Measuring Prosocial Action Tendencies from Caretaking Emotions

Ankita Badhwar

University of Michigan

Abstract

Prior research using speeded response time tasks has shown that approach and avoidance motivations involve action tendencies to decrease the distance between yourself and desired objects and to increase the distance between oneself and undesired objects. Other action tendencies are also activated in case of more specific emotions which cause helping behavior. We tested whether prosocial action tendencies from caretaking emotions could be captured in speeded response time tasks. Subjects used a joystick to move positive and negative words towards and away from a target in the middle of a virtual hallway. Subjects were assigned randomly to see one of five targets: their own name (self condition), a sick child's name (vulnerable other condition), a close family member's or friend's name (close other condition), a stranger's name (stranger condition), or a blank box. We predicted that subjects would be faster to move positive words toward and negative things away from the target in the self, vulnerable other, and close other conditions compared to the stranger and blank box conditions.

   Keywords: emotion, behavior, prosocial motivation

Measuring Prosocial Action Tendencies from Caretaking Emotions

A slice of chocolate cake sitting on your counter makes for a great dessert that is very difficult to ignore. In most situations, you will approach the appetizing treat readily. If, however, you're allergic to chocolate, on a diet, or sated, it is more likely you will avoid the slice of cake. More generally, people tend to approach things that they like and avoid things they don't like. Can a parallel idea be applied to prosocial emotions in which people give good things to and keep bad things away from others? Would you more easily offer the slice of cake to someone you care for rather than a stranger? In the present study, we examine this question by measuring prosocial action tendencies of caretaking emotions.

Organisms constantly engage in active appraisal of their environment which allows them to adapt and thrive. Environmental appraisals evoke emotional responses that prepare the organism for action such as whether to approach or avoid a stimulus that it detects. The idea of approach and avoidance motivation has been used as a broad framework for the link between emotion and behavior (Elliot, Eder, & Harmon-Jones, 2013).

Approach motivation is involved with incentive and reward, whereas avoidance motivation is involved with aversion and punishment. Thus, approach motivations are considered to have positive implications while avoidance motivations are generally negative. Specific emotions cause either approach or avoidance motivations to emerge (Elliot et al., 2013). For example, feeling love for an object prepares you to approach it by decreasing the distance between it and yourself. Feeling disgust, on the other hand, compels you to avoid the object by increasing the distance between it and yourself.

In general, approach and avoidance motivations are thought to be governed by two independent systems. Carver (2006), for example, argues that the behavioral approach system

(BAS) underlying approach motivation and behavioral inhibition system (BIS) underlying avoidance motivation work by way of feedback loops which allow for an individual to actively monitor goals and the attainment of goals. In evaluating stimuli, approach and avoidance behavior is activated in order to allow one to achieve a particular goal. Discrepancy reducing systems, part of the BAS, work to achieve approach goals by actively monitoring whether a desired stimulus has been reached or not. If not, the system activates approach behaviors to reduce the discrepancy and then monitors goal progress again. If so, then one exits the feedback loop. Using a similar mechanism, discrepancy enlarging loops, part of the BIS, activate avoidance motivations by monitoring whether one has adequately increased the distance between oneself and an undesired stimulus.

In the past, approach and avoidance motivated behaviors have been studied in relation to attitude assessment. Psychologists often consider attitudes to have behavioral components (Tesser & Shaffer, 1990). Building on this idea, Cacioppo, Priester, and Berntson (1993), suggested that motor movements can influence attitudes. Specifically, they found that arm extension, which simulates pushing something away (avoidance behavior), and arm flexion, which simulates bringing something close to ourselves (approach behavior), can create negative and positive attitudes toward novel stimuli.

In another study using a speeded response time task, Chen and Bargh (1999) reversed the attitude-behavior link and proposed that evaluative processes could immediately activate motor movement such as extension and flexion. They presented words to participants and asked them to move a lever toward or away from themselves to classify the words as negative or positive. They found that subjects moved the lever toward the body (arm flexion/approach action) faster for positive words than for negative words. Additionally, subjects moved the lever away from the

body (arm extension/avoidance action) faster for negative words than for positive words. These results imply that evaluation involves action tendencies to automatically approach or avoid valenced stimuli.

Subsequent research has demonstrated that these automatic approach and avoidance action tendencies are not about specific motor movements such as arm flexion and arm extension. Instead, they are about preparing one for action that has the aim of either increasing or decreasing distance between oneself and desirable and undesirable stimuli.

First, the way arm flexion and extension relate to approach and avoidance depends on what the movement implies (Bamford & Ward, 2008; Seibt, Neumann, Nussinson, & Strack, 2007). People are quicker to flex their arms when it means withdrawing the hand from something bad (avoidance) or pulling something good toward themselves (approach); they are quicker to extend their arms when it means pushing something bad away (avoidance) or reaching out towards something good (approach).

Second, approach and avoidance actions are not limited to flexion and extension. Rather, any action that results in decreasing distance between yourself and desired stimuli or increasing distance between yourself and undesired stimuli is supported by approach or avoidance motivation. Specifically, subjects are quicker to press keys when it results in positive words appearing to move toward them than when the action results in the positive words appearing to move away (van Dantzig, Pecher, & Zwaan, 2008).

Third, automatic approach and avoidance action tendencies do not even have to be tied to one's physical self, but instead they can be about changing distance between good and bad stimuli and a representation of one's self. Markman and Brendl (2005) presented subjects' names in the middle of a virtual hallway and words appeared above or below the name. Thus, in the

"near condition"—in which words appeared below the name—pushing a positive word involved pushing away from the physical self but toward the representation of the self (the name) and pulling a negative word involved pulling it toward the physical self but away from the representation of the self. If subjects' automatic action tendencies during the task were about specific motor movements in relation to the physical self, then participants would be faster to pull positive words toward their bodies and push negative words away. Conversely, if automatic action tendencies were about general aims to give one's self (even symbolically) good things and keep bad things away, participants would be faster to push positive words toward their names and pull negative words away. They found that people were faster to move positive things toward their names and negative things away regardless of whether a pushing or pulling movement was involved and regardless of what it meant in relation to the physical self.

Taken together, current research supports the idea that approach and avoidance motivation involve action tendencies that prepare one to accomplish specific aims through a flexible range of actions. It has been suggested that action readiness manifests as the adaptive function of emotions (Frijda, 2010). That is, action readiness allows for organisms to thrive in their environments as it prepares the organism to take action upon any stimulus. The idea of specific action tendencies can be applied beyond approach and avoidance motivation to more specific emotions. For example, anger should activate the automatic action tendency to punch someone, fear should activate the automatic action tendency to escape, and caretaking emotions such as sympathy should activate automatic prosocial behavioral tendencies.

In the past, research has attempted to study action tendencies for specific emotions by way of questionnaires and self-report measures about what people did or wanted to do during specific emotional experiences (deHooge, Breugelmans, & Zeelenbery, 2008; Dumont, Yzerbyt,

Wigboldus, & Gordijn, 2003; Fontaine, Scherer, Roesch, & Ellsworth, 2007; Kuppens, Van Mechelen, Smits, & De Boeck, 2003; Tiedens, Ellsworth, & Mesquita, 2000). Unlike with approach and avoidance motivation, there has been little research on how action tendencies automatically prepare one for behavior.

Building on the research using speeded response time tasks to assess approach and avoidance action tendencies, in the present research we tested whether speeded response time tasks could be used to assess action tendencies for more specific emotions. Specifically, we asked if just as approach motivation makes it easier to give yourself a slice of chocolate cake than to push it away, would caretaking emotions such as compassion and sympathy make it easier to give a slice of chocolate cake to someone you care for rather than a stranger?

In looking at the prosocial emotion literature, most research has focused on using self-report, facial and gestural expressions, physiological measures, and actual helping behavior in order to measure compassion and sympathy (Batson, O'Quin, Fultz, Vanderplas, & Isen, 1983; Eisenberg et al., 1988; Hertenstein, Keltner, App, Bulleit, & Jaskolka, 2006; Stellar, Manzo, Kraus, & Keltner, 2011; Toi & Batson, 1982). These measures have some limits and might be supplemented by a measure of compassion-driven prosocial action tendencies. Self-report measures, for example, may be biased due to participants' tendencies to give answers that they think are socially acceptable. Facial expressions can also be limited because they can be fabricated, too subtle to detect easily, or suppressed. Physiological measures offer a great advantage in that they eliminate self-report biases; however, they can be difficult to interpret and are often subject to interference from other processes (Eisenberg & Fabes, 1990). Finally, action readiness does not necessarily imply that a specific action will occur (Elliot et. al., 2013; Frijda, 2010), so people who feel compassion may not display actual helping behavior.

In the present study, we used a speeded response time task that simulated helping behavior in order to determine whether we could assess prosocial action tendencies. We tested whether people are quicker to symbolically give good things to and keep bad things away from others for whom they are likely to feel caretaking emotions. Using the same push/pull task as Markman and Brendl (2005) and Proctor and Zhang (2010), we asked subjects to use a joystick to move negative and positive words in relation to a target in the middle of a virtual hallway on a computer screen. Subjects were placed in one of five target conditions. The target was either the name of a vulnerable child in a high need situation (vulnerable other condition), the subject's own name (self condition), the name of the subject's closest family member or friend (close other condition), a stranger's name (stranger condition), or a blank box (blank box condition).

Based on prior work showing that cues of vulnerability cause people to feel more sympathy (Dijker, 2001, 2010; Lishner, Batson, & Huss, 2011; Lishner, Oceja, Stocks, & Zaspel, 2008), we predicted that subjects would be quicker to move positive words toward the target and negative words away from the target in the vulnerable other condition. We predicted to see the same pattern in the self condition based on prior work on approach- and avoidance-motivated behavior (Markman & Brendl, 2005; Proctor & Zhang, 2010). We included the close other condition to see if the effect would be limited to sympathetic emotions or if feelings of closeness in general would drive prosocial action tendencies (Padilla-Walker & Christensen, 2010). The stranger condition and the blank box condition were included as controls to see if there would be an effect for any human target (stranger condition) or any target at all (blank box condition).

Method

Overview

Subjects used a joystick to move words in a virtual hallway toward or away from a target. There were five conditions with different targets: vulnerable other, self, close other, stranger, and blank box. We predicted that subjects would be faster to move positive words toward and negative words away from a target if they were in the vulnerable other or self condition compared to the stranger or blank box conditions. We had no specific prediction about where subjects in the close other condition would fall.

Participants

The sample consisted of 134 individuals who either took part in the study as a course requirement at the University of Michigan or were paid $5 for their participation. Data from an additional 15 individuals were excluded from analyses due to failure to follow or understand directions or a large proportion (25% or greater) of errors on the joystick task.

Joystick Task

For the joystick task, subjects saw a virtual hallway on a computer screen. During the main trials, there was a target in the middle of the virtual hallway which varied depending on the subject's condition. The target was either the name of a vulnerable little boy (vulnerable other condition), the subject's own name (self condition), the name of the subject's closest friend or family member (close other condition), the name of a local athlete (stranger condition), or a blank box (blank box condition). Positive and negative words appeared above and below the target one at a time. The above condition represented the "near" position whereas the below condition represented the "far" position (see Figure 1). An equal number of positive and negative words were presented to each subject. Each word was displayed twice, once in each position. Subjects used a joystick to move the words toward the target or away from the target. Each word moved in the direction that the subject moved the joystick on a given trial.

Subjects were given two blocks of trials. Each block had one of two sets of instructions: to move negative words toward the target and positive words away, or to move positive words toward the target and negative words away. Each block had 40 trials and the order of instruction sets was randomized between subjects. Reminder instructions appeared in the top left corner of the screen and a red "X" appeared if subjects moved a word in the wrong direction.

Procedure

Prior to the main trials, all subjects were given a chance to practice the task. For all subjects, the practice target was a blank box and subjects were told to think of the task as putting the words in the box or keeping the words away from the box. There were 12 practice trials with an equal number of positive and negative words appearing in the near and far positions. None of the practice words were used for the main trials.

Before subjects began the main trials, they received instructions that differed by condition.

Blank box. In the blank box condition, subjects began the main trials immediately without further instructions.

Self. Subjects in the self condition were told that the researchers were interested in seeing how they would react to their own names in the middle of the hallway rather than a blank box. They were told to think of the task as giving the words to themselves or keeping the words away from themselves.

Close other. Before the practice trials, subjects in the close other condition wrote down the name of their closest family member or friend. After the practice trials, they were asked to write one or two paragraphs about what makes that person special to them in order to evoke feelings of closeness. The experimenter told the subjects that they would see the name of their

closest family member or friend in the middle of the virtual hallway rather than a blank box and that they should think of the task as giving the words to that person or keeping the words away from that person.

Vulnerable other. Subjects in the vulnerable other condition read a news article about a young boy named Michael with an unnamed disability who might not survive to adulthood. The experimenter told the subjects that they would see the name of the young boy from the article in the middle of the virtual hallway rather than a blank box and that they should think of the task as giving the words to him or keeping the words away from him.

Stranger. Subjects in the stranger condition read a news article about a local athlete named Michael who promoted a healthy lifestyle. The experimenter told the subjects that they would see the name of the athlete in the middle of the virtual hallway rather than a blank box and that they should think of the task as giving the words to him or keeping the words away from him.

After subjects completed the main trials they were debriefed and thanked for their participation.

Results

Response Time Data Preparation

We took several steps to prepare the response time data for analysis.

First we removed extreme fast or slow trials. Specifically, we eliminated one trial faster than 150 ms. Additionally, we also planned to remove trials slower than three times each subject's standard deviation above his or her individual mean; however, there were no trials this slow.

Second, we performed a natural log transformation of the response time data in order to correct for positive skew and make them normally distributed.

Third, we computed each subject's average response time for correct trials (90.1% of all trials) for each instruction set separately. In other words, each subject had one average response time for negative toward/positive away (NT) instruction set trials and another for positive toward/negative away (PT) instruction set trials.

Response Time Comparisons by Condition

We expected that prosocial action tendencies would make it harder for subjects to move negative words toward the target and positive words away and easier to move positive words toward the target and negative words away. In other words, prosocial action tendencies would be reflected by longer response times during NT trials and shorter response times during PT trials. In order to capture prosocial action tendencies, we analyzed the differences between reaction times in NT and PT means. Prosocial action tendencies were, thus, computed as,

$$PAT = NT - PT,$$

where PAT is our index of prosocial action tendencies, NT is the average log-transformed response time in negative toward/positive away trials, and PT is the average log-transformed response time in the positive toward/negative away trials. A higher prosocial action tendency index reflects slower NT responses, faster PT responses, or both. The average PAT index by condition is displayed in Table 1. We predicted that subjects in the vulnerable other and self conditions would show the greatest prosocial action tendencies; however, the mean PAT index for these two conditions is lower than for the other three conditions.

We performed planned contrasts individually comparing the vulnerable other, self, and close other conditions to the stranger and blank box conditions while controlling for the order in

which the instruction sets were presented. The results of these contrasts are presented in Table 2. There were no significant differences between any of the experimental and control conditions. Thus, our hypotheses were not supported.

Discussion

In the present study, we tested whether we could measure prosocial action tendencies for caretaking emotions using a speeded response time task. We believed that these action tendencies would manifest as faster response times in moving positive words toward and negative words away from targets in the middle of a virtual hallway. More specifically, we thought people would show these tendencies when they saw the name of a vulnerable little boy or their own name in comparison to the name of a stranger or a blank box. We were unsure if subjects would show this tendency when they saw the name of their closest family member or friend. In running planned contrasts, however, our results showed no differences between the conditions.

Our hypotheses in the present study were based on prior literature on caretaking emotions, helping, and action tendencies.

First, we expected that people would be faster to symbolically help a vulnerable boy by moving positive words toward his name and negative words away from his name compared to the name of a stranger or blank box. This expectation was consistent with prior literature in which perceiving vulnerability in others causes us to feel more sympathy (Dijker, 2001, 2010; Lishner et al., 2008; Lishner et al., 2011). Thus, we believed that feelings of sympathy toward the vulnerable little boy would activate prosocial action tendencies that would be captured in the joystick task. This hypothesis, however, was not supported. One possible reason why is that the joystick task did not capture prosocial action tendencies. Moving the positive and negative words

may not have felt enough like helping the boy to be affected by their sympathy and desire to help him. Alternatively, it is possible that the manipulation used for the vulnerable other condition in the current study was not strong enough. The news article telling the story of the little boy with the unnamed disease may have been strong enough to evoke feelings of sympathy in our subjects. If the subjects didn't feel more sympathy for the vulnerable little boy than for the stranger or blank box, then we would not expect differences in their prosocial action tendencies.

Second, the self condition was included in the study to maintain consistency with prior research where it was found that people are quicker to move positive things toward and negative things away from a target when the target is their own name (Markman & Brendl, 2005; Proctor & Zhang, 2010). This effect was thought to be driven by approach and avoidance action tendencies; however, subjects were just as fast at moving positive words toward and negative words away from a stranger's name or a blank box, which should not have involved approach and avoidance motivation. It is possible that, like in the vulnerable other condition, the joystick task was not able to capture the action tendency in the way we hoped. Moving words on a screen is not equivalent to encountering stimuli in the physical world. Thus, it is possible that the task did not activate approach and avoidance action tendencies. Additionally, it is possible that we did not see statistically significant differences due to differences in sample size across conditions. When randomizing the conditions for the subjects, there was some miscommunication between the researchers and the blank box condition ended up with a greater number of subjects than any other condition. This difference was especially stark when comparing the blank box and self conditions as the self condition ended up with the smallest number of subjects.

In discussing the stranger condition, it is important to mention that many subjects reported during debriefing that they felt as if the stranger was admirable. They also often

reported that they wished they could live the same life as the stranger in the article. We hoped that subjects would remain neutral toward him and wouldn't show differences in how quickly they moved the positive or negative words toward or away from him. The subjects' comments may indicate that the stranger article did work as an effective control condition. It may be the case that we needed a stronger manipulation of the stranger in order to ensure that subjects would not develop positive feelings toward him.

In future research, it would be beneficial to find stronger manipulations of the conditions in order to assess prosocial action tendencies successfully. In assessing the vulnerable other and stranger conditions, for example, measures should be taken to evaluate the strength of the manipulations before using them for the study. Furthermore, it may be advantageous to use stimuli other than words and names, such as pictures of the targets and of the positive and negative stimuli, in order to simulate more realistic helping behavior.

References

Bamford, S., & Ward, R. (2008). Predispositions to approach and avoid are contextually

      sensitive and goal dependent. *Emotion, 8(2)*, 174-183. doi:10.1037/1528-3542.8.2.174

Batson, C. D., O'Quin, K., Fultz, J., Vanderplas, M., & Isen, A. (1983). Influence of self-

      reported distress and empathy on egoistic versus altruistic motivation to help. *Journal of*

      Personality and Social Psychology, 45(3), 706-718. doi:10.1037/0022-3514.45.3.706

Cacioppo, J. T., Priester, J. R., & Berntson, G. G. (1993). Rudimentary determinants of attitudes

      II: arm flexion and extension have differential effects on attitudes. *Journal of Personality*

      and Social Psychology, 65(1), 5-17. doi:10.1037/0022-3514.65.1.5

Carver, C. S. (2006). Approach, avoidance, and the self-regulation of affect and action.

      Motivation and Emotion, 30, 105-110. doi:10.1007/s11031-006-9044-7

Chen, M., & Bargh, J. A. (1999). Consequences of automatic evaluation: immediate behavioral

      predispositions to approach or avoid the stimulus. *Personality and Social Psychology*

      Bulletin, 25(2), 215-224. doi:10.1177/0146167299025002007

de Hooge, I. E., Breugelmans, S. M., & Zeelenberg, M. (2008). Not so ugly after all: when

      shame acts as a commitment device. *Journal of Personality and Social Psychology,*

      95(4), 933-943. doi:10.1037/a0011991

Dijker, A. J. (2001). The influence of perceived suffering and vulnerability on the experience of

      pity. *European Journal of Social Psychology, 31*, 659-676. doi:10.1002/ejsp.54

Dijker, A. J. M. (2010). Perceived vulnerability as a common basis of moral emotions. *The*

      British Psychological Society, 49, 415-423. doi:10.1348/014466609X482668

Dumont, M. Yzerbyt, V., Wigboldus, D., & Gordijn, E. H. (2003). Social categorization and fear reactions to the September 11th terrorist attacks. *Personality and Social Psychology Bulletin, 29*, 112-123. doi:10.1177/0146167203256923

Eisenberg, N., & Fabes, R. A. (1990). Empathy: conceptualization, measurement, and relation to prosocial behavior. *Motivation and Emotion, 14(2)*, 131-149. doi:10.1007/BF00991640

Eisenberg, N., Schaller, M., Fabes, R. A., Bustamante, D., Mathy, R. M., Shell, R., & Rhodes, K. (1988). Differentiation of personal distress and sympathy in children and adults. *Developmental Psychology, 24(6)*, 766-775. doi:10.1037/0012-1649.24.6.766

Elliot, A. J., Eder, A. B., & Harmon-Jones, E. (2013). Approach-avoidance motivation and emotion: convergence and divergence. *Emotion Review, 5(3)*, 308-311. doi:10.1177/1754073913477517

Fontaine, J. R. J., Scherer, K. R., Roesch, E. B., & Ellsworth, P. C. (2007). The world of emotions is not two-dimensional. *Psychological Science, 18(12)*, 1050-1057. doi:10.1111/j.1467-9280.2007.02024.x

Frijda, N. (2010). Impulsive action and motivation. *Biological Psychology, 84,* 570-579. doi:10.1016/j.biopsycho.2010.01.005

Hertenstein, M. J., Keltner, D., App, B., Bulleit, B. A., & Jaskolka, A. R. (2006). Touch communicates distinct emotions. *Emotion, 6(3)*, 528-533. doi:10.1037/1528-3542.6.3.528

Kuppens, P., Van Mechelen, I., Smits, D. J. M., & De Boeck, P. (2003). The appraisal basis of anger: specificity, necessity, and sufficiency of components. *Emotion, 3(3)*, 254-269. doi:10.1037/1528-3542.3.3.254

Lishner, D. A., Batson, C. D., & Huss, E. (2011). Tenderness and sympathy: distinct empathic

emotions elicited by different forms of need. *Personality and Social Psychology Bulletin,*

37(5), 614-625. doi:10.1177/0146167211403157

Lishner, D. A., Oceja, L. V., Stocks, E. L., & Zaspel, K. (2008). The effect of infant-like

characteristics on empathic concern for adults in need. *Motivation and Emotion, 32*, 270-

277. doi:10.1007/s11031-008-9101-5

Markman, A. B., & Brendl. C. M. (2005). Constraining theories of embodied cognition.

Psychological Science, 16(1), 6-10. doi:10.1111/j.0956-7976.2005.00772.x

Padilla-Walker, L. M., & Christensen, K. J. (2010). Empathy and self-regulation as mediators

between parenting and adolescents' prosocial behavior toward strangers, friends, and

family. *Journal of Research on Adolescence, 21(3)*, 545-551. doi:10.1111/j.1532-

7795.2010.00695.x

Proctor, R. W., & Zhang, Y. (2010). "Mother nature doesn't have a bullet with your name on it":

coding with reference to one's name or object location? *Journal of Experimental Social*

Psychology, 46, 336-343. doi:10.1016/j.jesp.2009.10.010

Seibt B., Neumann, R., Nussinson, R., & Strack, F. (2007). Movement direction or change in

distance? Self- and object-related approach-avoidance motions. *Journal of Experimental*

Social Psychology, 44, 713-720. doi:10.1016/j.jesp.2007.04.013

Stellar, J. E., Manzo, V. M., Kraus, M. W., & Keltner, D. (2011). Class and compassion:

socioeconomic factors predict responses to suffering. *Emotion,* 1-11.

doi:10.1037/a0026508

Tesser, A., & Shaffer, D. R. (1990). Attitudes and attitude change. *Annual Review of Psychology,*

41, 479-523. doi:10.1146/annurev.ps.41.020190.002403

Tiedens, L. Z., Ellsworth, P. C., & Mesquita, B. (2000). Sentimental stereotypes: emotional

    expectations for high-and- low-status group members. *Personality and Social Psychology*

    Bulletin, 26(5), 560-575. doi:10.1177/0146167200267004

Toi, M., & Batson, C. D. (1982). More evidence that empathy is a source of altruistic motivation.

    Journal of Personality and Social Psychology, 43(2), 281-292. doi:10.1037/0022-

    3514.43.2.281

van Dantzig, S., Pecher, D., & Zwaan, R. A. (2008). Approach and avoidance as action effects.

    The Quarterly Journal of Experimental Psychology, 61(9), 1298-1306.

    doi:10.1080/17470210802027987

Table 1

Mean Prosocial Action Tendency Index by Condition.

Condition	N	M	SD
Vulnerable Other	23	0.06	0.20
Self	16	0.05	0.15
Close Other	30	0.12	0.19
Stranger	24	0.13	0.19
Blank Box	41	0.08	0.13

Table 2

Planned Contrasts Between Control and Experimental Conditions

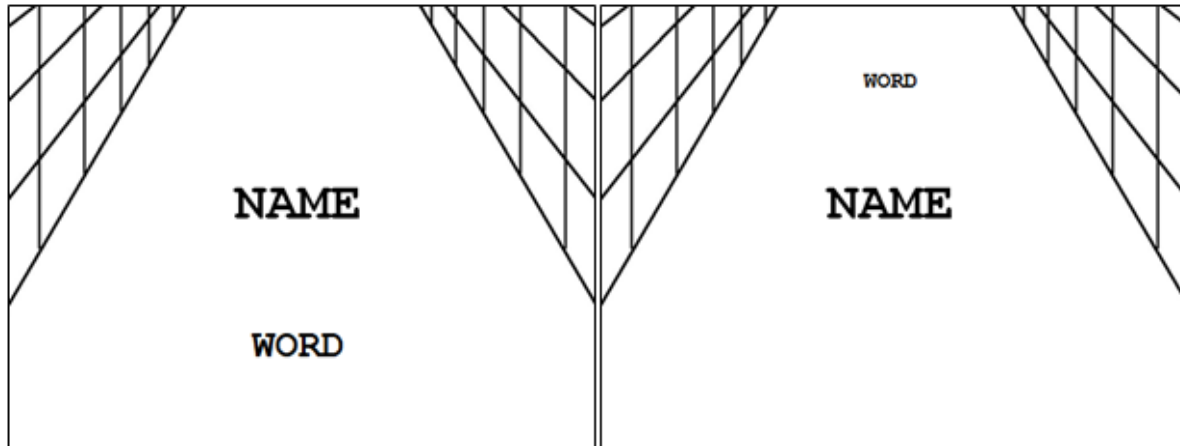| Contrast	T	Df	p
Self			
vs. box	0.31	128	0.75
vs. stranger	1.24	128	0.22
Close Other			
vs. box	1.19	128	0.23
vs. stranger	0.08	128	0.94
Vulnerable Other			
vs. box	0.17	128	0.86
vs. stranger	1.21	128	0.23

Figure 1. Subjects saw a target in the virtual hallway. Positive or negative words appeared in the "near" position (left image) or the "far" position (right image).