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Analyzing Cross-Cultural and Interpersonal Factors Influencing Trolley Dilemma Judgments: Using Morality as Cooperation Theory

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Abstract. Scholars have been constantly interested in studying moral quandaries, including the trolley problem. Despite their widespread adoption, normative ethical theories have challenges in real-world scenarios. This study explores the impact of interpersonal and cross-cultural factors on trolley dilemma judgments through the Morality-as-Cooperation (MAC) model. The study mainly reviews pertinent literature and discusses how the MAC model applies to the trolley dilemma. It demonstrates how interpersonal relationships and cultural norms influence decision-making. Eastern civilizations, for instance, place a high value on communal welfare. Although it has limitations, the MAC model provides a more thorough framework than normative ethics. The MAC model is a prospective alternative, but further research is required to better comprehend moral dilemmas and bridge the disparity between theory and practice in morality research, particularly in enhancing the accuracy of interpersonal perception and methodological considerations.

Keywords: Morality Trolley, Dilemma morality as cooperation (MAC), Normative Ethics, Cultural influences, Interpersonal relationship

1. Introduction

For millennia, scholars have engaged in the study of morality. A moral dilemma involves making judgments based on a hierarchy of values, often depending on the context to determine the priority of principles [1]. This concept is clearly illustrated in the Trolley Problem. In 1967, Philippa Foot presented this thought experiment, which has since become a key reference point in studying moral dilemmas. In this scenario, a runaway trolley is headed toward five workers on one track, and the option is to divert it onto another track with one worker [2]. The current focus of research on the trolley problem and other moral dilemmas is on comparing two normative ethical approaches: deontological perspectives and utilitarian judgements [3].

However, these normative ethical theories often fall short in practical applications because they tend to oversimplify complex scenarios, potentially overlooking various factors that impact moral decisions [4]. A noteworthy theory in this realm is Morality-as-cooperation (MAC), introduced by Oliver Scott Curry. This theory suggests that morality consists of a collection of biological and cultural strategies which are designed to address recurring cooperation challenges within human social interactions [5]. It includes seven types of cooperation corresponding to different moral aspects such as family values, group loyalty, etc [6]. In accordance with the MAC, moral dilemmas arise

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when there is uncertainty about whether a situation presents a cooperative opportunity and, consequently, whether cooperation is the appropriate course of action, drawing upon the "zero-sum games" theory. This study aims to integrate the trolley dilemma with the MAC model so that investigate how individuals make moral decisions across various cultural and interpersonal contexts. The examination of how real-world social factors affect moral judgements provides new insights into the MAC theory's literature, enhancing moral psychology and cross-cultural research.

The main research questions focus on (1) how individuals use the MAC framework to navigate trolley dilemma decisions in diverse cultural contexts and (2) the role of interpersonal and cultural factors in shaping these moral judgements.

The paper will first discuss the limitations of applying normative ethics to the trolley dilemma, then explore the MAC model's application to the problem, and finally analyse how interpersonal and cultural factors interact with the MAC model to influence moral judgments.

2. Results and discussion

2.1. Current limitations and problems in addressing moral dilemmas

Social scientists have identified several limitations of normative ethics in explaining real-life situations.

2.1.1. Inadequacy of approaches based on normative ethics

Utilitarian and deontological perspectives, while important in moral philosophy, are more suitable for the questionable traditional definition of moral dilemmas. In the traditional definition, two or more moral principles with equally equal moral weight clash in one moral dilemma and following one principle would violate the other. However, Deontological or utilitarian reasoning inclinations when making moral judgments are not mutually exclusive [7]. Such simplification risks overlooking the intricate dynamics of real-world situations and can lead to logical inconsistencies, as it forces binary choices on inherently complex scenarios. On the one hand, although these theories are logical, they fail to consider the multitude of factors and contexts that shape moral decisions [4]. Moral practice is complex and context-dependent, encompassing emotional responses and personal experiences [1]. Moreover, moral dilemmas often involve conflicting values, multiple stakeholders, and difficult trade-offs, making it difficult to apply simple ethical principles like deontology and utilitarianism [8]. In particular, the central role of emotions in moral reasoning is widely recognized in neuroscience and moral psychology research. Emotions like empathy, guilt, shame, and remorse are integral to moral judgments and guide our actions [9]. In practical terms, for instance, one might consider the probability of successfully pulling the lever, the action itself, in such a short period. Additionally, each choice's specific circumstances, relationships, and consequences must be evaluated to determine the relative importance of moral principles [1].

On the other hand, Morscher contends that the idea of two equally strong moral principles simultaneously applying to a situation is contradictory [1]. If two principles are truly equally strong, like deontology and utilitarianism, then there is no real conflict, and people would simply be indifferent to the choice but focus on the adherence to morality.

Therefore, when the trolley problem is encountered in real life, rather than as a hypothetical experiment, it is acknowledged that normative ethics provides a framework for moral reflection and prompts critical questioning of our moral assumptions [4]. However, it is also recognized that this framework lacks practical applicability.

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2.1.2. The unrealistic nature of hypothetical dilemmas

While hypothetical dilemma research, like that of the trolley problem, is valuable for understanding moral cognition, it has little predictive value for actual behavior [10]. Research has shown that there are both behavioral and neural differences. As for the former, it is particularly pronounced when decisions involve potential losses or risks. And fMRI studies have demonstrated the latter, where real choices activate areas associated with emotional processing, risk assessment, and reward anticipation more strongly.

It is suggested that four factors were responsible for the discrepancy between hypothetical and real choices Firstly, hypothetical choices lack the emotional salience and visceral experience of real-life decisions. Secondly, real choices are embedded in a complex web of social, economic, and personal factors that are absent in hypothetical scenarios. Thirdly, real decisions often involve greater cognitive effort, leading to more impulsive or less-considered choices. Lastly, motivational Differences: People may be less motivated to engage in careful deliberation and risk assessment in hypothetical scenarios [11]. As a hypothetical scenario, the trolley dilemma may not accurately reflect how people would act in a real situation.

2.2. Interpersonal relationships and cultural universality

2.2.1. The role of interpersonal relationships in the context of MAC

The MAC model emphasizes that collaboration principles are foundational to cooperative interactions, with interpersonal relationships being essential to their function. The MAC model encompasses seven types of cooperation, and interpersonal relationships play a crucial role. The nature of these relationships can vary depending on the object of cooperation and the context. For example, group loyalty may be influenced by the closeness of relationships within a group-- a greater degree of group commitment and cooperation than that observed in the context of mere acquaintances [12]. Besides, Positive interpersonal social interdependence has been identified as a factor that can facilitate the promotion of cooperative learning and collaborative problem-solving competence [13,14].

2.2.2. The vertical causal correlation of cultural diversity, cooperation, and interpersonal relationships

Different cultures may have different values and norms regarding cooperation and moral behavior, which can influence how individuals respond to the dilemma. Research has revealed that the surrounding environment, namely cognitive stimulation, exerts a formative influence on one's cognitive processes. Environmental inputs foster knowledge acquisition across various cognitive domains by engaging the senses and providing learning opportunities, especially for children [15]. Simultaneously, a strong personal force and intention toward particular morality or norms is positively associated with country-level collectivism. In addition, different types of Cooperation are the tangible and concrete embodiment of social interaction. Therefore, personal moral beliefs influence others through social interaction, forming culture. Moreover, the traditions of social interaction and organizational dynamics of society are associated with diverse cultural manifestations [16]. For example, the research found that participants from Eastern, Southern, and Western countries exhibited distinct patterns in their moral judgments. Eastern Cultures: People from Eastern cultures prioritized saving a greater number of lives, even if it involved harming a smaller number of people.in Southern Cultures: Participants from Southern cultures tended to be more influenced by social and emotional factors, such as personal responsibility and the potential for blame, in their moral judgments. Western Cultures: Individuals from Western cultures exhibited a mixed pattern, with

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some endorsing utilitarian judgments and others emphasizing rules and duties to make the decision [3].

It can be reasonably concluded. Therefore, culture and cooperation are tightly related and mutually affected, indirectly influencing interpersonal relationships. Even though some behaviors are based on intuition, such behaviors are fundamentally shaped by the individual's pre-existing mindset.

2.2.3. Cultural universality of moral behaviors in MAC

It is assumed in the theory of MAC that the variation of cooperative behaviors and corresponding morality is the result of various degrees of calibrations to the priority and ranks of moral values when individuals or societies encounter different cooperative problems [5]. The priority is dependent on cultural diversity. For example, in Navajo culture, there's a belief that help and gifts are given freely, without expectation of immediate repayment. This contrasts with the Western view, in which gratitude implies a debt and an obligation to reciprocate. Rather than devaluing reciprocity, the Navajo might prioritize creating goodwill through generosity over strict repayment [17].

Moreover, recent studies have brought attention to the Morality-as-Cooperation Dictionary (MAC-D), a more robust and reliable machine-reading tool for analysing multicultural moral language.It embodies words, stems, and n-grams related to the seven moral principles, creating seven proto–dictionaries of virtues and vices. The MAC-D serves as a powerful instrument for cross-cultural analysis, compiling an extensive database that includes the analysis of 1,620,644 words from 9,653 paragraphs and 1,389 documents sourced from 256 societal regions. Moreover, it employs scientific methods to calculate the proportion of words in each paragraph corresponding to the seven sub-dictionaries [17].

Through practical application, numerous instances of the seven moral values have been identified across different societies, such as family values among the Garifuna and group loyalty within Pashtun communities. Besides, it identified situations where basic moral values conflicted, which caused. For example, among the Sarakatsanos, expressing gratitude for received favours is highly valued. They believe in reciprocal actions, but acknowledging a debt can be seen as a sign of inferiority. This creates a conflict between (positive) reciprocity and heroism, in which individuals strive to maintain their position of power even while acknowledging a debt of gratitude.

All data were collected on a societal level, where interpersonal relationships are the key components shaping these results. However, it is noticeable that there are also cultural variations in morality between and within societies. These variations can affect how individuals perceive and apply moral principles in different cultural contexts.

2.2.4. Implications for the trolley dilemma

In the context of the trolley dilemma, the cultural and interpersonal factors associated with the MAC model can influence how individuals make decisions. For example, cultural values may determine whether an individual prioritizes group loyalty or fairness when deciding to divert the trolley.

2.3. MAC model as an alternative

The MAC model offers an alternative approach as it considers the act of cooperation and the context in which moral decisions are made. It takes into account factors such as interpersonal relationships and cultural context, providing a more comprehensive framework for understanding moral judgments in real-life situations.

It would be beneficial to re-examine the trolley problem from a more realistic perspective, taking into account the insights offered by the artificial intelligence (AI) model, specifically ChatGPT4.0. The AI system determines the validity of a unique or new phenomena (construct validity) or how well

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the measures align with outcomes that stakeholders [18] by proposing the appropriate statistical analysis [11]. Recent research indicates that AI is often perceived as more ethical and trustworthy than humans in responding to moral dilemmas [19].

Specifically, when considering the trolley problem and the role of moral principles in cooperative decision-making, two key moral principles may appear to conflict: the desire to help the group and the courage to act independently. The following specific analyses are presented:

(1) Family Values

It involves the allocation of resources to kin. MAC leads to the expectation that this type of cooperative behavior, including the care of offspring, assistance to family members, and the avoidance of inbreeding, will be regarded as morally good [6]. The decision-maker is unrelated to the individuals on either track by kinship or other special relation bonds. Therefore, this principle is not applicable.

(2) Group Loyalty

It involves coordination to mutual advantage. MAC leads us to expect that this type of cooperative behavior—forming friendships, participating in collaborative endeavors, favoring your group, and adopting local conventions—will be regarded as morally good [6]. This principle may be considered in the decision-making process. Some may argue that diverting the trolley is still perceived as morally superior because it helps minimize harm to his group, thereby acting in a manner that is beneficial to his fellow humans. This line of reasoning is consistent with a consequentialist approach.

(3) Reciprocity

It involves social exchange.MAC leads us to anticipate that this category of cooperative behaviour—including trust, reciprocity, retribution, gratitude, and reconciliation—will be perceived as morally commendable [6]. This principle is not directly pertinent to the trolley dilemma, as it primarily concerns reciprocal relationships and the exchange of favors.

(4) Bravery

It involves Contests between Hawks.MAC leads us to expect that a hawkish display of dominance (the “heroic virtue” of bravery, fortitude, skill, and wit) will be regarded as morally good [6]. Although this principle is not directly relevant, it may influence an individual's decision to act and pull the lever if they perceive it as courageous, even if it results in the death of the individual on the side track and subsequent assumption of responsibility.

(5) Respect

It involves Doves. MAC leads us to expect that a dovish display of submission (the “monkish virtue” of humility, deference, obedience, and respect) will be regarded as morally cooperative behavior [6]. This principle is not directly applicable to the scenario, as it concerns the dynamics of hierarchical relationships and the deference owed to authority.

(6) Fairness

It involves division. MAC leads us to expect that this type of cooperative behaviour—dividing disputed resources, reaching a compromise, and being fair—will be regarded as morally good [6]. This principle is not applicable to the trolley dilemma. Although fairness is often associated with the equitable distribution of resources, in moral dilemmas like the trolley problem, fairness could also relate to the equitable treatment of individuals. The decision to sacrifice one person to save others could be evaluated through the lens of fairness, questioning whether it is just to impose a greater burden on one individual.

(7) Property rights

It involves possession. MAC leads us to expect that this type of cooperative behavior—deferring to prior possession—will be regarded as morally good [6]. This principle is not pertinent to the trolley dilemma, as it concerns the respect due to ownership and prior possession of resources.

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Therefore, social and cultural influences on the Trolley Dilemma are revealed. In the previous research, participants were less likely to endorse utilitarian choices when the victim was a loved one or someone they knew personally, highlighting the influence of emotional closeness. They were more likely to endorse utilitarian choices when the action was perceived as less directly causing harm (e.g., pushing a button to divert the trolley) versus directly pushing someone onto the tracks [3]. Despite applying normative ethics as a basis, these two arguments are situational factors, closeness to the victim, and agency, respectively. Are highlighted as an indispensable component to reach a meaningful conclusion. Comparatively, the MAC theory can be seen as a combination of the two aforementioned components. It presents a more practical approach, facilitating a dialogue between theory and practice. The MAC theory considers the act and the cooperation involved in moral judgments, which provides a more applicable framework for real-life moral dilemmas.

3. Discussion

This essay has demonstrated the limitations of applying normative ethics in explaining real-world moral dilemmas. While valuable in theoretical discussions, deontology and utilitarianism fail to consider the complexity of real-life decision-making, neglecting factors including emotional responses, personal experiences, cultural influences, etc.

While this essay has explored the potential of MAC in understanding moral dilemmas, further research is needed to deal with several limitations. (1) Accuracy of Interpersonal Relationship Perception.it is pertinent to inquire whether one's IR perception is accurate. Higher socioeconomic status (SES) is positively associated with higher interpersonal accuracy, specifically in accurately inferring the meanings of cues. Empathic or responsible dominance is positively linked to accuracy; egoistic or aggressive dominance is negatively related to accuracy [20]. Inaccurate perception of relationships can lead to misjudgments in moral decisions. (2) Methodological Considerations. The arguments in this paper are mostly based on a literature review. Suggest alternative methods to enhance the study's validity and reliability if possible.

Future studies could delve into the connection between moral judgments in various moral dilemmas and cultural norms. It would also be insightful to explore how individuals acquire and integrate moral values within diverse cultural contexts. In addition, there is a need for more precise metrics to assess how interpersonal relationships are perceived and the subsequent influences on moral judgements.

4. Conclusion

In summary, the exploration of moral dilemmas, particularly illustrated by the trolley problem, has been a longstanding focus in academic discourse. Although essential in moral philosophy, normative ethical theories have demonstrated limitations in real-world applications. It fails to account for the multifaceted nature of moral decision-making, which involves emotional responses, personal experiences, and cultural influences. The trolley problem has served as a foundational thought experiment in evaluating deontological versus utilitarian viewpoints, yet these theories oversimplify complex scenarios and often lack practical applicability.

The Morality-as-Cooperation (MAC) model emerges as a promising alternative. By highlighting seven fundamental types of cooperation inherent in human social life, the MAC model recognizes the crucial role of interpersonal relationships and cultural diversity in shaping moral judgements. It posits that moral dilemmas arise from uncertainty regarding cooperation opportunities and the appropriate course of action. Through the application of the MAC model to the trolley problem, we observe how cultural norms and interpersonal relationships influence moral decision-making. For instance, Eastern

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cultures prioritise group welfare, while Southern cultures are more attuned to social and emotional factors.

Nevertheless, addressing certain limitations is crucial for future research. One key aspect is that the accuracy of one's perception of interpersonal relationships (IR) is a critical factor. Socioeconomic status and different forms of dominance have been shown to impact the accuracy of IR perception, with implications for moral decisions. Additionally, methodological improvements are necessary, as the current study predominantly relies on a literature review. Alternative methods are needed to enhance the validity and reliability of the research. Future studies could explore the connections between moral judgements across various moral quandaries and cultural norms, investigate how individuals acquire and assimilate moral values across different cultural contexts, and develop more precise metrics to assess the impact of IR perceptions on moral judgements. Overall, the MAC model offers a comprehensive and practical approach to understanding moral dilemmas, effectively bridging the gap between theory and practice in the study of morality.

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