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Short Curriculum Vitae - Takashi Sekiyama

After previously working together with the Ministry of Finance and the Ministry of Foreign Affairs on government policies, Takashi now works with universities and think tanks. Takashi graduated from Tokyo University's Graduate School of Frontier Sciences doctoral program, Peking University's Graduate School of International Relations doctoral program, and Hong Kong University's Master Course in International Relations. A specialist in international political economy, East Asian international relations, and the modern China. He has authored many books and papers in English, Japanese, and Chinese.

The problem of the South and East China Sea:
How should Japan handle the current changing situation as a result of Chinese power?

We have seen an escalation in China using its influence in an effort to change the current status quo in the South and East China Sea.

Although in the past China has always been unflinching in their use of military force in the South China Sea, in recent years, reports of Chinese efforts to construct a man-made island, equipped with a runway etc., in the area of Spratly Island, frequently make the news, even in Japan.

In July of this year, the Hague Court of Arbitration judged that there were no legal grounds in international law, supporting China's stated claim and actions. Despite the

ruling, China shows no signs of backing down.

Furthermore, in the summer of this year, patrol vessels from the Chinese Coast Guard and other public vessels, in addition to more than 400 fishing boats, were seen in an unprecedented scale in the adjoining waters surrounding the Senkaku Islands in the South China Sea.

With China attempting to use their power to change the current status quo, how should Japan, and other surrounding rival nations, respond? In this paper a game theory model will be used to analyze the issue.

When classifying the current situation in the South and East China Sea from a game theory standpoint, what we see is not the famous "Prisoners' Dilemma" state (an all out conflict such as the former US-Soviet relationship), rather one of the "Battle of the Sexes" (a conflict of interests among between mutually dependent parties).

The "tit for tat" strategy which is effective in a "Prisoners' Dilemma" state is ineffective in a "Battle of the Sexes" state; a state which simultaneously requires (1) deterrence through power (working together with the US military), (2) pressure be applied through rules (demanding that international law and rulings from courts of arbitration be enforced), (3) consensus development efforts (cooperating with surrounding nations and the international community), and (4) a maintaining and strengthening of the mutually dependent relationship (stimulating exchanges with each other).

1. "Prisoners' Dilemma" and "Battle of the Sexes"
(1) The strategies of "Prisoners' Dilemma" and "tit for tat"
Despite the fact that cooperation would lead to a far more beneficial situation for each related country, the potential merit of betraying the other parties is greater than the merit of working together, and as such, in the end neither nation is able to trust the other and will therefore not cooperate. This state is known as the "Prisoners' Dilemma" (PD) model in game theory.

To give an old example, applying PD to the US-Soviet arms race, Boulding concluded

that mutual distrust between the two nations meant that neither the US nor the Soviet Union could downscale their military operations, eventually resulting in both parties continuing to spend ever increasing sums on military expenditure (Boulding 1962).

In such PD states, a "tit for tat" strategy is adopted, punishing each betrayal with another, despite the fact that any cooperation would be guaranteed to be met with cooperation; meaning that it's possible for cooperation to be the most logical action for both parties (Axelrod 1984, Taylor 1987 etc.).

(2) The "Battle of the Sexes" model

On the other hand, in game theory, "Battle of the Sexes" (BS) is described as a situation whereby, despite the avoidance of the worst case scenario being in the mutual interest of each nation, the means by which the worst case scenario can be avoided cannot be decided upon, because the individual interests of each nation are in conflict.

In essence BS depicts a commonplace scene, a male and female couple who can't agree on where to go for a date (Luce and Raiffa 1957). Both of them have a different idea on where to go for the evening's date; should they go to watch a boxing match, or to the ballet?

The man would rather watch the boxing match than go to the ballet, and conversely, the woman would rather go to the ballet than watch boxing, however both parties agree on one point, they would rather go out together than go individually to their preferred destination.

In other words, the BS model is an expression of the conflict of interests which arises when deciding a concrete means of coordination between parties which, despite agreeing on the need for coordination, have conflicting interests.

Compiling the BS situation into a pay-off matrix gives you the following table. The 2x2 BS model affords the two 'players' two strategies each. The columns represent the potential actions taken by the man, with the rows representing the woman's actions. The letter on the left in the cell represents the man's interests, with the right letter

representing the woman's.

Diagram 1: Concrete methods for cooperation in a pay-off matrix (BS model)

Male/Female	Boxing	Ballet
Boxing	x, y	z, z
Ballet	z, z	y, x

N.B. 1: x>y>z

This BS state, an agreement on the overarching principle but disagreement on the finer points, can be witnessed in many relationships between two cooperating nations.

Therefore, when nations which have an integral relationship of codependency are posed with a tangible problem as a result of conflicting interests, there are times when one nation will need to compromise; accepting a less advantageous position and consenting to give the other party the upper hand in order to avoid the worst case scenario, the destruction of the relationship.

When two nations find themselves time and again in the BS state, what are the deciding factors that dictate which nation should be the one to compromise?

Although I will omit an introduction to the theoretical observations upon which this conclusion is based, there are three integral factors which should be implemented when deciding which nation should compromise should the BS state repeatedly occur: (1) Deterrence through power, (2) pressure be applied through rules, and (3) consensus development efforts (Sekiyama 2014).

Furthermore, (4) the maintaining and strengthening of the mutually dependent relationship is essential in order to avoid the worst case scenario, the destruction of the relationship, which may result from the deterioration of the integral relationship of codependency, the premise upon which the BS state is founded.

2. The game states in the South and East China Sea

What game states currently exist between China and surrounding nations in the South China Sea, and between China and Japan in the East China Sea?

(1) South China Sea

In the South China Sea, there are territorial and interest conflicts between China and South East Asian nations (Vietnam, Malaysia, Philippines, Brunei, Indonesia). Of course each nation hopes that the other will compromise by accepting their territorial claims.

On the other hand, both China and the nations of South East Asia are closely tied through economic trade and the flow of people back and forth, meaning that none of the South East Asian nations would wish for military conflicts or the severing of ties with China. As a result, in the China ASEAN summit conference held in September in Laos, an agreement was reached with regards to the problems surrounding South East Asian waters; to accelerate negotiations to draft a set of legally binding rules, while simultaneously continuing discussions between the involved nations (Kyodo News 2016).

Compiling this situation into a pay-off matrix results in the following table. In other words, China would like their claims to be accepted, therefore extending their range of interests to include the whole of the South China Sea, however the 2x2 BS model offers two strategies to both China and South East Asia. The columns represent China's claims, while the rows represent the claims of the South East Asian nations (compiled to represent one 'player' in this table). The letter on the left in the cell represents China's interests, with the right letter representing those of the South East Asian Nations.

Diagram 2: Pay-off matrix in the South China Sea

China/South East Asian nations	Controlled by China	Controlled by nations of South East Asia
Controlled by China	x, y	z, z
Controlled by nations of South East Asia	z, z	y, x

N.B. 1: x>y>z

This situation works as a perfect representation of the BS, as previously described.

(2) East China Sea

Next, let's consider the situation in the East China Sea.

In the East China Sea, China is asserting their own national interests with regards to the Japanese Senkaku Islands and exclusive economic zone.

As far as Japan is concerned, there is no room to contest interests on the Senkaku Islands and exclusive economic zone, which exist to the east of the line dividing China and Japan, and would like China to repeal their claim. On the other hand however, China hopes that Japan will compromise, accepting China's interests in the Senkaku Islands and exclusive economic zone which exists to the east of the line dividing China and Japan.

While both Japan and China are closely tied by their codependent relationship of trade, investments, and human exchange, and neither party would want the conflicts of the East China Sea to develop into a military clash or the severing of ties.

In reality, when Prime Minister Abe and China's General Secretary Xi Jinping met as part of Abe's visit to China in September, an agreement was struck that "in addition to appropriately managing issues which exist between the two nations, and making improvements to the emotions held by their populace, trust needs to be developed between China and Japan through the expansion of the positive elements of [their]

relationship, furthering exchanges between the nations and addressing shared concerns through a process of discussion and cooperation" (Ministry of Foreign Affairs 2016).

Compiling the situation into a pay-off matrix yields the same table as was previously seen with the situation in the South China Sea.

Diagram 3: Pay-off matrix in the East Asian Sea

China/Japan	Controlled by China	Controlled by Japan
Controlled by China	x, y	z, z
Controlled by Japan	z, z	y, x

N.B. 1: $x>y>z$

3. Steps which should be adopted by Japan

As can be seen above, the situation in both the South and East China Sea can be viewed using the game theory BS model.

Furthermore, as previously stated, the "tit for tat" strategy which is effective in the PD is rendered ineffective in the BS state, meaning that (1) deterrence through power, (2) pressure be applied through rules, (3) consensus development efforts, and (4) the maintaining and strengthening of the mutually dependent relationship are essential means by which the situation should be addressed.

To put matters concretely, steps

(1) the deterrence through power (working together with the US military, an improvement in the maritime security abilities of each South East Asian Nation),
(2) pressure be applied through rules (demanding that international law and rulings from courts of arbitration be enforced),
(3) consensus development efforts (cooperating between Japan and the East Asian nations and the international community), and
(4) a maintaining and strengthening of the mutually dependent relationship (stimulating

exchanges with China),

must all be conducted simultaneously.

Initially, it is essential that Japan strengthens cooperative ties with South East Asian nations, and America, etc., while bolstering their deterrence through influence and consensus developing activities, in addition to demanding that China agrees with the international community and upholds international law.

On the other hand, this constant exertion of pressure will undoubtedly lead to a worsening of the relationships between China and Japan, and South East Asian nations. Efforts must be made simultaneously to tie China to Japan, and South East Asian nations, in a relationship of codependency, focusing predominantly on the field of economics.

This state of equilibrium will be the culmination of cooperative efforts made through mutual compromise, should the "Battle of the Sexes" repeat itself again. In the cases of South and East China Sea, the putting aside territorial disputes between China, Japan, and South East Asian nations, and the cooperation on joint development projects could be said to be the tangible embodiment of cooperation through mutual compromise.

I would hope to see the patient continuation of these efforts, as written above, result in future collaborations.

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