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【연구논문】

Network Turn of Alliance: From State Behavior to Network Structure

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ABSTRACT

Alliance is one of the most traditional and heavily studied concepts in international relations. Yet, the alliance literature is still evolving. In recent years, the alliance literature has become more systemic and dynamic by incorporating network theory. Traditionally, alliance was understood and analyzed as a state behavior. However, by incorporating network theory—the so-called “network turn”—alliance began to be conceived as a network structure. The network turn has changed the emphasis of the literature, and the new framework is more focused on associations among states. Furthermore, it captures influences of the current alliance structure on future alliance choices, an often overlooked factor in traditional alliance literature. This paper analyzes this transition by cataloguing the ways in which scholars defend their choice of network theory over a traditional approach, and judges the utility of conceptualizing alliance in network-theoretic terms.

Key Words: alliances, balance of power, network analysis, political similarity/dissimilarity, homophily/heterophily, preferential attachment

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I. Introduction

“Alliance” is one of the most traditional and heavily studied concepts in international relations. Yet, the alliance literature is still evolving. In recent years, contemporary works in the alliance literature has become more systemic and dynamic by incorporating network theory. Traditionally, alliance has been understood and analyzed as a state behavior. In other words, the alliance literature put emphasis on attributes of a state, and scholars developed a theory of which state allies with whom. However, by incorporating network theory—the so-called “network turn”—alliance began to be conceptualized as a network structure. The network turn has changed the emphasis of the literature, with the new framework focused more on associations among states. Furthermore, it captures how the current alliance structure affects future alliance choices, which was frequently overlooked in the traditional alliance literature.

This transition brings up several questions. Why did the network turn take place? How does it differ from the traditional approach, and how does it contribute to the alliance literature? This paper examines the evolution of the alliance literature over time. Understanding the network turn will facilitate a more comprehensive understanding of the current alliance literature, and will help guide decisions on different methodologies for studying alliance.

The paper analyzes ten articles on alliance, which can be grouped in two parts based on conceptualization; the first approaches alliance as a state behavior, the second as a network. Specifically, the paper discusses traditional approaches of the alliance literature, catalogues the

ways in which scholars in question defend their choice of network theory over a traditional approach, and judges the utility of conceptualizing alliance in network-theoretic terms.

II. Alliance as a State Behavior

An alliance is a “formal (or informal) commitment for security cooperation between two or more states, intended to augment each member’s power, security, and/or influence.”(Walt 2009, p.86). During the 1980s and the 1990s, the alliance literature included some concepts that could be translated into network terms, but the conceptualization of alliance differed greatly from a network approach. Alliance was generally perceived as dyadic state behavior instead of a system with its own structure. This dyadic state behavior was often analyzed in the context of power distribution, largely considered to be exogenous. In addition, associations among states and evolution over time were little studied because scholars were rather interested in particular attributes of states and how they could affect alliance choice. These features led to rather static than dynamic analysis.

1. Power and Alliance Formation

The debates in the 1980s, during which international politics were still dominated by the rivalry between the United States and the Soviet Union, revolved around the analysis of power distribution and alliance formation. Here we examine Altfeld (1984), Snyder (1984) and Walt (1985) pieces, which share two distinct commonalities in

conceptualizing the formation of alliances exogenous structure and static conceptions of structure. The exogenous structure means that a structure is considered as given at the point of analysis, and that states' behavior under the structure do not influence the structure. Consequently, this leads to an emphasis on the static conception of structure—a structure that does not change.

These analyses consider the structure of world politics to be exogenous. For instance, Snyder takes the structure—that is, either multipolarity or bipolarity—as given. Walt does not directly link the term structure to alliance formation, but analyzes state selection of alliance partners in the context of the distribution of power, which relates to structure. Neither does Altfeld refer to the structure directly, but he investigates how a state's power to provide security benefits affects alliance formation, which ultimately pertains to the distribution of power. In other word, they analyze how states behave under a given structure.

These conceptions of structure are static rather than dynamic. To be fair, both Snyder and Walt have some dynamic elements in their arguments, but ultimately, they predicate their analyses on a static view. According to Walt, alliance is a response to threats. By choosing to balance against or bandwagon with a threatening power, states will affect the balance of power, which is the structure of the international community. However, what Walt aims to explain was not how the balance of power will evolve over time, but who states will choose as allies under a given configuration of power. Therefore, Walt's analysis is focused on the static side of the structure. Snyder also has some dynamic elements in his story. For example, he contrasts how policy solidarity could change over time both in multipolarity and bipolarity.

However, the structure as an entire picture in his argument is stable and does not change—in other words, it remains static.

2. Political Similarity and Alliance Choice

The focus of the debates during the 1990s moved to political similarity as a factor for alliance choice. Following the collapse of the Soviet Union, the number of democracies increased exponentially, which resulted in a burgeoning literature of democratic peace theory (Roger 2016). This trend also influenced the debates on alliance, and as a result, scholars in the 1990s examined political similarities among states. In this section we analyze Siverson and Emmons (1991), Simon and Gartzke (1996), and Lai and Reiter (2000). Siverson and Emmons set up a contentious literature with their finding that democracies are disproportionately likely to make alliances (Siverson and Emmons 1991), and Simon and Gartzke and Lai and Reiter followed up the debate. These studies share three attributes: focus on a particular attribute of states, dyadic alliance, and static analysis.

The alliance literature in this period was discussed in the context of particular attributes of a state—that is, regime type—and its effects on alliance choice. Siverson and Emmons test directly the impact of joint democracies on alliance choices. According to their findings, democracies were biased toward allying with each other during the period from 1946 to 1965. However, Simon and Gartzke push back this conclusion and argue it was an artifact of the Cold War. Furthermore, they contend that regimes of most types prefer to ally with the political dissimilar, instead of similar, types because different regime types bring different qualities to the alliance that can

complement each other (Simon and Gartzke 1996). On the other hand, Lai and Reiter also support Siverson and Emmons, but they address two questions that examine how far the logic of political similarity can be extended: whether democracies are especially likely to ally with each other, and whether states of any common regime type especially are likely to ally with each other.¹⁾ They report that states with similar regime types are more likely to ally with each other after 1945, although two democracies are not more likely to ally with each other than two autocracies (Lai and Reiter 2000).

All three pieces investigated direct dyadic alliances. With respect to alliances, they empirically test their hypotheses with data based on the Correlates of War (COW) project. Since the COW data provide information only on direct dyadic alliances, they are interested in clarifying who identifies whom as “my friend” or “my enemy,” but not in how states identify indirect relations such as “the enemy of my friend” or “the friend of my friend.”

Their analyses are static, much like the alliance literature in the 1980s. Although they test their hypotheses across space over time, their analyses are inherently static, in that they examine ally choice at a given point of time. In other words, they examine their hypotheses over time because the numbers of democratic and autocratic regimes

1) Werner and Lemke (1997) reach a similar conclusion in a broader context. Rather than confining the scope to a formal alliance, they study alignment choices, which refer to the “decision to assist a disputant in an ongoing dispute by delivering aid against a specific opponent.” They find that institutional similarity—political and economic—positively affects alignment decisions regardless of whether aligning countries are democratic or autocratic. Suzanne Werner, and Douglas Lemke, 1997, “Opposites Do Not Attract: The Impact of Domestic Institutions, Power, and Prior Commitments on Alignment Choices,” *International Studies Quarterly* 41(3): 529-546.

and dyadic alliances were changing, not because the underlying mechanism of alliance choice or structure was evolving over time.

III. Alliance System as a Network

As seen in the previous section, international relations theory and network theory have not been completely unrelated. Quite the contrary, networks have long been a familiar feature of international relations since network theory is the “science of interactions,” and international relations theory studies interactions among actors.²⁾ Even though international relations scholars may not have adopted the network approach *per se*, there were some network-theory-related concepts floating around. For instance, political similarity/dissimilarity (Siverson and Emmons, 1991; Simon and Gartzke, 1996; Lai and Reiter, 2000) is the concept that can be easily translated into homophily/heterophily in network terms because homophily and heterophily are the concepts that focus on the attributes of nodes and how those attributes influence behaviors. In case of homophily, nodes that share common characteristics are attracted to each other, whereas in case of heterophily, nodes with different characteristics come together. Another example is bandwagoning (Walt, 1985), which pertains to preferential attachment. Preferential attachment indicates the concept that a node that already has enough resources attracts even more nodes than a node with few resources does. According to the

2) Traditionally, international relations theory has been a study of interactions between states. However, as the role of non-state actors—both sub-state and supra-state—grew more conspicuous and influential on the international stage, international relations theory has started to incorporate non-state actors as well.

bandwagoning logic, states ally with states that already have great power, so this readily can be translated into preferential attachment.

Although the traditional alliance literature included some network-theoretic concepts, the literature evolved drastically in the late 2000s or the early 2010s with its adoption of network theory.³⁾ How did this affect the alliance literature? What were the substantive and methodological changes that followed the network turn?

1. Conceptualizing Network: Actor, Process, and Structure

Prior to delving into the network turn of alliance, it is important to understand what the term “network” refers to in network analysis. Network is understood in three distinct notions: actor, process, and structure (Kim 2008).

First, a network is an actor. A network as an actor is not an actor whose substance is immutable; rather, it is a “meta-actor” with its own mechanism of interactions with other nodes. Therefore, a network as an actor has “power from the network,” meaning the more nodes a network attracts, the more attractive and powerful the network is. Second, a network is a process of how a node connects to another, and how a node connects to a system and vice versa. In this context, a network as a process has “power on the network.” For instance, a network that bridges two disconnected networks enjoys unique power as a broker on the network. Third, a network is a structure of how nodes are connected and interacting. A set of nodes forming a

3) Lee et al. adopted network concepts to alliance analysis as early as 1994. However, it appears they were early adopters, and the alliance literature in general started to take network theory more seriously only after 2000.

network maintains a certain pattern of interactions, and enables or constrains the nodes in the network. Consequently, a network as a structure has “power of the network.”

2. Characteristics of Network Approach in its Substance and Methodology

Bearing in mind that a network can refer to an actor or a process or a structure, this section briefly presents substantive and methodological characteristics of network theory in the context of alliance politics. This will enable improved understanding of how the network turn redirected and contributed to the debate in alliance literature. In addition, this also relates to the rationale behind the adoption of network theory in alliance literature.

First, network theory conceives of structure as being endogenous, constantly evolving according to states’ alliance choices. In other words, network theory is about the structure of a network, how it affects the actions of nodes in the network, and how they affect the structure of network. The network approach defines structure as “emergent properties of persistent patterns of relations among agents that can define, enable, and constrain those agents,” (Hafner-Burton, Kahler and Montgomery 2009) and as a result, structure or system in network theory has endogenous effects. In addition, the network approach puts a great deal of emphasis on structure and addresses associations among nodes rather than attributes of a particular node.

Second, network theory entails methodological improvements. Traditionally, the alliance literature has relied on regression analysis not because it was an appropriate tool but because there were no

empirical tools for testing and accounting for interdependent links. However, with the development of network analysis, new frameworks that allow for interdependencies are now available. As an example, the statistical model known as exponential random graph model (ERGM) formulated endogenous interdependence. It corrects biases in coefficients that result from unmodeled dependencies in a way that produces appropriate confidence intervals given the volume of data, and explicitly models dependencies (Cranmer, Desmarais and Menninga 2012).

3. Adoption of Network Theory and Alliance Evolution

In order to analyze the evolution of the debate on alliance since the adoption of network theory, this section reviews the works of Lee et al. (1994), Maoz et al. (2007), Warren (2010), and Cranmer et al. (2012). The starting point of these recent works remains the same as the past debates—formation of dyadic alliances based on voluntary state behavior. This is because alliance structure ultimately can be broken down into an individual dyadic alliance, regardless of the structure an alliance forms as an entire system. However, they depart from the starting point of the dyadic relationship and explore a broader network. The four articles diverge in slightly different directions, but the network turn converges on three points: triadic unit, endogenous structure, and dynamic analysis.

The network turn expanded the perspective of alliance analysis from dyadic to triadic, which captures indirect relations, transitivity, and structural balance.⁴⁾ In other words, they shed light on extra-dyadic

4) Indirect relations refer to relations mediated by direct relations. Direct

network effects in triads of states, but not necessarily in an identical way. Lee et al. were one of the first teams to adopt network concepts, and they formulate four triadic interaction: the friend of my friend is my friend; the friend of my enemy is my enemy; the enemy of my enemy is my friend; and the enemy of my friend is my enemy (Lee, Muncaster and Zinnes 1994). Maoz et al. examine indirect relations and measured structural balance and transitivity with social network methodology (Maoz and Terris 2007). Warren uses a stochastic actor-oriented model, which assumes that changes in a network are driven by the decisions of agents, and conceptualizes international structure of alliance ties as a continuously evolving network. Cranmer et al. emphasizes a synergy effect generated by triadic closure, and examines whether the potential for triadic closure would make alliances more appealing to prospective allies.⁵⁾ Each article relies on a

relations are my friend/enemy, and indirect relations are the enemy/friend of my friend/enemy. Transitivity refers to the extent to which the relation that relates two nodes in a network that are connected by another node is transitive. Perfect transitivity implies that, if x is connected to y , and y is connected to z , then x is connected to z as well. Structural im/balance, in a triad, is assessed by determining whether dyadic relations in a triad are positive or negative—positive for friendship relations and negative for enmity relations. Multiply the positive and negative signs of each link in a triad, and if the result is positive, it is balanced, and imbalanced if negative. Zeev Maoz, Lesley G. Terris, Ranan D. Kuperman, and Ilan Talmud, 2007, "What is the Enemy of My Enemy? Causes and Consequences of Imbalanced International Relations, 1816-2001" *Journal of Politics* 69(1): 100-115; S.C. Lee, R.G. Muncaster, and D.A. Zinnes, 1994, "'The Friend of My Friend is My Enemy': Modeling Triadic International Relationships," *Synthese* 100: 333-358.

- 5) "A triadic closure—a condition where three states are all allied to each other—produces a synergy effect among the member states such that the utility derived by each is more than the sum of their dyadic connections." Skyler J. Cranmer, Bruce A. Desmarais, and Justin H. Kirkland, 2012, "Toward a Network Theory of Alliance Formation," *International Interactions* 38: 295-324.

different framework to analyze triadic alliances, but they share the same bottom line - alliance decisions are not formulated in isolated dyadic bubbles, but are interdependent on other alliance decisions across dyadic boundaries.

This leads to the second similarity. The network turn allows consideration of endogenous effects of structure. As mentioned in the previous section, network theory studies the structure of observed networks that reflect cumulative consequences of multiple decisions regarding a link-formation. In the context of alliance, states consider the alliance relationship of other states when deciding whether and how to adjust their alliance portfolios, so the structure of the alliance network affects state behavior of alliance choices. In turn, alliance choices also affect the entire alliance network, and in this process, the alliance network keeps evolving.

Related to the previous point, the network approach confers dynamism to structure. Specifically, the network turn of the alliance literature examines an evolution of alliance networks such as the direction and determinants of the evolution. In fact, network relations are inherently dynamic, as nodes are constantly interacting with other nodes with which they are directly and/or indirectly connected.

IV. Conclusion

In the alliance literature, the effects of alliance network structure, which shed light on interactions between state-actors and a system, have been overshadowed by systems' effects on state behaviors, which study how a system mandates state behaviors. However, by adopting the network approach, network theory redirects and reframes the

debates in the alliance literature in a way that emphasizes structure in three ways: endogenous effect, interaction between structure and actors, and dynamics of structural evolution. However, these ideas themselves are not completely new to the alliance theory. Rather, until recently, scholars were unable to empirically examine these dynamics due to the lack of appropriate methodological apparatus. In the late 2000s, the network approach has incorporated interdependencies and structural endogenous effects with a more advanced methodology, which is likely the primary reason for the network turn since the late 2000s. Furthermore, this would also be the reason for the delay until the late 2000s of an empirical test for Lee et al.'s mathematical triadic model.

With its advanced methodology, the network approach offers the discipline of international relations many new avenues of investigation that can result in new insights. Indeed, numerous underlying ideas of network analysis match very closely the basic characteristics of international relations. Actors—both state and non-state—are fundamentally interdependent in international relations. In addition, there is constant interaction between actors and structure, wherein actors' choices transform structure in non-trivial ways and structure constrains and enables actors' choices (Maoz 2012a). Accordingly, to the extent there is clear evidence of meaningful interdependence in a system, network analysis is well suited for the study of international relations, and contributes significantly to the alliance literature in particular.

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<Appendix> Comparing a Traditional Approach and a Network Approach to Alliance Studies

Traditional Approach	Network Approach
Node-based	Network-based
Dyadic state behavior	System with its own structure
Emphasis on attributes of states	Emphasis on association among states
Endogenous system	Exogenous (emerging) System
Static analysis	Dynamic analysis

동맹 연구의 진화: 국가행위에서 네트워크 구조로의 전환

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논문요약

“동맹”은 국제관계학에서 가장 전통적이고 많이 연구된 개념 중 하나다. 그럼에도 불구하고, 동맹에 관한 연구는 계속 진화하고 있다. 최근, 동맹 연구는 네트워크 이론을 도입함으로써 보다 체계적이고 역동적인 방향으로 진화했다. 전통적으로, 동맹은 하나의 국가 행위로서 인식되어왔다. 하지만, 소위 “네트워크 전환(network turn)”이라 불리는 과정을 통해 동맹은 네트워크 구조로 이해되기 시작했다. 이러한 네트워크 전환은 동맹 연구의 방향성을 재설정하며, 국가 간의 관계와 동맹 구조가 향후 동맹 선택에 미치는 영향을 조명한다. 이 연구는 최근 논문들이 왜 전통적 방법이 아닌 네트워크 이론을 사용하며 그 선택을 어떻게 정당화하는지를 분석하며, 동맹을 네트워크 이론으로 이해하는 것의 효용을 검토한다.

주제어: 동맹, 힘의 균형, 정치적 유사점/차이점, 네트워크 분석, 동종선호/이종선호, 선호적 연결

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