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The Dynamics of Deterrence in Maritime Diplomacy; Control Analysis of Naval Responses in Seas and the Pros and Cons of an Optimal Path

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Extended Abstract

The use of the navy as a notable instrument of power in defense and foreign policy dates back to ancient times when nations harnessed their naval potential to impose their will on rivals. With the increasing regional and global reliance on commerce and trade, it is not hard to fathom the importance of navies and naval power for great powers to ensure the durability of political, military, and economic interests. By defining naval diplomacy and its linkage to policy-making and defense affairs, we face a multifaceted phenomenon [1]. Therefore, to comprehend this dynamism and its implications for the decision-making process, we need to probe into the notion of naval diplomacy and its association with deterrence through a different prism. To this end, we investigate various responses through the lens of dynamical systems and control theory. This methodology enables us to decipher the process-based nature of naval power and take heed to the impact of complexity on players' behavior and response. It is worth noting that such attention helps us attenuate the gap between our dynamic analysis and existing theoretical frameworks addressing naval diplomacy. By modeling the behaviors and efforts of players, we can construe the dynamism shaping their exchange by mathematical objects and their real-world interpretation. Thus, we study nations' naval efforts with different objectives and goals. Then, we use bifurcation theory to analyze the players' interactions to see how their capabilities, responses, and the intensity of the presence of external naval powers can affect their behaviors. Defining naval response in the model gives credence to the interwoven nature of messages, policy-making, perception, and subsequent actions done by players. Based on our design, we can see how embarking on naval diplomacy and its impact on deterrence shape the behavior of rivals. Having a category of naval responses based on grand strategies and historical data leads to various complexities in our system. Moreover, applying control theory shows how players' actions in a conflictual situation mean by the category we introduce. It is important to note that extending our analysis to game theory in naval diplomacy [2] and its dynamic version gives rise to assessing the aspects of eying maritime diplomacy in a rational choice framework infused with the abovementioned methodology.

References

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