A no-win scenario: A simulation in Experiential Learning

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Abstract. This project aims to present a different paradigm of the no-win model game in Game Theory, which is often used to test ethical decision-making and leadership qualities. Inspired by 'Kobayashi Maru', which was the test used as a training exercise in a no-win scenario in the well-known TV series and movies, Star Trek, we aim to test this model in a simulated environment. In doing so, we explore the model's connection to experiential learning in various fields such as chess, business, health care and international relations. In particular, we consider its application in a specific political scenario in recent history and debate the implications of a 'player' playing this game multiple times, which gives them the advantage of learning from their past experience.

Keywords: Game theory · Ethical decision-making · Kobayashi Maru · No-win scenario · Experiential learning

1 Introduction

In the mathematical paradigm of game theory [5], a no-win scenario is a model game in which there exists no choice that leads to a win for the player. It is often interpreted as a lose-lose game. However, in our opinion, it actually translates to a win-lose game. Certain circumstances are created such that the party playing the game always loses while the other always wins.

These scenarios are used to develop leadership qualities and decision-making capabilities, mainly in highly distressing [1] and life-threatening situations, which make them an ideal process for experiential learning. It is best to conceive such scenarios as a process, rather than in terms of outcomes, which is an idealist approach to learning [7].

From past experience one can learn to deal with similar or same situations differently as compared to before. This becomes a very important skill to have and is preferred to be developed in leaders and rulers who will inevitably need to deal with such scenarios in their lifetime.

2 Background and Scope

We attempt to study no-win situations and their basis under two different lenses, computational and mathematical, and how experiential learning can potentially make players realize the essence of the situation they are in.

The computational aspect relates to the Kobayashi Maru simulation as described in section 2.1. The mathematical aspect is covered by the concept of Zugzwang - German for compulsion to move – in chess where a player, no matter how he moves, is always at a disadvantage.

2.1 The Kobayashi Maru Test

In a no-win scenario, there are several ideas and competencies that can only be fully understood in a simulated environment. For this purpose, we aim to analyze such a scenario in the context of a well known test called the "Kobayashi Maru" [1] **Table** 1 as introduced in the Star Trek universe (TV series and movies). This is a model no-win simulation designed to test the ethical decision-making and leadership abilities of the Starfleet academy cadets that prepares them to face situations that are highly intense, life-threatening and stressful. [10].

Table 1. The outcomes of the Kobayashi Maru test

Outcomes Of Kobayashi Maru Test	
Decision	Outcome
Rescue Starship	Suffer certain death at the hands of the Klingons
Abandon Starship	Face a mutiny by your crew mates and be overthrown as the Captain

Through our visual novel-like simulation [11], we wish to recreate the tense environment in which a vital decision is to be made. Since none of the choices lead towards a win, a choice to "reprogram" the simulation will be provided after a certain number of unsuccessful simulations have been completed. Reprogramming the simulation allows the player to twist the default rules of the game and convert the no-win scenario into a win-lose scenario. He will now be able to

rescue the crew members of the Kobayashi Maru (win) and also annihilate his enemies, the Klingons (who lose).

However, this does lead to an ethical dilemma of whether this would be considered as cheating or simply using one's past experience as a means of altering the game itself by thinking of it differently? Captain Kirk is famously known to be a disbeliever of no-win situations, and is the only cadet to have championed the Kobayashi Maru simulation by reprogramming the set rules. However, his actions are challenged by his right-hand man and first officer, Spock, who disagrees with his Captain altering the simulation rules. Spock is known to say that the purpose of the simulation was to induce fear in the cadet's mind, fear of certain death, to see how he adapts according to it and whether he can maintain his composure. This was a vital quality required in every cadet of the Starfleet Academy who wishes to become a captain of his own vessel [6].

2.2 Zugzwang

In the field of combinatorial game theory [4], which deals with sequential games, Zugzwang is referred to as a move or choice made that directly changes the outcome of the game such that one of the two players is left worse off than the other.

This term is commonly used in chess, where one player has to make such a move that lands him in Zugzwang for the rest of the game. There exist many possibilities in chess that can lead a player to be caught in this situation [3] one of which is shown below in **Figure** 1.

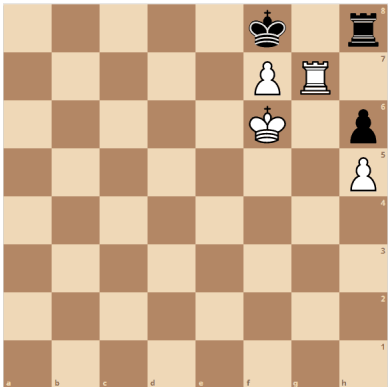

Fig. 1. A Zugzwang situation in chess.

A chess player can learn from this experience and, in the next iteration of a game, use foresight to recognize a potential Zugzwang forming. Using preventative measures and ensuring that there are a variety of moves possible to make, the player can hence avoid getting constricted in such a bind [12].

3 Literature Review

Bruni-Bossio and Willness (October 2016) have experimented with designing board meetings based upon the high-stakes decision-making situation of the Kobayashi Maru Test. They believed that facing such scenarios where one has to push their ethical boundaries to make decisions is an effective way to train future leaders who will inevitably have to come across complex, character-defining and life-changing situations in life [1].

Brigadier General David W. Smith of the United States Air Force published an article (April 2020) in which he stressed the need of applying the Kobayashi Maru Test for first responders during the COVID-19 pandemic. He explained that during the pandemic, first responders were in a no-win situation because serving the public was becoming more and more difficult due to numerous restrictions such as stay-at-home orders, travel bans, and self-isolation requirements. Serving the public also increased the risk of putting lives in danger and could further contribute to the spread of the virus. To overcome this, Brig. Gen. David W. Smith suggested that they must take inspiration from Captain Kirk, who changed the rules of the game and emerged a winner in an otherwise no-win scenario. He pointed out that this could be done by maintaining a distance of six feet while serving, and incorporating the use of technology wherever possible [9].

Peter Ho, Senior Advisor to the Center for Strategic Futures and Senior Fellow at The Civil Service College of Singapore, published an article (February 2016) urging the college to incorporate the use of the Kobayashi Maru Test to train public officers for The Singapore Public Service. He argued that the purpose of this test is to acquire tacit knowledge. Future public officers should be trained to manage their behaviors, emotions, and senses in no-win scenarios. The article further emphasized that the Kobayashi Maru Test can, if implemented, provide the trainees with real-life experiences which cannot be otherwise achieved in lectures or through books. Ho explained that the program should aim to simulate the emotions of fear and stress that are present in combat situations to help future public officers acquire the knowledge and skills they will need to respond in such scenarios. [6]

4 Application to a Contextualized Case Study

After the 9/11 attacks in 2001, the whole world was forced by the United States President George Bush Junior's words, "Either you are with us, or you are with the terrorists" [2], to pick a side. The same classification also applied to Pakistan, but the military dictator, Pervez Musharraf, at that time was unaware that this would emerge as a no-win situation for Pakistan regardless of whichever side was picked. His role was analogous to Captain Kirk's in the Kobayashi Maru simulation.

Without much formal consultation, Musharraf blindly chose to side with the United States, even though some of his colleagues reminded him that "Americans

have a habit of pulling the rug from under our feet once their interests are served" [2]. Initially, Pakistan was welcomed as a strong ally of the United States, with all its nuclear testing bans being lifted "miraculously". We began providing the United States with logistical support to tackle the terrorist hubs in Afghanistan, which was possible due to our geographical proximity to the country.

However, Pakistan soon faced the consequences when the United States failed to take Pakistan into confidence and conducted the "Tora Bora" operation in December 2021. They kept the Pakistan military in the dark, even after gaining a strong foothold in the country via the three military bases provided to them, and raided the Al-Qaeda settlements at Tora Bora. Relations strained as Pakistan got to know of this operation from external sources, and to this date have remained unstable on numerous occasions such as the issue of Kashmir and the murder allegations on Raymond Davis. Hence, by experience, Pakistan realized it reaped little benefits from allying with the United States in the years following the 9/11 incident [8].

Conversely, if Pakistan had chosen to ally with the "Taliban" in Afghanistan, it would have inevitably suffered alongside them as the United States relentlessly waged war in Afghanistan for the coming 20 years ($2001 - 2021$). Since several members of the Al-Qaeda had fled into Pakistan via the porous borders, Pakistan, had it chosen to officially provide sanctum to them, would have been under great risk of invasion by the American troops that had already besieged Afghanistan. This could have potentially led to a global war breaking out with the involvement of China, our ally.

Musharraf had to choose one option, but no matter which option he chose, Pakistan would suffer at the hands of America in the years to come. According to his rationale, choosing to be an ally was the better of the two choices.

However, this was one instance of such a scenario. If Musharraf had to face another such instance in his regime, would he have done the same? Learning from his past experience, he would have recognized this new instance as another no-win scenario for him and his country. Therefore, one can expect him to find a third alternative, one which shifts the dynamics of the whole situation, where he ends up as the winner.

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