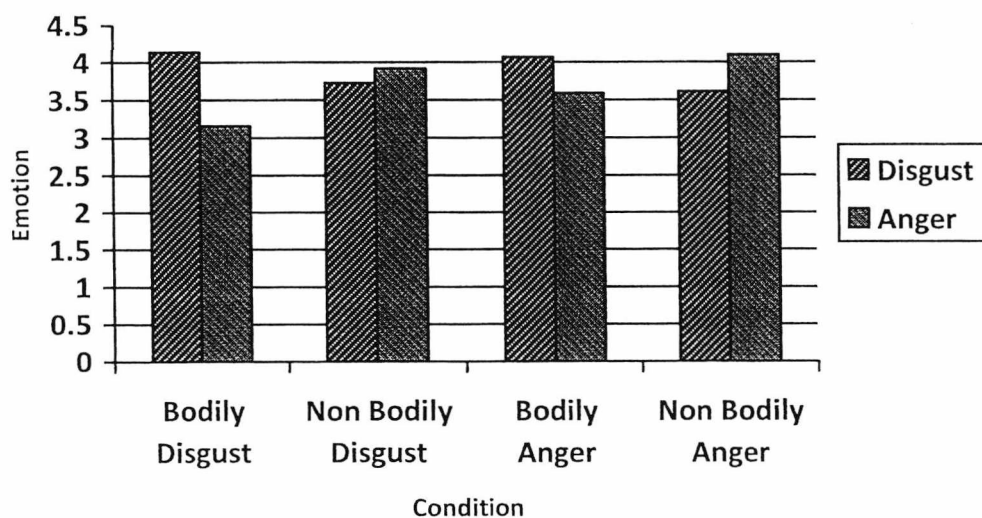
Similar to previous results anger and disgust were highly correlated overall, $r(155)=.75$, $p<.01$, therefore, general linear model based ANOVAs were carried out for each emotion controlling for the other emotion, entering emotion and group type as fixed effects (see Figure 8 for adjusted means).

When anger was entered as the DV, this analysis indicated a main effect of emotion, $F(1, 150) = 4.36$, $p<.05$, partial $\eta^2=.02$. The means suggested that participants reported feeling more anger within the anger conditions than within the disgust conditions (Disgust: $M= 3.54$, $SE=0.10$; Anger: $M=3.84$, $SE=0.11$). The main effect of group type was also found to be significant, $F(1,150) = 18.85$, $p=.002$, partial $\eta^2=.11$. Participants reported feeling more anger towards a group that violates a non-bodily norm than towards a group that violates a bodily norm (Bodily group type: $M= 3.37$, $SE=0.10$; Non-bodily group type: $M= 4.01$, $SE=0.11$). However, the interaction between emotion and group type was not found to be significant

based on this analysis (see Figure 8 for adjusted means across the four conditions).

The previous analysis was then repeated on scores of disgust controlling for anger. A main effect of group type was observed, $F(1,150)=10.29, p=.002, \text{partial } \eta^2=.06$, indicating that participants reported feeling more disgust toward a group that violates a bodily norm than toward a group that violates a non-bodily norm (Bodily group type: $M= 4.11, SE=0.10$; Non-bodily group type: $M=3.67, SE=0.10$). The interaction (emotion x group type) and the main effect of emotion were not found to be statistically significant (adjusted means can be found in Figure 8). However, simple effects analyses indicated that participants felt more disgust within the bodily disgust condition than within the non-bodily disgust condition, $F(1,150)=4.53, p<.05, \text{partial } \eta^2=.03$. Conversely, participants felt more anger within the non-bodily disgust condition than within the bodily disgust condition, $F(1,150)=13.53, p<.001 \text{ partial } \eta^2=.08$.

Figure 8. Emotion Intensities for Experiment 5



Discussion

When elaborated reasons were provided, participants used elaborated reasons within their emotion explanations that were of a similar complexity across the four conditions. Therefore, the *availability hypothesis* was supported because making elaborated reasons available eliminated the advantage that anger has over disgust. This indicates that persons normally find it difficult to access or generate elaborated reasons for disgust.

However, within the four conditions participants differed by the type of elaborated reasons that they chose to use when creating emotion explanations. Similar to the previous results, it was found that when explaining non-bodily moral disgust participants used a similar pattern of elaborated reasons as the anger conditions. Participants within the non-bodily disgust condition mainly chose to use elaborated reasons that are appropriate for anger. Bodily moral disgust required a different type of explanation than the other conditions. Individuals within the bodily disgust condition used elaborated reasons for disgust that were more complex than the other conditions, but elaborated reasons for anger that were less complex than the other conditions.

The means for anger elaborated reasons were in a similar direction as the results of the previous reason experiments, which suggests that elaborated reasons for anger might be the reasons that are normally used when justifying these emotions. Within this experiment the conditions differed by whether or not elaborated reasons that are appropriate for disgust were used when they were made available. Participants within the bodily moral

disgust condition were most likely to use elaborated reasons that are appropriate for disgust.

However, it is debatable whether or not this type of explanation is advantageous, because overall elaborated reasons for disgust tend to focus on the object of disgust and not on the action itself (see Table 4 for the list of reasons used within this experiment). Elaborated reasons for disgust focus on why the group does not fit in with society, not on whether or not their actions are wrong and/or harmful in the first place. It can be claimed that using these reasons is not suitable for public persuasion, because it is harder to explain to other individuals why a particular individual or group is abnormal. This type of categorization is normally based on social learning; therefore, it is difficult to explain why these statements are applicable in the first place. On the other hand, it may be easier to point out specific ways in which a particular behaviour is harmful in order to explain why this evaluation has been made, for example, you can point out that the actions were not consensual.

Individuals within the explanations not provided conditions gave emotion explanations that were more similar to the previous reason experiments when looking at the raw amount of elaborated reasons and total amount of statements given. Participants gave longer free-responses and provided more reasons within the anger conditions. The means also suggested that participants within the non-bodily disgust condition were giving justifications that were more similar to the anger conditions than to the bodily disgust condition. This is then another indication that when providing

justifications for non-bodily moral disgust persons are more likely to provide explanations that are more similar to anger than to bodily moral disgust.

There are two changes to this experiment which might help explain why differences were found in the total amount of statements within this experiment but not the previous reason experiments. First, this was the only experiment which provided a context for the norm violation. Due to this change, some participants gave statements, which did not refer to the violation itself, but to the context of the norm. For example, some participants gave statements about the working environment (e.g., "If their job is really that boring why are they doing it"). They also gave statements that referred to how they felt about individuals who bonded over such experiences (e.g., "What kind of people get enjoyment by doing this"). It seemed as if participants included these statements in addition to the reasons that they gave for feeling anger/disgust toward the norm violation itself.

Second, the instructions for this experiment were changed and this could have influenced the results. The general instructions emphasized to participants that they were explaining the emotion to other persons and they should make other individuals understand why they feel the way they do. Also, it was indicated that they should provide a list of statements that they would use to explain the anger/disgust they feel toward the group. Thus, even though the instructions mentioned that they could give as many or as few statements as they wanted, participants may have felt more pressure to provide additional statements than they would have normally used.

Nevertheless, the results indicated that the difference in the total amount of statements was driven by differences in the amount of elaborated

reasons across the four conditions, not the amount of non-elaborated reasons. This suggests that participants gave a similar pattern of elaborated reasons as the previous reason experiments; however, some participants chose to provide additional statements as well.

Within the second part of the experiment, the *social norm hypothesis* was fully supported. Anger elaborated reasons were perceived as being more acceptable and convincing as explanations for anger than disgust elaborated reasons were as explanations for disgust. Also in support of the *social norm hypothesis*, it was found that appropriate non-elaborated reasons were more acceptable and convincing than appropriate elaborated reasons within the disgust conditions.

The current findings suggest that elaborated reasons for disgust are infrequently used when publicly justifying feelings of disgust because they are unacceptable and unconvincing. However, the findings for the acceptability and convincingness ratings were not supportive of the effects that were observed for the emotion explanations. There were no significant differences between the bodily disgust and non-bodily disgust conditions when analyzing acceptability and convincingness ratings, but participants explained disgust differently depending on the group type. This may suggest that there is a general social norm to justify disgust with non-elaborated reasons; however, participants probably modified these scripts to fit the emotion explanation task when explanations were provided and to explain the emotion that they were actually feeling.

When participants were asked to explain non-bodily moral disgust participants probably gave an explanation that is more appropriate for anger

because they actually felt more anger than disgust. This tendency of actually feeling more anger toward the non-bodily group can be inferred from the emotion intensities that participants themselves reported.

In reference to the emotion explanation task, elaborated reasons for disgust may have been used because participants felt more pressure to explain why they feel disgust due to the instructions that were given. It is also possible that participants went past their normally held norms and assumed that elaborated reasons for disgust are acceptable within the current circumstance because they were provided within the list of statements.

There may also be an incongruence between what people will give as a reason and what reasons they expect to hear from others. The instructions for the acceptability and convincingness ratings stressed that participants should imagine that the statements were standing on their own. This may suggest that participants do not find elaborated reasons for disgust to be acceptable and convincing when standing on their own, but, that it is suitable to offer these statements when they are accompanied by other statements. Any of the previous points can explain why participants may have chosen to use elaborated reasons for disgust, even though they were perceived as being fairly unacceptable and unconvincing.

In conclusion, making elaborated reasons available eliminated the advantage that anger has over disgust, but this does not mean that an individual who feels disgust will use elaborated reasons that are considered to be acceptable according to the standards of most liberal societies.

Participants themselves even perceived that elaborated reasons for disgust

could not stand on their own as a single emotion explanation, while anger elaborated reasons were perceived as being more acceptable and convincing as a single argument. Therefore, elaborated reasons for disgust are less useful and acceptable, but will be offered when participants feel pressure to provide an emotion explanation.

Experiment 6

This experiment was carried out in order ensure that there is a difference between non-bodily and bodily moral disgust when elaborated reasons are made available to be used. There are two problems with the examination of the *availability hypothesis* within the previous experiment, which need to be resolved in order to provide evidence that there really is a difference between these conditions when elaborated reasons are made available.

First, from the previous experiment it cannot be determined whether participants are following a social script, or if they actually feel a particular emotion, because participants were merely told to explain either anger or disgust. Second, there were crossover effects in reported feelings of each emotion for participants within the incongruent emotion and group type conditions (disgust/non-bodily; anger/bodily). Participants within the non-bodily disgust condition reported feeling more anger than disgust, and persons within the bodily anger condition reported feeling more disgust than anger. Individuals within the bodily anger condition provided emotion explanations that were similar to the explanations provided within the

non-bodily anger condition despite feeling disgust, thus, applying the social norm for anger. However, participants within the non-bodily disgust condition reported feeling more anger and gave an explanation that was prototypical for anger, but not disgust.

An attempt was then made to convince participants that were actually feeling anger or disgust within this experiment. This would then make it more likely that participants within the non-bodily disgust condition would justify this emotion in a manner that is more prototypical for disgust. Individuals within this experiment were not merely told to explain one of the emotions, but were first presented with a manipulation, which would convince them that either anger or disgust was their primary emotion. The manipulation would also ensure that participants were aware that they feel one of the emotions, which is a crucial factor according to the social norm explanation.

In addition to this change, the descriptions of the two groups were changed, in order to ensure that the context did not create unnecessary feelings of anger, which could have influenced the previous results. For example, the fact that the violation occurred within a work environment could have elicited feelings of anger that were not related to the group members' actions themselves. As the main purpose of these experiments is to see how people justify disgust and anger toward violations that are non-bodily versus bodily in nature, it was necessary to eliminate emotional responses that could arise from the context. Appendix G displays the descriptions of the two groups that were used for this experiment. Besides these two changes (emotion manipulation and group description) everything else was the same as the emotion explanation provided condition of the previous experiment.

Method

Participants and Research Design

There were 86 participants (20 males, 65 females and 1 participant did not identify their sex) between the ages of 18 and 53 ($M=22.21$, $SD=5.28$). Participants were recruited from the university wide research participation scheme and were given £2 in exchange for their participation. This study was a 2 (Emotion: anger vs. disgust) x 2 (Group type: bodily vs. non-bodily violation) between participants design.

Materials and Procedure

This experiment was carried out in a lab, testing participants individually, in order to ensure that the manipulation was successfully carried out. Participants read the information sheet and gave their informed consent. Individuals then began the study in which they were first exposed to the emotion manipulation.

The emotion manipulation was a hypothetical subjective test, which would indicate that either anger or disgust was the primary emotion that participants felt toward a group that violates either a bodily or non-bodily norm. Individuals were told that the subjective test would accurately indicate their primary emotion toward the group (see Appendix G for the instructions). Participants were first given a description of the group (bodily or non-bodily) and then completed the subjective test. All of the questions in the subjective test were multiple choice questions (e.g., If you had to choose an animal that best represents the character of these group members what would it be?). After participants completed all of the questions they were immediately

presented with an emotion face and label (same materials as previous experiments), indicating their primary emotion toward the group. Persons were randomly assigned to one of the four conditions.

Until this point all of the materials had been presented to participants on a computer within the lab. The materials were set up on the computer using QMS, which is software that was designed so that questionnaires can be displayed on any computer. This method was necessary in order to make the hypothetical subjective test more realistic. For example, participants' primary emotion could be directly indicated to them after they completed the subjective test.

Right after the subjective test participants gave their emotion explanation which was in pencil and paper format. The instructions and format were similar to the emotion explanations provided condition of the previous experiment. The only change was that within the instructions where anger and disgust were previously mentioned this was changed to say "primary emotion". Participants then completed the emotion intensity scale (same measures as previous experiment) and responded to how accurate they thought the subjective test was. The accuracy variable was measured using a 7 point scale, which ranged from 0: *Not at all Accurate* to 6: *Extremely Accurate*, with a score of 4 representing that the subjective test was perceived as being accurate.

Results

Emotion intensities and perceived accuracy of subjective test

Before testing the *availability hypothesis* analyses were carried out in order to determine if participants thought that the subjective test was

accurate overall and if there were any differences on perceived accuracy across the four conditions. Analyses were also carried out in order to determine if there were any differences in reported emotions across the four conditions.

The manipulation was found to be successful across conditions because on average the participants rated the subjective test as being accurate, $M=3.99$, $SD= 1.48$. A 2 x 2 (emotion, group type) general linear model based ANOVA was then carried out on perceived accuracy, in order to determine if there were any differences across conditions on this variable. A significant main effect was found for emotion, $F(1, 82) = 6.96$, $p=.01$, partial $\eta^2= .08$; however, no other significant effects were observed (both $p>.32$). The means suggested that participants found the subjective test to be less accurate within the disgust conditions, particularly within the non-bodily disgust condition (Disgust/Bodily: $M=3.90$, $SE=0.31$; Disgust/Non-Bodily: $M=3.24$, $SE=0.31$; Anger/Bodily: $M= 4.41$, $SE=0.31$; Anger/Non Bodily: $M=4.36$, $SE=0.31$).

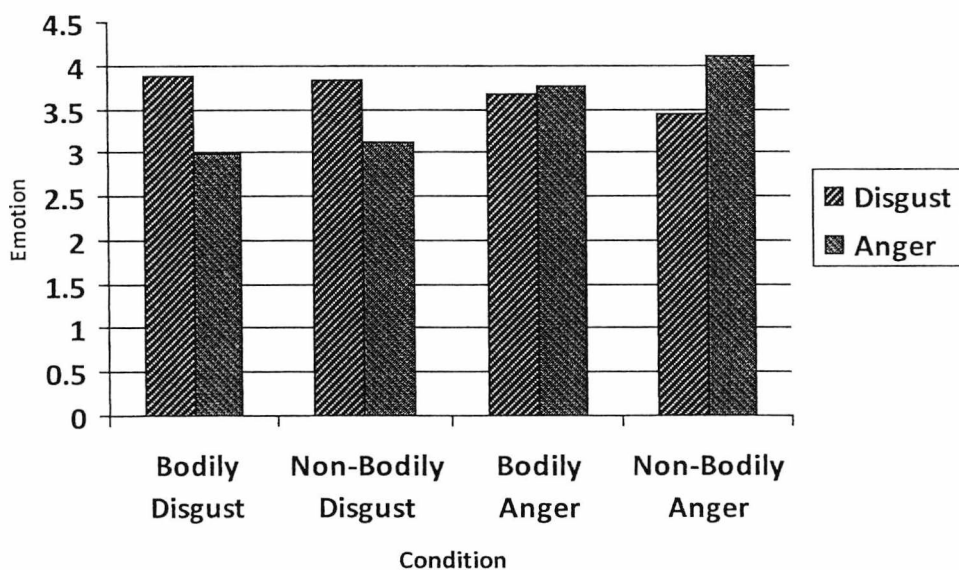
Similar to the previous experiment, measures of anger and disgust were highly correlated overall, $r(86)=0.68$, $p<.01$, therefore, 2 x 2 (emotion, group type) general linear model based ANOVA's were then carried out using each emotion rating as the DV in separate analyses, controlling for the other emotion.

When anger was the DV, this analysis indicated a main effect of emotion, $F(1,81) = 13.61$, $p<.001$, partial $\eta^2= .14$, the means suggested that participants reported feeling more anger within the anger conditions than within the disgust conditions (Disgust: $M= 3.06$, $SE=0.17$; Anger: $M=3.93$,

$SE=0.16$). The main effect of group type and the interaction (emotion x group type) were not found to be significant.

The previous analysis was then carried out using disgust as the DV, however, no significant effects were observed (all $p < .27$), which suggests that participants reported roughly equal levels of disgust across the four conditions. Figure 9 displays the adjusted means for reported feelings of anger and disgust across the four conditions.

Figure 9. Emotion Intensities for Experiment 6



Emotion Explanation

Due to differences in perceived accuracy by condition the accuracy variable was entered as a covariate when testing the availability hypothesis. The accuracy variable was also used as a covariate because it can be assumed that if participants reported that they thought the subjective test was accurate, the results of the test either confirmed the emotion they thought they felt or convinced them that they were really feeling the emotion. Thus, it

appeared appropriate to replace this variable for the appropriate emotion intensity variable.

To appropriately test the *availability hypothesis*, a mixed model GLM analysis was carried out entering reason type (disgust elaborated reason versus anger elaborated reason) as a within participants variable; emotion (disgust versus anger) and group type (bodily versus non-bodily) were entered as between participants variables. The total complexity of the whole emotion explanation and accuracy of subjective test variables were entered as covariates to control for possible confounds. Similar to the previous experiment, if a statement had a complexity score greater than 2.5 on the pretest it was classified as an elaborated reason. The total complexity of elaborated reasons (disgust versus anger) was used as the dependent variable.

The main effect of reason type was not found to be significant based on the within participants effects. However, the interaction between emotion and reason type was found to be significant, $F(1,80) = 12.48, p < .001$, partial $\eta^2 = .14$ (Disgust elaborated reason for disgust conditions: $M=3.61, SE= 0.37$; Anger elaborated reason for disgust conditions: $M= 5.88, SE= 0.46$; Disgust elaborated reason for anger conditions: $M=1.56, SE=0.36$; Anger elaborated reason for anger conditions: $M= 7.44, SE= 0.45$). Simple effects analyses indicated that the complexity score for disgust elaborated reasons was significantly higher for the disgust conditions than for the anger conditions, $F(1,80) = 15.29, p < .001$, partial $\eta^2 = .16$. On the other hand, anger elaborated reasons were found to have a higher complexity score for the anger

conditions than for the disgust conditions, $F(1,80) = 5.54, p=.02$, partial $\eta^2 = .07$.

The interaction between reason type and group type was also found to be significant, $F(1,80) = 3.89, p=.05$, partial $\eta^2 = .05$, (Disgust elaborated reason for bodily group type: $M=3.16, SE= 0.36$; Anger elaborated reason for bodily group type: $M= 6.26, SE= 0.45$; Disgust elaborated reason for non-bodily group type: $M=2.01, SE=0.36$; Anger elaborated reason for non-bodily group type: $M= 7.06, SE= 0.45$). Simple effects analyses revealed that disgust elaborated reasons had a significantly higher complexity score for the bodily group type conditions than for the non-bodily group type conditions, $F(1,80) = 5.12, p<.05$, partial $\eta^2 = .06$. However, there was no difference in the complexity score for anger elaborated reasons across the group type conditions.

The within participants variable of reason type was found to interact with the covariate of accuracy of subjective test, $F(1,80) = 7.91, p=.006$, partial $\eta^2 = .09$, and total complexity score of the whole emotion explanation, $F(1,80) = 4.59, p<.05$, partial $\eta^2 = .05$. The between participants effects for emotion, group type, and emotion x group type were not found to be significant. Thus, this experiment also found support for the *availability hypothesis*, indicating that when elaborated reasons are made available this eliminates the advantage that anger has over disgust. Unlike the previous experiment, the three-way interaction between emotion, reason type and group type was not observed.

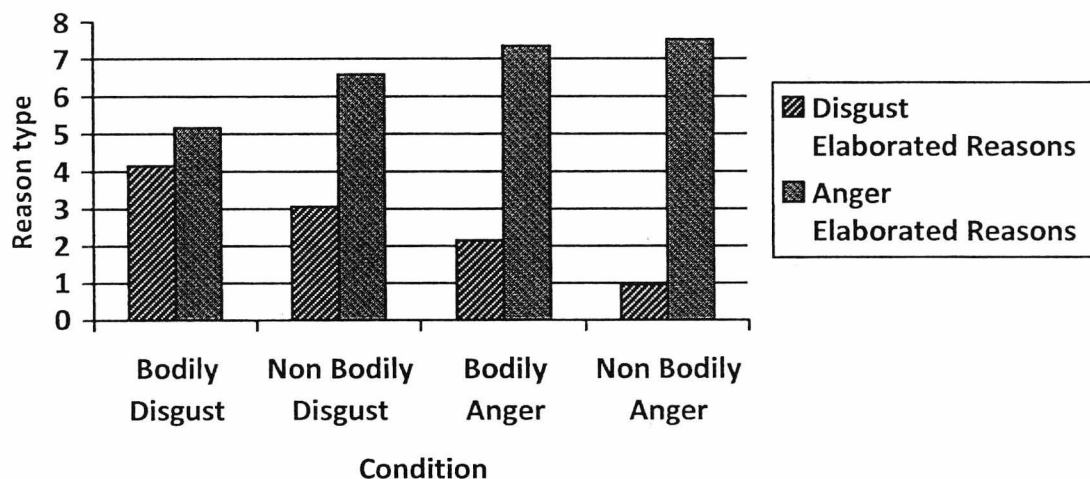
However, simple effects analyses revealed that the complexity score for disgust and anger elaborated reasons did not differ within the bodily

disgust condition. On the other hand, anger elaborated reasons were found to have a significantly higher complexity score than disgust elaborated reasons within the non-bodily disgust condition, $F(1,80) = 11.94, p=.001$, partial $\eta^2 = .13$; the bodily anger condition, $F(1,80) = 28.20, p<.001$, partial $\eta^2 = .26$, and the non-bodily anger condition $F(1,80) = 45.26, p<.001$, partial $\eta^2 = .36$. These effects indicate that the bodily disgust condition was the only condition in which there was no difference between the complexity score for anger and disgust elaborated reasons.

In order to retrieve comparisons for the disgust and anger elaborated reasons that were used across the four conditions a 2 (reason type) x 4 (condition) mixed model analysis was carried out. It was found that the bodily disgust condition had a significantly higher complexity score for the disgust elaborated reasons that were used in comparison to the bodily anger ($p<.01$) and non-bodily anger conditions ($p<.001$). The non-bodily disgust condition had a significantly higher complexity score for the disgust elaborated reasons that were used in comparison to the non-bodily anger condition ($p<.01$), whilst the bodily anger condition was marginally different from the non-bodily anger condition, $p=.09$.

The bodily disgust condition had a significantly lower complexity score for the anger elaborated reasons that were used, in comparison to the bodily anger ($p<.05$) and non-bodily anger condition ($p=.01$). However, there were no other significant differences on the complexity scores for the anger elaborated reasons that were used across the four conditions. Adjusted means for the complexity scores for anger and disgust elaborated reasons used across the four conditions are displayed in Figure 10.

Figure 10. Complexity of Disgust and Anger Elaborated Reasons Used for Experiment 6.



Discussion

Similar to the previous experiment, making elaborated reasons available eliminated the advantage that anger has over disgust, in that the complexity score for the elaborated reasons that were used across the four conditions were similar. However, participants differed by the type of elaborated reasons that were used across the four conditions. Bodily moral disgust displayed a different pattern in the elaborated reasons that were used in comparison to the other conditions. It was the only condition in which there was no difference between the complexity scores of anger and disgust elaborated reasons that were used when creating emotion explanations.

Within the previous experiment it was found that non-bodily disgust was almost uniquely explained with elaborated reasons that are appropriate for anger. However, after lengths were taken to convince participants that they were actually feeling disgust and pains were taken to eliminate feelings of anger that were not related to the norm violation, participants within the

non-bodily disgust condition provided explanations that are more prototypical for disgust within this experiment. Thus, there was less focus on the groups' actions, but more elaborated reasons were used which referred to the group members themselves (e.g., 'that they are less worthy human beings'). However, participants were still more likely to give anger elaborated reasons over disgust elaborated reasons. When examining the pattern of elaborated reasons for this condition in comparison to the other conditions, participants seemed to take the middle ground using a pattern of elaborated reasons that was not particularly different from either the bodily disgust or anger conditions.

Similar to the previous experiment, participants within the anger conditions did not differ significantly by the pattern of elaborated reasons that were used. This consistent similarity between the two anger conditions suggests that there is a social norm to justify anger with appropriate elaborated reasons, which does not differ by the target of anger that is being justified. Thus, participants do not need to be convinced that they feel anger in order to give an emotion explanation that is prototypical for anger.

Within both experiments there was a general trend to favour anger elaborated reasons over disgust elaborated reasons. When giving their emotion explanation participants overall used more anger elaborated reasons. When statements were rated on convincingness and acceptability, anger elaborated reasons were rated as being more acceptable and convincing than disgust elaborated reasons. This overall trend might support the assumption that anger is an emotion that is more frequently discussed within

social situations, thus that is why persons are more comfortable using anger statements and elaborated reasons.

Thus, when justifying our emotions it is desirable to articulate that the target of our emotion actually did something that is wrong and harmful, not merely to state that we do not like the target. However, in reference to disgust we are taught that it is acceptable to provide the latter justification. This social norm for disgust then moves individuals away from the general tendency to explain emotions using appropriate elaborated reasons.

The results for the current experiments suggest that it is important to consider the social norms that are associated with anger and disgust. In order to change disgust it appears as if attempts should be made to change the maladaptive social norms that accompany this emotion, in addition to the emotional association. It may also be useful to make individuals feel more accountable when they are justifying their disgust. On the other hand, persons are normally aware that they should justify their anger, thus, it is probably more useful to indicate when explanations are not suitable or relevant for the current context.

Conclusion

The fourth experiment indicated that participants were less likely to describe their thoughts and feelings about a social group, particularly when the group can be perceived as violating a bodily norm, when they were exposed to a disgusting smell. This finding might suggest that even

incidental feelings of disgust are likely to influence whether an individual will avoid thinking about the attitudes that they have about a social group.

However, a frustrating smell was not found to encourage individuals to describe their thoughts and feelings about a social group more so than the disgust or control conditions. The lack of results for the anger manipulation may have occurred because the manipulation represented mere frustration but not moral anger. Frustration is not synonymous with anger, but it has been argued that frustration can turn into anger (Berkowitz & Harmon-Jones, 2004). These findings then indicate that moral anger is more likely to be intertwined with cognitions about harm and justice, while frustration is less cognitive in nature. Therefore, the lack of predicted results for the anger manipulation may have occurred because moral anger, more so than mere frustration may be related to appraisals concerning the wrongdoing that has occurred and may be more likely to create social accountability. However, because the results are not conclusive for the anger manipulation one cannot fully determine whether or not the internal explanation is applicable. Therefore, future research is required in order to fully determine whether or not the internal explanation can help clarify why disgust is a more unreasoned emotion than anger.

The results for Experiments 5 and 6 indicated that the difference in reasoning occurs because of our social knowledge about how anger and disgust should be explained. Anger appears to have a social script which encourages further justifications that focus on why the target's actions are wrong and harmful. On the other hand, disgust is associated with the social norm that this emotion does not need to be explained. If an attempt is made

to justify disgust, it is then suitable to give subjective evaluative statements, which are more difficult to challenge. Interestingly, even when elaborated reasons were made available, bodily moral disgust required a distinct type of reasoning, which is more likely to state that the group is abnormal.

Conversely, non-bodily moral disgust was justified with a pattern of reasons that was more appropriate for explaining why someone feels anger. Only when an attempt was made to convince participants that they actually felt disgust toward a non-bodily group did they then give an explanation that was more prototypical for disgust. It can be concluded from this research that individuals are aware of the distinct social scripts that are associated with anger and disgust; however, individuals modify these social scripts when they feel it is appropriate to do so.

CHAPTER 8

GENERAL DISCUSSION

Background and aims of the thesis

The main purpose of this thesis was to compare the cognitive processes that accompany moral anger and disgust. This thesis presented research which indicated two novel differences between moral anger and disgust. First, it was found that anger responds to the contextual cues of harm and intent but disgust does not. Second, it was found that disgust, particularly in the context of a bodily norm violation, is less likely than anger to be justified with cognitively elaborated reasons. The differences that were found indicate that dissimilar cognitive processes are associated with these moral emotions. This thesis also provided an explanation for why these differences may occur.

This examination of moral anger and disgust was influenced by previous theories on moral and group-based emotions, as well as general emotion theory. The theoretical background that was presented on these topics hopefully sheds light on the issue of what is the source of an emotion. It was proposed that examining emotions from both a functional and dual-process perspective can help resolve some of the ambiguities that arise from unitary explanations. The theoretical background also outlined what group-based and moral emotions are according to previous accounts because it is necessary to understand how group-based and moral emotions not only differ from each other but also from individual emotions.

The research presented within this thesis has been particularly influenced by previous treatments of anger and disgust. In previous literature, anger and disgust have often been treated as being the same concept. An in depth examination of previous empirical findings suggested that there are fundamental differences between moral anger and disgust. However, it is important to examine bodily moral and non-bodily moral disgust as separate constructs and to consider anger and disgust's social function. Taking into account the social function of each emotion will help in indicating the distinct consequences of anger and disgust.

Previous research on moral anger and disgust then prompted a comparison of these two emotions. Specifically, this thesis examined whether moral anger and/or disgust responds to important contextual cues. The current research also compared whether or not anger and disgust would be justified with cognitively elaborated post-hoc reasons, or merely justified with subjective reasons.

Cumulatively, the results indicated that disgust, particularly bodily moral disgust, is more likely to be an unreasoned emotion relative to moral anger. Besides providing this direct clarification, the findings of this thesis can also have important implications. Therefore, it was important to uncover a plausible explanation for why these differences may occur. Experiments were then designed to test whether a social norm or internal explanation can clarify why disgust is a more unreasoned emotion than anger. The results suggested that people have distinct social scripts about how anger and disgust should be explained. However, individuals sometimes modify these

scripts according to their own feelings in regard to specific individuals and/or groups.

Summary of the results

Experiment 1 indicated that moral anger responded to the contextual cues of harm and intent but disgust did not. Disgust was found to respond uniquely to the categorical judgement of whether or not a bodily norm violation has occurred. The results of this experiment may suggest that anger is concerned with the current context, whilst disgust is concerned with previously learned norms regarding the body.

The results of Experiments 2 and 3 supported the assumption that disgust, particularly bodily moral disgust, is an unreasoning emotion. In Experiment 2 it was found that participants were more likely to give cognitively elaborated reasons, versus non-elaborated reasons, when explaining their anger, versus disgust towards paedophiles. Then in Experiment 3, it was found that participants were less likely to give cognitively elaborated reasons when explaining their disgust versus anger, and in particular when explaining their disgust toward a group that can be perceived as violating a bodily norm, such as prostitutes or voyeurists.

After these two novel differences between moral anger and disgust were uncovered the next line of research was conducted in order to test possible explanations for why these differences may occur. The specific goal of this research was to indicate whether the emotion feelings themselves cause these differences or if these differences occur due to social norms that are commonly associated with moral anger and disgust.

Experiment 4 was carried out in order to determine whether or not the feeling of disgust itself leads individuals to automatically avoid the situation. Specifically, this research examined whether disgust motivates individuals to avoid describing their thoughts and feelings about a social group. Anger on the other hand, should encourage individuals to describe their social attitudes. Highlighting these opposing motivational tendencies can then help explain why disgust is a more unreasoned emotion in comparison to anger.

It was found that an incidental manipulation of disgust decreased participants' willingness to describe their thoughts and feelings about a social group, particularly when the target was a group that can be perceived as violating a bodily norm. However, the results failed to support the predictions for the anger manipulation, in that participants within the anger condition did not describe their thoughts and feelings significantly more than participants within the disgust or control conditions. The lack of results for the incidental manipulation of anger may reflect that moral anger, and not mere frustration, leads to the motivation to consider why you feel anger in the first place. However, because the effect for the manipulation check of frustration was not significant, this may suggest that the anger manipulation simply did not work.

Experiments 5 and 6 then examined whether the asymmetry in reasoning specifically occurs due to social norms that are associated with anger and disgust. The social norm explanation was supported; in that overall elaborated reasons for anger appeared to be more appropriate for social persuasion than elaborated reasons for disgust. Participants appeared to favour elaborated reasons for anger over elaborated reasons

for disgust within both experiments. This preference can be inferred because elaborated reasons for anger were used more often across both experiments when creating emotion explanations. Within Experiment 5 it was also found that elaborated reasons for anger were perceived as being more acceptable and convincing than elaborated reasons for disgust.

Besides this general observation, two specific hypotheses were also tested across these experiments. These hypotheses were designed in order to show either direct or indirect evidence for the social norm explanation. The availability hypothesis was tested within both experiments because it would indirectly support the social norm explanation, by indicating which elaborated reasons tend to be more accessible or available to participants, thus, more suitable for public persuasion. Across both experiments it was uncovered that making elaborated reasons available eliminated the advantage that anger has over disgust. The results of these experiments suggest that it is not impossible to justify disgust, but when elaborated reasons are not available individuals find it harder to generate elaborated reasons for disgust on their own.

Bodily moral disgust was explained using a different pattern of reasons than the other three conditions. Participants that were in the bodily moral disgust condition were most likely to focus on the abnormality of the group and not on groups' actions when giving emotion explanations.

On the other hand, the type of explanations that were given for non-bodily moral disgust suggested that participants' feelings of anger influenced the explanations that they gave. Within Experiment 5 it was found that non-bodily moral disgust was justified almost uniquely with

elaborated reasons that are appropriate for anger, which may have occurred because individuals reported feeling more anger than disgust within this context. For Experiment 6 pains were taken to ensure that spurious feelings of anger were eliminated and an attempt was made to convince participants that disgust was their primary emotion. As a result of these changes non-bodily moral disgust was no longer uniquely explained with elaborated reasons that are appropriate for anger, but rather participants followed the social script for disgust more closely. Under these circumstances participants then provided an explanation that was more prototypical for disgust. However, feelings of anger subtly influenced the explanations that were given, because the difference between anger and disgust elaborated reasons was still significant for this condition and the anger conditions. On the other hand, for the bodily moral disgust condition there was no longer a significant difference between anger and disgust elaborated reasons.

Across both experiments, participants within the anger conditions did not differ in their pattern of anger and disgust elaborated reasons that were used. This consistency suggests that there is a social norm to justify anger with appropriate elaborated reasons, which does not differ by the target of anger that is being justified.

Within the second part of Experiment 5 the social norm hypothesis was tested and fully supported. Elaborated reasons for anger were rated as being more acceptable and convincing as explanations of anger than appropriate reasons for disgust. It was also found that non-elaborated reasons for disgust were more acceptable and convincing as explanations of disgust than elaborated reasons were.

These findings support Martha Nussbaums (2004) claim that the best way to explain disgust is by describing disgusting qualities. These results also explain why in the previous reason experiments participants often gave a tautological statement as a reason for their disgust. On the other hand, for anger and non-bodily moral disgust, persons were equipped with a set of elaborated reasons that can be used for social persuasion. Within Experiment 5 participants in the explanations not provided conditions gave emotion explanations which reflected a similar tendency as the previous reason experiments.

Cumulatively, the reason results then suggest that there is a definite tendency for participants to use evaluative, and in some instances tautological, reasons when explaining their disgust at a group that violates a bodily norm, because this is considered to be a socially acceptable response. On the other hand, for anger and non-bodily disgust individuals are more likely to provide elaborated reasons as a justification. This may occur because individuals feel more confident in the elaborated reasons that they are giving for their anger because they are more practised in justifying their anger. Petty, Brinol and DeMarree (2007) have theorized that evaluative associations are held at varying degrees of confidence. Thus, according to this theory it may be possible that there is a stronger link between anger and appropriate elaborated reasons. On the other hand, disgust elaborated reasons are infrequently used in daily conversation, thus, people may not feel confident using these reasons as a justification.

These findings may also suggest that disgust is truistic because it reflects the qualities that McGuire (1964) originally outlined. There tends to

be strong agreement that something is disgusting, but despite this people do not have cognitive support for their disgust and this occurs because truisms tend to be accepted without question. Thus, similar to Maio and Olson's (1998) finding that self-transcendence values are truistic, disgust based attitudes may be maintained in a similar manner. Across three experiments Maio and Olson found that when participants were asked to give reasons for their self-transcendence values this caused their original values to change because they did not have cognitive support for their values. Thus, similar to these experiments the reason results show that persons find it difficult to access elaborated reasons for disgust, and it is only when reasons are available to them that they will be given as a justification. .

It can be inferred from these results that anger and disgust are distinct emotions with important differences, which occur because these emotions have unique social scripts. These scripts give rough estimations of how these emotions should be explained. However, as shown by the results of the emotion explanations, it appears as if persons modify these social scripts depending on whether or not they feel one emotion more than the other. From this research it can be inferred that our social knowledge plays a large role in how these emotional experiences should unfold.

Across the research presented within this thesis it is also apparent that bodily moral disgust is a unique emotion, in that the cognitive processes that accompany this emotion are distinct and that this emotion has specific consequences. This research indicates that bodily moral disgust often ignores important contextual cues and discourages further reasoning. Even when persons are given a fair opportunity to provide an explanation for this

type of disgust persons will be more likely to focus on the person or group, and not on the wrongness of what the person or group has done. These unique features of bodily moral disgust distinguishes this emotion from non-bodily moral disgust and anger. Therefore, this knowledge will hopefully be influential to future research on these emotions and to specific practical issues.

Implications of the research

By directly comparing moral anger and disgust this thesis provided further clarification that moral anger and disgust are in fact distinct concepts. Bodily moral disgust seems to be particularly different; it differs from non-bodily moral disgust and anger because this emotion is associated with distinct cognitive processes. These empirical findings may suggest that non-bodily moral disgust is either a blend of disgust and anger, or just simply anger. This assumption is made because when participants were explaining why they feel disgust toward a group that violates a non-bodily norm, individuals were more likely to give post-hoc reasons that are appropriate for anger. It was only when individuals were convinced that they felt disgust via a manipulation did they provide an explanation that was more appropriate for disgust. This may suggest that anger is the more common response to this type of norm violation; however, further research is required in order to support this assumption.

Besides this direct qualification, the findings of this thesis can also provide clarification for specific ambiguities that have been raised from prior emotion research. First, this research indirectly shows that some emotions

more than others are likely to be associated with higher order reasoning. Second, these findings suggest that social learning plays an important role in our emotional attitudes. Third, this research provides a proposal for why something is disgusting in the first place and why it may be difficult to verbalize why we feel disgust.

In addition to these implications, the findings presented within this thesis also suggest how these emotional attitudes can be best changed. This research also provides empirical evidence that disgust is an unreasonable emotion within judgments of law and justice. This claim has been made previously by Martha Nussbaum (2004), but no past empirical research has been carried out to support this claim. The implications that have been summarized above will now be explained in more detail within the remainder of this section.

Evidence for dual-process perspective. The differences found between moral anger and disgust suggests that these two emotions may be associated with different types of mental processes. The quality of the cognitive processes that are associated with moral anger and disgust reflect distinctions that have been made by recent dual-process models. Therefore, based on the distinctions made by these models, it can be inferred that anger and disgust may be more or less likely to rely on associative processes.

Strack and Deutsch (2004) have made comparisons between an impulsive and reflective system of processing information, in which the distinct capabilities of the reflective system are defined. For example, a capability of the reflective system, according to their account, is the ability to

process negated statements appropriately. According to Strack and Deutsch (2004), successful negation can only occur in the reflective system if there is enough “time, intention and cognitive capacity to extract the meaning of the negation” (p. 227). If one of these conditions is not met then the negated information will be processed in the associative system. For instance, if you present someone with the negated sentence ‘Cats are not vicious’, this statement can be processed in two different ways which can then lead to opposing inferences. If this sentence is processed associatively there will be an association between cat and vicious. Alternatively, if all of the cognitive requirements are met then persons will be able to evaluate this statement properly, which will result in the true meaning being inferred.

This ability to respond to negation may explain why moral anger and not disgust is modified by the current context. The current findings suggest that persons who feel anger are more likely to pay attention to the current context. They will then be more likely to appropriately process information and not rely on previous associations. On the other hand, individuals who feel disgust may be distracted by their emotional associations, which will cause them to assess the current situation inappropriately.

Similarly, Gawronski and Bodenhausen (2006) have made a distinction between associative and propositional processes within their APE model. Associative processes are defined as the mere activation of concepts independent of truth value, which require very little cognitive capacity. In comparison, propositional reasoning concerns itself with the validation of beliefs, in which persons make assumptions of truth. The APE model assumes that propositional information is superordinate; as a result,

associative information can be turned into propositional format. However, when these propositional statements are made they are subject to inferences of truth value. Individuals must then have the capacity and motivation to engage in a validation process and not merely rely on their associations. Propositional reasoning then requires more cognitive effort than the associative mode.

By applying this model, it can be inferred that moral anger may go one step further than disgust, requiring further propositions that are dependent on truth value. This reliance on further propositions is reflected in the type of justifications that are typically required for anger. The findings in this thesis also suggest that there is a tendency for individuals who feel disgust to merely rely on associative processes.

In summary, the flexibility and reason differences may suggest that disgust is more likely to rely on associative information, while anger typically requires validation. Anger seems to encourage inferences of truth, for example, determining whether or not one's actions are harmful. These inferences can modify the anger experience and be used as post-hoc reasons. On the other hand, disgust does not require validation, which causes individuals to ignore changes in the context and they also fail to consider why they feel disgust in the first place.

Evidence for social influence. This research implies that anger and disgust should be examined as social occurrences. Understanding the social function of these two moral emotions can then help distinguish anger and disgust, because there is less focus on specific components, but rather more focus is on the larger role that these emotions play in social relationships.

The current findings suggest that our social environment impacts what individuals find to be worthy of feelings of disgust and/or anger. Social norms also impact how persons express their anger and disgust.

The findings of this thesis imply that individuals are more likely to think in depth about how their anger will impact others and are more likely to be responsive to changes in context. When individuals feel anger they are more likely to feel that it is necessary to give reasons to other persons for why they feel anger in the first place. On the other hand, when individuals feel disgust they are less likely to evaluate why they are disgusted, because they are taught that this is the socially acceptable response. When people feel disgust they are not motivated to assess whether or not their emotion is appropriate in the first place, and whether or not their verbal expression is suitable. Therefore, it is apparent that social learning influences the likelihood that specific cognitive processes will accompany moral anger and disgust.

Evidence that there is no rational appraisal for disgust. Past theoretical accounts have outlined clear elicitors of what will make people feel moral anger. However, ambiguous appraisals have been associated with disgust, both at the individual level and in the moral realm. For example, in the moral realm the appraisal of contamination or purity has been theorized as eliciting disgust. Nevertheless, it should be acknowledged that contamination is distinct from disgust. It has been theorized that thoughts of contagion represent the acts that disgust elicits, while disgust is the actual physical response (Oaten, Stevenson, & Case, 2009). This assumption that contamination and disgust are separate constructs has also been supported by the mediation effects that were uncovered from the intent experiment

(Experiment 1). Within this experiment it was found that theoretically relevant appraisals, such as purity, did not fully mediate the relationship between disgust and the taboo manipulation. Therefore, it can be inferred that contamination may not be a cognitive elicitor, but can be a cognitive consequence of feeling disgust.

This problem of defining a specific appraisal for disgust may reflect that it is hard to verbalize or characterize what is disgusting, but rather something may be disgusting because of previously learned norms. The research presented in this thesis supports this view that something is disgusting because of prior learning. This suggests that disgust is more likely to rely on previously learned associations, rather than rational appraisals within the current situation. Therefore, why something is disgusting may reflect logic that is similar to essentialism and moral absolutism.

An essentialized category is something that is fixed and does not vary by context (Prentice & Miller, 2007). Key features of essentialized categories are unknown, thus, it may not be possible to understand or define them. In reference to essentialized categories, people do not know “what it means, how it works, or what caused it” (Prentice & Miller, 2007, p. 203). It has been proposed by these researchers that essentialized categories are structured by both biological and social determinism, reflecting naturalistic categories. Based on this logic, individuals who violate a bodily moral norm may reflect an essentialized category, and may be viewed in this manner because of prior social learning and in some instances reflect a biological function.

Similarly, moral absolutism reflects the idea that something is right or wrong regardless of the context, thus, there are universal principles that all

persons should uphold (Cook, 1999). Moral absolutism reflects deontological principles, which emphasizes rules and places less emphasis on one's action. Deontic rules of reasoning do not rely on logical inferences, but on mental models (Bucciarelli & Johnson-Laird, 2005). This view contrasts with philosophies of moral relativism that take into account the current context and the consequences of one's actions (Cook, 1999). According to this view there are no moral principles that are always right or wrong, but changes in context can influence whether or not a behaviour is considered to be morally right or wrong.

The philosophy of moral absolutism can explain why some people view sexual acts as wrong regardless of the context, such as homosexuality and incest. It can be argued that individuals are even more likely to believe that a moral violation is wrong regardless of the context, when a bodily norm has been violated. It has been found that persons are less tolerant of divergent attitudes when a moral issue is involved versus a non-moral issue (Haidt, Rosenberg, & Hom, 2003; Skitka et al., 2005; Skitka & Mullen, 2002). In extension to this research it was found that the cognitive belief that something is a moral issue, in combination with intense emotion, is most likely to produce interpersonal intolerance (Wright, Cullum, & Schwab, 2008). This combination will then lead to distancing strategies taking place and context insensitivity. Applying these general findings on moral judgement it can then be argued that people may be especially more likely to react in this manner when the moral issue involves the body, because these violations often protect sacred taboos. It is then plausible that when a bodily norm is violated there will be a greater expectation that others should be in

agreement, and when individuals do not agree this will result in distancing strategies from those who are in disagreement and from the current situation as well.

Changing emotional attitudes. The differences found between moral anger and disgust indicates that these emotions can be best changed using different strategies. Moral anger responds to abstract and flexible cues that can vary case by case, while moral disgust responds to more rigid, socially learned norms. This suggests that these two moral emotions, that form part of prejudice toward individuals and groups, should be changed through different mechanisms. Individuals who feel disgust may have to go through a lengthy process in order to unlearn their previous associations. On the other hand, for anger it may be enough to identify those specific contextual cues that are not present or applicable, such as harm and/or intent.

This assumption that moral anger and disgust must be changed through different mechanisms is supported by prior research, which indicates how these emotions are changed at the individual level. Specifically, Rozin (2008) has found a disgust habituation effect, in which medical students became more accustomed to cold dead bodies, but not warm dead bodies, after a few months in medical school. This shows that even when feelings of disgust are changed by habituation, the effects are very stimulus specific and do not generalize. Disgust may then require a lengthier process of reversing prior learning. For anger, though, it may be enough to highlight those certain situational cues that are not present. For example, Goldberg, Lerner and Tetlock (1999) have found that cues of justice minimized feelings of anger and diminished possible carry over effects. Future research would then

benefit from examining how these moral emotions can be changed, using the present findings as an indicator of the concepts that are important for either moral anger or disgust.

Emotions and law. The findings in this thesis provide empirical support for Martha Nussbaums (2004) claim that disgust, more so than anger, has an unreasonable influence in judgements of law and justice. This research indicates that anger, but not disgust, responds to two important cues that are essential to law and justice - whether or not one's actions are harmful and whether or not one's actions are intentional. On the other hand, disgust appears to be an unreasonable emotion, which is merely concerned with previously learned norms regarding the body. Therefore, disgust has the ability to bias people's judgements, causing individuals to not pay attention to important details of the case, such as whether the perpetrators actions were intentional. These findings provide initial evidence that disgust, more so than anger, has the ability to thoughtlessly tarnish our moral and legal judgements. Policy makers and individuals involved within criminal trials should then question whether disgust should play a role in legal judgements.

Limitations and future research

Similar to most research conducted in social psychology, this research also relied exclusively on university student samples. Therefore, a large proportion of the participants in this research was female, was of a limited age range, and was fairly similar across other demographic variables such as socioeconomic status and political orientation. This research could improve on its external validity if this research is carried out using more diverse samples. However, it may have been a necessary step to first establish these

findings with university student samples, because the research conducted within this thesis examines novel differences and tests possible explanations for these differences.

Future research would benefit from examining the hypotheses of this thesis using a general population sample. It may also be of interest to conduct a cross-cultural analysis of these effects, in order to examine if specific cultures are even more likely to base their attitudes on feelings of disgust. For example, it may be found that individuals within conservative cultures are even less likely to give elaborated reasons for their disgust at sexual norms. On the other hand, it may be possible that they will have more access to elaborated reasons for disgust, because these reasons may be used more often in everyday social interactions within these communities.

Another line of research can examine the type of justifications that individuals from the general public will give for their anger and disgust. It is possible that university students are more practiced in debating and engaging in public speaking, thus, it is easier for them to provide emotion justifications overall. Conversely, non-university samples may find it more difficult. Therefore, it would be most desirable if research is carried out that makes comparisons between different populations and/or examines if any individual differences influence these results.

The manipulations and measures of the studies presented within this thesis represent the most appropriate methods to uncover the desired effects. The largest methodological hindrances of this thesis were assessing emotions adequately and creating appropriate emotion manipulations. However, based on available resources, the most practical methods were

employed at the time. In order to assess emotions both words and endorsement of facial expressions were used, because previous research indicates this is the best method to use in order to avoid shortcomings of the English language. Also, when identifying what emotion participants needed to explain within the reason experiments, both the facial expression and word were presented to participants. Future research would benefit from employing more implicit measures, because persons often find it difficult to label and quantify their emotions.

In reference to the appropriateness of the emotion manipulation that was used for Experiment 4, an attempt was made to make the conditions as parallel as possible, because this goal was perceived as desirable when the experiment was designed. However, in hindsight, it may have been better to accept the unique features of these two emotions, in that anger responds to abstract stimuli, while disgust responds to concrete stimuli. Therefore, it would be desirable if the internal explanation is examined using more suitable manipulations.

Future research may also benefit from testing some of the implications that have been suggested within this general discussion. For instance, it would be desirable if more stringent methods are employed in order to assess whether disgust, more so than anger, tends to rely on associative information. Another important line of research would be to examine if the current findings can really be used to uncover how these emotions are best changed. Finally, it would be beneficial to examine whether disgust really has an unreasonable influence on legal judgements using a more ecologically valid method and a more relevant subject context. For example,

a mock trial can be carried out which tests whether juror's judgements of sexual crimes are biased by their feelings of disgust.

In summary, the present research can expand its role in social psychology if any of the methodological improvements are made. It would also be desirable if future research tests whether the implications suggested in this discussion are applicable.

Conclusion

The research presented within this thesis presents two novel differences between moral anger and disgust. Disgust was found to be a more unreasonable and non-contextual emotion than moral anger, particularly when disgust is elicited by a bodily norm violation. The highlighted differences not only provide further qualification that anger and disgust are distinct emotions but important practical implications can also be inferred from this research. However, before approaching these practical issues it was necessary to test possible explanations for why these differences may occur. This line of research suggested that anger and disgust have distinct social scripts that are used in the formation and maintenance of these emotional attitudes; however, within some contexts our personal feelings modify how these social scripts are employed.

In summary, this thesis indicates that moral anger and disgust are associated with different cognitive processes. The cognitive processes that are associated with these emotions are then maintained due to social norms. These insights should then lead others to question whether the cognitive

processes that accompany bodily moral disgust are beneficial to the individual experiencing this emotion, the target of this emotion and other surrounding persons. If it is deemed that these cognitive processes are not useful, one should then question how bodily moral disgust can be changed.

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Appendix A

Manipulations for Experiment 1

Taboo, harm other, no intent: A scientist studying recent advances in biotechnology has recently moved from one lab to another. She asks her research assistant to send her a number of cow muscle cells from the old lab, so she can clone them on a dish. However, the research assistant makes a mistake in labelling the vials, and sends her some cells from the scientist's own arm, that had been used in some unrelated research and proven to be free of disease. The cells grow into a strip of human muscle tissue about the size of a steak, but the scientist doesn't know it's her own flesh. A few days later the scientist is curious about the taste of the human steak that she thinks is beef, so she goes into the freezer and takes out the piece of meat. She then grills it on a barbecue, and serves it at a dinner party to one of her guests, telling him its lab-grown beef. Eventually, the mistake comes to light, and the dinner guest discovers what the meat really was and becomes really upset at being fooled like that. The scientist never repeats the experiment.

Taboo, no harm to anyone, no intent: A scientist studying recent advances in biotechnology has recently moved from one lab to another. She asks her research assistant to send her a number of cow muscle cells from the old lab, so she can clone them on a dish. However, the research assistant makes a mistake in labelling the vials, and sends her some cells from the scientist's own arm, that had been used in some unrelated research and proven to be free of disease. The cells grow into a strip of human muscle tissue about the size of a steak, but the scientist doesn't know it's her own flesh. A few days later the scientist is curious about the taste of the human steak that she thinks is beef, so she goes into the freezer and takes out the piece of meat. She then grills it on a barbecue, and serves it to herself for dinner. The mistake never comes to light, and the scientist never discovers what the meat really was. Although the experience does not upset her, she does not develop a taste for human flesh and never repeats the experiment.

Taboo, harm other, intent: A scientist studying recent advances in biotechnology has recently moved from one lab to another. She asks the research assistant to send some cells from the scientist's own arm, cells that had been used in some unrelated research and proven to be free of disease. The scientist then decides to clone her own cells into a strip of human muscle tissue about the size of a steak, knowing that it's her own flesh. A few days later the scientist is curious about the taste of the human steak, so she goes into the freezer and takes out the piece of meat. She then grills it on a barbecue, and serves it at a dinner party to one of her guests, telling him its lab-grown beef. Eventually, the dinner guest discovers what the meat really was and becomes really upset at being fooled like that. The scientist never repeats the experiment.

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No taboo, harm other, intent: A scientist studying recent advances in biotechnology has recently moved from one lab to another. She asks the research assistant to send some muscle cells from a sheep, cells that had been used in some unrelated research and proven to be free of disease. The scientist then decides to clone the sheep cells into a strip of sheep muscle tissue about the size of a steak, knowing that it is sheep. A few days later the

scientist is curious about the taste of the sheep steak, so she goes into the freezer and takes out the piece of meat. She then grills it on a barbecue, and serves it at a dinner party to one of her guests, telling him its lab-grown beef. Eventually, the dinner guest discovers what the meat really was and becomes really upset at being fooled like that. The scientist never repeats the experiment.

No taboo, no harm to anyone, intent: A scientist studying recent advances in biotechnology has recently moved from one lab to another. She asks the research assistant to send some muscle cells from a sheep, cells that had been used in some unrelated research and proven to be free of disease. The scientist then decides to clone the sheep cells into a strip of sheep muscle tissue about the size of a steak, knowing that it is sheep. A few days later the scientist is curious about the taste of the sheep steak, so she goes into the freezer and takes out the piece of meat. She then grills it on a barbecue, and serves it to herself for dinner. Although the experience does not upset her, she does not develop a taste for sheep flesh and never repeats the experiment.

Appendix B

Instructions given to coders

Reason (R)

Give a 1 if there is a reason within a statement or a 0 if no reason is given. Merely giving an adjective or a subjective feeling as a reason does not count as an appropriate reason. Reasons must be fairly objective.

Example:

- Because it harms children (Score of 1)
- Paedophiles are disgusting because they harm the natural order (Score of 1)
- Paedophile are disgusting because they are gross (Score of 0)
- The act of paedophilia is wrong because it destroys the child's life. (Score of 1)

Appendix C

Measures of Appraisals, General Disapproval, and Punishment

1. I disapprove of their actions
2. I think they are inferior
3. I think they act deliberately
4. I think their actions violate bodily norms
5. I think they are abnormal
6. I think they did something wrong
7. I think they are impure
8. I think they are dangerous
9. I think their actions violate others' basic human rights
10. I think they are strange
11. I think they cause unintentional harm
12. I think they are lesser human beings
13. I think their actions show disrespect to others
14. I think they are unclean
15. I think their actions are morally repugnant
16. I think their actions violate social norms
17. I think they are contaminated
18. I think they cause intentional harm
19. I think they are morally wrong
20. I think they are weird
21. I think they deserve punishment
22. I think they should be separated from normal society
23. I think they deceive others
24. I think they are a menace to society
25. I think their actions are unfair to others

Appendix D

Measures of specific emotions

1. I feel sickened
2. I feel outraged
3. I feel morally disgusted
4. I feel inspired
5. I feel sympathy
6. I feel infuriated
7. I feel proud
8. I feel physically disgusted
9. I feel hatred
10. I feel contempt
11. I feel angry
12. I feel afraid

Appendix E

Instructions for Pre-test

We have included neutral examples using the object “orange fizz” in place of a social group in order to provide an example on how to use the following scale.

1 – A simple, purely emotional or evaluative (good/bad) statement - no matter how many terms it uses to express this

Example: “I like orange fizz”; “Orange fizz is awful and bad”

3 – A statement that involves a simple judgment that is more specific than emotional or evaluative, but does not spell out any specific cause or consequence of the group or its behaviour

Example: “Orange fizz is harmful”; “Orange fizz is not a normal drink”

5 – A statement that mentions a single, specific cause or consequence of the group in question or its behaviour

Example: “Orange fizz puts innocent children at risk”; “Orange fizz is not a normal drink because it contains many artificial flavors”

7 – A statement that mentions multiple different causes or consequences

Example: “Orange fizz is harmful to children that drink it and makes them really hyper; therefore, it is bad for children”

9 – A statement that not only mentions multiple causes or consequences but links them together

Example: “Orange fizz is harmful and makes children really hyper because of the large amount of sugar and artificial flavors that are contained in this drink”

Use the even numbers to indicate statements that, for you, fall in between two categories.

Appendix F

Instructions for Experiment 5

General Instructions:

Frequently in everyday life, we are asked why we feel certain emotions toward other persons and groups.

We may be asked about our emotions either because persons do not understand why we feel that way, or because they have had no prior contact with whatever is causing us to feel that emotion.

Therefore, within this study I would like you to take the role of someone who is trying to explain the reasons for feeling their emotion to other persons.

You are trying to make the other person understand why you feel the way you do.

Within your explanation it is important that you achieve two goals: First, that you are able to explain your emotion as convincingly as possible, so that the other person will understand your reasons; second, to do this as economically as possible, using the minimum number of statements you think will convince the average fellow student.

The responses you give will be compiled in order to create a prototypical argument for emotion explanation to other students. No one will be specifically linked to their answers; only a general argument will be created from all of the responses given within this study.

Specifically, I want you to explain the anger/ disgust you might feel toward:

- Group description presented
- Emotion face and emotion word presented

Part 1: Emotion Explanation (explanations provided)

From this list please use the following statements to compile an argument that you would use to explain your anger/disgust toward this group. Within your response you can use as many or as few statements that you feel necessary, but not more than you need to convince others why you feel the way you do. Make sure when copying the statements that you copy them word for word.

Part 1: Emotion Explanation (explanations not provided)

Please provide a list of statements that you would use to explain your anger/disgust toward this group. Within your response you can use as many or as few statements that you feel necessary, but not more than you need to convince others why you feel the way you do. Please do not turn the page until you are done listing your statements.

Coding Instructions: Below is a list of statements that other people have used to explain their feelings toward similar groups of people. We would like you to look at these statements and see if any of them resemble any of the

statements you wrote on the previous page.

The statements do not have to match word for word. If one or more of these statements expresses the basic idea that you had expressed in one of your statements, we can consider that to be a match.

Referring back to what you wrote on the previous page, tick each of these statements that you think matches one or more statements that you wrote.

Part 2: Rating of statements

Now I want you to rate specific statements along two dimensions imagining that they might be used to explain someone else's anger/disgust about this group to you. I want you to assess these statements independent of any others; therefore, I want you to imagine that someone else is explaining his or her anger/disgust toward the group described using a single statement. You should rate both how acceptable the statement is (that is, how generally suitable it is as a way to explain the person's emotion) and how convincing it is (that is, how much you would personally believe the statement as an explanation of the person's emotion).

Thus, the primary goal of this part of the study is to assess how acceptable and convincing these particular statements are for explaining anger when they stand on their own.

Part 3: Rating of emotions

The purpose of this final section is to examine whether or not you feel any of the following emotions toward this group. Please circle a number for how much you feel each of these emotions towards this group.

Appendix G

Instructions for Experiment 6

Instructions:

It is often hard to indicate the emotion that we feel when we first come into contact with a new set of persons, sometimes this emotion may be underlying or we may not understand the way we feel. However, in order to complete this study it is important that you are aware of the primary emotion that you feel toward the group that you will be asked about. We will first present you with a description about this group then you will complete a brief subjective test which will be able to accurately indicate your primary emotion toward this group. All of the questions within this subjective test are multiple choice questions and your primary emotion will be presented to you immediately. They are simple questions about what you think the group members are like and how you would describe their character, they are subjective questions which will indicate what emotion you are feeling toward this novel group based on your answers. The results will be for your information only, after you have seen your results for this subjective test they will be deleted, after this point you will begin the study.

Group Descriptions:

Bodily Group: A social group of people whose common interest is that they like to rub their genitals on other people.

Non-Bodily Group: A social group of people whose common interest is that they like to send death threats to other people.