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Article

AI-Driven Research on International Relations: A Case Study of Southeast Asian Countries

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Abstract: The use of artificial intelligence (AI) technologies to predict conflict and cooperation has emerged as a new direction in the field of international relations research. This paper aims to utilize AI technologies—including text mining, machine learning, complex network analysis, and social network analysis—to transform states, international organizations, and other actors, along with their interactions (diplomacy, trade, conflict, and cooperation), into dynamic networks that are computable, simulable, and predictable. Taking China and Southeast Asian nations as a case study, this paper employs this dynamic network to analyze China's bilateral relations with the eleven Southeast Asian countries and explore the evolving characteristics of international relations. The results indicate that the evolution of geopolitical relations between China and Southeast Asian countries generally follows a phased, gradual progression. International conflicts have undergone three distinct evolutionary stages (1979–1990, 1991–2011, 2012–2025). In the first stage, conflicts were notably concentrated in Vietnam, with relatively high levels of conflict also observed in Thailand, Cambodia, and China; in the second stage, the proportion of conflict scores involving Vietnam, Cambodia, and Laos declined significantly, while Thailand's remained largely unchanged and the proportions for other countries increased; in the third stage, the trends in cooperation and conflict among countries across all stages were broadly similar, though conflict fluctuated more dramatically than cooperation, and China's levels of cooperation and conflict increased as Southeast Asian countries' economic dependence on China deepened.

Keywords: Artificial Intelligence; International Relations Research; Dynamic Networks; China-Southeast Asia; Geopolitical Relations

1. Introduction

Since 2010, artificial intelligence (AI) has been undergoing rapid development, and its impact on daily life and production has become increasingly prominent. Against this backdrop, more and more people are turning their attention to international relations, and research on the intersection of AI and international relations has consequently become more in-depth.

Southeast Asia, a region brimming with vitality and mystery, presents a tapestry of international relations that is as colorful as it is intricate. Throughout history, the interactions and entanglements among Southeast Asian nations have not only profoundly influenced regional stability and development but have also left a unique imprint on the global political stage [1-2]. The Southeast Asian region encompasses numerous countries, such as Thailand, Malaysia, Indonesia, and the Philippines. The relationships among these nations are intricate, featuring both aspects of win-win cooperation and occasional minor tensions [3-4]. The driving force of AI has brought entirely new insights to the study of Southeast Asian relations. Ontologically, AI may weaken the status of nation-states and disrupt their internal and external equilibria; epistemologically, it will significantly challenge perceptions regarding the nature and acquisition of knowledge in the field of Southeast Asian relations; methodologically, AI presents both challenges and significant opportunities for traditional qualitative and quantitative

research methods [5-8]. In light of the impact of AI development on the study of Southeast Asian relations, it is of significant practical importance to optimize industrial support strategies, place greater emphasis on data security, monitor the risks of AI development, and support the use of machine learning in international relations research.

Regarding AI-driven international relations research, Reference [9] indicates that AI plays a significant role in international relations and international law; however, this role requires corresponding legal regulation, as failure to do so could disrupt the balance of the world order—particularly given that its application in the military domain would exacerbate such imbalances. Reference [10] compiles several key assessments of the impact of AI technology across various domains of international relations. The findings emphasize the necessity of accurately identifying and evaluating the specific contexts in which AI exerts its influence, aiming to provide a nuanced assessment and scrutinize the grand proclamations of the "AI revolution" in global politics. Reference [11] describes the role of AI in international relations, particularly in diplomatic decision-making, noting that it automates decision-making processes, improves predictive analytics, and reshapes the way we engage in international affairs. Reference [12] elaborates on the impact of AI on international relations and systematically analyzes its applications in literature, film, and television. Drawing on the perspectives of leading figures in the technology sector, it argues that AI may pose an existential threat to human life. Reference [13] emphasizes that AI has reshaped the field of international relations, redefining diplomacy, security, and global governance. Employing a descriptive-analytical approach, it systematically reviews existing literature, revealing that while AI enhances diplomatic decision-making capabilities, it also presents ethical and regulatory challenges. Reference [14] highlights the transformative impact of AI on international relations, particularly in the political, economic, and military security spheres. It emphasizes that AI has reshaped the global balance of power, accelerated the arms race, and facilitated new forms of international cooperation, while also presenting complex legal, political, and ethical challenges. Reference [15] employs Thomas Kuhn's theoretical framework of scientific revolutions, positing that AI, by empowering non-state actors, has led to a further erosion of state sovereignty and may usher in a fourth paradigm shift in the field of international relations. Reference [16] highlights the widespread attention being paid to the application of AI in international relations and notes that existing research primarily focuses on themes such as the balance of power, disinformation, governance, and ethical norms. Reference [17] aims to examine the role of AI in future international relations. By collecting data from relevant fields in the United States and conducting a descriptive analysis, it demonstrates that the use of AI in international relations serves as a tool to enhance national power. Reference [18] discusses the impact of AI and organoid intelligence on international relations, explaining that their applications in diplomacy, security, and global governance can help manage crises, conduct diplomatic negotiations, and even mitigate military conflicts quickly and accurately, while also posing risks such as data privacy concerns.

Furthermore, Reference [19] notes that game theory, as a component of AI in politics and international relations, is widely applied in fields such as equitable distribution, political economy, public choice, and war negotiation models, and analyzes the role of game theory in international relations. Reference [20] examines the evolving relationship between AI and diplomacy, as well as the consequences of utilizing cutting-edge technology in diplomatic actions. Based on case studies, it highlights the role of AI in diplomacy, negotiations, and consular services, while also pointing out the ethical dilemmas, dangers of misinformation, and cybersecurity risks it entails. Reference [21] discusses the impact of AI on international relations theory. Employing a research methodology that combines qualitative analysis with interpretation, it demonstrates that realist theory requires revisions to the definitions of concepts such as power, threat, security, and international relations actors in light of new developments in AI and international relations. Reference [22] elaborates on the application of Artificial General Intelligence (AGI) in international relations. First, the human-machine integration driven by AGI will rapidly and deeply permeate all areas of social policy and the economy. Second, it may transform modes of social production and economic development, while simultaneously posing new challenges to global governance. Reference [23] views AI as a transformative force reshaping 21st-century geopolitics, international relations, and global power structures. Through a comparative analysis of leading AI powers, it identifies three core drivers of AI geopolitics: strategic technological competition, economic influence, and military applications. Reference [24] examines the emergence of geotechnology as a new variable in international relations, referring to the competition among states to control and gain influence in critical technological fields, where technological advancements have a significant impact on the direction of international policy as well as political and economic decision-making. Reference [25] elaborates on the application of AI in international relations, arguing that AI is an influential interdisciplinary field that encompasses not only technical and engineering topics but also the humanities, particularly international peace and security; however, its use in the

military domain may lead to the production of lethal, uncontrollable robots and autonomous weapons. Reference [26] explores the transformative potential of AI in international diplomatic relations, focusing on the United Nations' diplomatic efforts in Africa and Nigeria. It highlights how AI can strengthen decision-making, enhance efficiency, and improve diplomatic effectiveness—particularly in conflict prevention and peacekeeping—while also noting the potential issues of bias, accountability, and security that AI may raise. The aforementioned studies systematically elaborate on the application of AI and related technologies in the field of international relations, affirming the significant role AI plays in advancing diplomatic strategies, mitigating armed conflicts, facilitating international negotiations, and maintaining peace. At the same time, they emphasize the need for the reasonable and balanced use of AI, as its misuse could lead to risks such as legal issues, privacy and security breaches, bias, and even the abuse of lethal weapons. These studies provide valuable references for research on AI-driven international relations among Southeast Asian nations.

Based on artificial intelligence technologies and the unified theory of "information-knowledge-intelligence," this paper presents a prototype system that automatically constructs international relations networks from authoritative corpora through text mining. After defining relationships and distinguishing their characteristics, the system uses the Chi-square test to extract the intensity, nature, and status of international interactions from the text. Based on the geopolitical type of nodes (countries), their levels of geopolitical influence, the clustering and diffusion functions of events, and the characteristics of changes in the strength and direction of edge-based geopolitical relationships, this study distills the evolutionary features of international relations. Finally, using Southeast Asian countries as a case study and employing data on inter-state cooperative events, the paper analyzes the evolutionary patterns of bilateral cooperation and conflict. It provides an overall analysis of the evolution of geopolitical relations between China and Southeast Asian countries from 1980 to 2025, along with their driving factors.

2. AI-Driven Modeling of International Relations Networks

Artificial intelligence (AI) technology drives the modeling of international relations networks. At its core, this involves using AI technologies such as natural language processing (NLP), text mining, machine learning (ML), complex networks, and social network analysis to transform actors—such as states and international organizations—and their interactions (diplomacy, trade, conflict, and cooperation) into dynamic networks that can be computed, simulated, and predicted.

2.1. Definition of International Relations

Although there is currently no universally accepted standard for defining and classifying inter-state relationships within international networks, research on social networks and interpersonal relationships suggests that characteristics such as relationship strength, nature, and the status of the parties involved play a significant role in relationship classification. We classify relationship intensity into three categories: distant, moderate, and close; relationship nature into three categories: friendly, neutral, and conflictual; and relationship status into two categories: equal and unequal. Based on these considerations, we believe that the classification shown in Table 1, which is based on these three characteristics, is representative.

Table 1. Types and Characteristics of International Relations

Relationship type	Degree of tightness	Nature of Interaction	Social status
1	Estranged	Not considered	Not considered
2	General	Not considered	Not considered
3	Tightness	Conflict	Not considered
4	Tightness	General	Not considered
5	Tightness	Friendly	Equality
6	Tightness	Friendly	Inequality

It is worth noting that the above categories represent a classification method we consider reasonable based on our understanding of the characteristics of these three types of relationships; researchers may also construct relationship categories tailored to their specific research needs based on these three characteristics.

We define the above six types as follows:

Alienated Type (Type 1): Relations between the two countries are strained; they are isolated from one another, subject to blockades, and deliberately boycott each other. Although each has its own diplomatic circles and friendly nations, they deliberately avoid interacting with or appearing alongside

one another, exhibiting characteristics of the Cold War. For example, the United States and Cuba.

General Type (Types 2 and 4): The relationship between the two countries is ordinary, akin to ordinary people exchanging a nod or a greeting when they meet. General relationships include two subtypes: first, where the level of contact is neither close nor distant; second, where contact is close but the nature of the relationship is neutral—neither conflictual nor friendly. For example, China and the Philippines.

Conflict Type (Type 3): The two countries engage in frequent interactions, but these interactions consist of verbal altercations, mutual protests and arguments, or direct outbreaks of conflict, exhibiting characteristics of a hot war. For example, Russia and Ukraine.

Cooperative Type (Type 5): The two countries also maintain close ties and enjoy friendly relations, with both sides treating each other as equals in their interactions. For example, China and North Korea.

Master-servant type (Type 6): The two countries maintain close and friendly ties, but their status is unequal, and the bilateral relationship is far more important to one country than to the other. For example, the United States and Japan.

2.2. Relationship Extraction Based on Text Mining

After defining the characteristics of relationships and distinguishing between them, it is necessary to design corresponding algorithms to extract these features from the text. In our work, we designed the following algorithm to extract the intensity, nature, and status of international interactions.

Based on the characteristics of international relations and the objective of extracting information about these relations from the text, we primarily measure the intensity of interactions by analyzing the frequency of exchanges and interactions between countries in the text; this falls under the category of macro-level behavioral feature analysis. Intuitively, if two countries interact frequently—with regular bilateral exchanges or joint appearances in multilateral diplomacy—their relationship can be considered close. Since this method is based on behavioral characteristics, it offers higher reliability and measurability compared to features such as trust levels or the depth of interaction. On the one hand, this demonstrates that behavioral analysis methods are relatively reliable, and that interaction frequency is an objective fact subject to minimal subjective influence; on the other hand, the vast amount of news coverage on international exchanges provides a reliable and convenient data source for studying the frequency of interactions between nations.

To measure the closeness of relationships and reflect interaction frequency within text, co-occurrence analysis is generally employed, which examines the instances in which entities appear together within the same corpus. There are various metrics for measuring co-occurrence, such as the matching coefficient, mutual information, Dice coefficient, and overlap coefficient, among others. Different metrics have distinct characteristics and are suitable for different situations. After comparing the performance and characteristics of various metrics in measuring the closeness of state relations, we conclude that the Chi-square value is the most suitable metric for this study.

The formula for the square value is as follows:

$$v = \frac{(ad - bc)}{\sqrt{(a+b)(c+d)(a+c)(b+d)}} \tag{1}$$

In the equation, a represents the number of times both entities appear together, b represents the number of times Entity 1 appears alone, c represents the number of times Entity 2 appears alone, and d represents the number of times neither entity appears. Equation (1) effectively captures the normalized closeness between the two entities: the value v ranges from -1 to 1, with positive values indicating a close relationship and negative values indicating a distant relationship; the larger the absolute value, the stronger the degree of closeness or distance in the relationship.

2.3. Creation of an Event Database

The key characteristics of massive data are its sheer volume, diverse attributes, real-time nature, and authenticity. Big data analysis is typically conducted on high-performance distributed platforms and cluster systems equipped with advanced hardware and software. Since we do not have access to such analytical platforms, under current conditions, we have primarily adopted two approaches to uncover the underlying patterns hidden within massive event data:

First, we perform dimensionality reduction on the event data to extract the attribute information required for our research;

Second, we restructured the database as shown in Table 2 to establish an event database suitable for this study. By utilizing MySQL database software, we made it possible to process massive volumes of

event data. Specifically, the Actor1 field identifies the active initiator of the event, while the Actor2 field identifies the passive participant; the ActorTypeCode field specifies the identity of the event participants (government, enterprise, international organization), and this field is used to identify the domain type of the event; the GoldsteinScale field is assigned a value according to specific rules and is used to measure the potential impact of the event. The QuadClass field categorizes events into four types—protocol-level cooperation, substantive cooperation, verbal conflict, and substantive conflict—based on the stage of the event's development. The ActorCountryCode, ActorGeo_Lat, and ActorGeo_Long fields identify the country and geographic location associated with the event.

Table 2. Attribute Structure of Event Database

Field	Containing
ID	Identification code
DATE	Time
Actorl	The name of Participant 1 (country, government, organizations, etc.)
ActorCountryl	The country attribute of Participant 1
ActorlGeo_Lat	The latitude of Participant 1
ActorlGeo_Long	The longitude of Participant 1
Actor2	The name of Participant 2 (country, government, organizations, etc.)
ActorCountry2	The country attribute of Participant 2
Actor2Geo_Lat	The latitude of Participant 2
Actor2Geo_Long	The longitude of Participant 2
QuadClass	Event types: Cooperative event, conflict event
GoldsteinScale	The degree of impact of an event: It measures the potential impact that the event could theoretically have
NumMentions	The number of times an event is reported measures its significance

2.4. Mathematical Modeling

A key starting point of this study is to transform event data—which possesses various attribute values—into network relationships among the actors involved in these events. Event connections are a crucial manifestation of the relationships between geopolitical actors. There are primarily two types of relationships: conflict and cooperation, as well as active and passive roles, as shown in Figure 1. Although massive amounts of event data have been subject to dimensionality reduction and database restructuring, traditional analytical methods still fail to meet the requirements. Therefore, based on the theory of spatial interaction and the theory of distance decay, and considering the extent to which media events influence state relations and the significance of the events themselves, while referencing the concepts of geopolitical influence and geopolitical relations, we constructed a Geopolitical Influence Index Model and a Geopolitical Relations Index Model. We implemented the algorithms using Python and R software to maximize the automation of data processing, which significantly improved the efficiency and accuracy of data analysis.

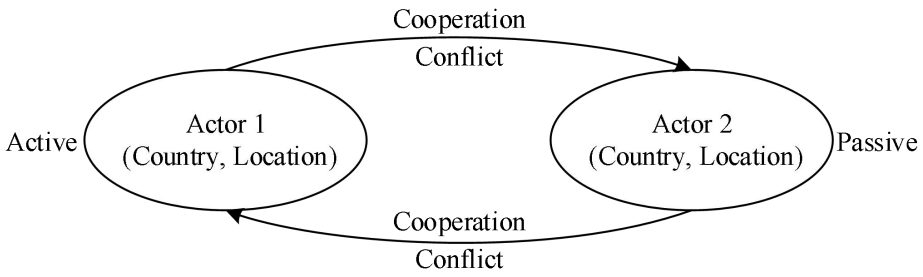

Figure 1. Abstract diagram of the relationship between geographical entities

(1) Geopolitical Influence Index: Used to quantitatively characterize the hierarchical structure of national nodes and reveal a country's status and role in the global geopolitical landscape:

$$GI_{ij} = \alpha \frac{\left(\sum GS_{ij}\right)}{d_{ij}} \tag{2}$$

$$GI_i = \frac{1}{n}\sum_{j=1}^{n} GI_{ij} \tag{3}$$

Specifically, GI_{ij} represents the influence of a i -rated country on a j -rated country; GI_i represents the average influence of an i -rated country; and $\sum GS_{ij}$ represents the sum of the impact values of all events involving an actively rated i -country and an j -rated country, the proportion of events involving α -rated sovereigns, i -rated sovereigns, and j -rated sovereigns out of the total number of events involving i -rated sovereigns, d_{ij} represents the shortest flight distance between the capital of Country i and the capital of Country j, while n represents the number of countries with which Country i actively maintains diplomatic relations.

(2) Geopolitical Relationship Index: Used to quantitatively describe the strength of interactions between countries and to reveal the hierarchical characteristics of geopolitical networks:

$$GR_{ij} = \frac{\left(\sum GSC_{ij}\right)^{\alpha} \times \left(\sum GSC_{ji}\right)^{\beta}}{d_{ij}^2} \tag{4}$$

In the formula, GR_{ij} represents the geopolitical relationship index between Country i and Country j, and $\sum GSC_{ij}$ represents the sum of the impact values associated with events (cooperation or conflict) occurring between Country i and Country j, α represents the proportion of incidents initiated by Country i with Country j relative to the total number of incidents initiated by Country i with other countries along the route; $\sum GSC_{ji}$ represents the sum of the impact values of incidents (cooperation or conflict) initiated by Country j with Country i; the number of incidents involving β Country j and Country i accounts for a certain percentage of the total number of incidents involving Country j and other countries along the route; d_{ij} is the shortest flight distance between the capital of Country i and the capital of Country j.

(3) Complex Network Analysis Models

Complex network analysis techniques are based on graph theory and focus on the relationships between actors, as well as the analysis of the patterns and implications of these relationships, with the aim of revealing the underlying patterns in the social and behavioral sciences through a network perspective. Complex network analysis has been widely applied across numerous fields of social and economic analysis, with relatively mature algorithms available for many of its metrics. This study uses events occurring between nations as its foundation, establishing relationships between element nodes based on their interconnections—the fundamental building blocks—and uses this to construct a relationship matrix for network analysis, as shown in Figure 2. Through the analysis of indicators such as centrality and network density, this study explores the geopolitical relationships between China and Southeast Asian countries, as well as the topological characteristics of the cooperation network among countries along the Belt and Road. It emphasizes the matching analysis and spatial representation of different types of data—including spatial, relational, and attribute data—to examine the attribute differentiation and spatial effects of relationships and cooperation types. The integrated analysis and representation of these diverse data types represent a deepening of complex network analysis and serve as a crucial prerequisite for exploring mechanisms and extracting underlying patterns.

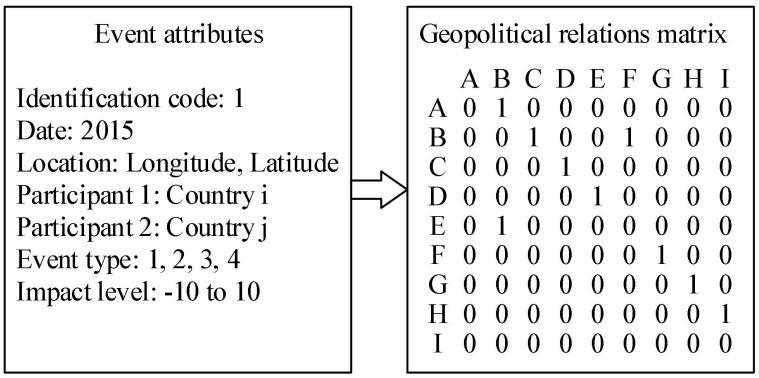

Figure 2. Geopolitical relationship matrix Based on event data

2.5. Framework for International Relations Networks

This paper establishes a data processing workflow and analytical framework for AI-driven research on international relations networks, as shown in Figure 3. First, a global event database is created using the MySQL platform; second, quantitative analysis models are developed using Python and R; and third, the results are spatially visualized using ArcGIS software.

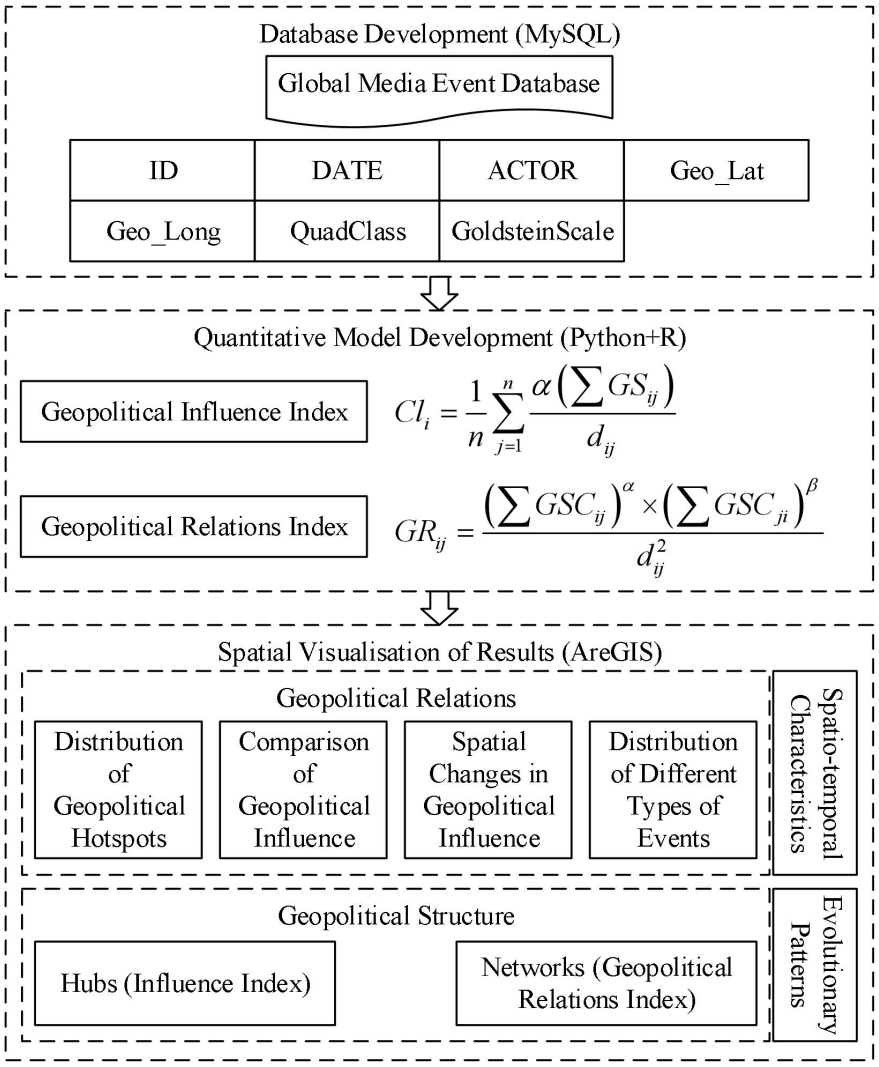

Figure 3. AI-driven international relations network analysis framework

Based on the aforementioned processing methods and procedures, this study has demonstrated the feasibility of handling massive datasets and the practicality of the research methodology, thereby validating the rationality of the research framework. To achieve the research objectives, a meticulous research plan was designed, with specific details regarding data acquisition and methodological development clearly outlined. The research content is designed to explore the evolutionary patterns of geopolitical structures in the context of shifting geopolitical relations, while emphasizing the impact of and optimization for the geopolitical environment in Southeast Asia. In terms of its framework, this study delves progressively into data, model construction, spatiotemporal processes, and evolutionary mechanisms. It employs data mining to uncover the underlying patterns of international relations within massive event datasets, and through the integrated analysis of data with different attributes and spatial dimensions, it explores the spatiotemporal characteristics, formation mechanisms, and structural patterns of geopolitical relations. The entire framework aligns with the positivist principle of knowledge discovery—progressing from phenomena to essence—and provides a thorough assessment of key technologies and potential technical challenges in the research, along with corresponding solutions. Consequently, this research framework is highly operational.

3. Studies in International Relations: The Case of China and Southeast Asian Countries

3.1. The Geopolitical Landscape of Southeast Asia

3.1.1. Geographical Environment

Southeast Asia is located in the southeastern part of Asia, at the crossroads of Asia, Oceania, the Pacific Ocean, and the Indian Ocean. Southeast Asia occupies a strategically vital position, serving as a vital link between Asia, Africa, and Europe, and connecting the Pacific and Indian Oceans. The Strait of Malacca, in particular, is a crucial maritime passage linking the Pacific and Indian Oceans; it is known as a "crossroads" and a "strategic chokepoint," and ranks among the busiest straits in the world. The mainland region of Southeast Asia consists primarily of two major parts: the Indochinese Peninsula and the Malay Archipelago.

The Indochinese Peninsula derives its name from its geographical location south of China; in its southern part lies a narrow, elongated region known as the Malay Peninsula. The Malay Archipelago is densely scattered across a vast maritime area of approximately 2.43 million square kilometers between the Pacific and Indian Oceans. Comprising more than 20,000 islands, it is the world's largest archipelago and is shared by countries including Indonesia, Malaysia, East Timor, Brunei, and the Philippines. The topography of the Indochinese Peninsula slopes from north to south, featuring a landscape of mountains and rivers interspersed and running in a north-south direction.

The Southeast Asian region comprises 11 countries: Myanmar, Laos, Cambodia, Thailand, Vietnam, Malaysia, Indonesia, Singapore, the Philippines, Brunei, and East Timor. Among these, Laos is the only landlocked country in Southeast Asia. Myanmar, Laos, and Vietnam share land borders with China, while East Timor is the only Southeast Asian country that is not a member of ASEAN.

The predominant ethnic group in Southeast Asia is the Mongoloid race. The region is densely populated, with a large Chinese population, and most residents practice Buddhism; Islam is the second-largest religion in the region. According to data from the relevant edition of the ASEAN Statistical Yearbook, the total population of ASEAN countries reached 703 million by the end of 2025. A large portion of the population is concentrated in the alluvial plains along major rivers, estuarine deltas, and coastal plains, while the population is relatively sparse in the mountainous regions and tropical rainforest areas of the islands. Located in the tropics, Southeast Asia enjoys abundant water and heat, making it highly productive in rice and various tropical cash crops. It is the world's largest producer of rubber, oil palm, coconuts, and abaca. The region boasts rich tropical natural landscapes, numerous historical sites, and unique local customs and traditions. In recent years, the tourism industry has developed rapidly, becoming one of the key pillars of economic growth in the region.

3.1.2. Geographical ties

Located at the junction of the Pacific and Indian Oceans, Southeast Asia is a geostrategically pivotal "peripheral region." As such, it holds irreplaceable strategic significance for both land-based and maritime powers. Should a conflict arise between these two types of powers, the peripheral region can leverage its geopolitical position to safeguard its own interests and play a role in supporting both sides. Among Southeast Asian nations, extensive economic exchanges with the United States and Japan have driven significant industrial development in Thailand and Singapore. Thanks to its advantageous

geographical location, Singapore has become a key node in maritime geopolitics, which has also fueled its substantial economic growth.

Indonesia, meanwhile, has strategically recalibrated its relationships with both neighboring nations and Western powers to secure greater room for development. Furthermore, the dramatic upheavals in Eastern Europe and the dissolution of the Soviet Union triggered profound transformations within the global socialist bloc. Cambodia, Vietnam, and Laos subsequently joined ASEAN in the 1990s, reintegrating into the Southeast Asian geopolitical sphere. Meanwhile, Myanmar seized the opportunity presented by the 2010 democratic elections to embark on a path toward democratization, ultimately solidifying Southeast Asia's geopolitical landscape as a "fragmented zone." From the "Small ASEAN" to the "Greater ASEAN" and now toward ASEAN integration, member states are striving to build a community free from external interference, as well as a new regional order based on shared security and shared prosperity.

In addition, the many variables in the geopolitics of the South China Sea in this new era have further intensified and complicated geopolitical relations in Southeast Asia. At the same time, the United States has re-engaged in the Asia-Pacific region, Japan has once again shifted the focus of its economic strategy toward Southeast Asia, the European Union has shifted its attention eastward, India has shifted its strategic focus eastward, and Russia and Vietnam have further strengthened their cooperation. In recent years, the increasingly complex interactions among major powers in Southeast Asia and the intensifying strategic rivalry among them have led to ever-more intricate geopolitical dynamics in the region.

3.1.3. Geopolitical Structure

As a geopolitical entity, Southeast Asia comprises two geographical subregions: the Indochinese Peninsula and the Malay Archipelago. Within these two subregions, certain driving factors—such as territory, location, and resource endowment—show a high degree of similarity. Only Laos is a landlocked country; the others are all land-sea hybrid states. However, when comparing the two geopolitical subregions—the Indochinese Peninsula and the Malay Archipelago—the differences are striking. The inherent characteristics of the geopolitical entities, the geopolitical relationships between them, and the geographical distinction between land and sea have all played a significant and multifaceted role in shaping Southeast Asia's geopolitical landscape. With the end of the Cold War between the United States and the Soviet Union, a new geopolitical order emerged. Keeping pace with the times, Southeast Asia leveraged the process of regional integration to become a prominent regional organization on the global stage. This process generally unfolded in two phases:

First, expansion—Vietnam's geopolitical environment underwent dramatic changes, creating an urgent desire to join ASEAN, while ASEAN itself sought to expand. Subsequently, with the accession of Cambodia, Laos, and Myanmar, ASEAN was formally established as a regional cooperation organization truly encompassing the entire Southeast Asian region.

Second, joint development. Given the significant disparities in development levels among ASEAN member states, the bloc adopted various mechanisms—such as the signing of the ASEAN Charter, the Summit mechanism, the ASEAN Summit, the establishment of the ASEAN Free Trade Area, and the building of the ASEAN Community—to create opportunities for national development while collectively striving toward the realization of the ASEAN Community.

Changes in the surrounding geopolitical environment and shifts in the foreign policies of major powers outside the region have had a significant impact on Southeast Asia. Since ASEAN member states are predominantly small and medium-sized nations, they are more vulnerable to such influences compared to major powers. In recent years, Southeast Asia has developed a situation where it relies on China for economic support and on the United States for security. The geopolitical actions of major external actors—such as the United States and China—continue to exert significant influence on Southeast Asia in the realms of geopolitics and geo-economics, while the region also maintains a certain degree of dependence on other regional actors.

3.2. The Evolution of International Relations Between China and Southeast Asian Countries

3.2.1. Classification of Developmental Stages

The phases of cooperation levels between China and Southeast Asian countries from 1980 to 2025 are shown in Figure 4. In the first phase (1980–1992), the countries with the highest proportions of cooperation scores were, in order, Vietnam, Thailand, Cambodia, and China, while the remaining countries had relatively low proportions; In the second phase (1993–2011), among the four countries

with high cooperation scores, only China continued to rise, while the other three all declined, with Vietnam showing the most significant drop. The remaining countries all rose steadily; in the third phase (2012–2025), China's share of the cooperation score continued to rise, becoming increasingly prominent.

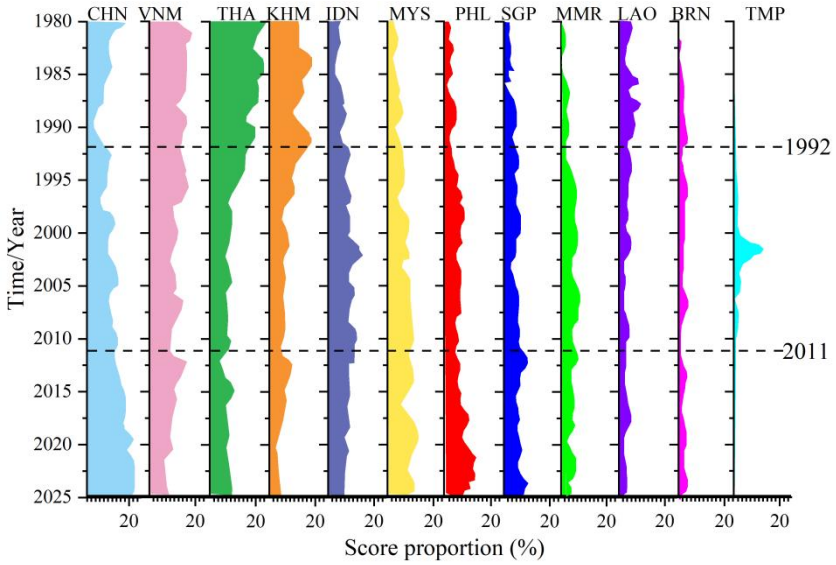

Figure 4. Stage Division of Cooperation levels between China and Southeast Asian Countries ((CHN(China), VNM(Vietnam), THA(Thailand), KHM(Cambodia), IDN(Indonesia), MYS(Malaysia), PHL (Philippines), SGP(Singapore), MMR(Myanmar), LAO(Laos), BRN (Brunei), TMP (Timor-Leste))

As shown in Figure 5, regarding conflict levels, during the first phase (1979–1990), conflict was clearly concentrated in Vietnam, with Thailand, Cambodia, and China also experiencing high levels of conflict; during the second phase (1991–2011), the share of conflict scores for Vietnam, Cambodia, and Laos declined significantly, while Thailand remained largely unchanged and the shares for other countries increased; In the third phase (2012–2025), China became the country with the highest share of conflict scores, followed by the Philippines and Malaysia. Although the trends in Thailand and Indonesia have slowed, their shares remain high, while Vietnam's has increased slightly. This division into phases is inextricably linked to the characteristics of the GDELT database itself, the globalization of information, and the explosive growth of media coverage.

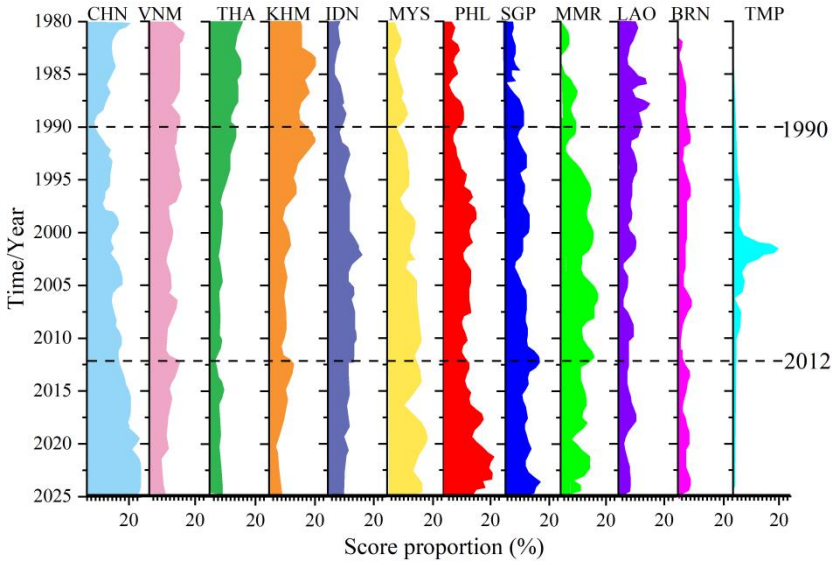

Figure 5. Stage division of conflict between China and Southeast Asian countries

Overall, the fluctuations in cooperation and conflict levels can be viewed as "positively correlated,"

exhibiting similar trends: during the same period, as a country's cooperation with others increases, conflict with those same countries tends to intensify. While fluctuations in cooperation levels are relatively balanced, those in conflict levels are more dramatic, particularly in the second phase, when Vietnam's conflict score dropped sharply. The proportions of cooperation and conflict scores for all countries across each phase changed gradually and generally followed similar trends, indicating that state relations underwent a phased, step-by-step evolutionary process.

International relations between China and Southeast Asian countries unfolded in three distinct phases, primarily influenced by the broader international context. In the first phase, Cambodia was invaded by Vietnam, which sought to establish an "Indochinese Federation," and received support from China and Thailand. With the collapse of the bipolar structure in the second phase, major powers began to develop their own comprehensive national strength, gradually giving rise to an international landscape characterized by "one superpower and multiple major powers." International competition shifted from military conflicts marked by excessive militarism to a contest of economic strength. As regional economic integration and globalization have accelerated, China and Southeast Asian nations have begun to place greater emphasis on economic cooperation, with a more balanced distribution across the region. In the third phase, the "21st-Century Maritime Silk Road" proposed by China in 2013 and the ASEAN Economic Community established in 2015 have had a positive, mutually reinforcing effect. Economic interdependence between the two sides has continued to strengthen, driving their cooperative development. China's share of the total has gradually increased since the end of the Cold War, and it has surged to become the country with the highest share. However, the 12 nations remain plagued by drug trafficking and terrorism, and territorial disputes are becoming increasingly prominent.

3.2.2. Characteristics of the Evolution of Bilateral Relations

Cooperation does not imply that international relations are in a state of harmony; rather, it represents the coexistence of conflicting and converging interests, and thus cooperation is accompanied by conflict. The increasing frequency of interactions between states has led to a simultaneous surge in information regarding both cooperation and conflict, with prominent cooperative bilateral relationships and prominent conflictual bilateral relationships largely aligning. By using a net score to comprehensively measure the level of a relationship, if the net score is greater than zero, cooperation predominates; otherwise, conflict predominates. This paper explores the evolutionary characteristics of bilateral relationships based on the three stages of conflict.

Figure 6 shows that the most prominent bilateral relationships in the first phase were those between Vietnam and Cambodia, and between Vietnam and Thailand, with the changes in the net scores for these two pairs of bilateral relationships closely mirroring one another. Due to the impact of the war, geopolitical relations between Vietnam and Cambodia, as well as between Vietnam and Thailand, were "intense," while their geo-economic relations remained "lukewarm." Vietnam pursued a policy of regional expansion, invading Cambodia in 1978 and deploying troops along the Cambodian-Thai border the following year, where it engaged in combat with Thailand. Thailand received military equipment support from China and the United States, leading to a large-scale conflict with Vietnam; compared to the Vietnam-Cambodia and Vietnam-Thailand conflicts, the Vietnam-Thailand conflict had a lower net score. In 1985, as the war escalated, the net scores for both bilateral relationships hit rock bottom. Vietnam suffered heavy losses, and in the later stages, the conflict between Vietnam and Cambodia shifted primarily to guerrilla warfare and counter-guerrilla operations, with a reduction in large-scale armed clashes. In 1986, Cambodia attempted to end its conflict with Vietnam through negotiations, but to no avail. It was not until the late 1980s, when the international landscape shifted, that Vietnam realized its reliance on the Soviet Union to establish an "Indochinese Federation" and crush anti-Vietnamese forces had become a pipe dream. Consequently, Vietnam adjusted its foreign policy to focus on economic development, withdrawing its troops from Thailand in 1988 and from Cambodia in 1989.

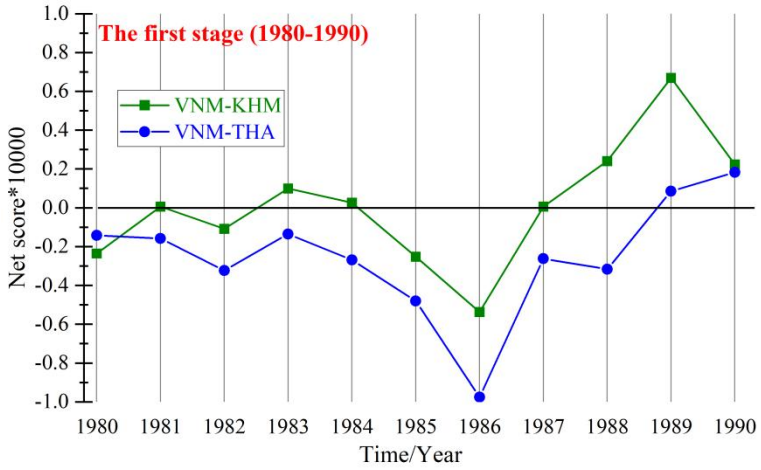

Figure 6. The first stage of Conflict (1979-1990)

The most prominent bilateral relationships in the second phase, as shown in Figure 7, are those between Thailand and Cambodia, and between Indonesia and Malaysia. Although Thailand and Cambodia, as well as Indonesia and Malaysia, face issues such as protests and territorial disputes, economic globalization has prompted the governments of both countries to pursue friendly diplomatic relations in their geo-economic ties. This has led to frequent mutual visits in the geopolitical sphere, resulting in a net score that is slightly positive and shows a steady trend. However, in 2009, tensions arose between Thailand and Cambodia over Thailand's dissatisfaction with Cambodia's appointment of Thaksin as an advisor to the Cambodian government, causing the net score to decline. In 2011, the two countries went to war and deployed heavy weapons over the long-standing territorial dispute regarding Preah Vihear Temple and its surrounding areas, resulting in a precipitous drop in the net score. Indonesia and Malaysia, as both neighbors and founding members of ASEAN, have maintained a relatively stable trend in their net score. Although they have faced territorial disputes, labor disputes, and economic frictions, their geopolitical relations have remained relatively stable since the end of the Cold War, driven by the process of globalization.

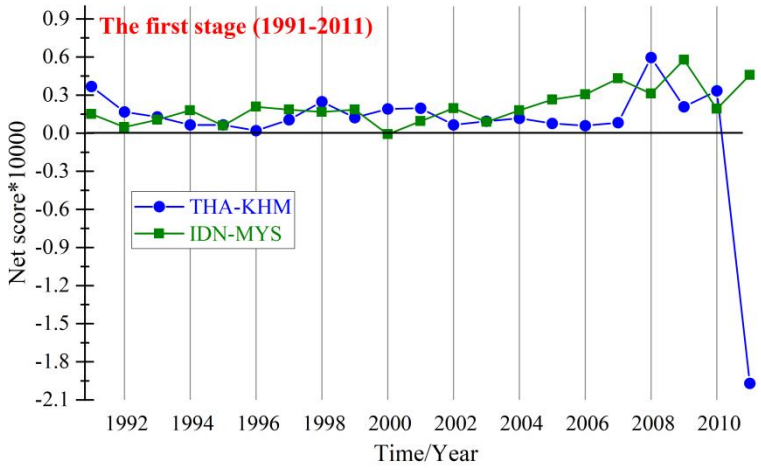

Figure 7. The second stage of Bilateral Relations

The bilateral relationships that stood out in the third phase were those between China and the Philippines, and between China and Malaysia, both of which were constrained by the South China Sea issue, with the China-Philippines relationship being more significantly affected, as shown in Figure 8. However, the leaders of Malaysia and the Philippines adopted starkly different approaches to handling the situation, which in turn influenced the trend in net scores. Under the impetus of the United States' "Pivot to Asia" strategy, the Philippines has adopted an increasingly hardline stance on the South China Sea issue, leading to the 2012 Scarborough Shoal incident. In 2013, it defied the spirit of resolving disputes through negotiation and consultation by unilaterally initiating compulsory arbitration proceedings, and in 2015, it organized demonstrations over the South China Sea issue. As a result, bilateral relations have reached an impasse, with the net score remaining consistently negative. It

wasn't until Duterte took office in 2016 and proposed "shelving disputes and pursuing joint development" that the net score rose rapidly. The government's prioritization of security made its foreign policy stance—driven by economic interests—relatively fragile; consequently, Sino-Philippine geo-economic relations were subordinate to geopolitical relations. In 2017, as U.S.-Philippine ties grew closer, the Philippines sought to balance its relations with the two major powers, China and the United States, and the Sino-Philippine net score gradually declined.

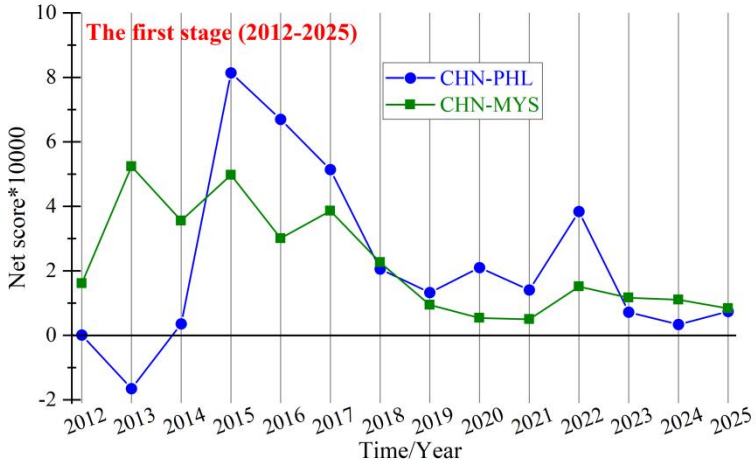

Figure 8. The third stage of the relations between the two countries

3.3. The Evolution of International Relations in Southeast Asia

An AI-driven analysis of international relations networks from a Chinese perspective reveals the following patterns in the evolution of Southeast Asian international relations:

First, the evolution of Southeast Asian international relations exhibits profound duality, hybridity, and contingency. It is neither the pessimistic outcome—inevitably driven by mistrust and a competitive mindset—emphasized by the power narrative, nor the optimistic outcome—naturally brought about by cooperation, norms, and peace—envisioned by the community narrative. In fact, the evolution of Southeast Asian international relations is often accompanied by conflicting trends. For instance, regarding the interpretation of the sovereignty system, Southeast Asian states simultaneously adhere to the principle of non-interference in internal affairs and the principle of non-alignment, which can lead to self-contradictions. At the same time, global, Western, and localized interpretations and operations of the system intermingle and interact during the evolution of Southeast Asian international relations. This duality and hybridity heighten the contingency of the evolution of Southeast Asian international relations, thereby giving rise to diverse non-linear trajectories of development.

Second, the evolution of international relations in Southeast Asia has a social foundation. This social dimension implies that international relations in Southeast Asia are not static but rather constitute a political consensus reached by relevant actors within a specific temporal and spatial context; this consensus arises from their shared recognition of certain social goals, norms, and practices. Consequently, the evolution of international relations in Southeast Asia can be understood as a process in which the social consensus formed by actors at different levels and in different regions regarding the goals, norms, and practices of their mutual relations is disrupted (the equilibrium is broken), followed by renegotiation of these goals, norms, and practices (the emergence of driving factors), and ultimately the re-establishment of social consensus or the failure of such negotiations (a return to equilibrium or a state of disequilibrium).

Third, the role of Southeast Asian actors in driving the evolution of international relations is primarily realized through non-coercive means. This is because Southeast Asian international relations have long been characterized by a "mismatch between capability and legitimacy." Due to historical factors and insufficient capabilities, neither hegemonic powers nor major powers have been able to independently or collectively dominate the course of regional international relations. As a result, Southeast Asian states—which possess relatively weaker capabilities but the highest legitimacy—have united to rely on normative instruments to shape the course of regional international relations.

4. Conclusion

This paper comprehensively analyzes geopolitical relations as a dynamic interplay of cooperation and conflict. By integrating AI technologies such as text mining, machine learning, complex network

analysis, and social network analysis, it provides a holistic examination of the evolutionary characteristics and driving factors of geopolitical relations between China and Southeast Asian countries from 1980 to 2025. The following main conclusions are drawn:

(1) A method for constructing international relations networks based on text mining. Given the current lack of methods for automatically constructing international relations networks based on text data, this paper, guided by the unified theory of "Information-Knowledge Intelligence," proposes a method for constructing international relations networks from text through text mining. This approach expands the data sources for international relations networks from structured databases to unstructured text data, thereby significantly broadening the scope of data available for research in this field. It also offers a meaningful approach to addressing the challenges posed by the information explosion and the difficulty of knowledge discovery. In this work, a comprehensive system was developed that spans data acquisition, network construction, and visualization. The reliability of the construction method was validated through a series of experimental comparisons and analyses.

(2) Taking Southeast Asian countries as an example, this study analyzes the evolutionary characteristics of bilateral cooperation and conflict. The results show that the cooperative and conflictual relationships between China and Southeast Asian countries can be divided into three phases; consequently, the geopolitical relations between China and Southeast Asian countries from 1980 to 2025 can be broadly categorized into three phases. The patterns of cooperation and conflict among these nations generally follow similar trends across each stage, with conflicts exhibiting more dramatic fluctuations than cooperation, reflecting a phased and gradual evolutionary process. From a structural perspective, a single community consists of geographically adjacent and concentrated nations. In the second phase of the cooperative network, China emerged as the network's core; by the third phase, it had encompassed most of Southeast Asia, initially establishing a cooperative model centered on China. It was not until the third phase that China became a focal point of conflict, with an increase in the number of Southeast Asian nations with which it cooperated, while conflicts were concentrated among specific countries involved in the South China Sea dispute with China. Sino-Vietnamese relations have always been a prominent bilateral relationship, and China's bilateral relations with Southeast Asian countries are influenced by Sino-Vietnamese relations.

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