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Ethical Decision-Making in Moral Dilemmas

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Abstract

Humans are constantly making decisions. Often times, the rules or “heuristics” that guide our decisions are not explicitly known to us simply because their formation within our mental processes is ambiguous. These heuristics can be multiply activated when concerning moral issues. Although our decisions are evident in such cases, the origins of justifying such decisions are not. It is essential to parse out the sociocultural variations that may contribute to moral decision-making. This project aims to present the findings of participants who reacted to the morally-challenging Trolley Problem. Participants were tested on one of eight conditions that examined aspects of social consciousness. Results showed situation-specific significance related to College of Participant and Gender, but a more powerfully demonstrated decision to not push when Eye Contact with the stranger is present.

Ethical Decision-Making in Moral Dilemmas

Humans are constantly making decisions. Often times, the rules or “heuristics” that guide our decisions are not explicitly known to us simply because their formation within our mental processes is ambiguous. Previous research has discovered that this seemingly counter-intuitive method of operating is the result of a two-track human mind. The first track of decision-making, hereafter referred to as System 1, may best be described as automatic, involuntary, and quick (Kahneman, 2011). That is to say we develop an almost automatic route or “gut reaction” toward certain stimuli based on our previous experiences with similar stimuli (Lombrozo, 2009). Learning that objects that are red may be hot and choosing not to touch them is a product of System 1 because the decision is ingrained into our cognition.

The second track, hereafter referred to as System 2, is active and takes place at the forefront of our consciousness (Kahneman, 2011). This track is activated when one encounters novel stimuli and has to respond thoughtfully and creatively. If I have learned that objects that glow red are usually hot and I encounter an object that is glowing green (without any prior experience of such objects), I have to appeal to cognitive information that I do have to decide whether or not to touch it.

We use the two tracks interchangeably throughout our day to most productively maneuver our decision-making world. It may be that one uses a combination of both tracks within the same decision. Novel stimuli may pull on our automatic responses of the System 1 while simultaneously begging the cognitive deliberation of System 2. The result is a decision-making dilemma that can be tested in a variety of contexts.

System 1 and its elements are strongly influenced by cultural factors experienced by the individual (Craigie, 2011). The automatic decision-making process, guided by developed heuristics, is employed quickly toward problems that have been previously experienced. When an abstract stimulus presents itself, researchers argue that System 2 is engaged. This deliberate, domain-neutral system processes decisions with marked pace - and that pace is slow (Chelini et. al, 2009). In a sense, System 2 must recognize the situation as deserving of thoughtful attention then override the processes of the socioemotional mind. Our moral thinking at this level is prompted by abstract reasoning that is universal in scope. The human mind encounters and appraises decisions, moral and otherwise, armed with these two cognitive pathways.

Important to note, however, is the fact that moral decision-making does not occur in a vacuum. A moral choice by any individual not only holds great consequence for themselves, but imaginably any number of individuals with whom that person comes into contact. Weighing the personal and interpersonal ramifications of a decision certainly engages System 2 of the mind through its thoughtful and deliberate orientation. Alternatively, humans automatically employ learned heuristics to better facilitate attainment of their own goals. According to evolutionary psychological principles, individuals are already equipped with socioemotional patterns of

behavior that direct their decisions. These patterns of behavior were derived from our ancestors who developed a similar pattern of thought (Chelini et. al, 2009). As such, these patterns of thoughts have survived because our ancestors survived. We may expect that if we use the same heuristics, we also will have a high probability of survival because of the decisions we make.

There exists uncertainty when researchers categorize the behavior of the mind. To elucidate which system is in play while approaching difficult moral decisions, I will use a combination of the “Trolley Problem” and “Footbridge Problem” in varying scenarios for my research. The Trolley Problem has many scenarios, but its most basic is as follows:

A trolley is running towards five people who will be killed if it proceeds on its present course. The only way to save them is to pull a lever that will divert the trolley to a side track. On the side track stands one person who will be killed by the trolley if the level is pulled (Lanteri et. al, 2008)

The Footbridge Problem involves a similar level of moral responsibility, although in this scenario, the participant has no agent with which to manipulate the problem other than his or herself:

A trolley is running towards five people who will be killed if it proceeds on its present course. The only way to save the five people is to push a large stranger off the overlooking bridge on which you both stand. If he is pushed down, the stranger will die, but his mass will halt the trolley, saving the five lives (Lanteri et. al, 2008)

In both scenarios, a moral decision presents itself to the participant in the form of saving lives. The fact that not all lives can be saved gives the psychological weight necessary to ensure moral appeal. The significant difference between the two scenarios lies in the type of violation the participant would enact. The Trolley Problem forces the participant to choose performing an *impersonal violation*, or one that has an object mediating between actions and consequences (Lanteri, Chelini, & Rizzello, 2008). In this case, the lever is actually the agent that would cause the death of the single individual even though the participant pulled it. The Footbridge Problem restricts the participant to view his or her own actions (and hands) as the agent of responsibility for *personally violating* another human being (Chelini et. al, 2009).

As previously mentioned, the specifications of both the Trolley and Footbridge Problem can be easily changed to accommodate the testing of different variables. However, it remains important to parse out the differential activations of the automatic and deliberate moral decision-making processes. Viewed from the evolutionary perspective, these moral dilemmas should force participant choice based on which action they see as most appropriate for their own survival (Wilson, 2002, as cited in Lanteri et. al, 2008). Tenets of evolutionary theory posit that there should be socioemotional aversion to harming others, as it inflicts devastating reputational costs to the participant as a member of the group. Because the problem does not

allow the participant to escape decision altogether, a choice must be made according to the participants' own heuristic application toward evolutionary logic.

Research has categorized three heuristics that are affecting the moral decision: ME HURT YOU (Personal), SAVE THE MOST (Utilitarian), and DO NOT TOUCH (Omission) (Lanteri et. al, 2008). The Personal heuristic is activated in situations in which a participant judges themselves as the agent of harm to the individual. The participant may then choose only to *pull the lever* as it is more impersonal instead of personally *pushing* the man to his death. The Utilitarian heuristic is activated when a participant approaches a situation economically, and seeks to save the largest number of people. Participants employing this mode of thought always push the stranger and pull the lever. Lastly, the Omission heuristic is slippery to apply to both problems, because a lack of decision has its own consequence – death for the workers. Participants who omit making a decision do not take culpability for the decision and abstain from actively manipulating the fate of the man or the workers.

Previous research has indicated a preference as strong as 90% for the Utilitarian choice of pushing the stranger (Navarrete, McDonald, Mott, & Asher, 2012). This choice coincides with evolutionary and economic logic, so I will propose the following:

Hypothesis 1: The majority of participants will choose to push the stranger across all scenarios.

As demographic information of the participants will be collected to serve as quasi-independent variables, it is necessary to study any differences that may exist among these subgroups. To follow the research of Navarrete et. al (2012), I will propose a main effect of gender across all conditions, such that:

Hypothesis 2: More men will push the stranger than women.

Gender is important to examine apart from the other demographic variables each sex has routinely encountered differing problems over their evolutionary history (Buss, 1995). Tracking our evolutionary roots, men were often the more dominant sex, and therefore more often charged with moral-decision making. We may, therefore, expect more men to take action and push the stranger.

Although many more demographic variables may construct the second track decision-making process, it is plausible to imagine that such differences could funnel to the moral conclusion. In accordance with Navarrete et. al (2012), I will put forth the following hypothesis:

Hypothesis 3: Excluding gender, all other participant demographic variables will have no significant effect on decision-making

The following hypotheses suggest one would make decisions while conscious of the presence of others:

Hypothesis 4: Fewer participants will push the stranger when an on-looking crowd is present (E, G) than when they are the only one witnessing the event (F, H).

Hypothesis 5: Fewer participants will push a female stranger (C, D) than a male stranger (A, B)

A scenario in which the stranger makes eye contact with the participant before being pushed to their death was installed to focus on the emotional component of the two-track mind:

Hypothesis 6: Fewer participants will push when the stranger makes eye contact (A, C) as opposed to remaining unaware of who pushed them (B,D)

Finally, a final scenario tested the limits as to what we may consider as evolutionarily adaptive. Participants were forced to consider pushing a stranger described as handicapped both with and without a crowd. Such a situation pulls on both ends of our adaptive logic – handicapped individuals are typically detriments to survival of the larger group, but killing them incurs social costs in this modern context. Overall, participants who prescribe to the Utilitarian outcome may only judge the stranger, handicapped or not, as one life against five lives, and act accordingly. Therefore:

Hypothesis 7: There will be no significant difference between those who push the handicapped stranger (G, H), versus the non-handicapped stranger (E, F).

Method

Participants

A total of 272 undergraduate students from Bowling Green State University participated in the study. Age of participants was not recorded, but the sample was restricted to current undergraduate students. Participants were sampled in the Student Union or during their Biology laboratory courses, where the Teaching Assistants administered the surveys. Each participant was randomly assigned to respond to one of the eight scenarios in addition to completing the Demographic Questionnaire (Appendix A).

Materials

Each participant was presented with an HSRB-approved Consent Form informing them of their rights as a participant. Once consent had been obtained, each participant received one Demographics Questionnaire and one of eight variations of the trolley problem (Appendix B). The Demographics Questionnaire included background questions for the participant to answer, including their Sex, College within Bowling Green State University, Number of Siblings, Area in which they were raised, Birth Rank, Religious Preference, and Ethnicity.

The eight trolley scenarios are organized in a 2 x 2 design, with conditions A, B, C, and D crossing the independent variables of *Sex of Stranger* (Male/Female) and *Eye Contact* (Yes/No) before the opportunity to push. The breakdown of the individual conditions and number of participants is as follows:

		<i>Sex of Stranger</i>	<i>Eye Contact</i>	n
<u>Condition</u>	A	Man	Yes	67
	B	Man	No	38
	C	Woman	Yes	32
	D	Woman	No	37

Conditions E-H crossed *Handicap of Stranger* (Yes/No) and the *Presence of Crowd* (Yes/No). *Handicap* was operationalized by stating that the stranger was “leaning on a cane”. *Crowd* was made clear by the statement “...there appears to be other people witnessing the same event near the bridge”. Importantly, these conditions did not assign a sex to the stranger, but only labeled them as “stranger”. The individual conditions and number of participants are as follows:

		<i>Handicap of Stranger</i>	<i>Presence of Crowd</i>	n
<u>Condition</u>	E	No	Yes	37
	F	No	No	27
	G	Yes	Yes	19
	H	Yes	No	15

Procedure

Participants were each given one Demographic Questionnaire attached to one of the eight conditions (A-H). Participants were instructed to answer the question specific to their scenario, “Do you push...?” in the space below the scenario. Although not explicitly requested, participants were given space to explain their responses.

Results

Demographic questionnaire information and survey results were paired and entered into SPSS software for analysis:

Sex x DV x Scenario

Pearson Chi-Square tests for independence were used to analyze the crosses between the demographic variables, scenario (A-H), and the dependent variable of responses. Crossing the Sex of Participant with their Response yielded a significant relationship among these variables in Scenario F $\chi^2(1, N = 26) = 0.024, p = .05$. Female participants were significantly less likely to push the stranger than male participants in the scenario in which the stranger is not handicapped and there is no crowd witnessing the event.

College x DV x Scenario

A Pearson Chi-Square test also revealed significance at the $p = .05$ level for a cross of College of Participant and Response by scenario. There was a significant relationship between the variables in Scenario G $\chi^2(4, N = 17) = 0.032, p = .05$. Every participant of the College of Arts and Sciences indicated they would not push the stranger in the presence of a crowd.

Eye Contact vs. No Eye Contact

Participant demographic variables were not considered when the results of Scenarios A and C (Eye Contact) were compared with Scenarios B and D (No Eye Contact). A cross of Scenario and DV revealed a significant relationship between establishing eye contact with the stranger and pushing them off the bridge $\chi^2(4, N = 171) = 0.05, p = .05$. Significantly fewer participants chose to push the stranger, regardless of sex of the stranger, when eye contact was established.

Support was not found for Hypothesis 1, as the results went against the previous literature indicating a trend for pushing the stranger. Including all scenarios and demographic variables, only 29% of the participants indicated they would push the stranger, with 69.9% indicating they would not push. Only a small, non-significant difference existed in Response by Sex of the Participant, as 31% of Men and 26% of Women pushed the stranger $\chi^2(2, N = 249) = 0.458, p = .05$. Therefore, Hypothesis 2 was not significant.

Hypothesis 3 was supported in the prediction of all other participant demographics not having an effect on Response, although the Area Raised of the participant came closest to achieving significance $\chi^2(4, N = 254) = 0.172, p = .05$.

The other three independent variables other than Eye Contact, including Sex of Stranger $\chi^2(4, N = 269) = 0.414, p = .05$, Presence of Crowd $\chi^2(4, N = 269) = 0.697, p = .05$, and Handicap Stranger $\chi^2(2, N = 269) = 0.744, p = .05$, were not significant. Thus, support was not found for Hypothesis 4, which predicted fewer participants would push the stranger in the presence of a crowd than if they were the only ones witnessing the event. Likewise, support for Hypothesis 5 that stated more participants would push the stranger if she is a female as opposed to a male was not found. Lastly, support for Hypothesis 7 was not found, as the stranger being handicapped or not was not significantly impact in the participants' decision to push them off the bridge.

Discussion

Implications

Interestingly, a significant difference in responses between the Sex of Participant occurred only in Scenario F, in which fewer women elected to push the stranger off the bridge without a crowd present. Because this cross did not include a sex of the stranger, we cannot assume any gender-specific sympathy played into the decision-making. However, a gender-specific participant response should be noted for the scenario in which a crowd is not present.

The second scenario-specific result occurred in Scenario G, in which the presence of a crowd seemed to halt the push of every participant from the College of Arts and Sciences. Further research may be required to parse out what aspect of the Arts and Sciences liberal education or characteristic of those who participate in such an education is common among these negative responses. Interestingly, Scenario G was the only scenario in which a significant result was obtained when considering the College of the Participant.

As the only independent variable that yielded a significant result, Eye Contact merits attention for its relationship with moral decision-making. Meeting eyes with a stranger before imposing significant consequences on their life appears to be a rather novel situation at first blush, but further generalization reveals such situations are not so unusual. Combat situations put soldiers in circumstances of varying anonymity and individualization among their enemies. Sometimes a soldier is to regard an enemy as no more than a number, but on other occasions their target has a known name and personal history.

Anonymous conditions suggest a soldier may approach a life-or-death situation with a Utilitarian perspective in efforts to save the most innocent lives, as was the case in saving the five workers in the Trolley Problem. In circumstances of guerilla warfare, however, an enemy is not always clearly marked. A plausible unfolding of events could lead to a soldier having to kill an enemy who he may have a personal connection with far beyond eye contact. Such

implications are dependent upon interplay of the heuristics developed by the individual soldier and the situational activation of System 1 or System 2. Although many variables factor into such a grave decision, this finding begins to develop our understanding of what may matter to those forced to choose.

Limitations

Logistical constraints in administering the survey resulted in a few experimental shortcomings for this study. One such shortcoming occurred when a vast majority of those surveyed in their laboratory courses had majors in the College of Arts and Sciences. Although this college covers many disciplines and has students of many diverse characteristics, future studies may benefit from a more diverse sample. For this survey, only students from BGSU were isolated as the population of study because of their accessibility and relative homogeneity in age. Expanding the sample to include members of the surrounding community would add age as another participant variable to consider in the decision-making research.

A second limitation focuses on the difficulty of illustrating the details of these specific versions of the Trolley Problem. Participants were instructed to read the scenarios carefully, but it is possible that just by human error, an individual may have misread or missed a key detail of the scenario. If, for example, an individual did not recognize that the stranger was handicapped in Scenarios G and H, their choice to push him may have been affected. It was important to keep the independent variables unknown to the participants, so making all of the details explicit in survey form presented a methodological challenge.

Further Research

Follow-up studies may stem from correcting any of the shortcomings from this experiment. Physiological measures of arousal and stress response may be better able to detect the anxiety provoked by the situation. In the same vein, a visual medium to show the participant the situation could not only clarify any residual ambiguity about the scenario, but it could also elicit more verisimilar stress responses. Physical instruments to limit the participants' time to respond to the situation would determine which track would be activated. A computer that only gave 5 seconds for a response would better replicated the decision-making of System 1. Participants could then return to their answers minutes later once they have cognitively appraised the situation through System 2.

Providing participants with an opportunity to explain their reasoning for one or both tracks would give insight as to how their decision-making pathways dictated their choice. Along the same lines, a more detailed demographic questionnaire could parse out other variables of

interest to decision-making as well. Finally, it is necessary to acknowledge the breadth of opportunities that using this specific hybrid of the Trolley and Footbridge Problem can provide. One may alter the characteristics of the workers on the tracks, or completely change their identities to “family members”, “neighbors”, “romantic partners”, or the like to pit evolutionary relationships against one another. Such research would construct a hierarchy for our interpersonal relationships as evolutionary creatures.

Eliciting reactions in such dramatic situations allows research to unveil our quotidian values. The Trolley Problem, although very unlikely to present itself to an individual in the real world, activates our deeply ingrained decision-making processes that are not always available or familiar to us. Pulling back this mask may start with a lever, or, in this case, a simple push.

Appendix A – Demographic Questionnaire

Sex: M F

College (within BGSU): _____

In which area were you raised? Rural Suburban Urban

Number of siblings: 0 1-2 3-4 5+

If you have siblings, what is your birth rank? First Middle Last

Religious preference: Anglican Catholic Evangelical

Orthodox Baptist Lutheran

Presbyterian Jewish Hindu

Muslim No religion

Other , _____

I prefer not to answer.

Ethnicity: Caucasian African-American

Asian/Pacific Islander Hispanic

Middle Eastern/Arabian Native American

Other: _____

I prefer not to answer.

Appendix B – Trolley Problem Scenarios A-H

A (Male Stranger, Eye Contact)

One sunny afternoon, you decide to take a walk outside during your lunch break from work. As you continue towards your favorite sandwich shop, you take in all the sights and sounds of this beautiful afternoon. To your left, you see the construction crew doing some new repairs on the trolley tracks that run through the city. You cross the street to the side nearer to the trolley tracks. You see the shop right across a footbridge overlooking the trolley track. Suddenly you catch vision of the trolley, which you heard wasn't supposed to be running today due to the construction, out of the corner of your eye.

The trolley is running towards a group of five workers who will be killed if it proceeds on its present course. The only way to save the five workers is to push a large man off the footbridge that you are both standing on. If the man is pushed down, the man will die, but his mass will assuredly halt the trolley.

Right before the opportunity to push the man to his death, he turns around and makes eye contact with you. Do you push the man to save the five workers?

B (Male Stranger, No Eye Contact)

One sunny afternoon, you decide to take a walk outside during your lunch break from work. As you continue towards your favorite sandwich shop, you take in all the sights and sounds of this beautiful afternoon. To your left, you see the construction crew doing some new repairs on the trolley tracks that run through the city. You cross the street to the side nearer to the trolley tracks. You see the shop right across a footbridge overlooking the trolley track. Suddenly you catch vision of the trolley, which you heard wasn't supposed to be running today due to the construction, out of the corner of your eye.

A trolley is running towards five workers who will be killed if it proceeds on its present course. The only way to save the five workers is to push a large man off the footbridge that he is standing on. If the man is pushed down, the man will die, but his mass will halt the trolley.

The man will not turn around and would fall not knowing who pushed him. Do you push the man to save the five workers?

C (Female Stranger, Eye Contact)

One sunny afternoon, you decide to take a walk outside during your lunch break from work. As you continue towards your favorite sandwich shop, you take in all the sights and sounds of this beautiful afternoon. To your left, you see the construction crew doing some new repairs on the trolley tracks that run through the city. You cross the street to the side nearer to the trolley tracks. You see the shop right across a footbridge overlooking the trolley track. Suddenly you catch vision of the trolley, which you heard wasn't supposed to be running today due to the construction, out of the corner of your eye.

A trolley is running towards five workers who will be killed if it proceeds on its present course. The only way to save the five workers is to push a large woman off the footbridge that she is standing on. If the woman is pushed down, the woman will die, but her mass will halt the trolley.

Right before the opportunity to push the woman to her death, she turns around and makes eye contact with you. Do you push the woman to save the five workers?

D (Female Stranger, No Eye Contact)

One sunny afternoon, you decide to take a walk outside during your lunch break from work. As you continue towards your favorite sandwich shop, you take in all the sights and sounds of this beautiful afternoon. To your left, you see the construction crew doing some new repairs on the trolley tracks that run through the city. You cross the street to the side nearer to the trolley tracks. You see the shop right across a footbridge overlooking the trolley track. Suddenly you catch vision of a runaway trolley, which you heard wasn't supposed to be running today due to the construction, out of the corner of your eye.

A trolley is running towards five workers who will be killed if it proceeds on its present course. The only way to save the five workers is to push a large woman off the footbridge that she is standing on. If the woman is pushed down, the woman will die, but her mass will halt the trolley.

The woman will not turn around and would fall not knowing who pushed her. Do you push the woman?

E (Crowd, No Handicap)

One sunny afternoon, you decide to take a walk outside during your lunch break from work. As you continue towards your favorite sandwich shop, you take in all the sights and sounds of this beautiful afternoon. To your left, you see the construction crew doing some new repairs on the trolley tracks that run through the city. You cross the street to the side nearer to the trolley tracks. You see the shop right across a footbridge overlooking the trolley track. Suddenly you catch vision of the trolley, which you heard wasn't supposed to be running today due to the construction, out of the corner of your eye.

The trolley is running towards five workers who will be killed if it proceeds on its present course. The only way to save the five workers is to push a large stranger off the footbridge that you are both standing on. If the stranger is pushed down, they will die, but their mass will halt the trolley.

You also notice that, in addition to the regular lunch crowd, there appears to be other people witnessing this same event near the bridge.

Do you push the stranger off the bridge?

F (No Crowd, No Handicap)

One sunny afternoon, you decide to take a walk outside during your lunch break from work. As you continue towards your favorite sandwich shop, you take in all the sights and sounds of this beautiful afternoon. To your left, you see the construction crew doing some new repairs on the trolley tracks that run through the city. You cross the street to the side nearer to the trolley tracks. You see the shop right across a footbridge overlooking the trolley track. Suddenly you catch vision of the trolley, which you heard wasn't supposed to be running today due to the construction, out of the corner of your eye.

The trolley is running towards five workers who will be killed if it proceeds on its present course. The only way to save the five workers is to push a large stranger off the footbridge that you are both standing on. If the stranger is pushed down, they will die, but their mass will halt the trolley.

There is a sale at the sandwich shop that has drawn the attention of many of the passersby, making you the only person with knowledge of the stranger's potential death.

Do you push the stranger off the bridge?

G (Crowd, Handicap)

One sunny afternoon, you decide to take a walk outside during your lunch break from work. As you continue towards your favorite sandwich shop, you take in all the sights and sounds of this beautiful afternoon. To your left, you see the construction crew doing some new repairs on the trolley tracks that run through the city. You cross the street to the side nearer to the trolley tracks. You see the shop right across a footbridge overlooking the trolley track. Suddenly you catch vision of the trolley, which you heard wasn't supposed to be running today due to the construction, out of the corner of your eye.

The trolley is running towards five workers who will be killed if it proceeds on its present course. The only way to save the five workers is to push a large stranger, who is leaning on a cane, off the footbridge that you are both standing on. If the stranger is pushed down, they will die, but their mass will halt the trolley.

You also notice that, in addition to the regular lunch crowd, there appears to be other people witnessing this same event near the bridge.

Do you push the stranger off the bridge?

H (No Crowd, Handicap)

One sunny afternoon, you decide to take a walk outside during your lunch break from work. As you continue towards your favorite sandwich shop, you take in all the sights and sounds of this beautiful afternoon. To your left, you see the construction crew doing some new repairs on the trolley tracks that run through the city. You cross the street to the side nearer to the trolley tracks. You see the shop right across a footbridge overlooking the trolley track. Suddenly you catch vision of the trolley, which you heard wasn't supposed to be running today due to the construction, out of the corner of your eye.

The trolley is running towards five workers who will be killed if it proceeds on its present course. The only way to save the five workers is to push a large stranger, who is leaning on a cane, off the footbridge that you are both standing on. If the stranger is pushed down, they will die, but their mass will halt the trolley.

There is a sale at the sandwich shop that has drawn the attention of many of the passersby, making you the only person with knowledge of the stranger's potential death.

Do you push the stranger off the bridge?

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