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A Theory of Cost-Sharing Negotiations of Alliances

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EXCLUSIVE: Trump Asks Tokyo to Quadruple Payments for U.S. Troops i

EXCLUSIVE

Trump Asks Tokyo to Quadruple Payments for U.S. Troops in Japan

The move is part of the administration's campaign to get U.S. allies to pay more for defense. South Korea is also being asked to pony up.

By Lara Seligman and Robbie Gramer

Introduction

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- Japan pays $2 billion/year
- The majority of these costs are for utility bills, salaries of general workers at US bases, houses for US soldiers

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- b/c cost-sharing makes alliances close to cheap talk
- states claim something opposite

In 2021, Japanese Foreign Minister says, "(the agreement) increases the credibility of the alliance"

the US says that the cost-sharing by the Japanese government "serves as a pillar of the Alliance"

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Argument in a nutshell:

Both success and failure help sustain deterrence, but in different ways

- successful cost-sharing has a negative impact on signaling
- But allies keep high deterrence by reducing the costs and ensuring a capability boost
- allies prioritize such a boost over signaling

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- A and T have an alliance, which costs $\pi > 0$ for A
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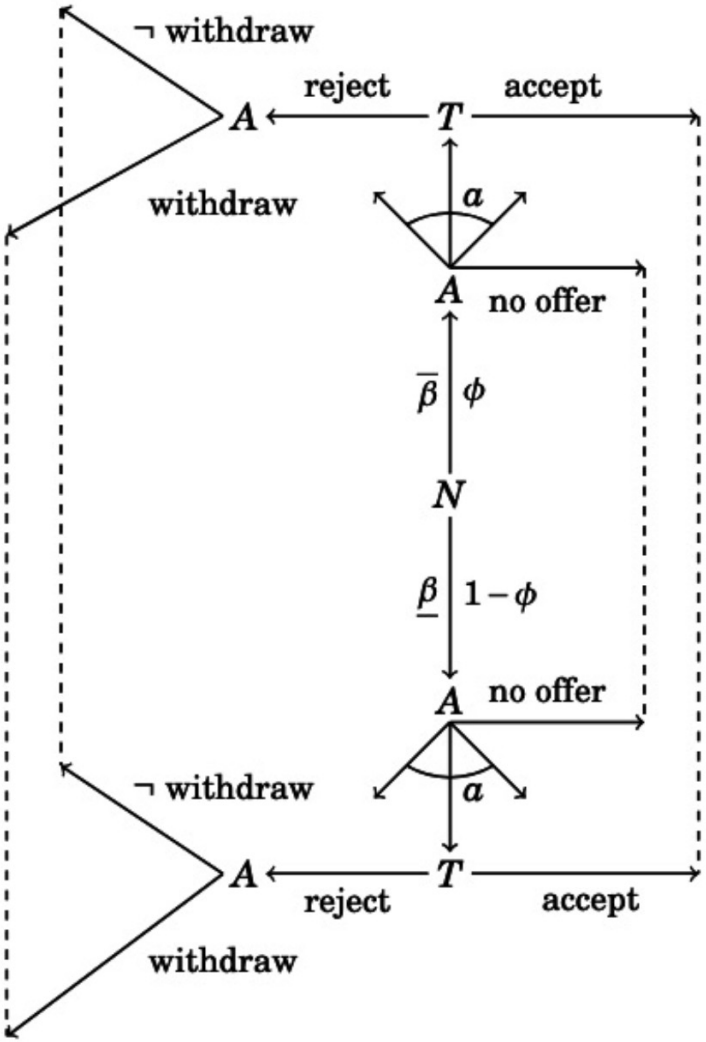
- Two stages: (1) a cost-sharing negotiation and (2) crisis bargaining

Game: the cost-sharing negotiation stage



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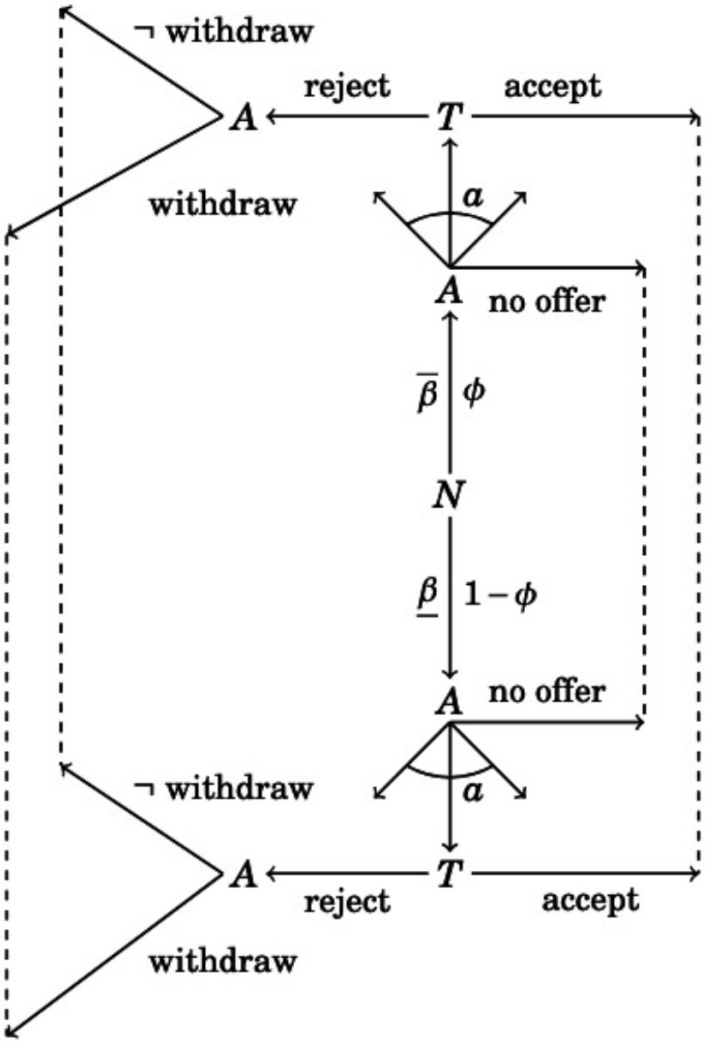

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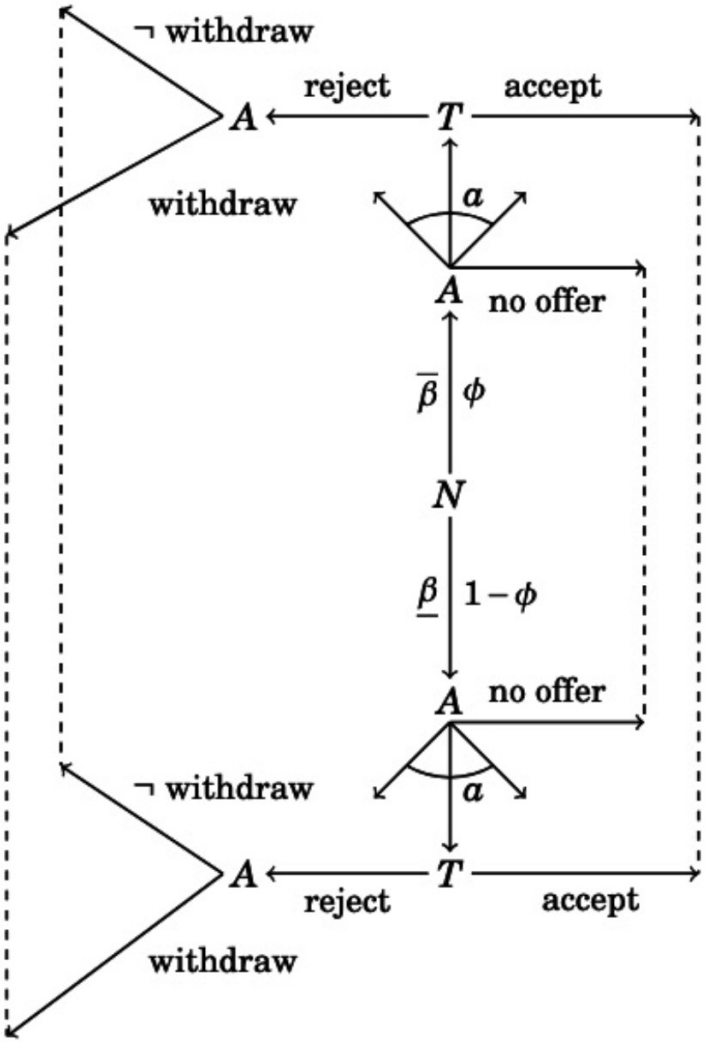

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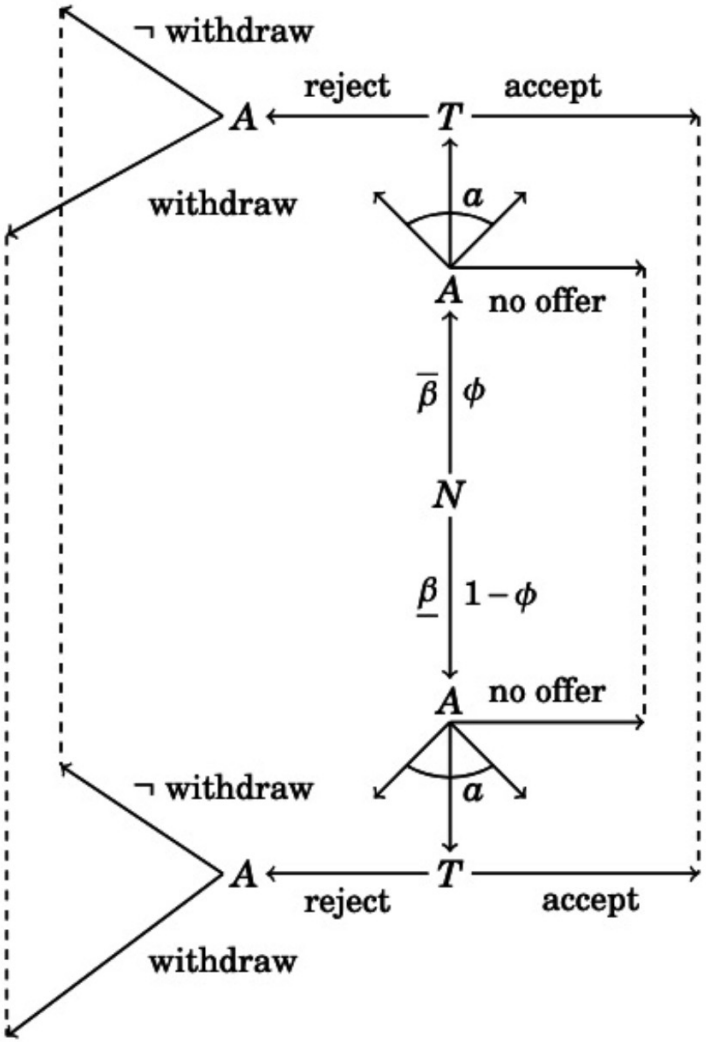

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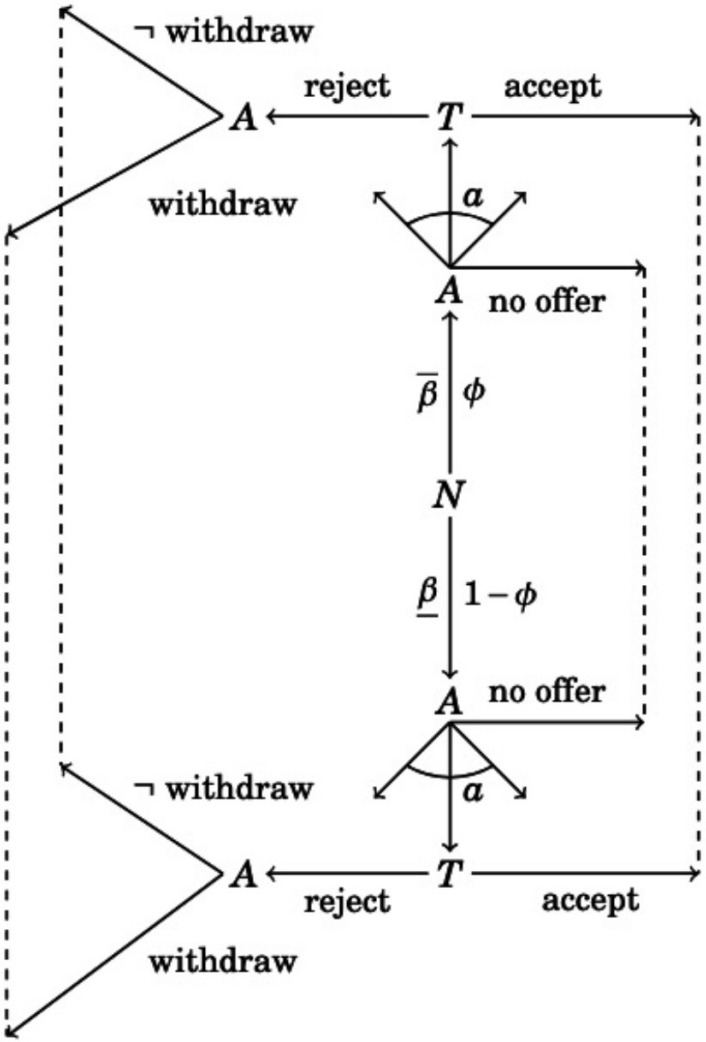

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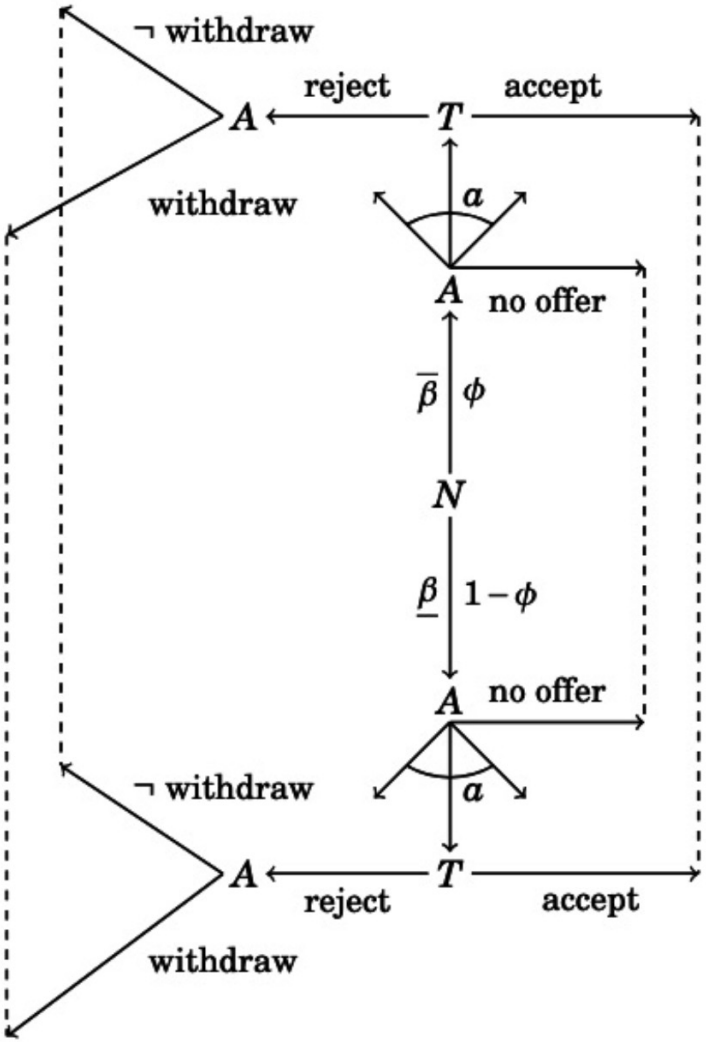

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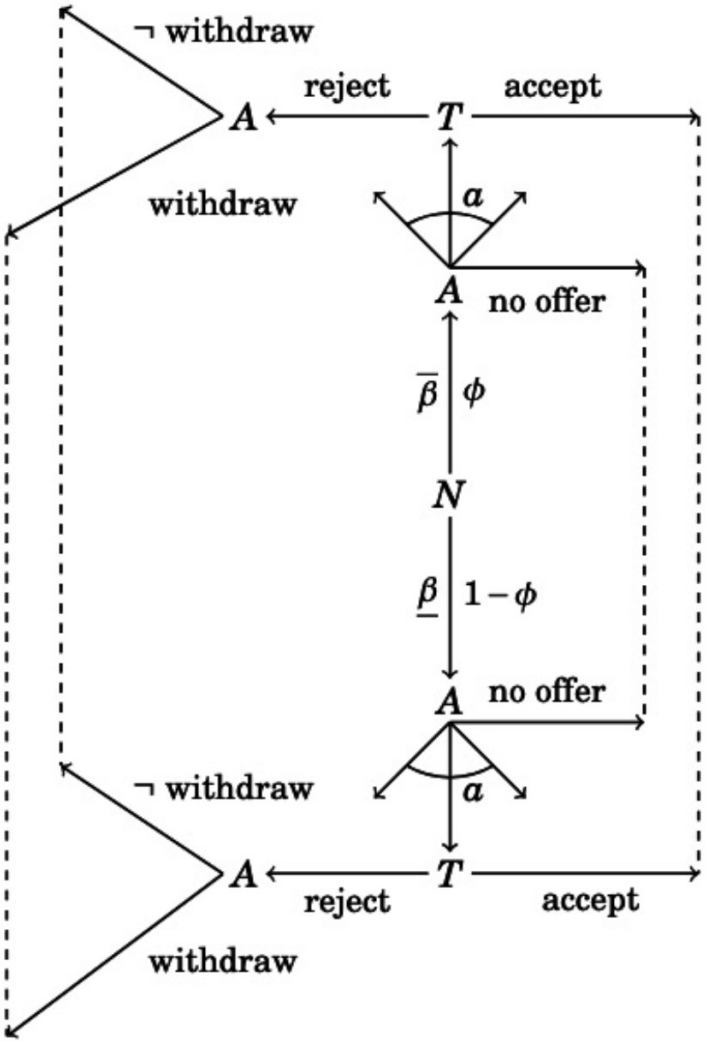

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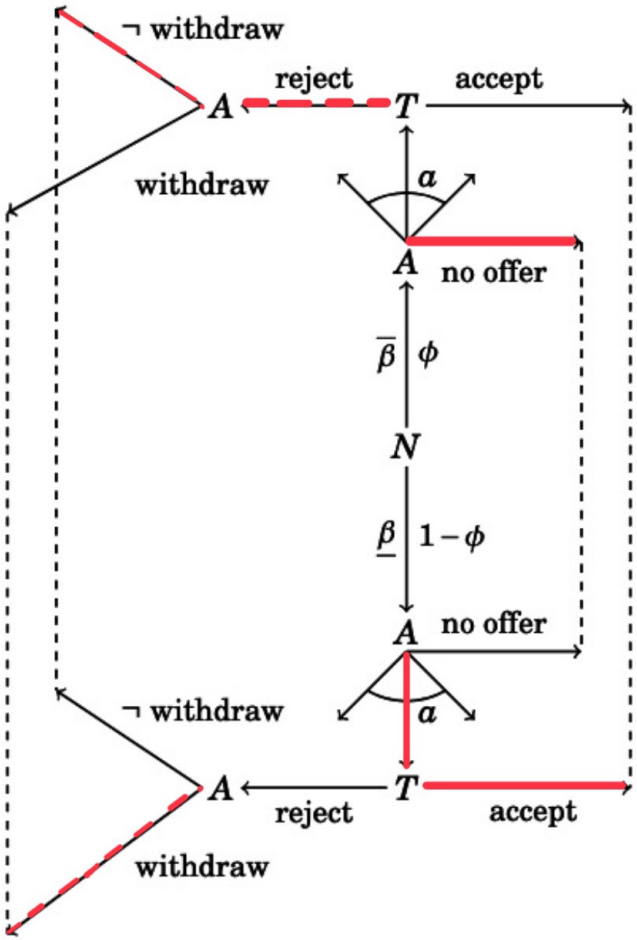
- If T accepts, the alliance is kept ("sharing")
- If T rejects, A chooses to withdraw from the alliance ("withdrawal") or remain in the alliance ("free-riding")

Equilibrium 1



Proposition (Separating Equilibrium 1)

When

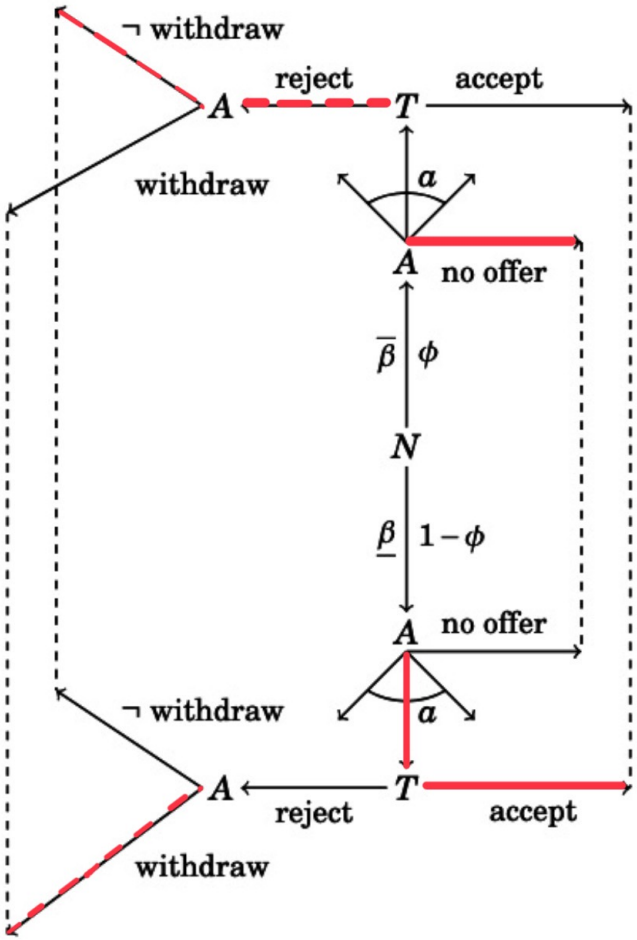
$$I < 0$$

$$\underline{\beta}(p_h - p_l) < \pi < \overline{\beta}(p_h - p_m - c_T) + c_A,$$

, and other conditions,

- *the committed A does not make an offer*
- *the uncommitted A offers* $a^* = p_h - p_l$*, and T accepts*

Equilibrium 1



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- A credible threat of abandonment is key for successful cost-sharing negotiations

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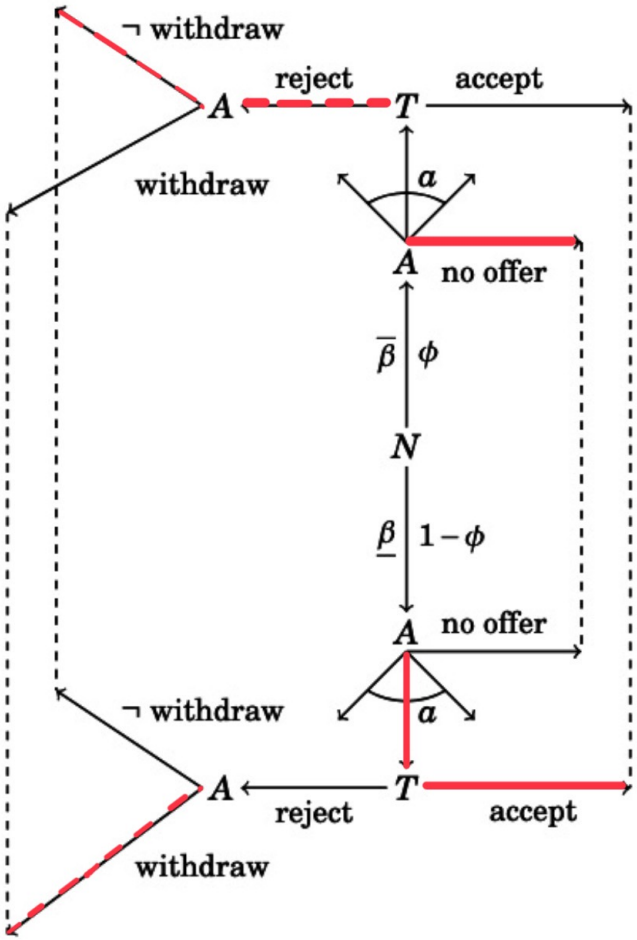

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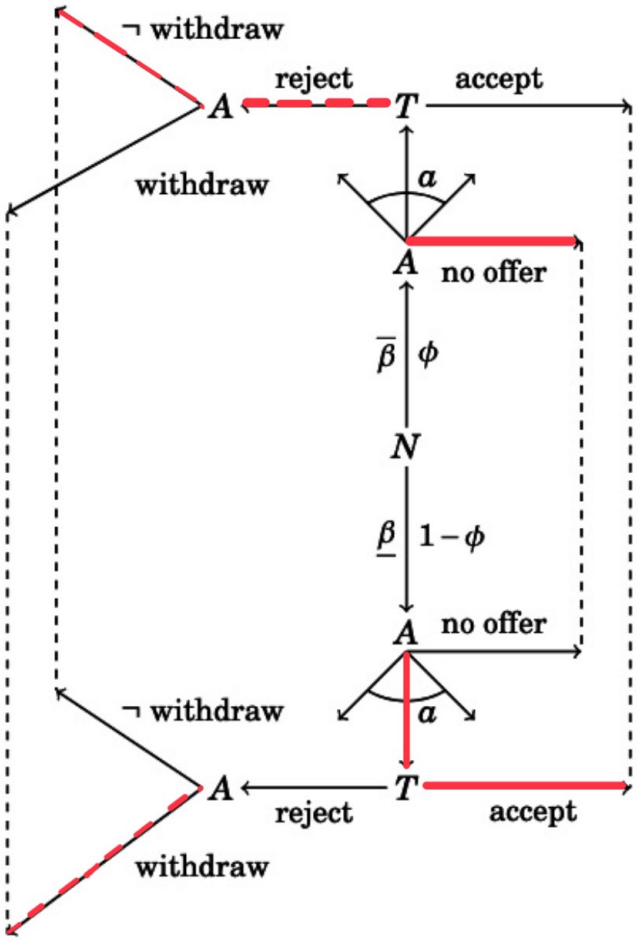

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- A credible threat of abandonment is key for successful cost-sharing negotiations
- A successful negotiation is a sign of an uncommitted patron
- A successful negotiation maintains deterrence by prioritizing a capability boost of alliances over signaling

Japan 1978

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- Japan started cost-sharing in 1978 upon the request from Carter

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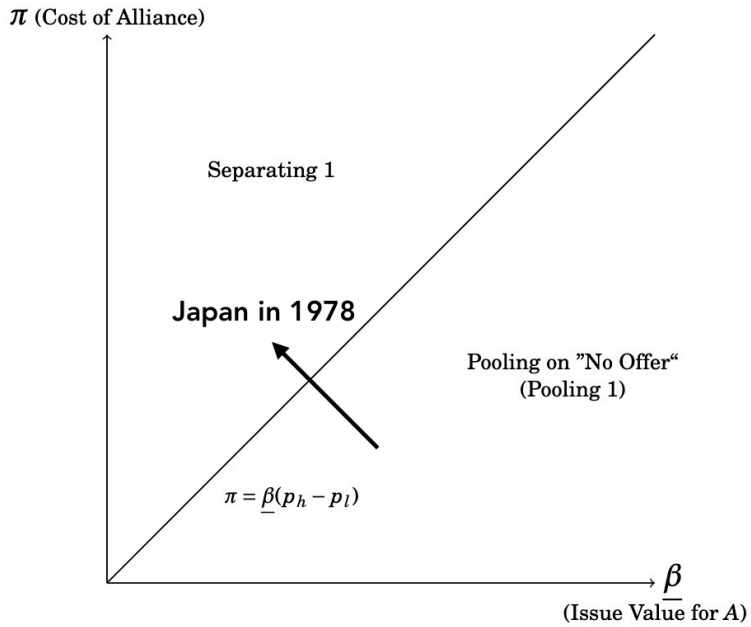

Japan entered the separating equilibrium in 1978.

- π increases
- β decreases
- The threat of abandonment is credible

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- π was increasing
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  $\leftarrow$ The end of the Vietnam War and the approach to CCP
- The US's threat of abandonment was credible
  $\leftarrow$ the US's withdrawal from other Asian countries

Conclusion

This paper

- investigates a model of cost-sharing negotiations
- shows (a) credible threat of abandonment is key for successful cost-sharing negotiations
- (b) allies sometimes abandon the signaling aspect to secure a capability boost

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- cost-sharing negotiations work as a regulator valve and help alliances overcome changes in strategic environment

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From a broader perspective,

- cost-sharing negotiations work as a regulator valve and help alliances overcome changes in strategic environment

Thank you!

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Appendix

Clarification

Burden-sharing: coordination about each member's military capability

Cost-sharing: direct or indirect payment of the cost of alliances or deployment

Appendix 1

Assumption

$$p_l > c_T \tag{1}$$

$$\min\{\overline{\beta}(p_m - p_l), \underline{\beta}(p_h - p_l)\} > c_A > \underline{\beta}(p_m - p_l) \tag{2}$$

Appendix 2

Proposition (Separating 1)

When assumption 1 is satisfied and

$$I < 0 \tag{3}$$

$$\overline{\beta} > \frac{\underline{\beta}(p_h - p_l) - c_A}{p_h - p_m - c_T} \tag{4}$$

$$\frac{p_h - p_m - c_T + c_A}{p_h - p_l} > \underline{\beta} \tag{5}$$

$$p_h - p_m > c_T, \tag{6}$$

$$\underline{\beta}(p_h - p_l) < \pi < \overline{\beta}(p_h - p_m - c_T) + c_A, \tag{7}$$

there exists a separating PBE at which the committed type of A does not make any cost-sharing offer, C offers $x = p_h - c_T$, and T accepts it, and the uncommitted A offers $a = \min\{a^* = p_h - p_l, \overline{a}\}$, T accepts the offer, C offers $x = p_h - c_T$, and T accepts it on the path of play.

Appendix 3

Proposition (Separating 2)

When assumption 1 and Line 4, 5, 6, and 7 are satisfied and

$$\bar{a} > a^* \tag{8}$$

$$\min\{1, l^* = \frac{(1+\underline{\beta})a^* - \pi}{\bar{a} - a^*}\} > l \geq 0 \tag{9}$$

there exists a separating PBE at which the committed type of A offers $a = \bar{a}$, T rejects it, A does not withdraw from the alliance, C offers $x = p_h - c_T$, and T accepts it, and the uncommitted A offers $a = a^*$, T accepts the offer, C offers $x = p_h - c_T$, and T accepts it on the path of play. See Appendix for proof.

Appendix 4

Proposition (Separating 3)

When assumption 1 and Line 4, 5, 6, and 7 are satisfied and

$$\overline{a} > (\underline{\beta} + 2)a^* - \pi \tag{10}$$

$$1 > I > I^* \tag{11}$$

there exists a separating PBE at which the committed type of A offers $a = \overline{a}$, T rejects it, A does not withdraw from the alliance, C offers $x = p_h - c_T$, and T accepts it, and the uncommitted A offers $a = \overline{a}$, T rejects the offer, A withdraw from the alliance, C offers $x = p_h - c_T$, and T accepts it on the path of play. See Appendix for proof.

Appendix 5

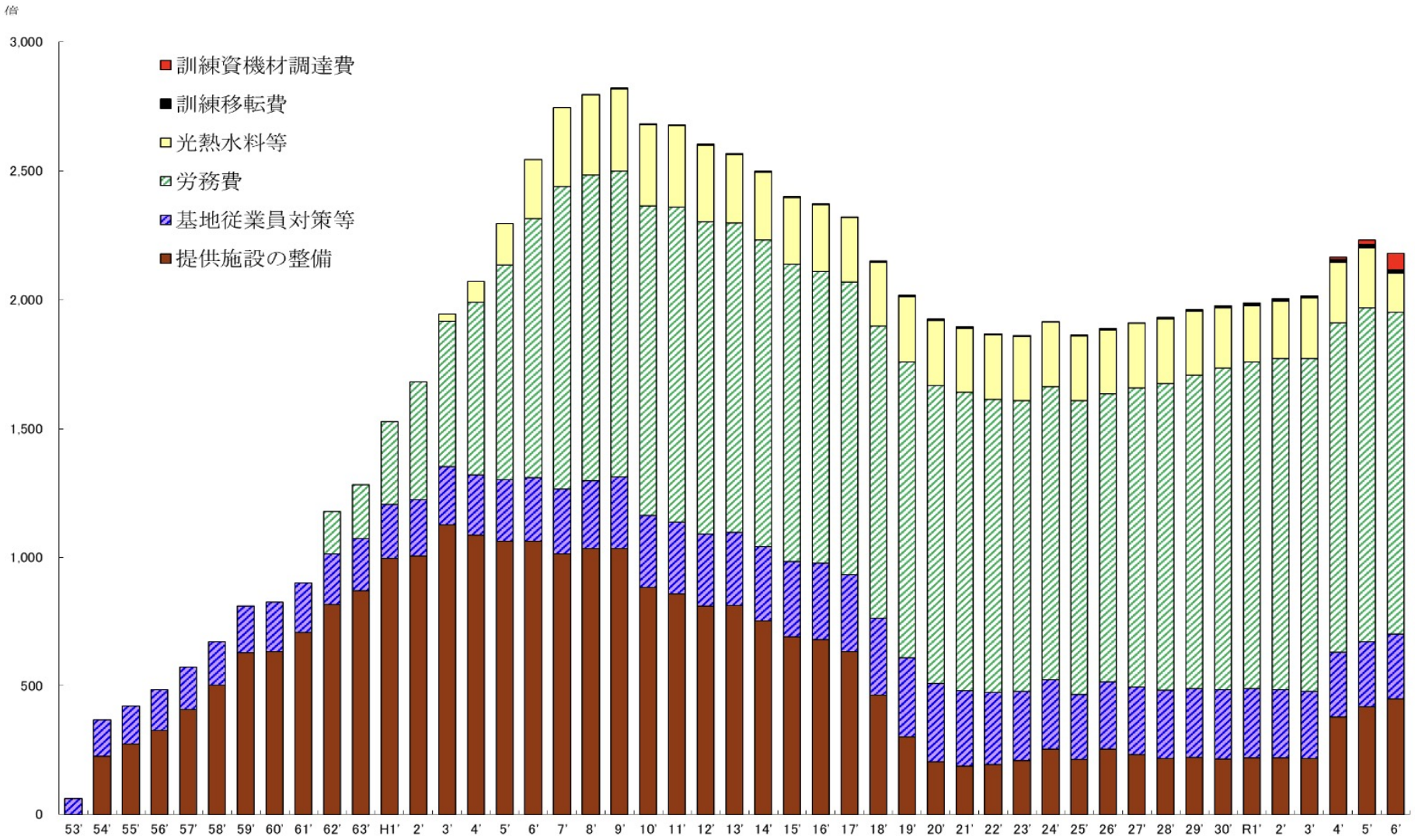
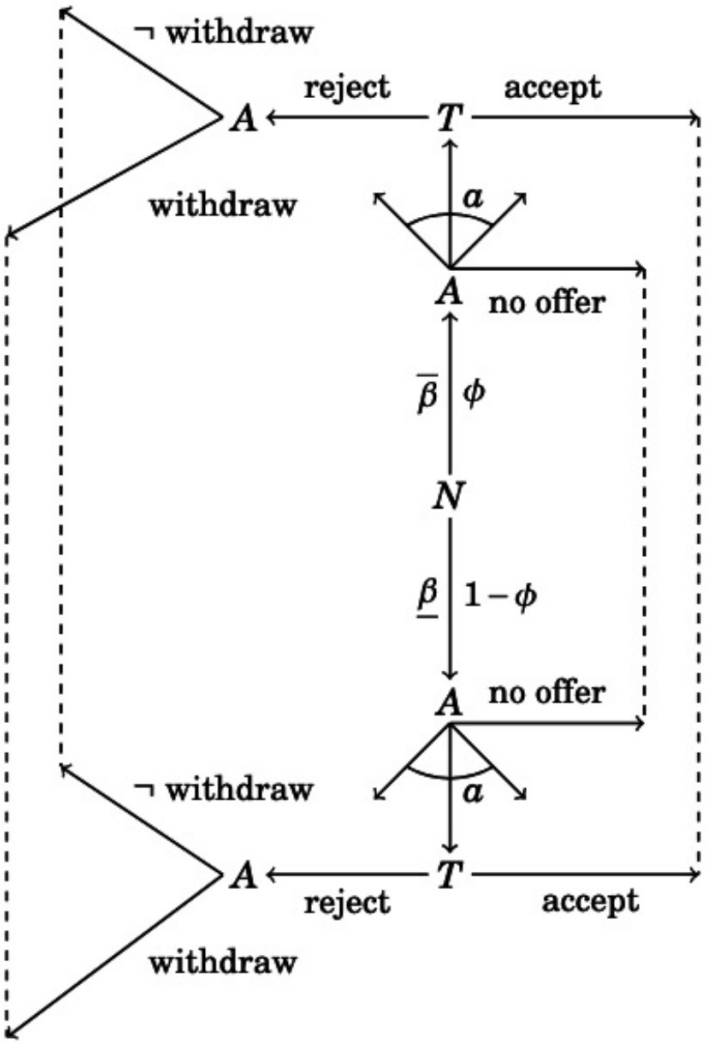


Figure: Japan's Cost-Sharing Over Time

Appendix 6: Payoffs from the Negotiation



Outcomes: no offer, sharing, free-riding, and withdrawal

Payoffs from the negotiation: $\lambda_{i,n}$

$$\lambda_{A,n} = \begin{cases} -\pi & (\text{if } n = \text{no offer}) \\ -\pi + a + la & (\text{if } n = \text{sharing}) \\ -\pi + la & (\text{if } n = \text{free-riding}) \\ 0 + la & (\text{if } n = \text{withdrawal}) \end{cases}$$

$$\lambda_{T,n} = \begin{cases} -a & (\text{if } n = \text{sharing}) \\ 0 & (\text{otherwise}) \end{cases}$$

Appendix 7: Crisis Bargaining

- C offers $x \in (0, 1)$
- T accepts the offer or not
- If T accepts, it gets x and C gets $1 - x$
- If T rejects, war occurs and A decides to intervene or not
- The prob. of winning for T: $p \in (0, 1)$

$$p = \begin{cases} p_l & \text{(fighting alone)} \\ p_m & \text{(fighting together w/o alliance)} \\ p_h & \text{(fighting together w/ alliance)} \end{cases}$$

Appendix 8: Payoffs

$$u_i(\text{Settlement}) = \begin{cases} \beta x + \lambda_{A,n} & (\text{if } i = A) \\ x + \lambda_{T,n} & (\text{if } i = T) \\ 1 - x & (\text{if } i = C) \end{cases}$$

$$u_i(\text{Bilateral War}) = \begin{cases} \beta p_l + \lambda_{A,n} & (\text{if } i = A) \\ p_l - c_T + \lambda_{T,n} & (\text{if } i = T) \\ 1 - p_l - c_C & (\text{if } i = C) \end{cases}$$

$$u_i(\text{Multilateral War w/o Alliance}) = \begin{cases} \beta p_m - c_A + \lambda_{A,n} & (\text{if } i = A) \\ p_m - c_T + \lambda_{T,n} & (\text{if } i = T) \\ 1 - p_m - c_C & (\text{if } i = C) \end{cases}$$

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