

Drama Theory: A Problem Structuring Method in Soft OR (A Practical Application: Nuclear Negotiations Analysis between Islamic Republic of Iran and the 5+1 Group)

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Abstract

Most of the time, Groups/Communities are involved in negotiations and disputations due to their various interests. They are always trying to pursuit their aspiration to embrace changes and influence on events. Although sometimes these groups are not completely opposed to each other and their intention is just to get the desired results, almost always their conditions are in contrast with each other. These conflicts prevent negotiators from approaching desired acceptable solutions. For improving the negotiations, resolving the conflicts and reaching satisfactory decisions, Drama theory is applied. This theory is based on game theory.

In this paper, Iran Nuclear talks with 5+1 Group will be discussed as an applicable case for drama theory.

Keywords: Drama Theory, Confrontation, Negotiation, Game Theory

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1. Introduction

Drama theory is a problem structuring method (PSM) based on Game theory in the operational research (Howard, 1994a; Howard, 1994b; Fang, Hipel & Kilgour, 1993; Fraser & Hipel, 1984). Game playing would let decision makers apply different situations and test out their abilities and skills. They can learn from the games and improve their skills (Pell, 1992 b). Morgenstern and von Neumann (1953) believed that games could be analyzed by creating a number of other games that would only exist if any player could choose his strategy after the other players, with knowledge of their strategy. This strategy taking would be counted as minor and major games. Howard (1971) redefined this concept and called it "Metagame".

Metagame is developed by some players (sometime collaborators and sometime strugglers) who can take decisions based on other opponent's decision (Pell, 1992a). There are some steps essential to developing a Metagame. First, an appropriate class of game should be defined. Second, a communications protocol is needed that can state which players can communicate their moves. Third,

it is essential to have a game generator which produces new instances in this class. Finally, the determination of resource bounds on programs in competition has to be figured out. The following sections provide some general ideas for addressing each of these issues (Pell, 1992b).

Some years after Howard and his Metagame, "Hypergame" was coined by Bennett (1977). A Hypergame is a model of conflict that allows misperceptions in each player's view of the game being played. According to Fraser and Hipel (1984), the players in a Hypergame may

1. Have a false understanding of the preferences of the other players.
2. Have an incorrect comprehension of the options available to the other players.
3. Not be aware of all the players in the game.
4. Have any combination of the above faulty interpretations. Wang, Hipel and Fraser (1988) structured Hypergame as a set of individual games, where each individual game models one perspective of the overall conflict.

Game theory helps decision makers in various conditions where decisions are

linked to each other as a chain (Bryant, 2009). Game theory is a structure for perception and conflict analysis. First, it was applied in economy, but nowadays it is applied in wide spreading issues, from international negotiations to biological matters (Howard, 1999).

Game theory assumes that both parties figure out the same concept from different positions when facing a conflict. The problem is out breaking here. Different decision makers see different games and it's because of their positions. Lack of complete information could be the major factor for causing such conditions. Advanced analysis and qualified models for "playing in unstructured situations with not enough information" could be applicable for predicting gained results from a game (Rosenhead & Mingers, 2001).

Game theory is a normative theory, which assumes that actors play logically and follow principles of rational theory. Drama theory exceeds beyond rational theory by considering various emotional factors (Howard, 1999). Drama theory models a problem based on a combination of rationality and impressions. It considers both rational and emotional movements

depending on problem conditions and is juxtaposing these movements to estimate possible results. Although drama theory is trying to help decision makers to decide based on rationality and their priorities, where emotions have an outstanding role to change the priorities and rationality structure, it doesn't neglect the role of emotions and tries to identify these changes and focuses on them (Rosenhead & Mingers, 2001).

Drama theory is a worthwhile and flexible decision making tool, which allows decision makers to structure optional environmental decisions, organizational priorities and other optional settings that are involving in a dilemma (Levy, 2009). This theory was introduced by Howard and his colleagues together with non-rational aspects of decision-making process (Howard & et al., 1993) and was developed by Bennett and Howard (Bennett & Howard, 1996), Howard (1997, 2007) and Bryant (2003).

In this paper, Iranian nuclear negotiations have been analyzed using drama theory approach.

2. Principles of Drama Theory

A set of characters are the main components

in drama theory (similar to players in Game theory) and each one has some options for making a decision, which comprehensively forms a future.

Characters are interacting with each other through a set of episodes. An episode is a set of interactions, which happens over a subject. Generally a drama is a set of episodes that unveils interaction between the characters.

Actions of characters not only affect the results of each episode, but also determine what would happen in the next one.

Each episode has its own special conditions and emotions play a unique role in it. Emotions reduce the rationality of decisions and are changing the direction of negotiations. These emotions and feeling might not appear in normal conditions, but in a negotiation's condition it would appear (Sensarma & Okada, 2010).

There are different phases in almost each episode: scene setting, build up, climax and denouement phase. In scene setting stage, characters come together and determine the initial conditions of a dilemma through discussions. In build-up stage, the focus is on creating a common structure of a dilemma. Each character in

this stage is emphasizing on his/her position and conflicts would appear (Tait, 1999).

In the climax stage, characters are trying to achieve a common point to get the problems solved.

In the denouement stage, the characters are positioned in their new common position and the dilemma is solved. If they cannot achieve a common position, a new episode with new conditions and feelings would be figured.

Confrontation analysis, coined by Howard, is a method for analyzing the conflicts in a real world dilemma. This approach is based on drama theory and applies a card table to analyze the conflict in a tangible way. A card table is consisted of:

- I. A set of characters, with a position for each one and each one holds a number of cards. Each card is useful in some positions and characters would decide to play or not play their card in each position.
- II. Fall back positions/threatened future. Some positions are threatening if the position is not accepted by other characters. A character's fallback consists

of the cards that are played in the threatened future (Sensarma & Okada, 2010).

Howard states that in each confrontation, 6 dilemmas could happen as bellow:

3. Six Dilemmas

When the characters become familiar with their positions and fallbacks in a confrontation, six dilemmas could occur (Rosenhead & Mingers, 2001).

For each character like A, potential improvement means a change in future situation. This change may take place by the position of A, regardless of the opponent positions, and end in a change in playing a card. This change might not lead to make A's situation worse.

In fact, potential improvement is a movement which hopes to improve situations and gain a proper position for each character in future. But actual improvement is a change that is required for each character. The actual movement might not be a side choice, but A should take it because there is no time for other desired positions (Rosenhead & Mingers, 2001).

The best situation for A occurs when

potential and actual improvements are the same and potential improvement turns to actual improvement at the right time. In fact, the actual movement could bring actual improvement for A.

Cooperation Dilemma

Definition: A gets an improvement in his position compared to the previous position.

Cooperation is the main dilemma that could occur. A promises to cooperate with B, but he may constantly be doubtful about B's cooperation. At this time, A is looking to harm his commitment. The main reason for this dilemma could be the unstable and sensitive position of A against B.

If party A cooperates with B, but party B does not commit to the promises due to his stable position and betrays A, the worst position could occur for A. On the other hand, party A wants to stay loyal to his commitments and still looks for an excuse to break his promises (Rosenhead & Mingers, 2001; Bryant, 1998; Hermawan, Kobayashi & Kijima, 2008; Hermawan & Kijima, 2009; Bryant, 1997).

Trust Dilemma

Definition: B faces a potential improvement

from the position of A.

In this case, position of A could be underestimated and jeopardized by B, because B is going to move from A's position and will not be loyal to their commitments. A could hardly trust B. If A wants to remain committed, he might face with commitment problems while he knows that his position might tempt the other side to move from it and approach a better position. The trust dilemma could happen for both sides if their position were in a balance.

The trust dilemma and the cooperation dilemma are two sides of a coin. If one side faces cooperation dilemma, the other side faces trust dilemma. The only practical solution for overcoming this dilemma cycle is that A stays loyal to his commitments and overlooks his potential improvement position. So the cooperation dilemma would disappear and B would be eligible for relying on A's position. By solving the cooperation dilemma, if A faces trust dilemma he could expect B to be loyal to his commitments. Here the problem is if B is aware of A's cooperation? A has to transmit some signs

to B and inform him about his intent to trust B, if he would be committed to his commitment. A has to trust B quietly and prevents any temptation (Rosenhead & Mingers, 2001; Bryant, 1998; Hermawan, Kobayashi & Kijima, 2008; Hermawan & Kijima, 2009; Bryant, 1997).

Deterrence Dilemma

Definition: B Prefers the threatened future to A's position

Here the problem is that A's position cannot put B under pressure to accept it. B prefers to accept any consequences and possible threatening outcomes rather to accept A's position.

A can take two ways for dealing with this dilemma. First, he can take a decision that is desired by B. The other way is to reinforce the threat and make the situations much worse for B. Here B cannot easily evade accepting A's position. It is possible that B deter from his decision because of A's threatening consequences. But if B insists on his position, both characters would enter a new stage that might destroy all the common points between them and

bring hostility and enmity (Rosenhead & Mingers, 2001; Bryant, 1998; Hermawan, Kobayashi & Kijima, 2008; Hermawan & Kijima, 2009; Bryant, 1997).

Inducement Dilemma:

Definition: B's position is as good as threatening future for A.

A prefers to accept B's position instead of threatening future (Rosenhead & Mingers, 2001; Bryant, 1998; Hermawan, Kobayashi & Kijima, 2008; Hermawan & Kijima, 2009; Bryant, 1997).

Threat Dilemma:

Definition: A would gain a potential improvement from the threatening future.

Sometime A needs to move to B's position for gaining an improvement. In this case, he has to deal with threatening future. If B deters and gives up when facing threatening future, A would gain an adequate position. For this, most of the time A tries to increase the threatening situation and the danger of B forcing him to give up.

According to A's position and his

stability and ability, inducement dilemma could arise that would end in A's position weakening. The inducement dilemma could emerge if A were tempted to accept the preferences of B through the negotiations.

If A prefers not to accept B's position, he would try to reinforce his preferences and fallbacks and do something to exaggerate the threatening future. Sometimes, it could be effective and B would give up, but the problem would become more complicated if B suspects that A's fallback and threatening future is just a bluff and would resist (Rosenhead & Mingers, 2001; Bryant, 1998; Hermawan, Kobayashi & Kijima, 2008; Hermawan & Kijima, 2009; Bryant, 1997).

Positioning Dilemma:

Definition: A prefers B's position to his own. Preferring others position might be illogical during negotiations. But A has some reasons for his preferences change. A might understand during the negotiations that he cannot attain to his preferences and he doesn't want to make the situation worse for himself. So he tries to accept B's

position. A might regret from entering negotiations, because he thinks that he is losing both the results of negotiations and his reputation simultaneously (Rosenhead & Mingers, 2001; Bryant, 1998; Hermawan, Kobayashi & Kijima, 2008; Hermawan & Kijima, 2009; Bryant, 1997).

4. Negotiations of Iran and 5+1 Group

Iranian nuclear program has become one of the most important global issues during recent years. International communities are holding many meetings and negotiations in purpose of pursuing and directing Iran's nuclear program.

Western countries accuse Iran that utilization of nuclear program is for the purpose of nuclear weapons. Iran denies the accusation completely and insists that its nuclear program is just for peaceful purposes like scientific and medicine achievements.

Recently some meetings has been held as "Iran and 5+1 Group" to clarify the existing ambiguities in Iran's nuclear program. Negotiations between two sides of this confrontation are modeled by Drama theory in this paper.

Before modeling, some primary points should be mentioned that would help to understand the model better:

Key Characters: Include individuals, groups or organizations that are dealing with each other.

Position: All possible options which characters could choose based on their preferences and include all the cards that they can play with.

Fallback: Some decisions that are made individually by each side of the game, regardless of others positions and would make the game more complicated and threatening. Threatening scenario is a position that each side would play without considering other side's positions or preferences.

Problem Structuring

Figure 1 shows Position of Islamic republic of Iran, Russia and West. Each side's position would be explained according to figure 1.

Islamic Republic of Iran's position:

The first column of figure 1 shows Iran's

position on the card table. Iran claims that its nuclear program is only for peaceful purposes like medical operations and generating electricity. Iran is stating the wants to continue to its activities under the supervision of IAEA (International Atomic Energy Agency) (First row). Iran tries to clarify the ambiguity in the west concerns through negotiations with 5+1 group to remove their hesitations (Second row). Iran also does not want to stop working with IAEA and abandon it (Third row). Iran does not want to reduce or stop cooperation with Russia (Forth row). And at least Iran is opposed to unfair sanctions on Iranian people and tries to bypass these sanctions (Fifth row). Iran is trying to persuade west to accept Iranian rights in IAEA for Uranium enriching and peaceful utilization of nuclear activities. Iran wants to convince United States and European countries to remove sanctions against Iran. Also Iran is trying to suggest IAEA to prevent Middle East countries from operating nuclear weapons.

Russia's Position:

The second column shows Russia's

position on the card table. Russia wants Iran to negotiate with IAEA through meetings (Second row) and wants Iran to cooperate with IAEA and observe its requirements and not to abandon the IAEA (Third row). Russia is against more sanctions against Iran (Fifth row). Russia is suggesting west to continue to their negotiations with Iran (Sixth row). Iran's peaceful nuclear activities and reducing nuclear cooperation with Iran are two other Russian preferences that could be their fallbacks.

West's Position:

The third column of figure 1 shows west's position on the card table.

The West wants Iran to stop its nuclear activities, because they claim that Iranian nuclear programs are utilized for nuclear weapon operations (First row). West wants Iran to observe IAEA requirements clearly (Second row). Furthermore, they are suggesting Russia to stop nuclear cooperation with Iran and put more sanctions against Iran (Fourth and Fifth row).

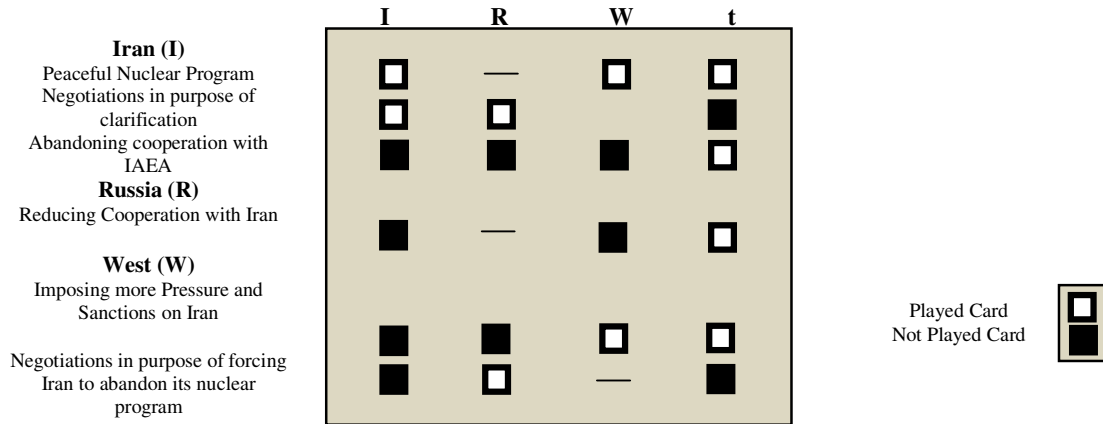


Figure1. Card table of Iran's nuclear program negotiation (**Instruction:** Each column is mentioning a position in future. The first column I is the preferred position of Iran, R is the preferred position of Russia, W is the desired position of West and at least t is the threatening future)

After structuring the problem, an interaction could end in collaboration or confrontation. There would be a full collaboration if the preferences and positions of players were compatible in the moment of truth.

There could be a confrontation if characters could not cooperate with each other and their preferences were in conflict. This conflict and confrontation would prepare the new episodes for characters to change their positions and make new decisions.

If the characters could not agree on their positions, the threatening future arises. The


threatening future is shown in the fourth column of figure 1. According to figure 1, Iran will continue its nuclear program and Uranium enrichment process (First row) and will cut all the cooperation processes with IAEA, Russia and West (Second and third rows). In turn, Russia would stop its cooperation and supports (Fourth row) and West would impose more sanctions against Iran (Fifth row).

Trust dilemma is the most important dilemma in this problem. The West is not trusting Iran, because it claims that Iran is secretly seeking to develop nuclear technology for operating nuclear weapons

and warheads for many years. On the other hand, Iran cannot trust the West to be committed to its promises to Iran.

The solution might be in finding a common position and being committed to the promises. Figure 2 is illustrating a new card table that could be a solution for this problem.

	I	R	W	a
Iran (I) Peaceful Nuclear Program	☐	☐	☐	☐
Negotiations in purpose of clarification	☐	☐	☐	☐
Abandoning cooperation with IAEA	■	■	■	■
Russia (R) Reducing Cooperation with Iran	■	■	■	■
West (W) Imposing more Pressure and Sanctions on Iran	■	■	■	■
Negotiations in purpose of forcing Iran to abandon its nuclear program	■	■	—	■
	☐	☐	☐	☐

Played Card 


Not Played Card 

Figure2. A proposed solution for Iran's nuclear program negotiation (**Instruction:** The new column a in this figure is the acceptable position of all sides of this negotiation)

5. Conclusion

Drama theory is a problem structuring method that would help decision makers to glean adequate information about the problem and model it in a series of episodes. There could be six dilemmas through each negotiation. Identification of these dilemmas would help to understand the problem and react to it in a more reasonable way. Making appropriate decisions will prevent threat intensification

and guarantee the effectiveness of the solution approach. When the structure of problem is well known, the solutions and conscious behavior would occur based on logic and emotions. The characters will adopt best decisions if they know what the specifications of each stage are and how they should react to them.

In this paper the negotiations of Islamic Republic of Iran with 5+1 Group has been studied. The card table was sorted and the

positions and fallbacks were extracted. Based on studies, the most important dilemma, which prevents cooperation between parties, is trust dilemma. For achieving a solution, Iran and 5+1 have to remove trust dilemma.

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تئوری درام: یک روش ساختاردهی مسأله در تحقیق در عملیات نرم

(یک مثال کاربردی: تحلیل مذاکرات هسته‌ای جمهوری اسلامی ایران و گروه ۵+۱)

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در مذاکرات، منازعات و درگیری‌ها گروه‌هایی که دارای علایق مختلف هستند شرکت دارند و همیشه سعی دارند در راه رسیدن به آرمان‌های خود از تغییرات و اثرگذاری بر روی رخدادها استقبال نمایند. ممکن است این گروه‌ها کاملاً مخالف یکدیگر نباشند و قصد آن‌ها تلاش برای رسیدن به نتایج موردنظر خود باشد. اما در اکثر اوقات شرایط آنها در تضاد با یکدیگر قرار می‌گیرد. تعارضات مانع از رسیدن به راه‌حل مورد پذیرش طرفین می‌شود. تئوری درام برای رفع تعارضات و معضلات و کمک به گرفتن تصمیمات رضایت‌بخش بکار می‌رود. این تئوری که بر اساس تئوری بازی ارائه شده است در این مقاله معرفی می‌شود. همچنین در این مقاله مذاکرات هسته‌ای ایران و ۵+۱ به‌عنوان یک مورد کاربردی بر اساس تئوری درام بررسی می‌شود.

واژگان کلیدی: تئوری درام، تعارض، مذاکره، تئوری بازی.

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