

**“Blood-Cement”: Does Liking For and Compliance  
To Authority Increase After Killing?**

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## Abstract

It is a common observation that organizations of violence make use of moral transgression to bond new recruits to the group's authority figures and to encourage compliance to them. The present study drew on the work of Festinger (1957), Aronson and Mills (1959) and Martens, Kosloff, Greenberg, Landau and Schmader (2007) and, for the first time examined this observation empirically. It was hypothesized that when participants agreed to make a moral transgression for the experimenter that they would come to view him more positively, see him as more professional and become more compliant to him, and that this would happen even more when that choice to comply was made salient. Participants were asked to place a number of bugs into a modified coffee grinder that ostensibly exterminated the bugs and then to activate the device. No bugs were killed in any condition, but participants were either led to believe that they were killing the bugs or informed that it was just a simulation. Subsequent positivity in the perception of the experimenter and how professional he was considered to be was then measured by questionnaire and compliance to him was measured in an optional data-entry task. Results yielded partial support for the research hypotheses suggesting that at least under some circumstances, agreeing to make a personal moral transgression for an authority figure leads to increases in the positivity in the perception of that figure and compliance to him and that making that choice salient enhances this effect. The implications of this finding for the understanding of the processes by which a person can become bonded to unsavory authority-figures and potential applications to community education programs are discussed; as are the limitations of this study and possibilities for future research.

## “Blood-Cement”: Does Liking For and Compliance To Authority Increase After Killing?

### *Introduction*

#### The Initiation of Individuals into Organizations of Violence.

Organizations of violence such as gangs, militias and even state-sanctioned military forces can do incredible damage to the lives of individuals and the stability of their communities.

Although many individuals actively seek membership in these groups for themselves (Vigil, 1996; Honwana, 2006), regardless of whether a person makes a choice to join or is coerced, these group's processes of induction are explicitly intended to bond the person to them (van Genep, 1960). A crucial step in this process of induction is the initiation itself. This usually requires the person to commit a moral transgression of some sort at the request of an established member; usually the perpetration of violence aimed at persons outside the group or the receipt of violence done to themselves at the group's hand (Best & Hutchinson, 1996).

The present research aimed to investigate whether this kind of initiation can create or strengthen a bond between the initiate and the authority-figure that directs him or her; and if so, to examine how this might occur. The specific focus was on whether choosing to comply with an authority figure to engage in a morally-difficult act such as, killing, affects the positivity of the person's perception of that figure and their subsequent compliance to him. Such a choice would most-likely run against strong internalized norms that restrain unprovoked violence and proscribe the following of authority-figures that request it. For this reason, if a person freely makes the choice to act against these norms and comply with a request to kill, he or she may feel uncomfortable at having done so. Tension of this kind was referred to by Leon Festinger (1957)

as cognitive dissonance. In this investigation, it was considered that one way that this uncomfortable state might be alleviated is through the person changing their perception of the authority-figure so that he is viewed as somebody worth following. Additionally, it was thought that a second way in which this dissonance might be reduced is by the person committing more to their chosen course of action and complying more with the authority-figure. This research is a direct extension of the work by Aronson and Mills (1959) who examined how the severity of an initiation into a group increases liking for it, and also of Martens, Kosloff, Greenberg, Landau and Schmader (2007) who examined how a level of initial killing at the request of an authority figure can lead to greater subsequent willful killing.

### Gangs

Gang-recruits are frequently required to commit a violent crime against non-gang members as part of their initiation (Best & Hutchinson, 1996). While perhaps less common than being required to prove oneself through fighting one or more established members, being “jumped in” (Vigil, 1996), this violence is often directed at innocent members of the public or at rival gang members and their families (Koch, 2009; McKelway, 2009; Rushworth, 2009 ;Gould, 2009; Hubbuch, 2009; and many others). This constitutes a threat to the wider community.

Murders resulting from such initiations are frequently reported. Although, in the vast majority of cases, murder is not the specific objective, it often does result. In March, 2008 in Durham, North Carolina, a gang-member confessed to having previously shot and killed a man as part of an initiation ritual for the Bloods gang. He told police that, in order to join, he had to “put in work” for them. The order to kill came from an established member who was also tried for the crime. Police investigators noted that in the gang’s area “such orders are common” and that

“work” might also refer to other serious crimes such as robberies, rapes and assaults, with more serious offenses allowing members to rise further in the hierarchy of the gang (Stevenson, 2008). In April, 2008, a Massachusetts man was stabbed repeatedly in the back, chest and face by four teens who confessed they were on a “mission” to commit a robbery as part of a gang initiation. The man had refused to give the teens the alcohol and money he was carrying, and so was attacked (Redmond, 2008). In February, 2009, in South Carolina, three people were arrested for the murder of a Deputy Sheriff including a 15-year-old boy who was supposed to “kill a cop” as a means of joining the Surenos gang (Seper, 2009). From these accounts and many (many) others, it appears that the act of perpetrating a morally-difficult act is a conspicuous feature of the gang-initiation process. This prominence suggests that complying with an authority-figure to engage in amorally-difficult act may be effective in bonding the initiate to the group and its authority figures and in extracting compliance from them.

### Militias

The induction processes employed by militias are often incredibly brutal and the initiations of recruits into the various militias involved in conflicts on the African continent are prime examples of these, especially with regard to children. During the civil war in Mozambique that ran from 1977 to 1992, the Mozambique National Resistance (RENAMO) and to a lesser extent the Mozambique Liberation Front together abducted an estimated 10000 children and trained them as child-soldiers (Honwana, 2006). However, these militias represent a completely different order of violence to that seen among street-gangs. The recruits were forced through a horrific training schedule in which their own experience of violence and suffering was often concurrent with their infliction of violence and suffering on others (Honwana, 2006); a process

that culminated in a superior giving the child a gun and commanding them to kill another person. Disturbingly, the person they were ordered to kill was often one of their parents, or a close family member (Honwana, 2006). Honwana (2006) notes that this massive act of commitment was intended to simultaneously cement the recruit to the militia and sever ties with their family and community.

When Marula, a ten-year-old boy in Mozambique was kidnapped with his family by RENAMO soldiers, their family was torn apart. After reaching the camp, his father was sent to the men's section and his sister to the women's and he was forced to join a group of other young boys to begin military training. As a punishment for an escape attempt, Marula's father was brought before him and Marula was handed a gun and ordered to shoot him, so he did. Following this, he grew into a dutiful and vicious soldier, being active in killings, lootings and tortures for more than seven years (Honwana, 2006). Fernando, also a former child-soldier with the RENAMO recounts a similar story.

“I've run, I've turned somersaults and climbed trees. Then they taught me to mount and dismount guns. After four months of training they put me to a test. They put a person before me and ordered me to shoot him. I shot him. After the test they considered me good and gave me a weapon and a gun. And they told me that from that time on I was chief of a group of other children. . . .My first task was to attack a village . . .we burnt down the village.”(White, *Voices of Blood*, 14, cited in Honwana, 2006, p59)

From these accounts and (again) many others, it appears that, in the case of militias, even more so than for street-gangs, the act of complying with an authority-figure to engage in a morally-difficult act may again be effective in bonding the initiate to the group and its authority figures and in extracting compliance from them. As with street gangs, after this initiation, recruits were considered to have achieved a level of group-membership and were given respect and responsibility accordingly. They were bonded to the group, loyal and able to be trusted to comply with further orders.

#### The Schutz Stafel: Introducing “Blutkitt”

Another organization of violence that employed this idea, that complying with a request to engage in a morally-difficult act produces strong social bonds, was the infamous Schutz Stafel (SS) of Nazi Germany. In fact, in the ranks of the SS, a term was even coined for it, Blutkitt: blood-cement, and it was rumored to have been an explicit feature of Adolf Hitler’s personal approach to leadership (Alexander, 1948). Robert J. Lifton (1986) theorizes that among the SS doctors serving at Auschwitz, who engaged in terrible killings and experiments, such mutual blooding served to bond the group together tightly, committing the person to their fellow doctors and to the further atrocities entailed in continued service in the camp. In order to conduct their experiments and select people to be killed, the Nazi doctors were required to comply with orders and violate a plethora of norms about what constituted decent conduct. These were no doubt strong internalized social and professional norms that spoke in favor of compassion, against inflicting needless suffering and harm and against following authorities that promote these things. This was Blutkitt, “direct participation in the group’s practice of killing” (Lifton, 1986, p 432). For low-level recruits, the SS’s policy of requiring their soldiers to initially serve in the



concentration camps was usually sufficient to bloody their consciences enough to bond them to the organization and render them compliant enough to be trusted to commit further atrocities outside the camps (Alexander, 1948)

Staff officers of the feared Einsatzgruppen were also rumored to use this technique in bonding soldiers to their units. The Einsatzgruppen were a paramilitary force associated with the SS. Their work was tragic, bloody and extremely personal and they were responsible for the deaths of some 1.5 million men, women and children; the large majority of these being shot face-to-face with machine-guns and hand-held firearms (Lifton, 1986). As with the initiation practices of Militias in Africa, one staff officer in particular is quoted as stating that he, “insisted on principle that all officers and non-commissioned officers” that served beneath him “participate in the executions” so that they might “overcome” themselves as he had done (Hennicke, quoted in Hillberg, 1961, p215). Clearly, the Einsatzgruppen were engaged in morally-difficult activities, the resulting internal conflict, the guilt of which was being actively shared as a matter of principle: blood was being used as a social binder.

Through these (and again many other) examples, it can be surmised that, in the context of Nazi Germany as with street-gangs and militias, that the perpetration of a morally-difficult act at the command of an authority-figure may be useful in bonding soldiers to their units and commanders and extracting compliance from them. This theorizing is consistent with the thinking of Ernst Becker (1973), who argues that Blutkitt is exploited by leaders to bond others to themselves.

## Theoretical Background

Given the abundant anecdotal evidence that this process exists and that it is effective in extracting loyalty and compliance from initiates, the next step is to examine it empirically. To the best of the authors' knowledge, the present study represents the first experimental approach to this phenomenon. We want to know if this really happening, and if so, by what mechanism? Aronson and Mills (1959) and Martens et al. (2007), may have evidence that speaks to these questions. However, in order to make sense of their work, a brief explanation of Festinger's theory of cognitive dissonance (1957) is necessary.

### Festinger's Theory of Cognitive Dissonance

This theory refers to the process and consequences of the unpleasant experience of disharmony between cognitive elements such as concepts, ideas, items of knowledge, opinions, beliefs or attitudes etc. Such elements might concern the "self" ("I like Japanese food"), behavior ("I am studying economics"), the social environment ("my friend is nice") or the physical environment ("Russia is big").

Festinger's theory posits that these things exist in one of three relationships with regard to one-another. Firstly, two (or more) elements may be relevant or irrelevant to each other; for example, knowing that 'apples are fruit' will not likely bear upon a decision to study either economics or law at university, the domains are separate. When elements are in the same or related domains, relevant to each other, they are either consonant (harmonious) or dissonant (disharmonious). Two elements are dissonant when the obverse of one "follows from" the other,

and consonant if this is not the case. The awareness of consonant relationships is not unpleasant, but the awareness of dissonant relationships is.

Festinger saw dissonance as a hunger-like state, the discomfort of which motivates people to change their cognitive elements or the relations among them so that they are consonant with each other. In Festinger's classic example of the smoker who continues to smoke, despite having the knowledge that smoking is deleterious to their health, the two elements, 'knowledge that smoking is bad for health' and 'the continued choice to smoke' are at odds. The obverse of one follows from the other; 'not-smoking' follows from 'the knowledge that smoking is deleterious to health' and from 'the continued choice to smoke' it follows that 'the person believes that smoking is not harmful' (Festinger, 1957). So, when this kind of situation occurs, people feel uncomfortable and this discomfort motivates the person to shake things up so that the dissonance between cognitive elements is reduced.

Festinger proposed three avenues available to the person: 1) the person could change their behavior or their feelings (either ceasing to smoke or cultivating the belief that it is not so bad after all; 2) the person could change their environment (associating with only those amenable to smoking), or; 3) the person could add new cognitive elements (seeking data that supports their choice to smoke).

Since Festinger's original proposal, literally hundreds of experiments have corroborated his theory (with modifications along the way) and clarified the process by which dissonance can result in changes in attitudes and behavior. Briefly, the individual must perceive the action as inconsistent (Festinger, 1957; Harmon-Jones, Brehm, Greenberg; Johnson, Kelly & LeBlanc, 1995) or damaging to their positive self- image (Baumeister, 1982; Greenwald & Ronis, 1978), take personal responsibility for the action (Linder, Cooper & Jones, 1967; Stalder & Baron,

1998), experience physiological arousal (Croyle & Cooper, 1983; Elkin & Leipe, 1986; Losch & Cacioppo, 1990) and attribute the arousal to the action (Cooper & Fazio, 1984; Cooper, Zanna & Taves, 1978; Fazio, Zanna & Cooper, 1977; Losch & Cacioppo, 1990; Pittman, 1975).

### Liking what we suffer for.

To return to the previous theme, soon after Festinger published his theory, Aronson and Mills (1959) examined whether or not having undergone a severe initiation into a group led recruits to value it over and above that which would be expected from mere interest in joining. Aronson and Mills (1959) figured that it was reasonable to expect that clubs with severe initiations would only be joined by those that were already strongly committed to joining. Clubs with less severe initiations, however, could be joined by both those who were deeply committed to membership and by those who were less interested. Thus, a more severe initiation could lead to a more positive and committed membership just as a consequence self-selection. Aronson and Mills (1959) wondered whether this alone accounted for the observation that clubs with severe initiations had members that valued the club highly, or if there was something about the severity of the initiation itself that led people to this.

Drawing on Festinger's theory of cognitive dissonance (1957), Aronson and Mills (1959) theorized that membership in any given group is never wholly positive; there are always aspects of the group that the individual does not like and that undergoing an unpleasant initiation for the sake of membership is incompatible, dissonant, with that knowledge. The authors proposed that people can reduce this uncomfortable dissonance by 1) reinterpreting the initiation experience as not very unpleasant, or 2) by exaggerating the positive aspects of the group while down-playing the group's negative aspects. In this latter option the person rationalizes their choice to engage in

the unpleasant experience by re-evaluating their opinion of the club, considering it to be worth having suffered for. The authors proposed that as the severity of the initiation increases, it becomes harder for the person to deny that the experience was unpleasant, and so makes the person more likely to take option two and increase their estimation of the group's attractiveness and their commitment to it.

To test this, Aronson and Mills (1959) randomly assigned participants to one of three conditions: a "severe" initiation condition, a "mild" initiation condition or a control condition. In the severe condition, participants were required to read some embarrassing material prior to joining a group; in the mild condition the material was not very embarrassing and in the control condition no material was read. All participants were then required to listen to a recording of what they were led to believe was an ongoing discussion being held in an adjacent room by the members of the group they had, ostensibly, just joined. Both the reading material and the discussions referred to sex and the psychology of sex (a taboo topic in 1950s USA). After listening to the recording, participants were asked to indicate how much they liked the group. Ratings of liking did not significantly differ between the mild and control conditions, but participants in the severe condition emerged as liking their group significantly more than both the mild and control conditions. Thus, with the random assignment of the participants in mind, the authors considered the increased ratings of liking observed in the severe condition to be a consequence of the severity of their "initiation" and not a function of the participants' individual motivation.

This result corroborated Festinger's theory. The control and mild conditions were interpreted by the authors as not being unpleasant enough to generate sufficient dissonance to precipitate a change in attitude toward the group, but the severe condition was. Thus, it was

concluded that severe initiations generate dissonance, the reduction of which can lead people to become more positive about and committed to the group: we come to like and value what we have suffered for.

### Committing more to a chosen course of action

A second strand of dissonance-related research that may also have a bearing on the phenomenon of Blutkitt is that begun by Martens et al. in 2007 on the observation that killing can beget further killing. These authors developed a paradigm in which participants are asked to simulate the killing of a number of bugs in a modified coffee grinder. No bugs are ever actually killed in this procedure, the extermination apparatus is a sham but participants are not informed of this. The experimenter shows the participants the bugs, ensuring that he or she knows they are alive and then asks the participant to put the bugs, one by one, into an opening that appears to lead into the blade-chamber of the grinder. Following this, he or she is instructed to activate the machine by holding down a button. The Martens et al. (2007) investigation consisted of three studies. In studies one and two, the authors demonstrated that among participants who view themselves as somewhat similar to the bugs, more initial killing performed at the command of the experimenter led people to willfully kill more bugs when given the opportunity. This result is consistent with the idea that killing represents a dissonance generating psychological threat to the individual and that more killing represents a greater threat: generates more dissonance. With reference to Festinger (1957), Martens et al. (2007) reasoned that, by engaging in higher levels of subsequent killing, people were defending themselves against this dissonance: justifying their behavior by committing to it further.

These authors then theorized that if people really were killing as a means to reduce the dissonance, then some decrease in negative affect should be seen following the willful killing task. In the third study, Martens et al. (2007) drew on a number of participants who reported perceiving a level of similarity to the bugs and measured their affect before and after the willful-killing phase. This final study found that of these participants, those who initially killed five bugs showed a tendency to feel less negative affect the more bugs they chose to kill. However, for participants who had only killed one bug initially, there was no significant relationship. This pattern of results lends support to the notion that killing a similar other is an act that generates cognitive dissonance and that this can be reduced through deepening commitment to the chosen course of action, killing.

This notion and the validity of the paradigm as an investigative tool in this area is further supported by survey-evidence suggesting that people do in fact find the unprovoked killing of bugs, to some extent, to be immoral or unethical. In 2010, Martens, Kosloff and Jackson conducted a survey asking people to imagine killing either one or five bugs and to rate the killing in terms of ethicality. Responses were recorded on a 9-point Likert scale with higher-scores representing greater ethical acceptance and lower scores representing less acceptance. People asked to imagine killing a single bug rated the ethicality of the act at 5.92 (SD = 2.2) and those asked to picture killing five bugs rated the ethicality of the act at 5.79 (SD = 2.3). These means do not differ from each other ( $p = .70$ ), but are clearly not close to the values approaching 9 that would be expected if no ethical qualms were being felt.

## The present study

Through the above theorizing and research, it may be possible to understand the phenomenon of Blutkit in the context of street-gangs, militias and military units. Societies usually have fairly strong norms regarding violence and the unprovoked harm that may be done to others. Generally, authority figures that order transgressions of this kind are viewed by society as unsavory characters, not to be obeyed. Hence, the choice to do so may generate dissonance within the person. This might then be reduced by the person inflating the positivity of their view of the authority-figure and by complying with him more.

Theoretically, if the authority-figure was no longer seen as someone to be resisted, then the choice to comply with him would no longer be dissonant with the person's internal standards and the discomfort would be alleviated. Whereas Aronson and Mills (1959) discovered that severe initiations can lead to more positive attitudes toward *what* is suffered for, this research aims to explore whether a severe initiation, can encourage the adoption of more positive attitudes toward the person for *whom* suffering is undertaken. However, an important difference between the present study and that of Aronson and Mills (1959) is that this study specifically concerns the choice to comply with an authority-figure to make a moral transgression. Aronson and Mills (1959) embarrassed their participants but did not ask them to engage in an irrevocable morally-reprehensible act. The findings of Aronson and Mills (1959) together with the anecdotal evidence from gangs, militias and military units suggests that that moral transgression may serve to bond people to the group and its authority-figures. So, we theorized that the choice to comply with an authority-figure and engage in such a transgression (killing), would generate cognitive dissonance that could then be reduced by increasing the positivity of the perception of that authority figure.



Furthermore, the initial choice to comply with the authority-figure to engage in a morally-difficult act may generate dissonance that could itself lead to increased compliance to the authority figure. Martens et al. (2007) found that participants who complied with a request to kill five bugs later chose to willfully kill more bugs (and gained affective benefit by doing so) than those that killed just one. Taking these findings along with the anecdotal evidence that moral transgression may bond people to the group and its authority-figures, we theorized that the choice to comply with an authority-figure and make a moral transgression (killing) would generate cognitive dissonance that could then be reduced by committing further to the chosen course of action, complying more with the authority-figure.

To test these ideas, the present research employed the aforementioned bug-killing paradigm developed by Martens et al. (2007).

Firstly, we examined the effect that killing had on the positivity of the individual's perceptions of and compliance to the authority-figure. To this end, we manipulated the nature of the act performed for the authority figure. Some participants simulated the killing. These participants were shown that the grinder was in fact a sham and were told they were not killing the bugs. Other participants were not shown that the grinder was a sham and were led to believe that they would really be killing. Then, both groups were asked to use the grinder to exterminate five bugs. Specifically, we predicted that those participants who were not informed that the grinder was a sham and who were told that they were killing would be more positive about the experimenter and more compliant to him than those who simulated the killing.

The above differences were hypothesized to occur through the reduction of cognitive dissonance: specifically, the dissonance generated at making the choice to comply with an authority figure and make a moral transgression by killing the bugs. To test this idea, we

manipulated the salience of the initial choice to comply. The experimenter either reminded participants of this choice or he did not. This reminder was expected to increase the dissonance that participants experienced and so increase rationalizing of the choice to comply by viewing the experimenter more positively and by becoming more compliant with him. This effect was expected to be especially prominent among participants who were told they were killing and not informed that the grinder was a sham because these participants were expected to already feel more dissonance than those simulating the killing.

Also, if the choice to comply with an authority-figure and engage in a morally-difficult act generates dissonance then, as with Martens et al. (2007), we hypothesized that performing even more morally difficult acts (i.e., more killing) should generate more dissonance and lead to higher levels of positivity in the individual's perception of the authority-figure and more compliance to him than performing fewer morally-difficult acts (i.e. less killing). To test this, we altered the magnitude of the killing initially requested by the authority-figure. Some participants were asked to kill five bugs and some participants were only asked to kill one. We theorized that participants who killed five bugs would exhibit more subsequent positivity in the perception of and compliance to the experimenter than those that exterminated only one.

Lastly, as the hypotheses of this study concerned differences thought to be driven by the reduction of cognitive dissonance, the subjective experience of dissonance itself was also directly measured. Generally, the more dissonance that participants reported, the more positivity in the perception of, and compliance to the experimenter was expected

## *Method*

### Participants

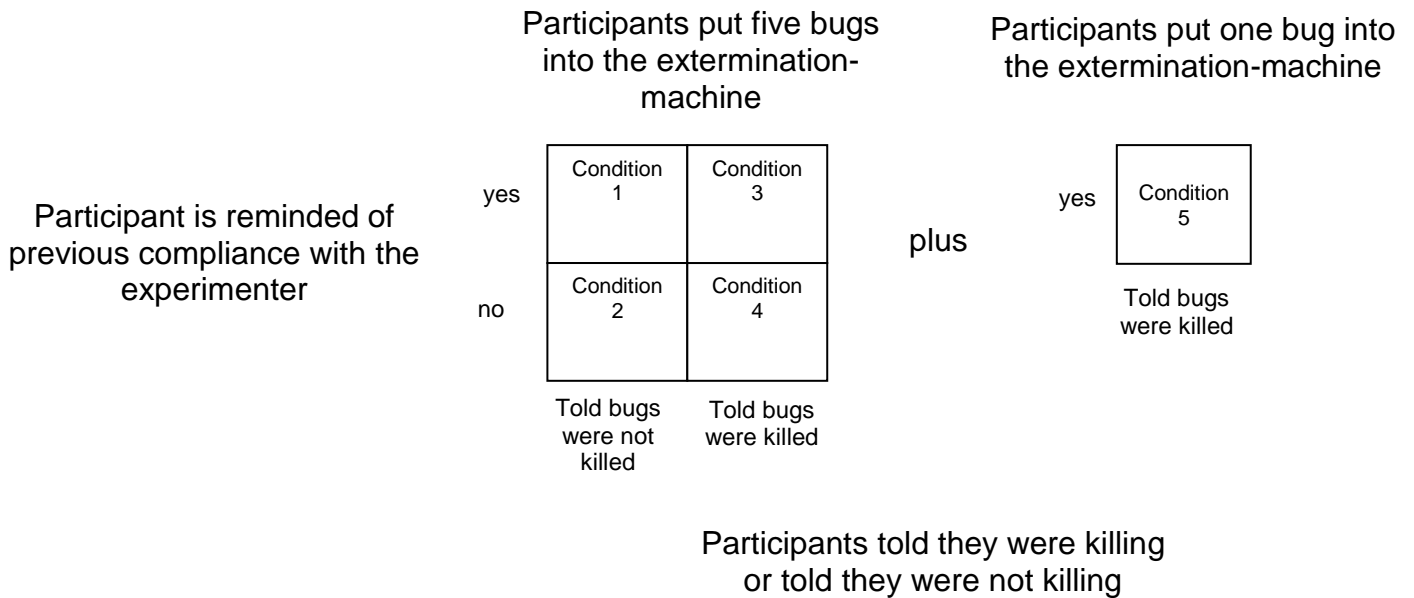
This study used a student sample from the University of Canterbury (UC) that was recruited from the UC Psychology Department's Stage One Participation Pool and through advertisements posted around the UC campus. Participants not drawn from the Pool were given a 10-dollar shopping voucher in exchange for their participation. A power analysis was employed to determine the number of participants required. Based on the results of Martens et al. (2007) who obtained an effect size of 0.74, 64 participants were required for 80 % power in a 2 x 2 factorial ANOVA (16 per group),  $p$  value < .05. As the design of this experiment required one group in addition to these four, approximately 80 participants were needed.

A total of 179 participants came to the laboratory with the intention of participating in the procedure. Of these, 13 declined to continue after reading the information sheet and 4 were excluded because they did not follow instructions, or for other procedural difficulties. Two participants were excluded because they had previously participated in similar experiments and 7 were excluded for expressing the suspicion that the extermination apparatus was not genuine. This left 153 participants, 89 women and 64 men, who completed the experimental procedure; later exclusions on the basis of suspicion were made preceding the analysis concerned.

### Design

This research used a 2 (participants reminded of previous compliance: yes vs. no) x 2 (participants told they were killing five bugs vs. participants told they were not killing five bugs) between groups design with a supplementary condition in which only a single bug was killed

without the knowledge that the apparatus is a sham and in which participants were reminded of their previous compliance.



Within sex, participants were randomly assigned to each of the five conditions. This was accomplished by shuffling the five document packets, one pertaining to each condition in unmarked envelopes prior to the participants' arrival. Written on the inside of each envelope was an unobtrusive number that was used to identify the condition of the participant. These envelopes were drawn from a pile, from top to bottom, as the participants arrived, in batches of five. The experimenter was not aware of which condition each participant was assigned to until just before giving the extermination-task instructions. There were two identical, shuffled stacks of five, one for potential male participants and the other for potential female participants

## Procedure

Participants were run one at a time. Each was greeted by the experimenter, seated, and asked to read the information sheet outlining the study (see below). The experimenter explained that the study was part of a series dealing with different kinds of “human-animal interaction” and that this particular session concerned “the role of exterminators who deal with bugs.” The participant was informed that the study involved “engaging in a bug-extermination task” and that after the task and the associated questionnaires he or she would be able to ask questions. The participant was then given the consent form (see below) to read and sign should they wish to participate. Participants who declined to participate were debriefed at this point.

If the person chose to participate, the experimenter led him or her to another part of the room where the experimental equipment had been arranged (a tray with either five bugs or one bug each in a plastic cup and the modified grinder). The experimenter then drew the envelope containing the scales and forms needed for the experiment from the top of a pile, unobtrusively checking inside it as he did to learn which condition the participant had been assigned to. He then gave instructions accordingly.

Then, the extermination task began. The participant’s attention was drawn to the fact that each cup contained one living bug. Continuing the cover-story, the experimenter stated that, although exterminators generally use poisons in their work, the use of such chemicals was prohibited inside university buildings for health and safety reasons. This was to justify the use of the grinder as an extermination device. At this point, participants in conditions one and two (see above) were informed that the apparatus was a sham, but the rest were not. Depending on the condition the participant was assigned to, the experimenter either said “the tube attached to the grinder is blocked off and does not lead into the grinder, so the bugs you’ll put into the funnel

won't make it to the actual grinder and won't be killed" or he did not. The whole process was recorded on video to enable later examination by independent third-parties to check that the experimenter was not treating participants in some conditions different to others. However, the participant was not aware of the video-recorder until the debriefing. The experimenter then asked the participant to perform the extermination. Unless the participant was in the supplementary condition he or she was asked to "dump five bugs into the grinder, one at a time". If the participant was in the supplementary condition he or she was asked to "dump one bug into the grinder." The participants were then asked to activate the extermination machine "by pressing the button on the side of the grinder for at least three seconds."

After the extermination task, if the participant was in a condition in which he or she was to be reminded of previous compliance, the reminder was administered (see below). To give this reminder, the experimenter said, "Due to the nature of this task, I need to get it in writing that it was your choice to do what I asked you to do: to put the bugs into the grinder and activate the machine" and handed the sheet to the participant. The experimenter waited for the sheet to be read and signed and then collected it.

The experimenter then presented the participant with the questionnaire that assessed the level of cognitive dissonance they were experiencing (see below). In line with the cover-story participants were told that, "This questionnaire measures stress for the exterminator. We want to examine how this stress relates to their cognitive abilities." The experimenter left the participant alone to fill out the scale and collected it when he or she indicated that it was done.

Following this, the participant was presented with the questionnaire that measured how positively they viewed the experimenter. He or she was told that, "Due to the nature of the study, the UC Psychology Department wants participants in this study to evaluate the

experimenter.” Feedback was completely private and the participant was instructed to answer the questionnaire, seal it in the envelope provided and drop it into a locked box. The participant was left alone to do this and called the experimenter when it was done.

After this questionnaire had been completed, the experimenter had the participant fill out the bogus voucher/credit slip and asked him or her to take the slip to the psychology office to claim their incentive.

On their way out, the experimenter asked the participant if he or she would do him a favor and enter some data into a spreadsheet. He said, “Just before you go, do you think I could ask you a favor? The study is finished now, you have given us the data we are after, but I was wondering if you would do some data-entry for me. I am just trying to move my other research along a little bit faster by seeing if my participants can help out.” If the participant asked how much data he or she had to enter or for how long he or she had to do it for, the experimenter replied, “Just as many/long as you have time for.”

If the participant agreed to perform the data-entry task, he or she was shown to the computer and given instructions on how the data was to be entered. All participants received identical instructions. During the data-entry task the experimenter pretended to sort through boxes of previous tests at the other end of the room and did not communicate with the participant. After fifteen minutes, if the participant still had not decided to quit, the experimenter called a halt and the participant was debriefed. Participants who declined to enter the data were debriefed at that point. (Please note that this section was altered to the indicated state after the first 9 participants due to the fact that too many were suspicious that the data-entry task was part of the experiment. At this point, the bogus credit slip detailed below was introduced and the

wording of the request changed slightly to that outlined above; see appendix A for the complete script of this procedure).

During the debriefing, the participant was probed for suspicion and all deception revealed. The suspicion screening started fairly broadly with questions such as, “What did you think of the study?” and “Did you have any questions?” and moved gradually to more pointed ones like, “Did you see any connection between the extermination task and any other part of the study?” All deceptions employed in the study were made apparent and explained why they were necessary. The participant was informed of the true purpose of the study, the fact that the extermination-apparatus was actually a sham (if not previously informed of this) and also the true intentions behind the data-entry task and that they were being recorded on video. The participant was encouraged to ask questions at this time and had it reiterated that he or she was at liberty to withdraw their data and have it destroyed, without penalty. The participant was then thanked, and given the shopping voucher or course credit. At this time, the re-consent form was presented and the participant was left alone to decide whether or not he or she wanted to sign it.

This was the end of the procedure. On the way out, the experimenter made a further request that the participant not reveal his or her experience in the laboratory to anyone until the end of the semester as doing so would undermine the procedure and impede the study.

## Materials and Measures

### Information sheet

The information sheet provided participants with a cover-story that described the study as an investigation into the effects of stress on the cognitive abilities of exterminators. Participants were told that the experiment involved a bug extermination task and a couple of questionnaires



about the experience. This sheet informed participants that they were free to withdraw from the experiment at any time, without penalty, and have their data disregarded and destroyed and that all of their data was completely anonymous and confidential (appendix B).

### Consent form

The consent form asked participants to acknowledge that they had read and understood the information sheet and had given their consent to participate in the procedure and for their data to be included in any publication resulting from the research, with the understanding that their privacy would be protected (appendix C).

### Experimental Apparatus

The experimental set-up consisted of a blue tray, five translucent plastic cups, small bugs (slaters, *Porcellioscaber Latreille*) and a coffee grinder modified with a tube and funnel to look like an extermination-machine. The tube, however, was blocked off so that no bugs reached the blades of the grinder, but coffee beans and tea leaves were placed in the chamber to simulate the sound of the bugs being crushed. Each container contained one bug (figures 1 and 2 below).



*Fig 1.* Extermination Machine and plastic cups.



*Fig 2.* Slater (*Porcellioscaber Latreille*): 1cm (approx) in length

## Compliance Reminder

This sheet asked participants to acknowledge that they had freely chosen to comply with the request of the experimenter to engage in the extermination task. Participants were asked to read the following passage, “I understand that I have freely chosen to follow the experimenter’s (Michael Richardson’s) request to participate in the bug-extermination task” and then to sign and date their sheet and return it to the experimenter (appendix D).

## Dissonance questionnaire

This questionnaire contained six questions pertaining to the participant’s experience of cognitive dissonance at the choice to comply with the experimenter’s request to kill the bugs along with unrelated foils about how fatigued people felt after the task. Participants responded on 9-point Likert scales with less stress being indicated by lower numbers. Three main aspects of dissonance were targeted in six questions. First, the physiological arousal associated with dissonance was assessed (Croyle & Cooper, 1983; Cooper, Fazio & Rhodewalt, 1978; Elkin & Leippe, 1986). Participants were asked “How intense was your feeling of physical feeling of stress when you were performing the extermination task?” Then to assess the extent to which this feeling was due to the task itself and not to other factors, participants were asked, “To what extent was this feeling of physical stress caused by the actual performance of the extermination task?” The same approach was taken to the remaining two aspects. To examine the psychological discomfort associated with cognitive dissonance (Elliot & Devine, 1994; Shaffer, 1975; Wixon & Laird, 1976; Gaes, Melburg & Tedeschi, 1986), the second and third questions consider were, “How intense was your feeling of psychological discomfort while performing the extermination task?” and, “To what extent was this feeling of psychological discomfort caused

by the actual performance of the extermination task?” Finally, the moral discomfort associated with dissonance (Festinger, 1957) was considered and the participants were asked, “In terms of your own sense of morals, how morally difficult was the extermination task to perform?” and, “To what extent was any moral difficulty you experienced caused by the actual performance of the extermination task?” (For the exact questionnaire, refer to appendix E.)

### Positivity scale

This questionnaire assessed how positive the participant was about the experimenter. Ostensibly, it was being administered as part of quality-control measures being undertaken by the UC Psychology Department. It asked the participant to rate the experimenter on a number of dimensions all intended to relate to the degree of positivity with which the experimenter was perceived. Specifically, it measured the participant’s perception of the experimenter’s competence, professionalism, character, leadership-ability, trustworthiness, how much he was liked and how intelligent he was. Each of these aspects was assessed by two questions, making fourteen questions in total. All responses were indicated on 9-point Likert scales, with lower numbers indicating less positivity. To assess the perception of the experimenter’s competence, participants were asked, “To what extent do you feel the experimenter conducted the procedure competently?” and, “Does the experimenter have the competence to conduct this experiment safely?” To examine how the experimenter’s professionalism was perceived, participants were asked, “To what extent do you feel the experimenter’s conduct was professional?” and, “To what extent do you feel that the experimenter conducted the procedure with professionalism?” To assess perceptions of the experimenter’s character, the participants were asked, “To what extent do you feel that the experimenter is a person of good character?” and, “To what extent do you

think the experimenter takes note of moral considerations in his work?" To explore perceptions of the experimenter's leadership ability, the participants were asked, "How well do you think the experimenter led and supervised the procedure?" and, "How likely would you be to participate in another experiment led by the experimenter?" In assessing the extent to which the participant trusted the experimenter, the participants were asked, "To what extent did you feel you could trust the experimenter?" and, "To what extent did you feel you could rely on the experimenter to protect your integrity?" In assessing the participants liking for the experimenter, they were asked, "How well did the experimenter relate to you?" and, "How much did you like the experimenter?" Finally, participants rated the experimenter's intelligence answering the questions, "To what extent do you think the experimenter intelligently designed the procedure?" and, "To what extent do you think that the experimenter is sufficiently intelligent to manage participants in a psychological study?"(appendix F)

#### Bogus Credit slip

In order to lead participants to believe the experiment had ended and leave them free to decline the subsequent data-entry task, participants were given a bogus credit-slip after their completion of the questionnaire assessing the positivity of their perception of the experimenter. This required participants to write their name, the date and their student identification number. The experimenter then entered a bogus research code, wrote his name and signed the bottom of the slip telling the participant to take it to the department office to be redeemed for either course-credit or a shopping voucher (appendix G.)

### Data entry task

This was a voluntary task designed to examine the participant's level of compliance to the experimenter in the absence of a reward. Participants were seated at a computer and given instructions on how to enter some data (from an actual previous experiment) into an Excel spreadsheet file (see appendix A for the actual instructions given to participants). This data consisted of handwritten numbers and names of cities and countries. Participants chose how they could best enter the numerical data using either the keypad, or the numbers at the top of the keyboard. From this task, three measures were taken: whether or not the participant decided to do the task, how long they spent doing it, and the number of data-values entered less the number of incorrect data-values entered (a measure of diligence). The choice to perform the task in the first place, more time spent entering data and greater diligence were all considered to represent greater compliance.

### Re-consent form

The purpose of this form was to obtain an additional endorsement of consent from the participant to use the data (including the video recording) resulting from the procedure. It asked them to acknowledge that they understood that their privacy would be preserved and that the true purpose of the experiment and all the deceptions therein had been made apparent (appendix H).

### Coding of the Videos

Due to the nature of the variables being measured (positivity in the perception of the experimenter and compliance with him), systematic deviations in the positivity of the experimenter's behavior could confound the effects of the experimental manipulations. For the

purpose of assessing the experimenter's behavior toward the participants, two coders rated the video-clips taken with the concealed camera. In each clip, the experimenter's behavior was assessed twice. Once for the period beginning with the explanation of the extermination task and running until the presentation of the first questionnaire (set 1). Then again for the brief period in which the experimenter asked the participant to join the data-entry task (set 2). The participants themselves were not the focus of these video-clips and for the purpose of maintaining privacy an effort was made to keep them off camera as much as possible. The coders were specifically asked to attend only to the experimenter and disregard the behavior of the participant. In each assessment, four identical questions were answered each relating to a different aspect of the positivity of the experimenter's behavior toward the participant. All responses were indicated on a 9-point Likert scale, with lower numbers indicating less positivity. The coders were asked, "How likeable/unlikeable was the experimenter?", "How friendly/unfriendly was the experimenter?", "How warm/cold was the experimenter's behavior?" and, "How positive/negative was the experimenter's behavior?" (See appendix H for the exact instructions and appendix J for the questionnaire given to the coders.)

### *Results*

As outlined in the method section above, in this experiment there were five conditions: 2 (participants reminded of previous compliance: yes vs. no) x 2 (participants told they were killing five bugs vs. participants told they were not killing five bugs) and a supplementary condition in which participants were told they were killing, received a reminder but exterminated only a single bug. The primary set of analyses concerned only the four main conditions, not the supplementary condition: this was given a separate treatment.

Early on in this analysis it became apparent that women and men were responding in very different ways to the experimental procedure. On this basis, the data-set was divided by sex and separate identical sets of analyses were pursued for each.

Attitudinal measures: Examining perceived positivity and professionalism of the experimenter as  
a function of experimental condition

We first examined the hypothesis that people who agree to comply with an authority-figure's request to kill five bugs would be more positive about that figure than those who agreed to simulate the killing of five bugs. Furthermore, we also examined the hypothesis that this would occur even more when the choice to comply with the authority-figure was made salient: when people were reminded of that choice.

Firstly however, it was necessary to check whether the questions in the positivity-scale were all assessing the same construct, positivity in the perception of the experimenter. To this end a principal components analysis (unrotated, due to the researchers' expectation of a single underlying factor) was performed on the scale. All participants were included in this analysis save those who expressed suspicion about the scale's true purpose ( $N = 149$ ). This analysis revealed the presence of two factors: one composed of ten items (questions 5 to 14, see appendix F) relating to the positivity in the perception of the experimenter (Cronbach's  $\alpha = .89$ ) and the other of four items (questions 1 to 4, see appendix F) relating to the perception of the experimenter's professionalism/competence (henceforth referred to as professionalism) (Cronbach's  $\alpha = .85$ ). The answers to the questions in each of these factors were averaged into a single score representing positivity and professionalism respectively.

At this point the research hypothesis was extended to include the professionalism factor. Just as with positivity (and for the same reasons), it was expected that people who agreed to kill for an authority-figure would come to consider him to be more professional than those who agreed to simulate the killing and that this would happen even more when the choice to comply was made salient: when people were reminded.

Positivity in the perception of the experimenter:

Two 2 (participants reminded of previous compliance: yes vs. no) x 2 (participants told they were killing five bugs vs. participants told they were not killing five bugs) between-subjects ANOVAs were performed with positivity as the dependent measure: one for women, one for men.

For women, only the interaction emerged as significant,  $F(1, 65) = 9.70, p < .00, \eta_p^2 = .12$  (all other  $ps > .38$ ). Consistent with the research hypotheses, post-hoc comparisons employing the Fisher LSD test showed that among female participants who were not reminded of their previous compliance those who killed the bugs were more positive about the experimenter ( $M = 7.84, SD = 1.12, N = 16$ ) than those who simulated the killing ( $M = 6.98, SD = 1.11, N = 15$ ),  $p = .04$ . However, contrary to expectation, women who received the reminder displayed the opposite pattern. Among these women, those who killed the bugs reported less positivity ( $M = 6.77, SD = 1.34, N = 15$ ) than those who simulated the killing ( $M = 7.56, SD = .93, N = 19$ ),  $p = 0.04$ .

As an aside that underscores the above effects, when women were killing, those that were not reminded were significantly more positive about the experimenter than those who were



reminded,  $p = .01$ . However, when women were simulating the killing, the reminder made no difference to how positively the experimenter was viewed,  $p = .14$ .

These relationships can be clearly seen in figure 3 below

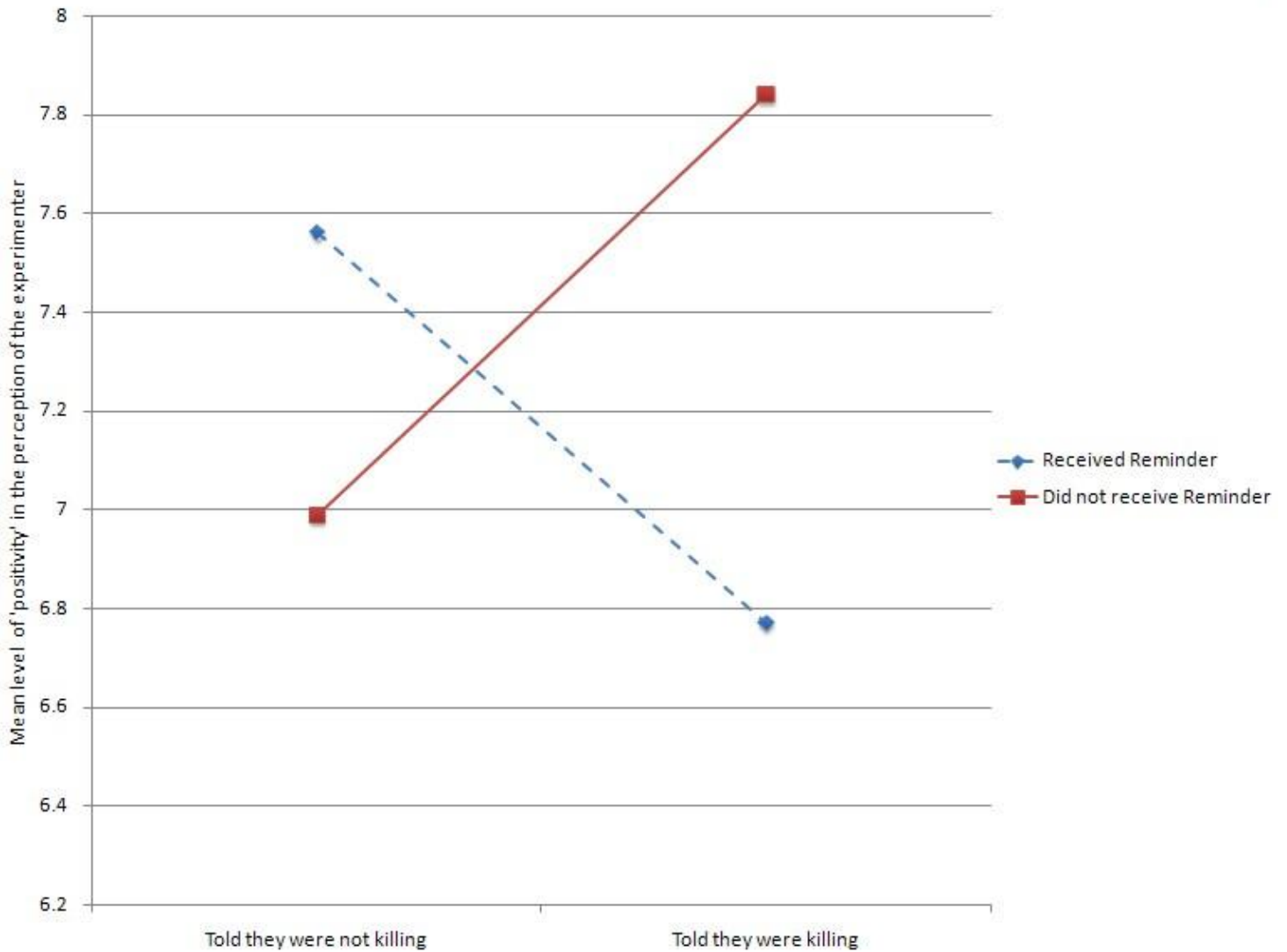


Figure 3: Mean ratings of positivity in the perception of the experimenter depending on whether women were told that they were killing the bugs and whether they were reminded of their choice to comply.

For men, neither killing nor being reminded of previous compliance, or the interaction of the two affected the positivity of their perception of the experimenter, all  $p$ s > .23.

#### Professionalism:

The second factor, professionalism, was also examined with two 2 (participants reminded of previous compliance: yes vs. no) x 2 (participants told they were killing five bugs vs. participants told they were not killing five bugs) between-subjects ANOVAs: one for women and one for men.

Contrary to expectation, for both women and men, no effects emerged. Neither agreeing to kill for the experimenter or being reminded of their previous compliance, or the interaction of the two led to differences in how professional the experimenter was considered to be, all  $p$ s > .21.

So, in this analysis, some support was found for the hypothesis that people who agree to comply with an authority-figure's request to kill five bugs would be more positive about that figure than those who agreed to simulate the killing. Among women who were not reminded, those that killed were more positive about the experimenter than those that simulated the killing.

However, it was also hypothesized that this would happen even more when the choice to comply was made salient: when people were reminded of that choice. Against this, among women who received the reminder, those that killed were actually less positive about the experimenter than those who simulated the killing. While this latter result does not fit with our theorizing, it may nonetheless present an interpretable pattern and this is explored further below.

Contrary to expectation, the remaining measures in this analysis did not reveal any significant effects. For men, neither killing nor being reminded of previous compliance, or the

interaction of the two affected how positively they viewed the experimenter; and for women and men both, neither of these manipulations nor their interaction affected how professional the experimenter was considered to be.

Behavioral measures: Examining the compliance of the participants to the experimenter as a function of experimental condition.

Next, we examined the hypothesis that those people who complied with an authority-figure's request to kill five bugs would be more compliant to that figure than those who simulated the killing of five bugs. Again, we also examined the hypothesis that this would occur even more when the choice to comply with the authority-figure was made salient: when people were reminded of that choice.

Three measures of compliance were examined in six separate 2 (participants reminded of previous compliance: yes vs. no) x 2 (participants told they were killing five bugs vs. participants told they were not killing five bugs) between-subjects ANOVAs: three for women and three for men. These were: 1) the choice to perform (dummy-coded as 2) or not perform (dummy-coded as 1) the data-entry task; 2) how long the participant chose to perform it for (maximum 15 minutes) and 3) the number of correct data-values entered less the number of errors made (a measure of diligence, henceforth referred to simply as diligence). Participants were excluded if they were suspicious of the previously administered scale assessing their perception of the experimenter. (Such suspicion may have led to distrust of the subsequent phase even if not articulated.); if they were suspicious that the data-entry task was part of the experiment, or if they received the first version of the script that requested the data-entry done. (For the sake of apt comparison all participants needed to receive the same procedure, see method section above.)

Those participants who chose not to perform the data-entry task were considered to have performed it for zero minutes and similarly were assigned a diligence score of zero.

The choice to perform the data-entry task:

In the analysis of the women's choice to perform the data-entry task, only the interaction approached significance  $F(1, 52) = 2.95, p = .09, \eta_p^2 = 0.05$  (all other  $ps > .42$ ). Contrary to expectation, post-hoc comparisons suggested that among women who were reminded of their previous compliance, those that killed ( $M = 1.67, SD = .49, N = 15$ ) tended to make the choice to perform the data-entry task less often than those who simulated the killing ( $M = 1.94, SD = .25, N = 16$ ),  $p = .06$ . Again contrary to expectation, among females who were not reminded of their previous compliance, being informed that they were killing made no difference to whether they agreed to help with data entry or not,  $p = .55$ . The remaining pairwise comparisons did not reveal any differences,  $ps > .22$ . These relationships can be clearly seen in figure 4 below.

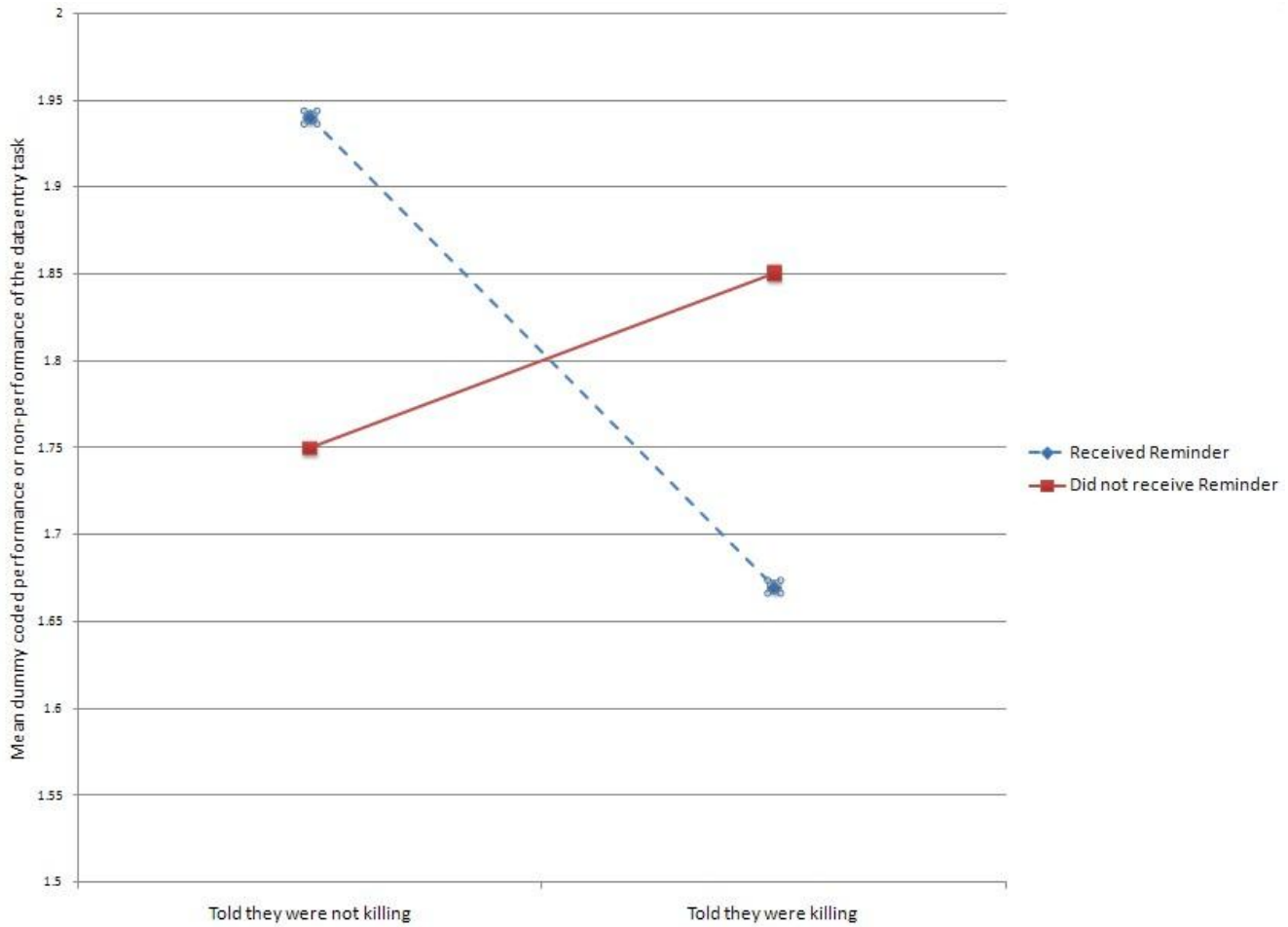


Figure 4: Mean dummy-coded performance or non-performance of the data-entry task depending on whether women were told that they were killing the bugs and whether they were reminded of the choice to comply.

Contrary to expectation, neither killing nor the reminder, or the interaction of the two affected the men's choice to perform the data-entry task, all  $ps > .44$ .

The length of time participants chose to spend on the data-entry task:

Contrary to our hypotheses, for both women and men, neither killing nor the reminder, or the interaction of the two affected the length of time that they chose to spend on the data-entry task, all  $ps > .17$ .

Diligence in the performance of the data-entry task:

For women, neither killing nor being reminded of previous compliance or the interaction of the two affected how diligent they were when performing the data-entry task, all  $ps > .24$ .

For men, however, the interaction did reach significance,  $F(1,40) = 4.10, p = 0.05, \eta_p^2 = 0.09$ ); although in this analysis too, the main effects did not,  $ps > .15$ . As expected, post-hoc comparisons showed that among men who were reminded of their previous compliance, those that killed the bugs, were more diligent ( $M = 266.30, SD = 110.09, N = 10$ ) than those who simulated the killing ( $M = 127.45, SD = 113.54, N = 11$ ),  $p = .02$ . Contrary to expectation however, among men who were not reminded of their previous compliance, killing did not affect their diligence ( $p = .69$ ). These relationships can be clearly seen in figure 5 below.

Somewhat peripherally, when men were simulating the killing, they were very nearly more diligent in their data-entry without the reminder ( $M = 234.73, SD = 156.59, N = 11$ ) than with it ( $M = 127.45, SD = 113.54, N = 11, p = .06$ ). However, this near significant difference is between control conditions. It is reported for the sake of completeness but does speak to the objectives of this investigation, although may be of interest for future researchers seeking to utilize a reminder of this kind. The reminder had no effect on diligence when the men were killing ( $p = .35$ ).

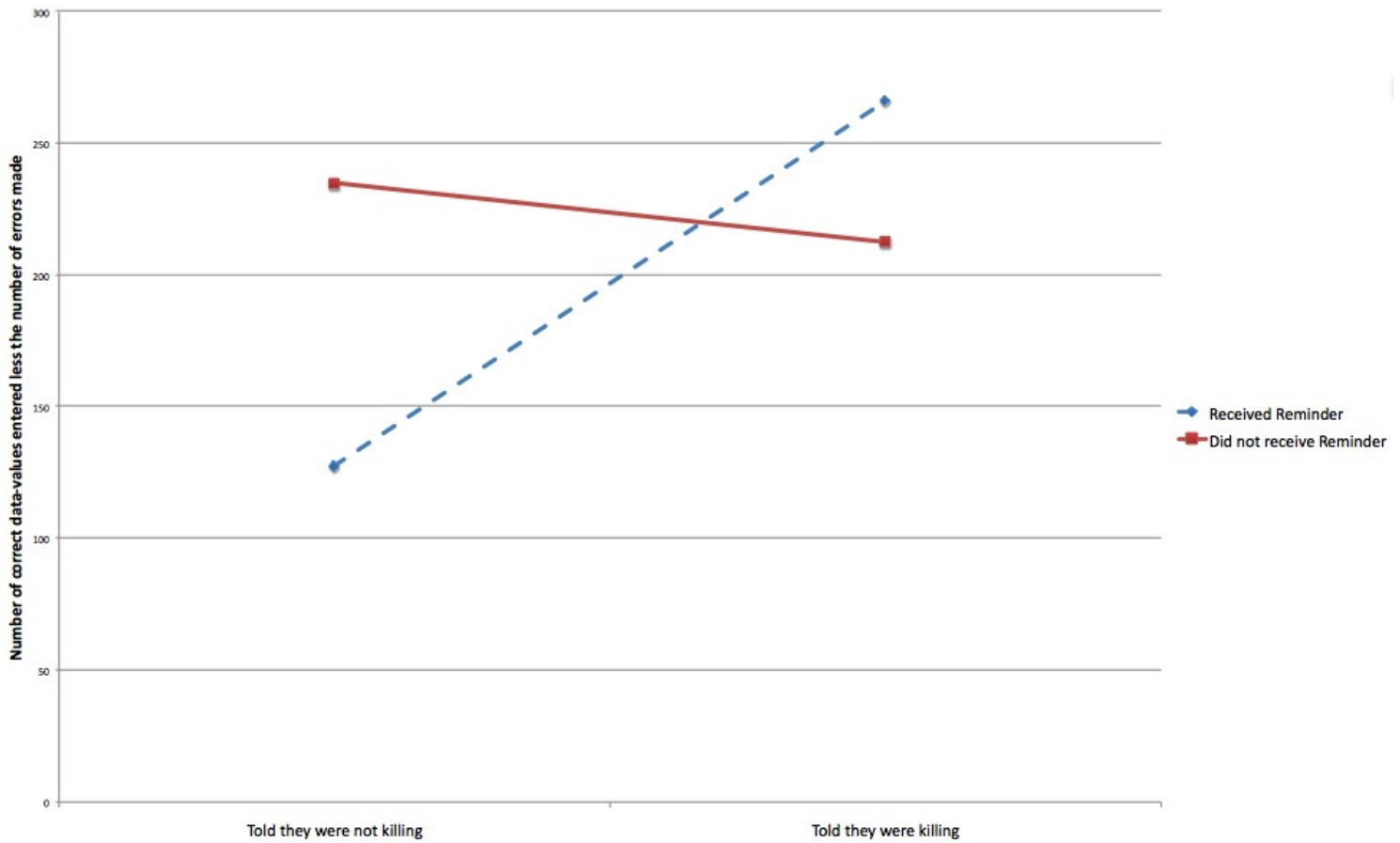


Figure 5: Mean diligence in the performance of the data-entry task depending on whether the men were told that they were killing the bugs and whether participants were reminded of the choice to comply.

So, two findings of interest emerged from the analysis of the three measures of compliance.

Firstly, support was found for the hypotheses that those people who complied with an authority-figure's request to kill five bugs would be more compliant to that figure than those who simulated the killing and that this would happen even more when their choice to comply was made salient. Consistent with these ideas, among men who received the reminder, those who

killed were more diligent than those who simulated the killing and no such difference was seen without the reminder.

Secondly, contrary to these hypotheses, among women who received the reminder, those that killed tended to choose to perform the data-entry task less often than those who simulated the killing and again no such difference was seen without the reminder. This finding again suggests that, for women, the reminder was diminishing the effect of killing (this time) on compliance rather than enhancing it.

Also, contrary to expectation, in all other conditions for both women and men, neither killing nor being reminded of previous compliance, or the interaction of the two affected compliance in the performance of the data-entry task.

Exploring the relationship between dissonance and the dependent measures.

Among the women who received the reminder, a marked deviation from initial predictions was observed. Instead of enhancing the effect of exterminating the bugs, the reminder seemed to be diminishing it. Rather than being more positive about and more compliant to the experimenter, among women who received the reminder, those that killed later viewed him less positively and were (nearly significantly) less likely to help him than those who simulated the killing while those who had not received the reminder did not show such differences. It was initially reasoned that the reminder would encourage people to rationalize their choice to comply by viewing the experimenter more positively and by complying with him more. However, it may be that, for women, the reminder triggered different thoughts than anticipated. It may have been that the women were taking the reminder as an opportunity to blame the experimenter for the task (i.e., for the killing of the bugs). Alternatively, the reminder may have brought to mind the



thought that the experimenter had acted in a negative fashion toward them personally by asking that they engage in an unpleasant act.

To examine these possibilities, the responses to the dissonance questionnaire were analyzed. If either of these explanations is plausible then when participants received the reminder, *negative* correlations between reported dissonance and both positivity and compliance would be expected: The more dissonance the women felt as a result of having chosen to comply with the experimenter and perform the extermination, the less positive their feelings toward him would have been and the less inclined they would have been to help him. This relationship could be expected to be especially pronounced when the women were killing because higher levels of dissonance and higher variance in dissonance scores were hypothesized to arise when killing than when simulating the killing. However, when the women did not receive the reminder, *positive* correlations could be expected based on this investigation's initial hypotheses that people would reduce their dissonance by elevating how positively they perceive the experimenter and by complying with him more. Again, and for the same reason, this relationship could be expected to be especially pronounced when the women were killing than simulating the killing.

As outlined in the method section above, the dissonance questionnaire consisted of six items. Questions 1, 3 and 5 asked respectively about the level of physical, psychological and moral stress experienced by participants and questions 2, 4 and 6 asked the participant to indicate to what extent they considered that level of stress to be caused by the performance of the extermination task. Accordingly, the indicated level of stress in question 1 was multiplied by question 2, how much the participant regarded that particular dimension of stress to be caused by the extermination task. In the same way, question 3 was multiplied by question 4, and 5 by 6. The resulting three products were then subjected to a reliability analysis and averaged to yield a

single dissonance-score (no participants expressed suspicion that this questionnaire was not for the stated purpose). A series of within-cell correlations was then conducted on those dependent measures that achieved or approached significance in the primary analysis: For women, positivity in the perception of the experimenter and the choice to perform the data-entry task; for men, diligence in the performance of the data-entry task.

For women, the dissonance-scale proved to be reliable (Cronbach's  $\alpha = 0.88$ ). As outlined above, among women who received a reminder of previous compliance, negative correlations were expected between the reported levels of dissonance and positivity in the perception of the experimenter and the choice to perform the data-entry task. Only one of these correlations approached significance and this was consistent with the above predictions. Those women who received the reminder and were killing showed a tendency toward choosing to perform the data-entry task less often the more dissonance they reported ( $r(13) = -0.41, p = 0.13$ ). However, for women who received the reminder, all other correlations in this analysis did not achieve or approach significance,  $ps > .26$  (table 1).

Among women who did not receive a reminder of previous compliance, positive correlations were expected between reported dissonance and both positivity and the choice to perform the data-entry task. This would be consistent with our original hypotheses. Again, only one correlation approached significance but this time it was not in the predicted direction. Those participants who were not reminded and were simulating the killings showed a tendency toward viewing the experimenter less positively the more dissonance they reported experiencing ( $r(13) = -0.44, p = 0.10$ ). For women who were not reminded all other correlations neither achieved nor approached significance,  $ps > .44$  (table 1).

Table 1

Table 1: Correlations (p-values in brackets) between women's reported experience of dissonance and a) positivity in the perception of the experimenter and b) the choice to perform the data entry task.

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Instructions to participant		
	Told they were not killing	Told they were killing
Reminded of past compliance?		
Yes	a) 0.28 <sup>(0.26)</sup> b) 0.20 <sup>(0.47)</sup>	a) -0.22 <sup>(0.37)</sup> b) -0.41 <sup>(0.13*)</sup>
No	a) -0.44 <sup>(0.10*)</sup> b) -0.01 <sup>(0.97)</sup>	a) -0.21 <sup>(0.44)</sup> b) -0.13 <sup>(0.67)</sup>

---

We also examined dissonance to further probe the results that emerged from the male data set. To reiterate, in the main analysis it was found that among men who received the reminder, those that killed were more diligent in the performance of data entry task than those that simulated the killing. In line with the initial hypotheses of this investigation, when men were reminded, a positive correlation between reported dissonance and diligence was expected. Furthermore, just as with the women (and for the same reason), we expected this pattern to be especially pronounced when the men were killing. The dissonance self-report scale was given an identical treatment to that seen in the analysis of the female data (Cronbach's  $\alpha = 0.91$ ), and again a series of within-cell correlations was performed. Exclusion criteria for this analysis were identical to that used for the women.

Contrary to expectation however, in no condition did men show a strong association between the dissonance they reported feeling and their diligence on the data-entry task ( $ps > .22$ ).

In the present set of analyses, no correlations actually achieved significance and of the two that approached it, only one was in the predicted direction (table 1). Thus, neither the original research hypotheses, nor the auxiliary hypotheses advanced to explain the unexpected results from the female data-set in the main analysis were supported.

*Killing one bug vs. killing five bugs: All dependent measures.*

The final planned analysis concerned the effect that increasing the level of killing would have on participants' perception of and compliance to the experimenter. Martens et. al. (2007) found that initially killing five bugs led participants to wilfully kill more bugs when given the chance than those participants who initially killed just one. On this basis, it was expected that, participants that killed five bugs would see the experimenter more positively and as more professional and be more compliant to him (on all behavioral measures) than those participants that killed one bug.

In this analysis all participants received the reminder of their previous choice to comply with the experimenter and were told that they were killing the bugs. However, some of these participants performed the extermination task with one bug and the rest with five bugs.

First we examined how positively and professionally participants viewed the experimenter when killing five bugs as opposed to one. Participants who expressed suspicion that the questionnaire was not for the purpose stated in the cover-story were excluded.

Then we examined the measures of compliance in the same way. Participants who killed one bug were compared to those that killed five on all three measures of compliance (the choice to perform the data-entry task; the time spent on the task; and diligence in the performance of the task). Excluded from this set of analyses were those participants that expressed suspicion over

either the positivity questionnaire or the purpose of the data-entry task and those that received an earlier version of the script asking that the data entry be performed. Again, the male and female data sets were analyzed separately.

No significant differences emerged for either women or men on any of the measures examined ( $ps > .19$ ). Those participants that killed five bugs did not differ from those that killed one in how positive they were about the experimenter, how professional they considered him to be or how compliant they were to him (on any measure).

At this point it was suggested that, in the present procedure, killing one bug as opposed to killing five may not have generated sufficiently large differences in dissonance to lead to differences in the perception of and compliance to the experimenter. This idea is supported by the survey conducted by Martens et al. in 2010 that found that people do not rate the killing of five bugs to be significantly more unethical than the killing of one ( $p = .70$ ).

To examine this possibility, the dissonance reported by the participants in these two conditions was compared. Seeing as the analysis of the perception of the experimenter and the analysis of the participants' compliance to him had different sets of exclusion criteria, two comparisons were made for each sex, one for each set.

Consistent with this explanation, for women, regardless of which set of exclusion criteria was used, those that killed five bugs did not report more dissonance than those that killed one ( $ps > .68$ ; table 2). Strikingly however, contrary to both the initial hypotheses and the above alternative explanation, regardless of the exclusion criteria used, men who killed a single bug reported more dissonance than those that killed five ( $ps < .03$ ; table 2).

Table 2: Comparison of the levels of dissonance reported by women and men who killed either five bugs or one.

Exclusions	<i>M</i>	<i>SD</i>	<i>N</i>	<i>F</i> -stat(d.f)	<i>p</i> -value	$\eta_p^2$
Set 1: Women:						
1 bug killed	33.65	17.56	17			
5 bugs killed	32.22	24.22	19	.04(1,34)	.84	>.00
Men:						
1 bug killed	24.67	21.35	11			
5 bugs killed	8.97	7.06	12	5.81(1,21)	.03*	.22
Set 2: Women:						
1 bug killed	33.64	20.71	11			
5 bugs killed	29.60	23.64	10	.17(1,19)	.68	.01
Men						
1 bug killed	26.67	21.40	10			
5 bugs killed	9.70	6.92	11	6.23(1,19)	.02*	.25

### Summary

To sum up, two primary sets of findings emerged, one for women and one for men. Consistent with the hypothesis that killing would lead to more positivity in the perception of the experimenter, among women who were not reminded, those that were killing were more positive about the experimenter than those who simulated the killing. Consistent with the hypotheses that killing would lead to more compliance to the experimenter and that this would be enhanced by making the initial choice to comply salient, among men who were reminded of this choice, those that were killing were more diligent in the performance of the data entry-task than those that

simulated the killing and no such effect was seen when men were not reminded of their choice to comply.

Interestingly, for women the reminder appeared to be decreasing positivity in the perception of and compliance to the experimenter rather than increasing it as expected. Among women who received the reminder, those that killed were less positive about him and chose to perform the data-entry task somewhat less often than those who simulated the killing. Without the reminder, killing did not affect women's choice to perform the data-entry task.

The remaining measures also did not support the initial research hypotheses as no significant differences emerged. For women and men both, neither killing nor being reminded of previous compliance (or the interaction of the two) made any difference to how professional they considered the experimenter to be, or to the length of time spent on the data-entry task. For women, neither killing nor being reminded of previous compliance (or the interaction of the two) affected their diligence on the data-entry task; and lastly, for men, neither killing nor being reminded of their choice to comply (or the interaction of the two) affected how positively they perceived the experimenter or their choice to perform the data-entry task.

Similarly, no support was found for the hypotheses that people who killed more bugs would view the experimenter more positively, as more professional and be more compliant to him than those that killed fewer bugs. For both women and men, when the reminder was administered, killing five bugs as opposed to killing one did not result in differing levels of positivity in the perception of the experimenter, how professional he was considered to be or subsequent compliance to him (on any measure). Informatively, a further analysis examining the level of dissonance experienced by women and men in these two conditions suggested that for women the lack of differences were due to them not experiencing different levels of dissonance

when killing five bugs as opposed to one. For men however, this analysis added the additional counter-intuitive finding that more dissonance was reported when killing a single bug than when killing five.

### Examining the Potential Influence of Experimenter Bias

Though the results differed for women and men, they nevertheless suggest that under some circumstances, performing a morally difficult act for an authority figure can create or strengthen the bond with him. However, we should address a significant limitation of the study: the experimenter was not blind to condition. Though he said essentially the same words to all participants, it is nevertheless conceivable that the experimenter acted subtly different in different conditions, and perhaps these differences led to the observed results, rather than the killing and the reminder per se.

As mentioned in the method section, the experimenter's behavior was recorded with a hidden camera for the purpose of examining this issue. Two coders watched these clips independently and rated the experimenter's positivity toward each participant twice: Once for the period beginning with the explanation of the extermination task and running until the presentation of the first questionnaire (set 1) and then again for the brief period in which the experimenter asked the participant to join the data-entry task (set 2). In each assessment, four identical questions were answered on 9-point Likert scales (to reiterate: 1- How likeable/unlikeable was the experimenter? 2 - How friendly/unfriendly was the experimenter? 3 - How warm/cold was the experimenter's behavior? 4 - How positive/negative was the experimenter's behavior?) and the responses to these were averaged together to yield composite "niceness" ratings. Both coders were consistent in their own ratings for both set 1 (Cronbach's  $\alpha$



= .89 and .82 respectively) and set 2 (Cronbach's  $\alpha$ s = .85 and .59 respectively) and coder 1's composite ratings correlated significantly with those of coder 2 (set 1:  $r(144) = .45, p > .01$ ; set 2:  $r(143) = .22, p > .01$ ). These ratings were then averaged together to yield composite niceness ratings for sets one and two.

We were particularly interested in whether how nice the experimenter was being might account for any of the significant (or near significant) differences reported thus far. So, for each sex two 2 (participants reminded of previous compliance: yes vs. no) x 2 (participants told they were killing five bugs vs. participants told they were not killing five bugs) between-subjects ANOVAs were performed with the composite ratings of niceness as the dependent measure: one ANOVA for set 1 and one for set 2. However, it must be acknowledged that, due to an experimental oversight, it was not possible to identify and remove from analysis those participants who expressed suspicion about the procedure. Thus, the data-sets include both suspicious and non-suspicious participants.

In the main analysis, the first effect we observed was that among those women who were not reminded, those that killed viewed the experimenter more positively than those that simulated the killing. So, we tested whether experimenter niceness differed between these two conditions. However, no such differences emerged: the experimenter was rated by the coders as being equally nice regardless of whether the women were killing or simulating the killing,  $F(1,27) = 1.13, p = .30$ . This means the above difference cannot be explained with recourse to systematic variation in how the experimenter was treating the women.

The second finding of interest from the main analysis was that contrary to the research hypotheses, among women who were reminded, those who were killing viewed the experimenter less positively than those who simulated the killing. So, we again tested whether experimenter

niceness differed between these two conditions. Importantly, the experimenter was rated as not being as nice when the women were killing as he was when they were simulating the killing,  $F(1,38) = 6.77, p = .01$ . This suggests that the above deviation from expectation can be accounted for by the experimenter's behavior.

Also contrary to our initial hypotheses, the main analysis revealed that among those women who received the reminder, those who killed were somewhat less likely to perform the data-entry task than those who simulated the killing. However, the present analysis does not help in explaining this unexpected finding as the experimenter was rated as equally nice in both conditions,  $F(1,38) = .01, p = .94$ .

The fourth finding of interest that emerged from the main analysis was that among male participants who were reminded of their previous compliance, those that killed were more diligent in the performance of the data-entry task than those that simulated the killing. The present analysis reveals that this difference is not likely to be due to systematic variation in the niceness of the experimenter as he was rated as being equally nice regardless of whether the man was killing or simulating the killing,  $F(1,24) = .07, p = .79$ .

The main analysis yielded four important findings, three of which are clarified by examining the niceness of the experimenter. Consistent with the research hypotheses, among those women who were not reminded, those who were killing viewed the experimenter more positively than those who simulated the killing. Also consistent with the initial hypotheses, among men who were reminded, those that killed were more diligent in the performance of the data-entry task than those who simulated the killing. The present analysis supports these findings by suggesting that these differences are due to the experimental manipulations and not to systematic variation in how nice the experimenter was.

The present analysis also helps to explain one of the two findings that were not consistent with initial theorizing. Contrary to expectation, the main analysis showed that, among women who were reminded, those who killed were less positive about the experimenter than those who simulated the killing. The present analysis suggests that this finding may be due to the experimenter's behavior. When women were reminded of their previous compliance, the coders rated him as not being as nice to those women who killed as he was to those who simulated the killing.

However, this analysis was not useful in accounting for the second unexpected finding in the main analysis that, among women who were reminded, those who were killing chose to perform the data-entry task less often than those who simulated the killing. The coders rated the experimenter to be equally nice in both conditions and the result remains unexplained by the present data set.

## *Discussion*

### Summary of Results

The results of the present study provide partial support for our initial hypotheses. They suggest that at least under some circumstances, the choice to comply with the request from an authority-figure to make a moral transgression can lead people to inflate their esteem of him and to become more compliant to him. Among women who were not reminded of their previous compliance, those that killed viewed the experimenter more positively than those who simulated the killing. Also, support was found for the further hypothesis that making the choice to comply salient would enhance this effect. Among men who received the reminder, those that killed were more diligent in the performance of the data-entry task than those that simulated the killing.

However, the remaining results were not consistent with these initial hypotheses and need to be accounted for. These can largely be explained as unintended consequences of the experimental procedure or by systematic variation in the niceness of the experimenter.

The effect of killing on how positively the experimenter was perceived and how professional he was considered to be.

We hypothesized that those people who complied with a request from an authority-figure to kill five bugs would subsequently be more positive about that figure and perceive him to be more professional than those who complied with a request to simulate the killing of five bugs. Furthermore, we hypothesized that this effect would be enhanced by making the choice to comply salient: reminding participants of that choice.

Consistent with the first of these hypotheses, among women who were not reminded, those who killed were more positive about the experimenter than those who simulated the killing. Contrary to expectation, however, when women were reminded of their choice to comply with the experimenter's request, the effect reversed. Among these women, those who killed were less positive about the experimenter than those who simulated the killing. At this point, we theorized that this result may have emerged because the reminder, rather than making the choice to comply more salient, was taken by the women as an opportunity to blame the experimenter for the task or was bringing to mind that the experimenter had acted in a negative fashion towards them. To examine these ideas, we performed a series of within-cell correlations relating the participants' reported experience of dissonance to their indicated positivity in the perception of the experimenter. This analysis yielded only two near significant correlations only one of which was in the predicted direction. Hence these alternative explanations for the effect were not

corroborated. However, this result may not be so surprising given previous research suggesting that dissonance may be available for people to examine consciously (Nisbett & Wilson, 1977a/1977b; Wilson & Nisbett, 1978; and relatedly, Berridge & Winkeilman, 2003; Winkeilman & Berridge, 2004). Thus, although these alternatives are not supported neither are they ruled out and future research may wish to pursue this issue by using a more tacit measure of dissonance such as the physiological approach taken by Croyle & Cooper (1983) and others (e.g. Elkin & Leippe, 1986; Losch & Cacioppo, 1990).

A further analysis however, was more informative. When exploring the role of potential bias in the experimenter's behavior using the ratings of two independent coders, it was found that when the reminder was being administered, the experimenter (who was not blind to condition) was not as nice to those women who were killing as he was to those who simulated the killing. This is the most likely source of the observed deviation from initial theorizing: It is not surprising that when someone is being less positive that people see him less positively. Future researchers should seek to employ a double-blind procedure to avoid such biases. A double blind procedure was not feasible in this case due to the budget restrictions inherent in research at masters-level.

For men, neither killing nor receiving a reminder or the interaction of these manipulations affected how positive they were about the experimenter. This poses a somewhat difficult explanatory problem given the above result that among women who were not reminded those that killed were more positive about the experimenter than those that simulated the killing. When this finding emerged, we theorized that the result might be due to men being not being as good as women at perceiving their own internal emotional structure (Pelham et al., 2005). This could have rendered their reports less representative of their actual feeling than the reports from the

women. Given that males who received the reminder were more compliant after killing for the experimenter than after simulating the killing, men may well have felt more positively about the experimenter after the extermination task but not have been able to recognize and express this as well as the women.

The level of professionalism the experimenter was considered to have:

For both women and men, the analysis of the perceived professionalism of the experimenter did not support initial theorizing. Neither killing nor being reminded of previous compliance (or the interaction of these manipulations) revealed differences in how professional they perceived the experimenter to be. A possible reason for this result may be the slightly cool manner of the experimenter. The brevity of the interaction with the experimenter provided the participants with little information on which to base their judgments. When this study was in the planning stages it was felt that in this situation participants may have been tempted to (rationally) rate the experimenter near the middle of the scales regardless of their subjective emotional reactions to him. For this reason, the experimenter behaved in a slightly cool manner with all participants (no chatting, joking, smiling etc). It was hoped that this would lower the participants' "default" positivity ratings and so more clearly show any effect of the experimental manipulations on the participants' perception of the experimenter. In the absence of any factor leading participants to view the experimenter positively, it was hoped that they would view him somewhat negatively. During the debriefing sessions, when the purpose of this behavior was explained, many participants remarked that they thought the experimenter was just being professional: the behavior was not considered cool so much as the expected efficient, humorless

demeanor of a scientist. Given that the experimenter aimed to keep this approach with all participants, it is perhaps not surprising that no differences emerged on this factor.

### The Effect of Killing on the Behavioral Measures of Compliance

We hypothesized that those people who complied with a request from an authority-figure to kill five bugs would be more compliant to that figure on an unrelated task (data-entry) than those who complied with a request to simulate the killing of five bugs. Furthermore, we hypothesized that this effect would be enhanced by making the choice to comply salient: reminding participants of that choice.

The choice to perform the data-entry task:

Contrary to the research hypotheses, for women, the reminder appeared to be reducing the effect of killing on compliance rather than enhancing it. Among those who were reminded of their previous compliance, those that killed chose to engage in the data-entry task somewhat less often than those who simulated the killing and no such difference was seen without the reminder. For men, neither killing nor the reminder (or the interaction of the two) affected their choice to perform the data-entry task.

The first of these results remains unexplained by the current data. As with the analysis of the women's positivity ratings, this result too might have been explained by the auxiliary hypotheses that the reminder was serving not to make the choice to comply more salient but that it was an opportunity for the women to blame the experimenter for the task or that it was bringing to mind that the experimenter had acted in a negative fashion toward them. However, no consistent relationship between reported dissonance and the choice to perform the data-entry

task emerged and these explanations were not supported. Again however, while these explanations were not corroborated, neither were they ruled out as dissonance may not be consciously accessible and hence not available for self-report (Nisbett & Wilson, 1977a/1977b; Wilson & Nisbett, 1978; and relatedly Berridge & Winkeilman, 2003; Winkeilman & Berridge, 2004). Again, future researchers could clarify this result by replicating this procedure using a more tacit measure of dissonance (Croyle & Cooper, 1983; Elkin & Leippe, 1986; Losch & Cacioppo, 1990; and others). Likewise, this result cannot be explained by the experimenter's behavior. Independent coders rated the experimenter as equally nice in both conditions.

The second of these results that among women who did not receive the reminder, killing did not affect their choice to perform the data-entry task, may have been due to the structure of the experimental procedure. It is an ethical and practical requirement that participants are told how long an experiment is likely to take so that they can give their informed consent to participate. In this case, the participants were asked to set aside a full hour and seeing as the extermination task and questionnaires took just approximately fifteen minutes to complete, the women may not have felt comfortable declining the request as they would have been aware that the experimenter knew that they had the hour free. A procedure in which participants were uncertain as to how long the experiment would take could address this issue by making it easier for them to decline the data-entry task but may pose ethical issues of informed consent.

The result that among men, neither killing nor the reminder (or the interaction of the two) affected their choice to perform the data-entry task can also be explained by the above theorizing: The structure of the experimental procedure may have made the request awkward to refuse regardless of which condition the men were assigned to and might be addressed by a procedure with no clear time course.



The length of time spent on the data-entry task:

For women and men both, neither killing nor being reminded of previous compliance or the interaction of these two manipulations, led to differences in the length of time that they chose to spend on the data-entry task. Again, this might be accounted for by the structure of the experimental procedure. A maximum time limit of fifteen minutes was allowed for the performance of the data-entry task. Seeing as the participants had been asked to set aside an hour to complete the experiment and that the procedure had ostensibly finished early, this length of time was, perhaps, a small request given the knowledge shared by the experimenter and participant that the participant had an hour free. Many indicated that they would “do half an hour or so.” Future researchers might remedy this by employing a procedure in which participants are left to continue with the data-entry for as long as they wish. This may be more informative as to their motivation to help the experimenter but again may raise ethical concerns of informed consent.

Relatedly, a more stringent effort should be made to time the participants precisely and to ensure that they stop entering data after the maximum time period has elapsed. In this study, time was taken by the experimenter with a hand-held stop-watch. Timing began when the experimenter had finished giving the data-entry instructions, had walked across the room, knelt down, retrieved the stop-watch and started it. Timing finished when either fifteen minutes had elapsed or the participant indicated that they wanted to stop. Undoubtedly, some seconds variability from participant to participant was inherent in this procedure. Perhaps, future researchers could employ a timing program that runs on the computer itself and is activated at the first key-stroke and runs until the participant clicks a designated button that could ostensibly be to save the data, or until fifteen minutes elapses. The computer could also automatically cease

recording data at this point, which would avoid the second issue of participants insisting on finishing the sheet they were currently entering even after the maximum fifteen minutes was up and they had been asked to stop by the experimenter. These changes would avoid a little unnecessary bias in timing the procedure and increase the accuracy of the amount of data actually entered.

Diligence in the performance of the data-entry task:

In the analysis of the participants' diligence in the performance of the data-entry task, the female data-set did not support the research hypotheses but the male data-set did.

For women, neither killing nor being reminded of previous compliance (or the interaction of the two) had any effect on how diligent they were. This result may have been a consequence of the fact that the task was an easy one. Very few errors were actually made (average errors ranging from 1.8% to 2.4%) and when errors were made they tended to be on those items where the hand-writing on the sheets to be entered was not so clear and possibly reflects difficulty in the actual perception of the materials rather than the motivation of the women to do a good job. Future researchers might address this by presenting participants with a more cognitively challenging task, one in which the effect of motivated attention might be more noticeable and simple perceptual error less likely: Perhaps an abstract shape classification task similar to that developed by Gauthier and Tarr in their 1997 study of object recognition in experts could be employed.

Conversely and consistent with our initial hypotheses, among men who were reminded of their previous compliance, those that killed were more diligent than those that simulated the killing while those men who were not reminded showed no such difference. Among men, the

reminder appeared to be having the intended effect of increasing the rationalizing of the choice to comply by complying more with the authority-figure.

However, although consistent with the research hypotheses, this finding could also benefit from further clarification. For example, general negative mood itself can also encourage people to be more helpful as helping can offer an escape from these feelings (Cialdini, Darby & Vincent, 1973; Cialdini & Kenrick, 1976). An alternative explanation may be that, rather than engendering dissonance, when the reminder was given, the extermination task put the men in a bad mood. For example the men may have interpreted the reminder as meaning something like, “I asked you to do this unpleasant thing, and now I want you to take responsibility for it” and that may have made the men grumpy. Rather than becoming specifically more compliant to the experimenter due to reducing dissonance by complying with him more, the men may have become generally more helpful in order to alleviate their general negative affect.

To examine this possibility, this experiment could be repeated with some participants asked to assist in an unrelated task by the experimenter and others asked to assist in the same task by a confederate ostensibly not connected to the experimenter. If agreeing to make a moral transgression at the request of an authority-figure is making participants more compliant to that figure specifically, then participants should be more compliant to the experimenter after killing but not to the confederate. If it is an overall negative mood that is increasing helpfulness generally then, after killing, participants should be equally helpful to the confederate and the experimenter. Of course, some measure of affect itself such as the Expanded Positive and Negative Affect Schedule (PANAS-X; Watson & Clark, 1994) should be included in that procedure to bolster such an interpretation.

### Examining the level of killing: one bug vs. five

Another aspect that was examined was the effect that the level of killing may have had on the perception of and compliance to the authority figure. Martens et al. (2007) found that initially killing five bugs led participants to later willfully kill more bugs when given the chance than those that killed just one. On this basis it was hypothesized that more killing would lead to more dissonance and so result in more positivity in the perception of the experimenter, higher ratings of his professionalism and more compliance to him. However, support for these ideas was not found in this study. For both women and men, increasing the level of killing did not affect their perception of or compliance to the experimenter. It was thought that this may have been due to the possibility that killing one bug as opposed to five did not generate sufficiently different levels of dissonance to drive differences in the dependant variables. This explanation was supported by the female data-set. Women who received the reminder and killed one bug did not report more or less dissonance at the killing than those who killed five. Strikingly however, when the male data set was examined it was found that men who killed a single bug reported experiencing significantly more dissonance than those that killed five. This runs against our theorizing and does not help in explaining the lack of differences in perception of the experimenter and compliance to him between these two groups. It does however present an interesting opportunity for future research, calling to mind the famous quote commonly attributed to Joseph Stalin that “One death is a tragedy [but] a million deaths is just a statistic.” Though, given the research suggesting that dissonance may not be consciously perceptible (Nisbett & Wilson, 1977a/1977b; Wilson & Nisbett, 1978; and relatedly, Berridge & Winkeilman, 2003; Winkeilman & Berridge, 2004) and other research implying that men are not as good as women at observing their internal emotional state (Pelham et al., 2005), this interpretation must be viewed with caution and would

benefit from further examination. Perhaps future researchers could clarify this issue by systematically varying the number of bugs killed while measuring dissonance physiologically (Croyle & Cooper, 1983; Elkin & Leippe, 1986; Losch & Cacioppo, 1990; and others) so as to more clearly specify the relationship.

#### Theoretical Implications.

The present research suggests that, at least under some circumstances, agreeing to make a moral transgression for an authority figure can create or strengthen a bond with him, leading people to be more positive about that figure and more compliant to him. Our results suggest that Blutkitt is a genuine phenomenon and may be usefully understood by extending Aronson and Mills (1959), and Martens et al's. (2007) work and viewing it as a process of attitude and behavior change driven by dissonance reduction.

The present study corroborates and extends the work of Aronson and Mills (1959). These authors found that those who undergo a severe initiation into a club come to value membership in that club more than those who undergo a less severe initiation. They explained their results with recourse to Festinger's theory of cognitive dissonance. They noted that membership in a given club is never wholly positive and that knowledge of those negative aspects of membership is dissonant with the person's choice to endure a severe initiation for the sake of joining. These authors reasoned that in order to reduce this uncomfortable feeling of dissonance, people changed their attitudes toward membership: inflating how much they valued it and how positively the group was perceived. We explain our results in a similar way, extending Aronson and Mills (1959) work to include the actual person for whom such unpleasantness is undertaken. We found that women who were not reminded were more positive

about the experimenter when killing than when simulating the killing. In line with the reasoning of Aronson and Mills (1959) we argue that this is because the choice to make a moral transgression for an authority-figure is dissonant with a person's internal standards. This dissonance can then be reduced by inflating the positivity of the attitude toward the authority-figure. If the authority-figure is considered to be worthy of following, then the choice to have followed him would not be not so at odds with those internal standards.

The present research also corroborates and extends the work of Martens et al. (2007). Using their recently developed bug-killing paradigm these authors found that people can reduce the dissonance they experience at performing a morally difficult act by committing further to their chosen course of action. In their study, people who initially complied with a request from an authority figure to kill a number of bugs later chose to kill more bugs than those who initially killed fewer. Furthermore, by doing so these participants also gained affective benefit, felt better, than those that killed fewer at the start. In a similar way, the present research suggests that the choice to comply with the authority-figure generates dissonance that can be reduced by people committing further to their chosen course of action; in this case by complying more with the authority-figure. Among men who received the reminder, those that killed were more diligent than those who simulated the killing. While Martens et al. (2007) found that killing can beget further killing, the present research suggests that, for the same reason, compliance can beget further compliance. Additionally, by finding dissonance-like effects on behavior following the killing of bugs in a modified grinder, the results of this study further marks Martens et al.'s (2007) bug-killing paradigm as valid and suitable for future use in research of this kind.

In this way, a start has been made at understanding the phenomenon of Blutkitt within the existing scientific framework of cognitive dissonance (Festinger, 1957). With respect to the

shortcomings noted above, this research suggests that, at least in some circumstances, choosing to comply with the request from an authority figure to engage in a moral transgression can lead people to view that authority figure more positively and to become more compliant to him. Although this experiment did not find direct evidence of dissonance using a self-report measure, a number of the effects observed were consistent with and corroborate the findings of previous research using dissonance theory to predict changes in attitudes and behavior following situations in which internal standards are freely transgressed (Aronson and Mills, 1959; Martens et al., 2007; Harmon-Jones, Brehm, Greenberg, Simon & Nelson, 1996; Johnson, Kelly & LeBlanc, 1995; Baumeister, 1982; Greenwald & Ronis, 1978; Linder, Cooper & Jones, 1967; Stalder & Baron, 1998; Croyle & Cooper, 1978/1983; Elkin & Leippe, 1986; Losch & Cacioppo, 1990; Cooper & Fazio, 1984; Cooper, Zanna & Taves, 1978; Fazio, Zanna & Cooper, 1977; Losch & Cacioppo, 1990; Pittman, 1975). To the best of the authors' knowledge, this study represents the first empirical investigation into the phenomenon of Blutkitt, and the obtained results suggest that further research in this vein is, at the very least, warranted.

#### Practical Implications:

The present study suggests that being initiated into an organization of violence such as a gang, militia or state-sanctioned force could, under some circumstances, lead the person to become more positive about and compliant to the authority-figure directing the initiation. Initiations are explicitly intended to strengthen a person's connection with a group (van Gennep, 1960) and initiations into organizations of violence are very serious often brutal affairs with crimes such as rape, assault and violent robbery, even murder being common (Thomson, 2007; Pheifer, 2009; Brennan, 2009; Honwana, 2006; Lifton, 1926). A person's choice to comply with

an established member of such an organization to do unprovoked harm to others or to receive it done to themselves may violate that person's internal moral standards and generate dissonance which can be reduced by elevating their view of the authority-figure and by complying with him more. This is important because such authority figures personally direct the activities of these groups and hence directly challenge the safety and stability of the communities in which they are embedded. Indeed, one researcher studying gangs in New Zealand argues that most gang-related street crime would not occur without prospects' attempts to prove themselves by following the orders of fully-fledged members (Payne, 1991). The present study suggests the existence of a social cognitive process that increases the esteem of and willingness to follow such criminal authorities; one that may be being exploited to bond recruits and extract compliance from them. As such this may represent a potential exacerbating influence on the prevalence of crime and criminal values at the community level.

Taking the above idea one step further, the choice to become initiated into an organization of violence may set up a cycle that leads the person to progressively deeper levels of respect for and commitment to a criminal authority figure. People may feel dissonance at having complied with a request to make a moral transgression during the initiation. They then might reduce this dissonance by elevating their perception of the authority-figure and choosing to comply with him to make further transgressions. These, in turn, would generate yet more dissonance that could again be reduced by yet further elevating the esteem of the authority-figure and by complying with him even more (and so on and so forth). This idea is consistent with the theorizing of Ernst Becker who proposed that perpetrating an ethical transgression entails a certain level of guilt and fear that the authority-figure can offer protection from. Becker argued that without such figures, followers may feel exposed to judgment and reprisal and that the



continued perpetration of ethically-reprehensible acts can keep followers bound to these authorities and compliant for further atrocities (Becker, 1973).

Induction into a social group is a continuing process. It may even be that the elevated esteem of and compliance to the authority-figure resulting from an initiation involving moral transgression may render new recruits more susceptible to other socially binding forces. When group-members interact and discuss their attitudes, those attitudes show a tendency to converge on one another (Sherif, 1936). This process establishes a group-norm, a way of thinking and acting that is considered by the group to be right and proper (Thibaut & Kelly, 1959 cited in Smith & Mackie). Where exactly this norm sits in terms of extremity, however, depends on the initial attitudes of the group-members, with more extreme initial attitudes leading to the formation of more extreme norms (Stoner, 1961; Moscovi & Zavalloni, 1969; Myers & Bishop, 1971; Baron & Roper, 1976; Blascovich, Ginsburg, & Howe, 1975; Goethals & Zanna, 1979; and others) Aronson and Mills (1959) found that not only might clubs with severe initiations attract people already more committed to joining, but that the severity of the initiation itself increases this commitment. The present research suggests that while violent groups might attract individuals with pre-existing esteem for and willingness to comply with a criminal authority-figure, an initiation that requires the person to make a moral transgression may deepen or even establish those attitudes ensuring that they are held from the outset. Those attitudes could then form the basis of the group's norms and become even more extreme through processes such as group polarization. Then, to the extent that attitudes and norms guide behavior, they could encourage even more compliance to the authority-figure: further, perhaps more intense, moral transgression. Future researchers may wish to examine whether complying with an authority

figure to make a moral transgression leads to lasting attitude change and whether this has a flow-on effect in promoting more extreme group norms.

As an aside, this reasoning might even apply to other groups that do not necessarily engage in violence but may request personal moral transgressions of other kinds. Members of groups that work in morally unstable territory such as the police, law firms, corporations of various kinds and religious organizations may find themselves the recipients of requests to make moral transgressions. While these groups may not have explicit initiation-rituals that require these, police officers might be pressured to falsify evidence by their superiors, lawyers might be asked to hide evidence that would convict the guilty or argue against their internal beliefs, managers may be encouraged to turn a blind-eye to their company's dubious practices and the various sacrifices requested in the name of religious faith all may not fit with the person's internal moral structure. If future research corroborates the findings of the present study, then a new form of potentially damaging work-place coercion may be revealed and a new understanding gained of the often incredible elevation of and compliance with the demands made by leaders in religious organizations.

Importantly, it is hoped that the present line of research may eventually come to suggest ways in which the power of this process as employed by organizations of violence might be mitigated. For example, although it is too early to say at this stage, it may be that mere knowledge of this phenomenon by "at-risk" individuals may inoculate them against it. Alternatively, perhaps such knowledge may limit the effectiveness of the process by encouraging alternative routes for the reduction of dissonance that do not involve raising the esteem of the authority figure or increasing compliance to him. For this reason, continued study of the ideas explored in the present investigation may eventually lead to principles that could be included in

community-education programs aimed at reducing the power of such organizations. If communities had a general understanding of the thrust of this phenomenon and those identified by Aronson and Mills (1959) and Martens et al. (2007), then it is possible that they could become not only more able to resist the influence of these groups but more forgiving of individuals who leave the organization and want to return to a non-violent lifestyle.

#### Limitations and future directions.

As with any research effort, the current study was not without its shortcomings. In addition to those possible improvements and future directions mentioned above, there are a few other concerns and possibilities that future researchers may wish to note.

Firstly, a procedural oversight on the part of the experimenters may have reduced the effect of the experimental manipulations in all conditions. Past research suggests that allowing participants to express their emotions in a dissonance-inducing situation reduces the effects of that dissonance on subsequent attitudes. For example, Pyszczynski, Greenberg, Solomon, Sideris and Stubing (1993) theorized that the people are equipped with defensive reactions that serve to protect themselves from the experience of negative affect and that if the tension associated with cognitive dissonance is expressed consciously then the need to defend against it will be reduced. That is, the attitude change common following dissonance-inducing situations will be lessened. Their first study made use of the essay-writing paradigm common in dissonance research (Pittman, 1975; Steele & Liu, 1983, and others) in which participants are given either high or low choice to write a counter-attitudinal essay and the attitudes toward the essay-topic subsequently measured. Among participants who chose to write the essay, those encouraged to express any negative affect they felt at its composition, showed little change in their attitudes;

whereas those who suppressed such affect exhibited strong attitude-change in favor of the essay topic. In their second study, the same authors found that after reading some personality information about someone who had stomach-cancer those participants given the opportunity to express their own fears about cancer distanced themselves less from the person they read about (as measured by questionnaire) than those that were given the opportunity to express sympathy for the person (but not their own fears). These two results may relate to the present study in that in immediately following the performance of the extermination task participants filled out the questionnaire asking them to indicate how much dissonance they were feeling and to indicate the extent to which they thought that feeling was caused by the task. By giving the participants the opportunity to express any dissonance they were feeling at that time the authors may have inadvertently diminished the participant's need to reduce dissonance through changing their attitudes and behavior. This suggests another explanation for the lack of significant effects seen in a number of the dependent measures but may also speak to the strength of the hypothesized process given that a number of significant results were obtained in spite of this limitation. Again, a more tacit measure of dissonance such as the physiological measures employed by Croyle & Cooper (1983) and others (Elkin & Leippe, 1986; Losch & Cacioppo, 1990) might remedy this issue.

Secondly, in a similar vein, it may even be that the changing one's attitude about a given topic is itself sufficient to reduce the dissonance at having made a moral transgression. The general lack of significant findings seen in this study's behavioral measures may be due to participants having had the prior opportunity to reduce their dissonance by changing their attitudes. In any given situation there may be a number of options for dissonance-reduction. The inconsistency can be down-played (Simon, Greenberg & Brehm, 1995), personal responsibility

for the action can be denied (Linder, Cooper & Jones, 1967; Stalder & Baron, 1998), physiological arousal can be dampened through other means such as the use of alcohol (Steele, Southwick & Critchlow, 1981) or the arousal could be attributed to other causes (Cooper, Zanna & Taves, 1978; Fazio, Zanna & Cooper, 1977; Losch & Cacioppo, 1990; Pittman, 1975). If any of these happen, dissonance will be reduced without either attitude or behavior having changed. Even after the last step, the person can still reduce dissonance and avoid changing behavior or attitudes through self affirmation (Dietrich & Berkowitz, 1989 cited in Eagly & Chaiken, 1993; Steele & Liu, 1983; Dietrich & Berkowitz, 1997; Tesser & Cornell, 1991). Importantly for the present research, people tend to utilize whichever of these strategies is most accessible at the time: most often that for which the opportunity presents itself first (Aronson, Blanton & Cooper, 1995; Simon, Greenberg & Brehm, 1995). In the present procedure, all participants filled out a questionnaire asking them to express their attitude toward the experimenter before the behavioral measures of compliance were administered. Giving the participants the opportunity to express their changed attitudes may have reduced the dissonance from the extermination task and subsequently rendered people with less motivation to engage the data-entry task as fully as they otherwise might have.

To explore this possibility, future researchers may wish to repeat the procedure with some participants receiving just the attitudinal measures, others receiving only the behavioral measures and yet others receiving both. If participants are taking the first available option to reduce their dissonance, then the first two of these groups should show significant effects on attitudinal and behavioral measures respectively and the third should show significant effects on the attitudinal measure and reduced effects on the behavioral measures.

As a final word, another avenue that future researchers may wish to explore is the effect that varying the age and sex of the experimenter might have on the person's esteem of and compliance to an authority-figure that requests a moral transgression. These factors were not examined in the present study and may contribute to the understanding of the effect suggested by the present research by specifying more exactly the situation in which it might operate. For example, the social roles that women and men of different ages play in New Zealand society may foster stereotypes that lead people to be more or less accepting of the authority of the experimenter. Alternatively, the relationship between the age/sex of the experimenter and the age/sex of the participants may affect the participants' perception of their own freedom to decline the tasks, their responsibility for their choices or how deserving the experimenter is of help. Although age-data was not collected, the experimenter noted that most of the people who declined to participate were elder to him and that males hesitated in their choices to comply more than females did. It may be that in New Zealand society the traditional Western stereotype of appropriate authority being male and elder still persists and was having an effect here. Future research might repeat the procedure using two female and two male experimenters with one male and one female being close to the average university age (assuming a university sample is used) and the remaining two markedly older. In this way any effects these two factors might be having could be teased out.

## Conclusion

In sum, despite the limitations discussed above, the present study suggests that the phenomenon of Blutkitt, the observation that moral transgression has the power to bond people to authority-figures, is a genuine social psychological process and worthy of future research. To the best of the authors' knowledge, this study represents the first empirical research on the observation. The present research extends the work of Aronson and Mills (1959) and Martens et al. (2007) and explains the phenomenon within the established scientific framework of cognitive dissonance (Festinger, 1957) finding that, at least under some circumstances, freely choosing to make a moral transgression for an authority-figure can lead people to hold him in higher esteem and to become more compliant to him. While much more work needs to be done to amend the short-comings of this study and to explore the possibilities suggested by it, the present investigation makes a start at a line of research that may, in time, yield a deeper understanding into the ways in which organizations of violence and their authority-figures bond members to them and cultivate their loyalty and compliance. Such an understanding, it is hoped, will find application in community education programs aimed at mitigating the influence of such organizations and helping those who wish to leave re-join their communities.

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*Appendix A: Complete experiment script.*

*Experiment Script (with directions)*

**Experimenter shuffles envelopes containing information-sheets and consent forms, make two stacks of five, one for male participants and one for female participants.**

**Experimenter walks forward and shakes hands.**

“Hi, my name is Michael Richardson and I am the researcher in charge of this experiment. Please, take a seat.”

**Experimenter draws an envelope from the top of the appropriate stack.**

“I want to give you a bit of an overview of the study you’ll take part in today. Basically, we’re looking at various types of human-animal interactions. There are all sorts of occupations and roles in which humans interact with animals. In this particular session we’ll look at the role of exterminators who deal with bugs. So one thing I want you to know is that the study does involve engaging in a bug-extermination task. After the task I’ll give you a couple of questionnaires which will ask you about the experience. In this envelope is a consent form and an information sheet.”

**Experimenter hands the envelope to the participant.**

“Go ahead and read them over and sign the consent form if you’d like to participate. I’ll just go and set up the equipment and I’ll be back in a couple minutes and then, if you like, we’ll get started.”

**Experimenter goes into back room, heats up the bugs, turns on the hidden camera, brings tray with either 5 or 1 bug(s) into the room and puts experimental apparatus onto the table.**

**Experimenter returns to the participant.**

“Can I take the consent form and information sheet, the envelope too please.”

**Experimenter gestures for the consent form, info sheet and the envelope. He puts these on the shelf checking the envelope as he does so as to learn the participant’s condition.**

“Thanks. If you can come with me, we’re just going to go around the partition “

**Experimenter takes participant to table with the experimental apparatus and speaks directly and humorlessly.**

“In each of these plastic containers is a bug. You can go ahead and take a look at the bugs so you know what you’ll be working with. To start off I’m going to have you familiarize yourself with

our extermination task. This is basically a grinder, our extermination machine. Generally exterminators use poison sprays with bugs but we can't use those sprays inside the building for health and safety reasons. It's very simple to operate, the bugs are put in here and this button activates the machine."

*(some participants)*

***Opening the lid of the grinder***

*"You can see that the tube leading to the grinder is blocked off, so the bugs that you'll put into the opening won't make it to the actual grinder and won't be killed. For this experiment, all we need to do is simulate the killing of the bugs."*

"Good. Okay, in a moment I want you to perform the extermination task. I want you to dump one [five] bug[s] into the grinder, [one at a time] and then activate the machine by pressing that button for at least 3 seconds. Do you understand? . . . Okay, Do that now."

**Experimenter watches the participant perform the task.**

"Right. Please take a seat."

**Experimenter indicates the seat beside the table with the apparatus, inviting the participant to sit.**

"Now, I have another sheet for you to read and sign. Due to the nature of this task I need to get it in writing that it was your choice to do what I asked you to do: to put the bugs into the grinder and activate the machine. Please, read the sheet write, your name and sign the bottom if you agree."

**Experimenter hands the participant the sheet.**

**Once the sheet has been signed the experimenter gestures to take the sheet and puts it on the shelf.**

"Ok, next I'm going to give you a questionnaire about the extermination experience. This questionnaire measures stress for the exterminator. We want to examine how this stress relates to their cognitive abilities. These mental abilities are essential for the safe, effective and efficient mixing and use of poisons and the like. Please be honest about your responses. Just let me know when you're done. I will be on the other side of the partition."

**Experimenter hands the participant the questionnaire.**

**Experimenter retires to the other side of the partition and returns when the participant indicates that he or she has finished.**

**Experimenter gestures to take the questionnaire, puts it on the shelf and retrieves the questionnaire assessing the positivity of the participant's perception of the experimenter from the shelf.**



“Right, thank you, that is fine. We have another short questionnaire for you to answer now. Due to the nature of this research, the UC Psychology Department wants participants in this study to evaluate the experiment and how it was conducted. Your feedback will be completely anonymous, so feel free to be honest. I won’t see it.”

**Experimenter hands the unsealed envelope to the participant**

“Read the instructions inside and answer the questions. When you are done seal the questionnaire in the envelope and drop it into that locked box over there. I will be over there again, just let me know when you are done.”

**Experimenter retires to behind the partition and emerges when the participant indicates that he or she has finished.**

“Right, okay. We’re done. That’s it. I will just get the papers and we will wrap things up.”

**Experimenter gets bogus credit chit from back room and gives it to the participant to fill out.**

“Just fill in your name and your student ID, if you can.”

**Experimenter takes the paper back and fills in the remaining blanks. He returns the chit to the participant.**

“If you take this to the office, they will fix you up with your voucher/course-credit.”

*If the participant (from the pool) asks about the assignment they need to fill-in, the experimenter will reply:*

“When you take the chit to the office they will give you the assignment, you can return it to them when it is done.”

“Hey look, thanks a lot for doing this experiment. I hope it was interesting. Hey look, before you go, do you think I could ask a favor?”

“You don’t have to do it, the experiment is over and you have already given us the data we need, but I was wondering if you would do some data-entry for me. I am trying to move my other research on a bit faster so I am seeing if my participants can help out. Is that okay?”

---

*If the participant asks how long the task will take, or how many sheets need to be entered, the experimenter will reply,*

“Just as long as you have time for.”

or

“Just as many as you have time to do”)

---

## **DATA-ENTRY TASK INSTRUCTIONS**

“Oh, good. That’s excellent. Look, if you come over here, I’ll show you what to do.”

**Experimenter leans forward and opens the Excel spreadsheet. He opens the cardboard box containing the sheets to be entered and indicates the pile on the desk.**

“These are some of the sheets I need to enter. It is very easy.”

**Experimenter picks up a sheet to demonstrate, indicating the questions as he explains.**

“First, look at the front page and enter the participant number

Then, turn to the back page and enter the data from there, gender, country and city of participant and country or city of flood victim and the best summary.

If the person hasn’t written anything, just enter a question mark, otherwise just enter exactly what they have written on the sheet. Don’t worry if it is correct or not.

Don’t worry about the text answers, they need to be coded and I will deal to them later.

Then go to this page and enter the numbers beside the emotion adjectives. You can see the adjectives at the top of the page, just enter what is on the sheet under the adjectives.

That is it, really.

Is that okay? Good.

Okay, look thank you for doing this. I’m pretty busy right now, the more you can do the better.

I’ll just be down there sorting through those sheets, just let me know when you want to give it up”

**The experimenter retires to the other end of the room and starts taking some papers out of some cardboard boxes and putting them into piles.**

**If the participant chooses to quit before 15 minutes has elapsed, the experimenter stops the timer and says**

“Ah, okay. No worries, but could you just hold fire for a second. I need to ask you a couple of questions actually. Sorry, I forgot to ask them before. Hold up.”

**Experimenter runs into the back room, deactivates the camera and returns to debrief the participant.**



## Information Sheet:

### **Human-Animal Interactions: Exterminators**

University of Canterbury,  
Department of Psychology

The experimenter and his colleagues are researching human-animal interactions. The current study is part of a series and specifically concerns exterminators and their work. If you agree to participate, you will be asked to: (1) engage in a brief extermination task and, (2) fill-out questionnaires about the extermination task and other related psychological issues. You have the right to discontinue the experiment at any time, penalty-free, and still receive the incentive for your participation. The procedure is not expected to exceed one hour.

Your privacy is completely assured. Your name will not be linked to any of your responses on the various measures in this study. To this end, the consent-form with your name on it will be stored separately from the data you provide in the course of the procedure.

This data will only be accessed by the research team: Michael Noel Richardson, Andy Martens and Lucy Johnston.

If you have any questions or concerns regarding this study, please contact Michael Noel Richardson at [mnr17@student.canterbury.ac.nz](mailto:mnr17@student.canterbury.ac.nz) or Andy Martens at [andy.martens@canterbury.ac.nz](mailto:andy.martens@canterbury.ac.nz).

This project has been reviewed and approved by the University of Canterbury Human Ethics Committee.

*Appendix C: Consent form.*



**CONSENT FORM**

**RESEARCH ON HUMAN-ANIMAL INTERACTIONS: EXTERMINATORS**

I have read and understood the information-sheet outlining the above-named research. By signing this form I explicitly consent to participate in the procedure with the knowledge that my data will be used in an analysis that may lead to a publication in a psychological journal. I understand that my privacy will be preserved - in other words, my name will not be associated with any of my responses during this study.

I am aware that I may withdraw from the procedure at any time, free of penalty, and have my data disregarded and destroyed. I understand that if I do so, I will still receive class credit or compensation for the study.

NAME (please print):

Signature:

Date:

*Appendix D: Reminder of previous choice to comply with the experimenter*



**CHOICE-ACKNOWLEDGEMENT FORM**

RESEARCH ON HUMAN-ANIMAL INTERACTIONS: EXTERMINATORS

I understand that I have freely chosen to follow the experimenter's (Michael Richardson's) request to participate in the bug-extermination task.

NAME (please print):

Signature:

Date:

Appendix E: Scale measuring cognitive dissonance.



**Stress and Cognitive Ability Scale:**

The following series of questions is designed to assess the level of stress you were feeling during the extermination task and your sense of your own cognitive ability both before the extermination task and presently. Please be as honest as possible in your responses.

1) How intense was your feeling of physical stress when you were performing the extermination task?

1	2	3	4	5	6	7	8	9
No feeling of physical stress at all			Moderate feeling of physical stress			Extreme feeling of physical stress		

2) To what extent was this feeling of physical stress caused by the actual performance of the extermination task?

1	2	3	4	5	6	7	8	9
Not at all			somewhat			completely		

3) How intense was your feeling of psychological discomfort while performing the extermination task?

1	2	3	4	5	6	7	8	9
No feeling of psychological discomfort at all			Moderate feeling of psychological discomfort			Extreme feeling of psychological discomfort		

4) To what extent was this feeling of psychological discomfort caused by the actual performance of the extermination task?

1	2	3	4	5	6	7	8	9
Not at all			somewhat			completely		

5) In terms of your own sense of morals, how morally difficult was the extermination task to perform?

1 2 3 4 5 6 7 8 9

Not difficult at all

Moderately difficult

Extremely difficult

6) To what extent was any moral difficulty you experienced caused by the actual performance of the extermination task?

1 2 3 4 5 6 7 8 9

Not at all

somewhat

completely

7) How strong is your ability to concentrate presently?

1 2 3 4 5 6 7 8 9

Not strong at all

Moderately strong

Extremely strong

8) How strong do you feel your ability to concentrate was just before the extermination task?

1 2 3 4 5 6 7 8 9

Not strong at all

Moderately strong

Extremely strong

9) How mentally fatigued do you feel presently?

1 2 3 4 5 6 7 8 9

Not fatigued at all

Moderately fatigued

Extremely fatigued

10) How mentally fatigued were you just before the extermination task?

1 2 3 4 5 6 7 8 9

Not fatigued at all

Moderately fatigued

Extremely fatigued



*Appendix F: Scale measuring positivity in the perception of the experimenter and how professional he was considered to be.*



This questionnaire is designed to assess the conduct of the experimenter and the experiment. Due to the nature of the research, the UC Psychology Department must evaluate both. Even though you may not know the experimenter, the psychology department asks you to answer these questions to the best of your ability. Please be as honest as possible. Your feedback is anonymous and cannot in anyway be connected with you as a respondent. **Please pay attention to the labels at the ends of the scales for each question; they are not all the same.**

Please answer these questions, seal the sheet in the envelope provided and do not discuss your responses with the experimenter. Thank you.

1) To what extent do you feel the experimenter conducted the procedure competently?

1            2            3            4            5            6            7            8            9

To no extent at all

To a moderate extent

To an extreme extent

2) Does the experimenter have the competence to conduct this experiment safely?

1            2            3            4            5            6            7            8            9

To no extent at all

To a moderate extent

To an extreme extent

3) To what extent do you feel the experimenter's conduct was professional?

1            2            3            4            5            6            7            8            9

To no extent at all

To a moderate extent

To an extreme extent

4) To what extent do you feel that the experimenter conducted the procedure with professionalism?

1            2            3            4            5            6            7            8            9

To no extent at all

To a moderate extent

To an extreme extent

5) To what extent do you feel that the experimenter is a person of good character?

1            2            3            4            5            6            7            8            9

To no extent at all

To a moderate extent

To an extreme extent

6) To what extent do you think the experimenter takes note of moral considerations in his work?

1 2 3 4 5 6 7 8 9

To no extent at all

To a moderate extent

To an extreme extent

7) How well do you think the experimenter led and supervised the procedure?

1 2 3 4 5 6 7 8 9

Extremely poorly

Moderately well

Extremely well

8) How likely would you be to participate in another experiment led by the experimenter?

1 2 3 4 5 6 7 8 9

Extremely Unlikely

Moderately Likely

Extremely Likely

9) To what extent did you feel you could trust the experimenter?

1 2 3 4 5 6 7 8 9

To no extent at all

To a moderate extent

To an extreme extent

10) To what extent did you feel you could rely on the experimenter to protect your integrity?

1 2 3 4 5 6 7 8 9

To no extent at all

To a moderate extent

To an extreme extent

11) How well did the experimenter relate to you?

1 2 3 4 5 6 7 8 9

Extremely poorly

Moderately well

Extremely well

12) How much did you like the experimenter?

1 2 3 4 5 6 7 8 9

Not at all

Moderately well

Extremely well

13) To what extent do you think the experimenter intelligently designed the procedure?

1      2      3      4      5      6      7      8      9

To no extent at all

To a moderate extent

To an extreme extent

14) To what extent do you think that the experimenter is sufficiently intelligent to manage participants in a psychological study?

1      2      3      4      5      6      7      8      9

To no extent at all

To a moderate extent

To an extreme extent

**Thank you for your time. Your responses are valuable and help to maintain the high standards of research and scholarship at UC.**

**Please seal this questionnaire in the envelope provided and deposit it in the locked drop-box provided.**

*Appendix G: Bogus voucher chit*



**University of Canterbury Department of Psychology  
Research Participation Reimbursement Chit**

Please present this chit to the secretaries at the reception of the Psychology Department to receive credit/voucher for your participation.

Name of recipient: \_\_\_\_\_  
Student ID: \_\_\_\_\_  
Date of participation: \_\_\_\_\_  
Research Code: \_\_\_\_\_  
Name of researcher: \_\_\_\_\_  
Signed \_\_\_\_\_

*Appendix H: Re-consent Form*



**RE-CONSENT FORM**

**RESEARCH ON HUMAN-ANIMAL INTERACTIONS: EXTERMINATORS**

The true purpose of the study has been revealed to me and I consent to my data (questionnaires, data-entry task data and video-recording) being used for the purposes of this research. In signing this form I consent to the publication of the results of this study and acknowledge that my privacy will be preserved.

NAME (please print):

Signature:

Date:

*Appendix I: Instructions for raters.*

### **Coding of the Video-clips:**

#### **What to Watch:**

For each clip, watch the first section in which the experimenter sets up the equipment, introduces the “extermination” task and walks the participant through the initial “killing” procedure.

Continue watching until the instructions for the first questionnaire have been given.

Then, skip forward until you see the experimenter retrieve the second questionnaire from the shelf. Stop here and watch the experimenter give the instructions for the second questionnaire to the participant.

Please answer the first set of questions at this point.

Then skip forward until you see the participant going to leave the laboratory. At this point slow the playback and listen to the experimenter’s request that the participant do some data-entry for him. It will not always be easy to spot this portion of the video as sometimes the participant is not on camera when the request is made. However, in most cases you will see the experimenter’s head in the frame at about this point.

Please answer the second set of questions at this point.

This is the end of the video-clip that you are asked to attend to. If you continue watching, the camera will turn to face a wall with pictures on it. If you see this, you have gone too far. **DO NOT ATTEND TO THE CLIP BEYOND THE EXPERIMENTER’S REQUEST THAT THE DATA TASK BE PERFORMED.**

#### **What to attend to:**

In attending to the video-clips, please attend only to the behavior of the experimenter and disregard any behavior/reactions/facial expressions that may be apparent in the participant. **THE PARTICIPANTS ARE NOT THE FOCUS OF THE QUESTIONS.** One sheet will be provided for each video-clip. Write the disc number, the video number and the sex of the participant in the spaces provided and **AFTER** watching the clip, answer the questions to the best of your ability.

When finished, please collate all sheets and return to Dr. Andy Martens in room 209a of the Psychology Department.

Thank you.

*Appendix J: Questions for raters.*

**Questions for sets one and two:**

1) How likeable/unlikeable was the experimenter?

1	2	3	4	5
Extremely Unlikeable		Neither likeable nor unlikeable		Extremely Likeable

2) How friendly/unfriendly was the experimenter?

1	2	3	4	5
Extremely unfriendly		Neither friendly nor unfriendly		Extremely Friendly

3) How warm/cold was the experimenter's behavior?

1	2	3	4	5
Extremely Cold		Neither warm nor cold		Extremely warm

4) How positive/negative was the experimenter's behavior?

1	2	3	4	5
Extremely Negative		Neither positive nor negative		Extremely positive