

7-15-2026

A Corpus-Based Topic Modelling and Discourse Analysis of Pakistan-Russia Diplomatic Discourses

Muhammad Afzaal

Associate Professor, Institute of Language Sciences, Shanghai International Studies University, China,
muhammad.afzaal1185@gmail.com

Ahmed Bux Jamali

Postdoctoral Researcher, Institute of International and Regional Studies, Sun Yat-sen university, Zhuhai, Guangdong province, China, ab_ir92@yahoo.com

Syedah Nobia Zehra

Assistant Professor, Department of English, National University of Modern Languages, Multan, Pakistan,
nobiazehra@numl.edu.pk

Abida Kausar Chaudhary

Assistant Professor, Department of History, Ghazi University DG Khan, Pakistan,
achaudhary@gudgk.edu.pk

Follow this and additional works at: <https://kjhss.khazar.org/journal>

How to Cite This Article

Afzaal, Muhammad; Jamali, Ahmed Bux; Zehra, Syedah Nobia; and Chaudhary, Abida Kausar (2026) "A Corpus-Based Topic Modelling and Discourse Analysis of Pakistan-Russia Diplomatic Discourses," *Khazar Journal of Humanities and Social Sciences*: Vol. 29: Iss. 2, Article 3.

Available at: <https://kjhss.khazar.org/journal/vol29/iss2/3>

This Original Study is brought to you for free and open access by Khazar Journal of Humanities and Social Sciences. It has been accepted for inclusion in Khazar Journal of Humanities and Social Sciences by an authorized editor of Khazar Journal of Humanities and Social Sciences.

RESEARCH ARTICLE

A Corpus-Based Topic Modelling and Discourse Analysis of Pakistan-Russia Diplomatic Discourses

Muhammad Afzaal^a, Ahmed Bux Jamali^b, Syedah Nobia Zehra^{c,*},
Abida Kausar Chaudhary^d

^a Associate Professor, Institute of Language Sciences, Shanghai International Studies University, China

^b Postdoctoral Researcher, Institute of International and Regional Studies, Sun Yat-sen university, Zhuhai, Guangdong province, China

^c Assistant Professor, Department of English, National University of Modern Languages, Multan, Pakistan

^d Assistant Professor, Department of History, Ghazi University DG Khan, Pakistan

ABSTRACT

This study explores the underlying themes and trends embedded in the diplomatic discourses of Pakistan and Russia by employing the KeyATM approach. It also identifies and compares the linguistic strategies employed to (re)shape bilateral ties between these states. The corpus of the study comprises press releases taken from the official websites of Pakistan and Russia from 2009 to 2024. The findings reveal how discourse patterns mirror geopolitical shifts, reflecting mutual interests and shared challenges while negotiating historical legacies. This research not only contributes to the understanding of Pakistan-Russia relations but also demonstrates the efficacy of KeyATM in analyzing complex, multi-dimensional diplomatic texts. The study underscores the role of language in shaping international alliances, offering valuable insights for policymakers and scholars of international relations and discourse studies.

Keywords: Language, CDA, Topic modelling, Discourses, Corpus

Introduction

Diplomacy can be viewed as the management of foreign relations and it acts as a tool to establish cooperation and to resolve political, attitudinal, or economic conflicts among states. It seeks for settlement through negotiation (Chatterjee, 2007). According to Watson (1982) it is a medium of communication for any state to the international community. Jonsson & Hall (2005) defined three core dimensions of diplomacy; negotiation, representation and reproduction which are significant in development of international community. Communication and politics are homogenous (Păunescu & Chirișescu, 2019) and diplomatic discourses are significant in the development of a nation's public image

Received 28 March 2026; revised 24 May 2026; accepted 25 May 2026.

Available online 15 July 2026

* Corresponding author.

E-mail addresses: muhammad.afzaal1185@gmail.com (M. Afzaal), ab_ir92@yahoo.com (A. B. Jamali), nobia.zehra@numl.edu.pk (S. N. Zehra), achquadary@gudgk.edu.pk (A. K. Chaudhary).

<https://doi.org/10.5782/2223-2621.1592>

2223-2621/© 2026 Published by Khazar Journal of Humanities and Social Sciences. This is an open access article under the CC BY 4.0 Licence (<https://creativecommons.org/licenses/by/4.0/>).

and to position it within the international community (Pimentel & Panke, 2020). As stated by Constantinou (2018) diplomacy refers to the skillful use of language, dialogue and continuous negotiations among states. Therefore, diplomatic discourse is a key medium to maintain strategic ties and connectivity at the global stage. Such discourses are known for their authoritative and formal elements that are officially used for foreign communication, demonstrating the objectives and interests of a particular state (Wu & Cao, 2011). Moreover, diplomatic discourses are cognitive, persuasive, suggestive and expressive in nature (Goltsova & Khodarchenko, 2021). It is viewed as a special type of communication that is multidirectional in nature due to various goals realized in different private and public contexts (Kosovych, 2022). These discourses also reflect the priorities and stance of a nation towards ongoing conflicts and also play a vital part in resolving them. In this era of soft power it is significant to identify the implicit ideologies embedded in order to comprehend the strategic decisions of a state. Also, the understanding of diplomatic ideas facilitates in the investigation of the features of diplomatic discourse (Zhang, 2015).

Diplomatic discourse plays a major part in guarding the stance of the government by the diplomats (Afzaal & Chishti, 2021). It (re)shapes strategic ties and greatly influences geo-political dynamics. Pakistan and Russia cultivated diplomatic relations in 1948 and have undergone substantial strategic shifts during the Cold War, the post-Cold War, and the post-9/11 period. Pakistan considers Russia as a significant player in shaping its strategic and economic outlook towards the West, South Asia, and Central Asia. For Russia, the geostrategic location of Pakistan offers access to the Arabian Sea and the Indian Ocean Region. Amid evolving geopolitical milieu and economic prospects Pakistan and Russia began a new phase of their diplomatic ties (Naqvi & Masood, 2017). This connection brings new integration opportunities for Russia to direct its sanction-ridden economy, specifically after the Russia-Ukraine war. These bilateral relations involve collaboration in different domains such as energy, security and economy (MOFA, 2023). In this rapidly changing global landscape, both countries have recognized the strategic need to strengthen cooperation, especially after the withdrawal of the US from Afghanistan, to maintain a prominent role in the global community. Singh (2024) argues that the growth of diplomatic ties not only marks the evolving geopolitical sphere but it is also a continuation of a historical pattern.

Against this backdrop, this study explores the underlying themes and trends embedded in the diplomatic discourses of Pakistan and Russia from 2009 to 2024 by using KeyATM approach. It identifies and compares the linguistic strategies employed to shape bilateral ties, emphasizing areas of strategic interest such as energy cooperation, defense partnerships, and regional stability. It is significant in understanding the evolving relations between Pakistan and Russia through nuanced investigation of their discursive construction in the official press releases. By employing this approach, the study uncovers the implicit ideologies, varying priorities and perceptions of Pakistan and Russia towards each other. It delves into diplomatic nuances of Pakistan-Russia relations to answer the following questions:

1. What are the recurring themes embedded in the diplomatic discourses of Pakistan and Russia?
2. What are the implicit ideologies and perceptions of these states towards each other?

Related work

Pakistan-Russia relations

Many scholars have examined Pakistan-Russia relations from diverse perspectives in the field of International Relations. Khan (2019) highlighted the improvements and new directions in Pakistan-Russia relations. The study also emphasized the need to solidify

solidifying their bilateral relations and positive developments to enhance regional cooperation. While discussing the developments and limitations in Pakistan-Russia relations, [Kurita \(2019\)](#) argued that India-Russia ties are the biggest constraint as India is significant for Russia as a traditional trade partner. Moreover, there are other factors such as CPEC, and the growing political tensions among China, US and India which are affecting the growth of Russia-Pakistan relations. Similarly, [Sultana et al. \(2019\)](#) also highlighted the role of India as an old ally of Russia which may hamper the Russia-Pakistan relations. The study suggested that Pakistan should recognize its geo-strategic significance and human potential to develop friendly ties with all states. Whereas [Khan & Syed \(2021\)](#) emphasized the importance of Russia adopting a balanced approach and moving strategically to achieve optimal outcomes in South Asia. [Clary \(2022\)](#) addressed the geo-economic constraints in contemporary Russia-Pakistan ties that can hinder the transformation although Pakistan is facing severe strategic situation and Russia alone is not economically strong enough to revitalize the economy of Pakistan. The study also highlighted the limitations with regards to power politics, distance, role of China and US and Russia-India relations. [Ahmed & Faisal \(2023\)](#) explored the opportunities and challenges in Pakistan-Russia military cooperation by highlighting the intricacies and potential outcomes within the military realm and the strategic significance of this cooperation for both states. While observing the complexities in Pakistan-Russia relations, [Hayat \(2023\)](#) also highlighted the need to implement a proactive foreign policy which is free from external factors. [Ali & Javed \(2024\)](#) focused on the history of Pakistan-Russia relations in order to explore the opportunities and challenges in the growing cooperation between these states. By employing commercial liberalism, the study uncovered ample space of growth in areas such as economy, defense, regional integration (BRI, SCO and EAEU), social and cultural relations. However, there are some non-complementary challenges like India-Russia relationship, the reliance of Pakistan on IMF and its ties with the US. [Rasool \(2024\)](#) studied the influence of full-spectrum diplomacy on perceptions of public and cultural collaboration between Pakistan and Russia. The findings reveal that full-spectrum diplomacy paved the way for gradual but significant positive change in public opinions while cultural collaborations have strengthened Pakistan-Russia relations through various initiatives. [Abdul Aziz \(2024\)](#) is of a view that the cooperation between both states is influenced by various factors such as historical events, evolving power dynamics and common security challenges. [Yaqoob & Qureshi \(2025\)](#) examined Pakistan-Russia relations in the context of SCO. The study highlighted that cultural exchange between both states can open new avenues and SCO can also enhance security cooperation. While existing studies offer an extensive analysis on Pakistan-Russia relations in the field of International relations. However, no prior study has systematically explored the diplomatic discourses of Pakistan-Russia with the integration of topic modelling approach to uncover the implicit themes embedded in their discourse.

Topic modelling (TM)

Topic modelling is used to automatically understand, summarize, search and organize large archives. The ‘topics’ denotes the implicit variable relations that connect lexical items in a vocabulary and their occurrence in a document. A document is viewed as a blend of topics and topic modelling uncovers hidden themes and annotate the document in accordance to these themes ([Tong & Zhang, 2016](#)). Most studies on topic modelling involve integration of models to test the accuracy levels and scholars from various fields have utilized this model to unveil hidden themes and trends. [Schnober & Gurevych \(2015\)](#) explored new methods of employing LDA topic models. The researchers integrated different models and trained these models on the basis of different vocabularies and parameters. This study

also offers semi-automatic technique to recognize relevant topics over manifold models. This study also evaluated large-scale corpus based on a digital humanities project. [Esposito et al. \(2016\)](#) contrasted LDA and Word2Vec for unsupervised topic modelling for a political dataset. The findings reveal that the application of Word2Vec word-embedding enhances the performance of topic-modelling by carrying out accurate and task-based pre-processing step. [Jacobi et al. \(2018\)](#) proposed Latent Dirichlet Allocation (LDA) as a tool for content analysis of a large amount of news content. It is designed to overcome the challenge of analyzing large collections of documents. It automatically organizes large amount of content, assessed as patterns of co-occurrence. LDA is a helpful tool in examining patterns and trends in digital news content rapidly. [O'Neill et al. \(2016\)](#) employed topic models for summarizing British legislative documents. This technique offered easy browsing as well as identification of significant legal topics along with the specific terms. [Jaworska & Nanda \(2018\)](#) conducted a study on 'Corporate Social Responsibility' (CPR) corpus employing topic modelling method. The study highlighted a shift in trends and themes signaling towards the evolving CPR practices. Moreover, communities, rights and people are given more significance while environmental protection seems to be less relevant. The frequently occurring phrases like 'human rights' and 'climate change' were determiners of evolving thematic pattern in CPR discourse. [Li and Lei \(2021\)](#) conducted a bibliometric examination of topic modelling research of SSCI, SCEI and A&HCI articles from 2000 to 2017. The results show that China holds a leading position in this area and TM has developed as a significant approach in social sciences. Khan (2022) conducted a topic-modelling study of Pakistan's Speeches in the UN from the period 1970 to 2018. The study underscored nine prominent topics from the corpus and most of these were related to peace and security challenges, economic concerns and Afghan issues. It also reveals that Pakistan prioritizes peace and security, Afghan peace process and economic expansion. [Caliskan et al. \(2024\)](#) explored the developing trends in the research of educational technology spanning from 2000 to 2023 through topic modelling technique. The findings showed that 'learning analytics', 'adolescent internet use' and 'digital communities' are the most frequently occurring topics whereas 'user-centered technology', 'cognitive modelling' and 'student skill development' are identified as negative trends. The comprehension of these trends can enhance the process of decision-making regarding instruction, curriculum and the integration of technology in educational context. [Bala & Mitchell \(2024\)](#) explored the post-COVID underlying themes and evolving trends in a broader academic corpus extracted from the journal of applied learning and teaching. This study was carried out using BERTopic modelling approach to unveil the frequent topics of research within the journal. The results showed that it consists of various topics which reveals the interdisciplinary nature of the journal moreover the articles published from 2021 to 2023 focused on learning and teaching trends amidst post-COVID period. The major themes included healthcare, teaching strategies, digital learning and pandemic-driven aspects. [Walsh et al. \(2024\)](#) combined sentiment analysis, corpus linguistics and topic modelling to examine patient experience data extracted from social media. It is a case-study of modafinil effectiveness and use. The findings showed that modafinil is used under 166 health conditions. The topic-modelling results showed 70% posts related to the preset themes [Alhashmi et al. \(2024\)](#) conducted a bibliometric analysis about the AI applications in health sector by integrating LDA topic-modelling approach. The corpus of 2352 articles was analyzed published between 1991 to 2022. The LDA method provided a distinctive set of topics and terms that associated with various domains of AI. [Verbytska \(2024\)](#) conducted a study on the news discourses on Russia-Ukraine war by employing topic-modelling approach. The study compared Western and Eastern news coverage from 2022 to 2023 in order to unveil the framing strategies used in public discourse construction. The prominent

frames included security and defense, public opinion, policy prescription and evaluation, health and safety, external regulations and resources. These frames help in comprehending the broader socio-political mechanics, economic and humanitarian aspects. Lee (2024) presented an extensive examination of sport-climbing research patterns in Korea spanning from 2000 to 2024 by utilizing LDA topic modelling approach. The identified themes involved physiological factors, technological advancements, service quality and physical dynamics. This study offers insights into the thematic shifts in the studies related to sport climbing in Korea. Böhm (2024) investigated climate change narratives across ten years (2013 to 2019) on the internet by using topic modelling technique. The corpus of the study consists of various blogs, comments, tweets, newspaper articles etc. The topics that repeatedly emerged were dispute over reality and implication of climate change, consequences and causes of global warming and discussion regarding aspects of climate change science. Abdalbaki (2025) investigated the major media frames of Egypt, Ethiopia and Sudan regarding the Grand Renaissance Dam using KeyATM. The findings show that Ethiopian media focused on Economic frames whereas Sudanese and Egyptian media consists of agreements and mediation frames. Ogunleye et al. (2025) conducted a bibliometric analysis on topic modelling and its technique using 26,941 documents from the Scopus database spanning from 2004 to 2023. The findings show that publications related to topic-modelling have increased, however a decline in citation impact can be observed. Moreover, scientific development regarding TM is focused in two countries i.e. China and USA. Most of the applications of topic modelling are understudied. Tariq et al. (2025) examined Malaysian social-media trends employing bibliometric and topic modelling techniques. The results highlighted evolving dynamics and prominent topics such as public health, digital marketing and political discourses. The aforementioned studies showed that diplomatic discourse is an unexplored area using TM approach. Consequently, this study identifies underlying themes and trends in Pakistan-Russia relations from 2009-2024 to comprehend their strategies in rapidly shifting geopolitical dynamics.

Methods and material

As this study is set to examine the underlying themes and trends in the diplomatic discourses of Pakistan and Russia, it employs a mixed method approach to analyze the data. This study incorporated KeyATM, a probabilistic topic modelling approach, allowing the researchers to set a priori topics that feed into the models, thereby enhancing the interpretability of the data. It offers interpretable outcomes, improved document classification and is less sensitive to the range of topics (Eshima et al., 2024). The process of using KeyATM package in R initiates with its installation and loading all the required libraries. Following this, in the preprocessing stage, we cleaned the text and formatted our datasets into Document Term Matrix (DTM). Subsequently, we defined the keywords for topics (see Table 1) and stored the structured list in R to guide the model for effective categorization of themes and the next step is to run the KeyATM model. We extracted the topic distributions and applied visualization techniques to represent the topic trends to interpret the results.

Table 1 shows the predefined topics to guide KeyATM along with their corresponding seed words. The topic column (such as Bilateral relations) shows the predefined thematic areas while the seed words (such as bilateral, relation, engage, diplomatic, engagement, cooperation, dialogue, agreement, diplomacy, partnership) refer to the lexical items associated with each topic which steer the model to associate documents with these specific themes under that topic. It establishes the parameter and configures the input of KeyATM.

The corpus of this study comprises the press releases from the official websites i.e. Ministry of Foreign Affairs of Pakistan and The Ministry of Foreign Affairs of the Rus-

Table 1. Predefined topics.

Topic	Seed Words
Bilateral Relations	bilateral, relation, engage, diplomatic, engagement, cooperation, dialogue, agreement, diplomacy, partnership
Trade and Economy	trade, investment, interest, tariff, export, import, economic, economy, commerce, market
Security and Defense	security, military, defense, defence, terrorism, weapon, threat, stability, peace, peaceful, conflict
Human Rights	rights, democracy, freedom, reform, liberty, equality, justice, humanitarian, governance, protest
Global Government	coordination, organization, cooperation, global, multilateralism, summit, dialogue, policy, multilateral, commitment
Crisis Management	crisis, dispute, ceasefire, peace, escalation, intervention, war, mediation, sanction, resolution
Culture and Education	culture, education, educational, tourism, cultural, exchange, heritage, softpower, scholarship, program
Technology and Climate	science, technology, technical, scientific, innovation, energy, environment, sustainability, climate, development

Table 2. Corpus of the study.

Country	Years	Words	Source
Pakistan	2009–2024	52280	Ministry of Foreign Affairs of Pakistan
Russia	2009–2024	75807	The Ministry of Foreign Affairs of the Russian Federation

sian Federation from 2009 to 2024. These press releases consist of statements, official announcements, media briefings and speeches.

Results

Fig. 1 demonstrates the expected topic proportions within Pakistani diplomatic discourses regarding Russia. It represents how dominant each topic is across the Pakistani dataset and each topic is related with a group of representative keywords which help in interpretation. The dominant in Pakistan’s corpus is ‘Bilateral Relations’ 20% which involves bilateral discussions by officials. The secondary topics include ‘Security Defense’ 17% reflecting strong emphasis on regional peace particularly in the context of Afghanistan and ‘Global Governance’ 15% reflects global cooperation and international governance challenges involving both states. Furthermore, moderate topics are ‘Cultural Education’ 12% indicating cultural exchanges for strengthening the ties and ‘Trade Economy’ 10% suggesting new economic opportunities. The remaining topics including ‘other 2’, ‘other 4’, ‘Technology Climate’, ‘other 3’, ‘Human Rights’, ‘other 1’, ‘Crisis Management’ are least discussed topics as they are minimal in proportion. However ‘Technology Climate’ and ‘Human Rights’ consist of meaningful keywords which signal towards progress and peace. Thus, Pakistani diplomatic discourses are heavily inclined towards strengthening its relations with Russia and peace in the region.

Table 3 displays all the representative keywords associated with each topic in PDD. This table is organized into eight labeled topics such as Bilateral Relations, Trade and Economy, Security and Defense, Human Rights, Global Government, Crisis Management, Culture and Education, Technology and Climate as well as four ‘other topics’ including Other Topic 1, Other Topic 2, Other Topic 3 and Other Topic 4 along with the keywords. These other topics are less dominant in the Pakistani discourse but contain meaningful thematic clusters. The

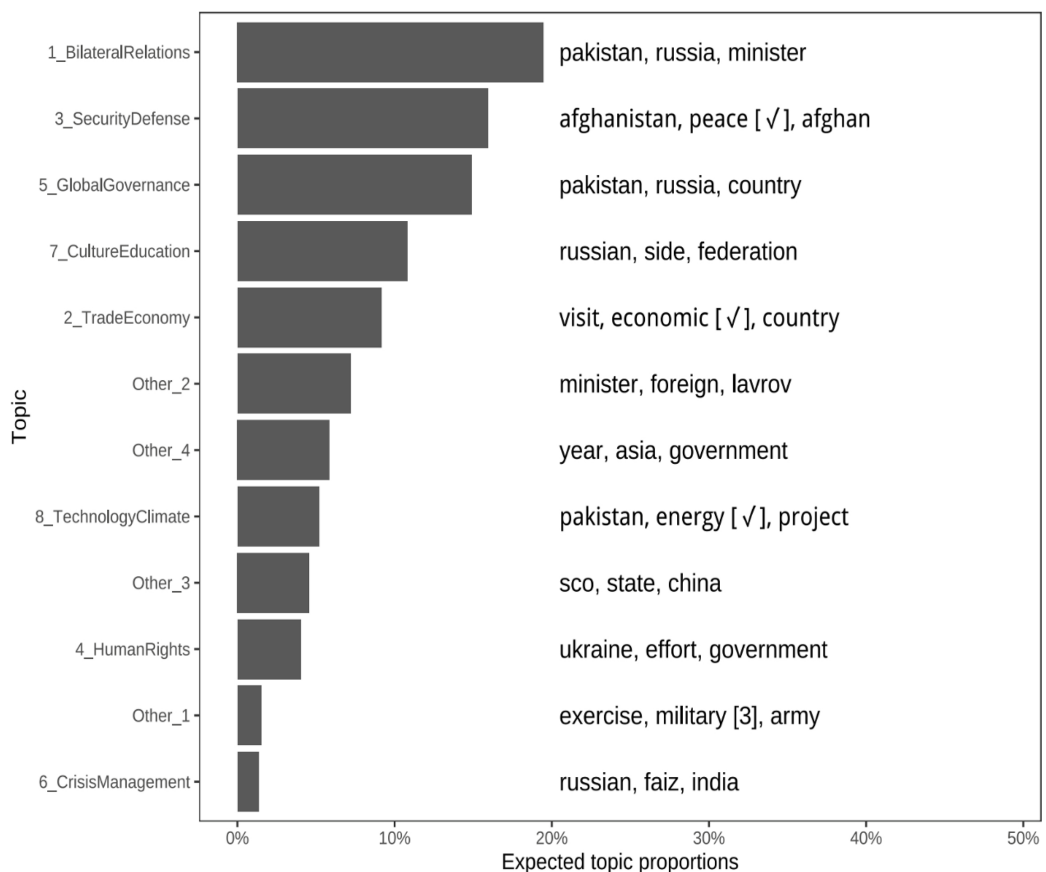


Fig. 1. Topic Distribution in Pakistani Diplomatic Discourse.

bold words such as economic, peace, cooperation, interest, security, relation, bilateral, terrorism, global, trade, stability, humanitarian, energy and exchange indicate that these are the most prominent themes and concerns in Pakistani corpora whereas the words with asterisk like policy, development, military and trade denote layered terms with intricate themes. Thus, these top terms offer clarity that what each topic indicates and also illustrate the prominent trends in Pakistan's diplomacy spanning from 2009 to 2024.

Fig. 2 demonstrates the fitness of the model using two key metrics i.e. log-likelihood and Perplexity. The log-likelihood measures how well the model analyzes the data under observation. The higher value indicate a better fit. The log-likelihood steadily increases around -2,100,000 to -1,775,000 as the iterations progress, the curve flattens towards the end (iteration 1500) signaling convergence. The model improved with each iteration and approached its optimal fit. While lower values in perplexity show better fit and indicate that model is generating more solid outcomes. A sharp drop from over 4000 to under 1000 iterations can be observed initially. Moreover there is a gradual decline. It flattens towards the end similar to the log-likelihood curve. This rapid decrease signals that the model has learnt efficiently and the stability is a sign of convergence. Thus, both metrics show visible sign of stability around 1400-1500 validating that the KeyATM is well-trained and stable.

Fig. 3 illustrates the estimated alpha values over training iterations for each topic. This alpha parameter demonstrates how likely a document is to depict a particular topic. The topic 'bilateral relations' is dominant as it is broadly used in the Pakistani diplomatic

Table 3. Topic-term matrix in Pakistani diplomatic discourse.

Bilateral Relations	Trade and Economy	Security and Defense	Human Rights	Global Government	Crisis Management
Pakistan	visit	Afghanistan	Ukraine	Pakistan	Russian
russia	economic	Peace	Effort	Russia	Faiz
minister	country	Afghan	Government	Country	India
cooperation	interest	Security	Think	Russian	Indian
meeting	comment	International	Many	Issue	kashmir
relation	policy*	People	Take	First	jammu
bilateral	State	Process	Excellency	Talk	prime
foreign	relationship	Terrorism	Assistance	Global	vladimir
prime	Trade	development*	Community	Said	lesovoy
held	towards	Stability	Humanitarian	Pakistani	ahmed
Culture and	Technology	Other	Other	Other	Other
Education	and Climate	Topic 1	Topic 2	Topic 3	Topic 4
ruussian	pakistan	Exercise	Minister	Sco	Year
side	Energy	military*	Foreign	State	Asia
federation	Project	Army	Lavrov	China	government
president	important	Helicopter	Qureshi	Member	Field
agreed	trade*	Pipeline	Including	Council	south
affair	connectivity	Naval	Situation	Head	right
well	Share	Stranded	Important	Principle	reaffirmed
expressed	membership	Russian	Matter	Help	particularly
led	government	July	International	Shanghai	change
exchange	Several	Participated	Mahmood	Tajikistan	enhance

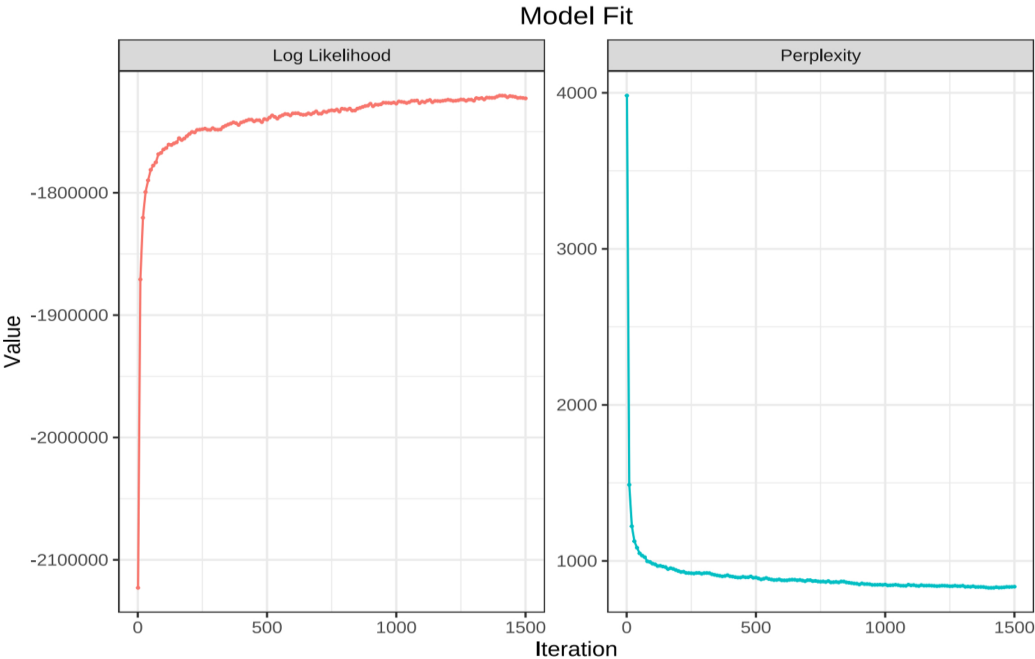


Fig. 2. Fitness of the Model in Pakistani Dataset.

discourses. The estimated alpha value for this topic stabilizes around 1.2 to 1.5. The alpha values started higher for topics ‘security defense’, ‘global governance’ and ‘cultural educa- tion’ and then gradually declined between 0.8 to 1.2 indicating that they are moderately prominent topics which are present in a decent number but not as uniformly as ‘bilateral

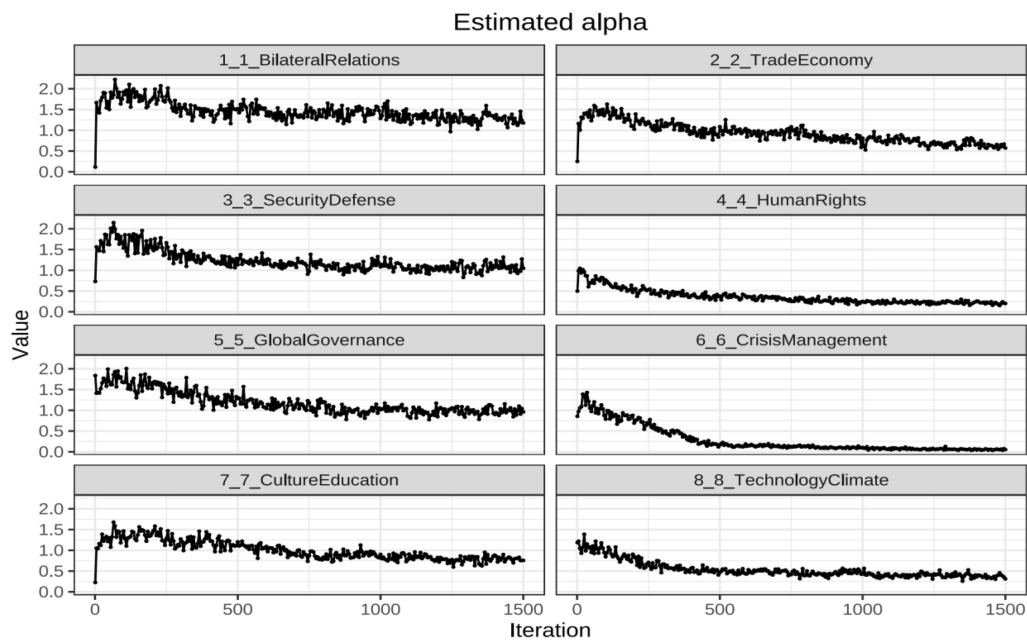


Fig. 3. Estimated value of Alpha per topic in Pakistani Dataset.

relations'. The less dominant topics with fewer occurrences include 'human rights', 'crisis management' and 'technology climate'. The alpha values for these decreased sharply and then stabilized around 0.3 to 0.6. The alpha values indicate how broadly applicable each topic is across the Pakistani diplomatic corpora.

Fig. 4 visualizes the probability of seeds drawn from predefined topics in Pakistani diplomatic discourses. It shows the likelihood of seed words being associated with each topic, based on topic-word distribution. It denotes the most dominant topic; bilateral relations with highest probability around 0.13, other prevalent topics with significant probabilities are trade economy and security defense followed by technology climate and global governance. The balanced mid-range topics are human rights and cultural education. Lastly, the least represented topic in the document is crisis management which has a very low probability.

Fig. 5. displays the expected topic proportions within Russian diplomatic discourses regarding Pakistan. It shows how dominant each topic is within the document and each topic is linked with a group of representative keywords which represent key priorities of their bilateral relations. The dominant in Russian corpora is 'Other 3' 19% with keywords minister, foreign and Russian, indicating diplomatic dialogue by Russian officials and how they prioritize foreign policy and ties. The secondary topics includes 'Security Defense' 13% indicating regional peace as a priority particularly in Afghan context. Moving forward, other strong topics are 'crisis management' 12% 'other 2' 11% indicating efforts and improvement in the region in the context of Afghanistan and 'Global Governance' 10% highlights the significance SCO membership for both states. Furthermore, moderate topics are 'Trade Economy' 10%, 'Bilateral Relations' 9% and 7% are 'Other 4'. Lastly 'Technology Climate' and 'Human Rights' low proportion topics which are least discussed in the document.

Table 4 shows all the representative keywords related with each topic in Russian diplomatic discourse. The table is categorized into twelve topics: bilateral relations, trade

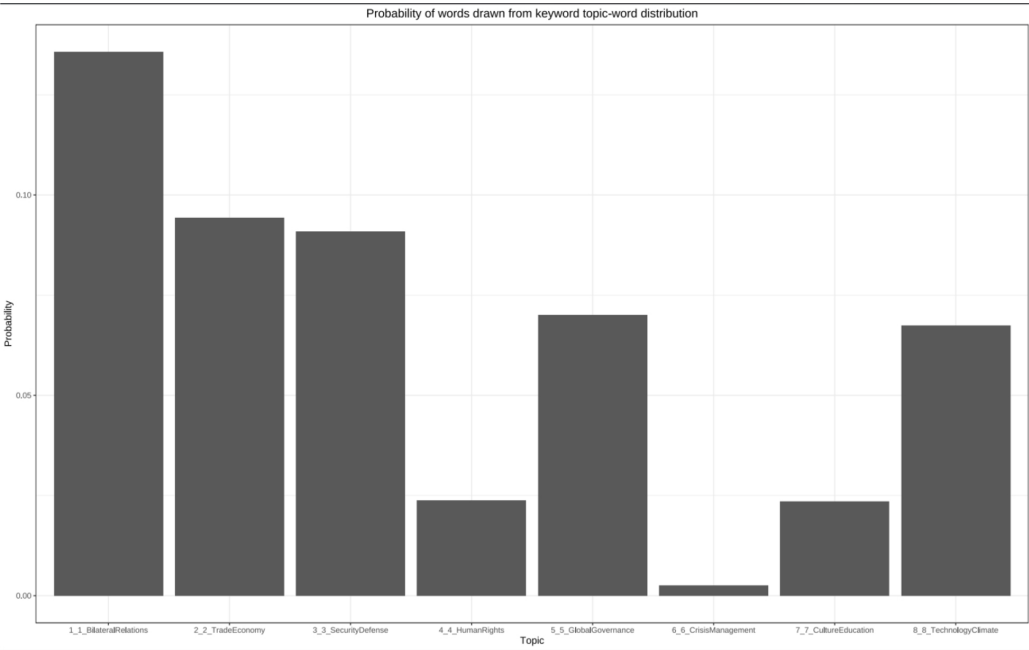


Fig. 4. Probability of topics from seeds in Pakistani Diplomatic Discourse.

Table 4. Topic-term matrix in Russian diplomatic discourse.

Bilateral Relations	Trade and Economy	Security and Defense	Human Rights	Global Government	Crisis Management
pakistan relation including cooperation dialogue bilateral	pakistan Country Economic Year Interest Trade	Security International Terrorism Discussed Regional Situation	pakistani russian terrorist russia pakistan humanitarian	sco member state cooperation organisation india	russia china state moscow format united
pakistani Today Islamabad Visit	Continue Way Activity Time	Drug Well cooperation*	people attack islamabad citizen	summit decision partner iran	meeting talk consultation islamic
Culture and Education	Technology and Climate development	Other Topic 1	Other Topic 2	Other Topic 3	Other Topic 4
Nuclear Treaty Non Make Group	Energy Republic Including South	India Pakistan Country Political Like	afghanistan afghan country representative	minister foreign russian pakistan	russia project important area
Proliferation Helicopter Abdullah Presidential Transit	Council Resolution Syria Tajikistan kazakhstan	diplomatic* global* Position Line Control	iran taliban effort part state Process	meeting lavrov afghanistan sergey affair international	problem new partner like number already

and economy, security and defense, human rights, global governance, crisis management, culture and education, technology and climate are predefined while remaining are other topics labeled as other topic 1, other topic 2, other topic 3 and other topic 4. The topics labelled as ‘others’ are less prominent in Russian document but carry meaningful thematic

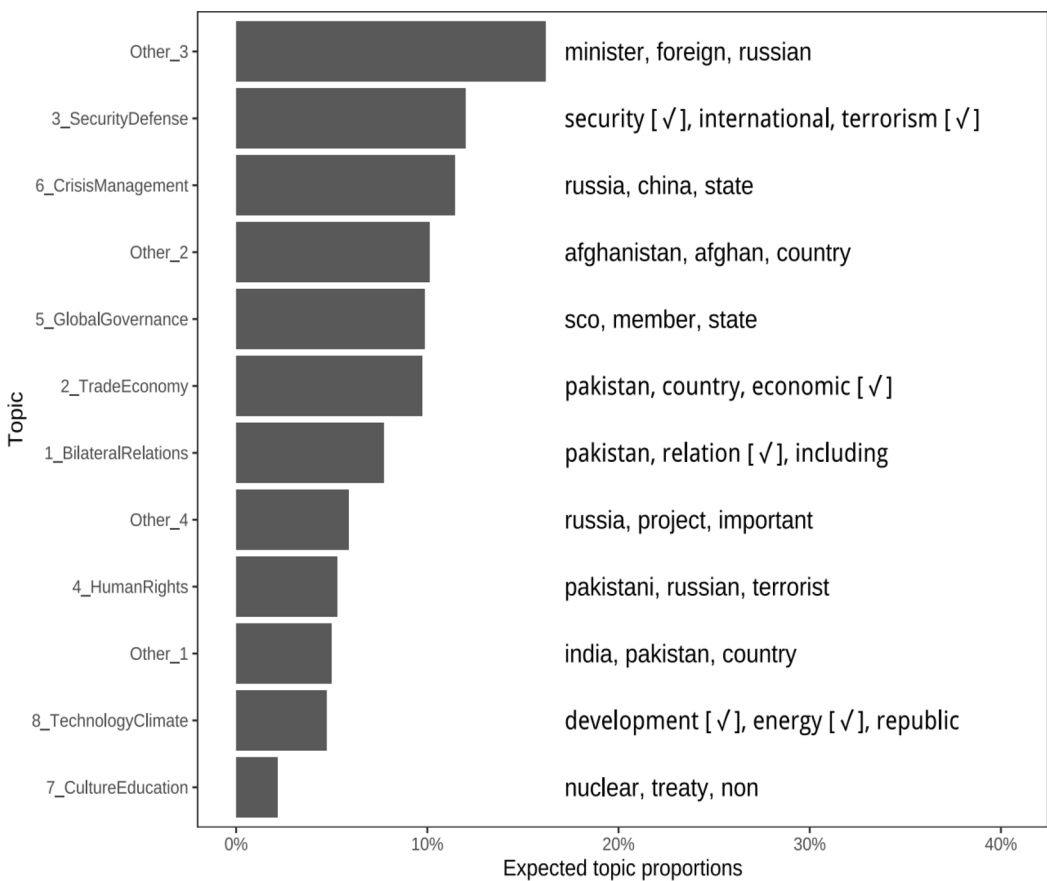


Fig. 5. Topic Distribution in Russian Diplomatic Discourse.

clusters. The bold words such as security, relation, economic, terrorism, cooperation, dialogue, interest, bilateral, trade, humanitarian, development and energy denote the priorities of the Russian government as they are dominant in their corpora from 2009 to 2024 while the words with asterisk such as cooperation, diplomatic and global indicate multi-layered meaning as they are disambiguated by the context.

Fig. 6 presents the fitness of the model in Russian dataset based on two key metrics: Log likelihood and Perplexity. The log-likelihood evaluates how well the model analyzes the observed data. The higher value indicate a better fit. The log-likelihood steadily increases around -2,100,000 to -1,775,000 as the iterations progress, the curve flattens towards the end (iteration 1500) signaling convergence. The model has progressively enhanced with each iteration and approached its optimal fit. Conversely, the lower values in perplexity show better fit and indicate that model is generating more solid outcomes. It is an indicator of model reliability. An initial sharp decline from over 4000 to under 1000 iterations can be observed. Subsequently a gradual decline is observed, with the curve flattening towards the end similar to the log-likelihood trend. This rapid decrease signals that the model has assimilated the patterns from the document and the stability reinforced convergence. Thus, both metrics show visible sign of stability around 1400-1500 validating that the KeyATM is well-trained and robust.

Fig. 7 shows the estimated alpha values over training iterations for each topic. This alpha parameter represents how likely a document is to depict a particular topic. The topic

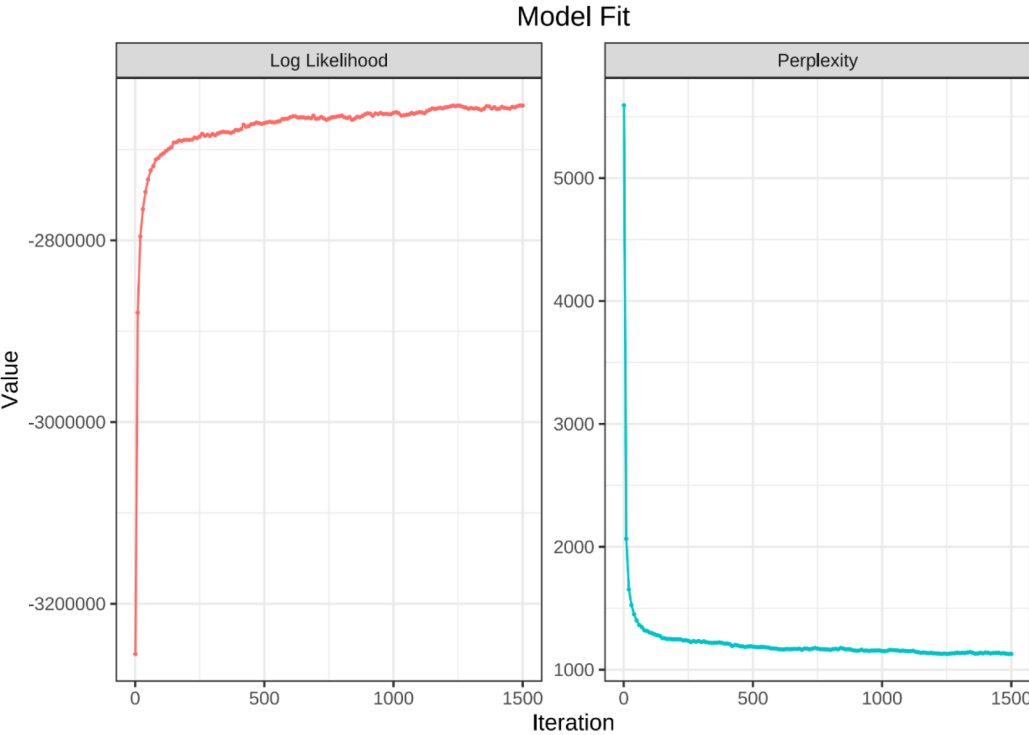


Fig. 6. Fitness of model in Russian Dataset.

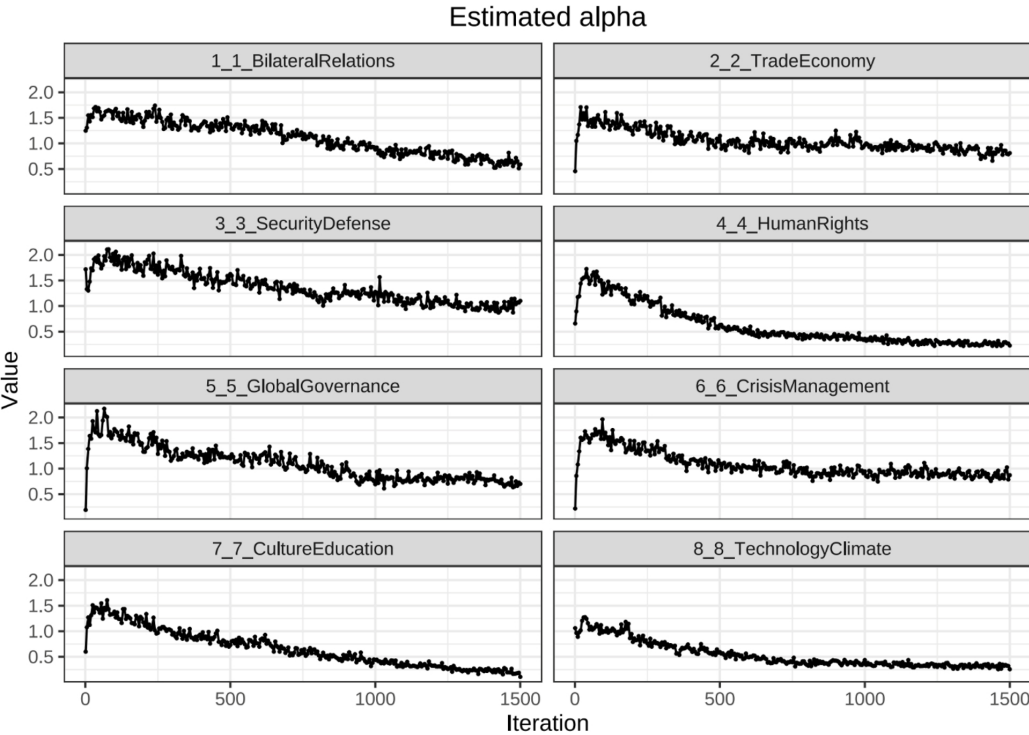


Fig. 7. Estimated value of Alpha per topic in Russian Dataset.

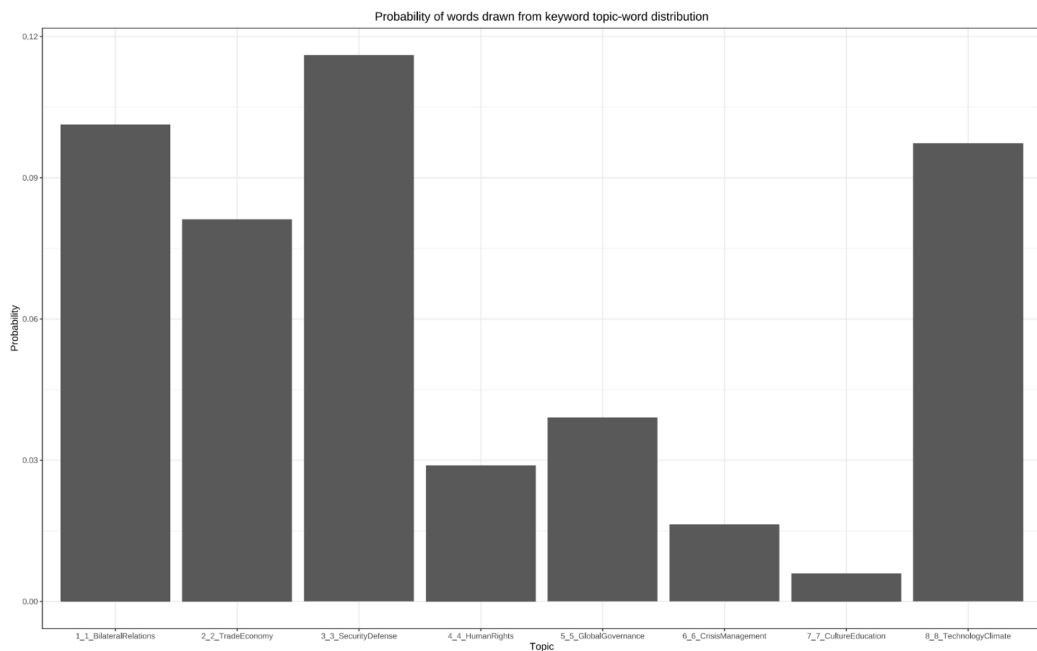


Fig. 8. Probability of topics from seeds in Russian Diplomatic Discourse.

‘bilateral relations’ is dominant as it is broadly used in the Pakistani diplomatic discourses. The estimated alpha value for this topic stabilizes around 0.5. The alpha values started higher for topics ‘trade economy’, ‘security defense’ and ‘human rights’ and then gradually declined between 0.8 to 1.0 indicating that they are moderately prominent topics which are present in a decent number but not as uniformly as ‘bilateral relations’. The less dominant topics with fewer occurrences include ‘global governance’, ‘crisis management’, ‘culture education’ and ‘technology climate’. The alpha values for these decreased sharply and then stabilized around 0.1 to 1.0. The alpha values indicate how broadly applicable each topic is across the Russian diplomatic corpora. Bilateral relations and security defences have relatively higher final alphas showing that these topics are broadly disseminated across the Russian document.

Fig. 8 shows the probability of seeds drawn from predefined topics in Russian diplomatic discourses. It demonstrates the likelihood of seed words being associated with each topic, based on topic-word distribution. It denotes the most influential topic; security defense with highest probability around 0.117, other prevalent topics with significant probabilities are bilateral relations and technology climate followed by moderate topics such as trade economy and global governance. The balanced mid-range topics are human rights and cultural education. Moving forward, human rights and crisis management have minimal influence. Lastly, the least represented topic in the document is cultural education which has a very low probability.

Discussion

Both Russia and Pakistan have experienced a steady diplomatic transformation specifically in the 21st century. The historical antagonism and opposite ideological affinities of the cold war era marked a geopolitical divide between the two countries. For instance,

Pakistan was a US treaty ally during the SEATO and CENTO mutually agreed framework and enhanced significant strategic ties with China. Whereas, the Soviet Union enjoyed cordial cooperation with India and ensured the Treaty of Friendship and Cooperation with India to counterbalance the shifting geopolitical balance of power in 1970. Since the post-Cold War engagement, both Russia and Pakistan have sought to establish a robust cooperative linkage in shaping three key central aspects such as (1) facilitating viable diplomatic shifts, (2) enhancing diplomatic discourse engagement, (3) focusing on implicit ideologies and perception to maximize mutuality of interests. Thus, it is evident that the changing dynamics of global power politics have provided ample space between Russia and Pakistan to sideline historical ideological rigidity by maximizing strategic pragmatism. Above all, both countries seek to play an amicable role in sharing regional concerns and shaping the multipolar vision of global order (Ahmed, 2022).

Key factors of diplomatic shifts in Russia-Pakistan relations

Multiple key factors have demonstrated the diplomatic shifts in Russia-Pakistan Relations. Firstly, the end of the Cold War diminished the bipolar rigidity and provided viable alignment choices that kept Russia and Pakistan on the opposing side. The post-Cold War realignment turned out to be creating new space for both Russia and Pakistan to engage on regional and global issues. This is due to the fact that Russia faced a strategic vacuum in South Asia owing to the cordial embrace of India-US ties on regional geopolitics and Pakistan was left only with the option to diversify its partnership gamut without solely relying on the US (Blank, 2011).

Secondly, in the middle of 2011, particularly after the assassination of Osama Bin Laden in Islamabad, Pakistan was faced with severe international isolation. The strong US rhetoric against the Global war on terror since 2001 in which Pakistan played a significant role as a major non-NATO ally couldn't satisfy Washington's needs and demands in eradicating terrorism. Pakistan encountered multiple drone strikes and subsequent attacks on air and military installations soured counterterrorism cooperation between the US and Pakistan. This isolationist scenario exposed Islamabad's vulnerabilities and pushed for searching for new partners to dismantle Western pressure. Simultaneously, Russia, during that point was revitalizing its strategic approach towards the West due to NATO alienation and increasing US sanctions. In other words, the souring of Pakistan-US relations provided a common cause for Russia-Pakistan to intensify diplomatic outreach and bilateral advancement to counter Western pressure (Zaidi & Ahmad, 2022).

Thirdly, in the defense sector, Pakistan-Russia relations witnessed a first-ever joint military exercise called (Druzhba) Friendship started in 2016. Because India-Russia defense cooperation dates back to the Cold War era, Pakistan is a new and emerging partner in the Russian defense market. Pakistan has acquired Mi-35 attack helicopters and increasing exchanges of military training programs has enhanced trust between the two countries. Undeniably, India's import-to-Russian ammunition ratio is above 60% in its total artillery and weapon ammunition demands, and Pakistan is new to utilizing Russian technological equipment at large (Ali & Javed, 2024).

In the energy sector, Russia has shown keen interest in addressing Pakistan's energy demands through uplifting infrastructure investments in key sectors. For instance, Russia has invested in the Stream Gas Pipeline formerly known as the North-South Pipeline which reflects Moscow's shifting priorities and thus enhances economic interdependence between the two countries. This is key to revitalizing Russia's Eurasian energy diplomacy. The regional connectivity has been further instrumentalized through Shanghai Cooperation Organization-led economic engagements (Yaqoob et al., 2025).

Recurring themes in diplomatic discourse

The findings reveal that three topics are highly homogenous, relating to ‘peace’, ‘economic’, ‘energy’. This is backgrounded in Pakistan’s concerted effort in peace and economic initiatives reflected in the government policies, strategies and tactics. As for the 8 predefined topics, “Bilateral Relations” has the highest keyword coverage in Pakistani corpora, underscoring the centrality of this topic in the corpus. It indicates the improvement in the diplomatic relations between Pakistan and Russia. It signifies the overall diplomatic and political ties between Pakistan and Russia; including high-level visits and bilateral relations. The keywords in Topic “Security Defense” that frequently occurs in the corpus also underscore the joint efforts between Pakistan and Russia to stabilize situation in Afghanistan and prioritize peace and security in the region. Security defense cooperation are significant components of Pakistan-Russia ties. It involves discussions on military cooperation, joint exercises, and strategies to overcome regional security challenges. As for Russian dataset, aside from the 8 predefined topics, 6 topics that jointly co-occur with these topics are inductively generated. These six topics are highly homogenous, relating to ‘security’, ‘terrorism’, ‘economic’, ‘relation’, ‘development’ and ‘energy’. This is backgrounded in Russian concerted effort in fighting terrorism and to enhance economic initiatives reflected in the government policies, strategies and tactics. As for the 8 predefined topics, “Other Topic 3” has the highest keyword coverage in our corpus, underscoring the centrality of co-occurring words like ‘foreign’, ‘minister’ and ‘Russian’ in the corpus. It could involve wide range of discussions on diplomatic visits, bilateral ties and interaction of Russian officials. The keywords in Topic “Security Defense” that frequently occurs in the corpus also underscore the joint efforts between Russia and Pakistan to improve security and prioritize peace in the region. It includes issues revolving around national and regional security, defense agreements and counter-terrorism efforts. It is observed that both Russia and Pakistan exhibit convergence in their diplomatic discourses on issue areas such as anti-Western sentiments and strategic autonomy. This is demonstrated in official foreign policy rhetoric and statements on both sides. For instance, Russia has oftentimes articulated dissatisfaction vis-à-vis Western hegemony on NATO expansion in its immediate backyard and echoed for the violation of its strategic sphere for influence. This ultimately caused the Crimea crisis in 2014 and the recent ongoing Russia-Ukraine war demonstrates Russian opposition to US sanctions and asset freeze (Marten, 2020). On the Pakistan side, it showed grievances and encountered FATF sanctions and pressure on Gray and black listing its stature in the diplomatic community. The grey-listing if approved would have severe diplomatic and economic consequences on the future diplomatic engagements in navigating Pakistan’s foreign policy approach (Shah, 2021). These two listed themes provided discursive ground for both Russia and Pakistan to find a common cause in navigating their strategic autonomy.

Furthermore, official statements from both countries amplify a shared multipolarity and regionalism. The involvement of Russia and Pakistan in the SCO exhibits their preferences for non-western multilateralism. This is endorsed through collective interests in building a post-western world order and Eurasian orientation regional order that would ultimately bring new members with equal voices for the distribution and fair share of global resources.

Both Russia and Pakistan carefully navigate their relations with China and India. Due to historical rivals, Russia seems less interested in directly being critical of Pakistan’s stance on the Kashmir issue. It has oftentimes shown neutrality at the UN platforms in the India-Pakistan conflict. It has adopted a cautious approach during China-India border escalations in Ladakh 2017 and Galwan Valley in 2020 respectively. Moscow authorities

show diplomatic patience by signaling balancing their nuanced approach in dealing with India-China-Pakistan geopolitical dynamics (Konwer, 2023).

Implicit ideologies and perceptions

In contemporary bilateral relations, Russia's strategic view of Pakistan is pragmatic rather than ideological. Russia believes that Pakistan is not a peer competitor across the South and Eurasian region but it may be perceived as useful for accessing South Asia and Indian Ocean Region. It would further enlarge Russia's sphere of influence in expanding new geopolitical and geo-economical roles in favoring Moscow's long-term strategy (Clary, 2022).

In retrospect, Pakistan views Moscow as a potential partner to achieve strategic autonomy. This is because Russia is a permanent member of the UNSC and thus its positioning in the United Nations system is highly significant for enlarging Pakistan's diplomatic stance on multiple issues such as Kashmir, terrorism-related resolutions, and regional policy formulations. Thus, it is stated that what unites both countries are shared belief in non-ideological realism. Their bilateral cooperation is interest-based based on a transactional approach rather than ideologically oriented issues. The Cold War legacy distrust has been replaced by mutual trust and calculative convergence on specific issues (Usman & Ahmad, 2022).

Conclusion

The study examines Pakistan-Russia relations by employing KeyATM approach in scrutinizing the prevailing diplomatic shifts, recurring themes, and ideological perception. Through covering the press official data from 2009 to 2024, this research addressed the key question pertinent to analyzing the recurring themes embedded in the diplomatic discourses of Pakistan and Russia and the implicit ideologies and perceptions of these states towards each other. The study reveals that Pakistan-Russia relations are converging in shaping discourse patterns regarding the shifting geopolitical landscape by sidelining their historical Cold War animosity. Bilateral cooperation has entered a phase of strategic normalization where trust and necessity have prevailed based on mutual benefits and regional stability. It is further combined with concerns related to regional realignment and shared concerns about terrorism and Western dominance. The prevalent recurring theme entails cautious optimism in bilateral cooperation. Despite forging a full-fledged alliance, the bilateral trajectory signals a deeper interest-driven partnership without necessarily jeopardizing interventions in domestic affairs. As global power competition further unveils and countries are prone to choose sides, Pakistan seeks to establish its foreign policy stance by adopting a zero-enemy approach without joining camp politics. Pakistan has learned lessons from its Cold War history in joining the US camp and sidelining the Soviets during that period provided severe implications at the regional and global level.

Conflict of interest

The authors declare no conflict of interest.

Author contribution

Muhammad Afzaal: Conceptualization and Original Draft
Ahmed Bux Jamali: Discussion and Interpretation of results

Syedah Nobia Zehra: Literature Review and Analysis
 Abida Kausar Chaudhary: Editing and Proofreading

Data availability

The data that support the findings of this study are available on request from the corresponding author.

References

- Abdalbaki, S. M. (2025). Keyword-assisted topic models reveal the dynamics in the main media frames of the Grand Ethiopian Renaissance Dam (2011–2022). *Media, War & Conflict*, 18(1), 22–44. <https://doi.org/10.1177/17506352241241159>
- Abdul Aziz, S. (2024). From tension to cooperation: the factors behind Pakistan Russia emergent relations. *Trends in Social Sciences and Humanities Research*, 2(7), 33–43.
- Afzaal, M, Chishti M I. (2021). Exploring Image of China in the Diplomatic Discourse: A Critical Discourse Analysis. *Journal of Development and Social Sciences*, 2(4), 120–133. [http://doi.org/10.47205/jdss.2021\(2-IV\)11](http://doi.org/10.47205/jdss.2021(2-IV)11)
- Ahmed, A. (2022). The Contours of Pakistan's Relations with Russia. In *Pakistan's Foreign Policy* (pp. 181–192). Routledge.
- Ahmed, A., & Faisal, G. R. (2023). Pakistan-Russia Military Cooperation: Challenges and Opportunities. *International Journal of Contemporary Issues in Social Sciences*, 2(4), 70–80.
- Alhashmi, S. M., Hashem, I. A. T., & Al-Qudah, I. (2024). Artificial intelligence applications in healthcare: a bibliometric and topic model-based analysis. *Intelligent Systems with Applications*, 21, 200299.
- Ali, U., & Javed, T. (2024). Pakistan-Russia emerging cooperation: opportunities and challenges. *Margalla Papers*, 28(1), 141–160.
- Bala, I., & Mitchell, L. (2024). Thematic exploration of educational research after the COVID pandemic through topic modelling. *Journal of Applied Learning and Teaching*, 7(1).
- Blank, S. (Ed.). (2011). *Central Asian Security Trends: Views from Europe and Russia*. Strategic Studies Institute.
- Böhm, G., & Pfister, H. R. (2024). Exploring climate change discourses on the internet: a topic modeling study across ten years. *Journal of Risk Research*, 1–28.
- Caliskan, A., Kurt, S., & Zhu, C. (2024, July). Development trends of educational technology research from 2000-2023: A topic modelling approach. In *EdMedia + Innovate Learning* (pp. 1167–1179). Association for the Advancement of Computing in Education (AACE).
- Chatterjee, C. (2007). *International law and diplomacy*. Routledge.
- Clary, C. (2022). Russia–Pakistan relations and the constraints of geoeconomics. *Asian Survey*, 62(5-6), 838–865. <https://doi.org/10.1525/as.2022.1801312>
- Constantinou, C. M. (2018). Diplomacy. In *Visual global politics* (pp. 104–110). Routledge.
- Eshima, S., Imai, K., & Sasaki, T. (2024). Keyword-assisted topic models. *American Journal of Political Science*, 68(2), 730–750.
- Esposito, F., Corazza, A., & Cutugno, F. (2016, December). Topic Modelling with Word Embeddings. In *CLiC-it/EVALITA*.
- Goltsova, M. G., & Khodarchenko, A. V. (2021). The genre differentiation and linguistic peculiarities of English diplomatic discourse. *The Journal of Philology*, 12(2). <http://dx.doi.org/10.31548/philolog2021.02.104>
- Hayat, M. Z. (2023). Pakistan-Russia Relations in Changing Geostrategic Environment. *Journal of Security & Strategic Analyses*, 9(1), 68–85. <https://doi.org/10.57169/jssa.009.01.0212>
- Jacobi, C., Van Atteveldt, W., & Welbers, K. (2018). Quantitative analysis of large amounts of journalistic texts using topic modelling. In *Rethinking Research Methods in an Age of Digital Journalism* (pp. 89–106). Routledge.
- Jaworska, S., & Nanda, A. (2018). Doing well by talking good: A topic modelling-assisted discourse study of corporate social responsibility. *Applied Linguistics*, 39(3), 373–399.
- Jonsson, C., & Hall, M. (2005). *Essence of Diplomacy*. Palgrave Macmillan.
- Khan, M. T. F. (2019). Pakistan's Foreign Policy towards Russia. *Strategic Studies*, 39(3), 89–104.
- Khan, S., Ahmed, F., & Mubeen, M. (2022). A text-mining research based on LDA topic modelling: a corpus-based analysis of Pakistan's UN assembly speeches (1970–2018). *International Journal of Humanities and Arts Computing*, 16(2), 214–229.
- Khan, I., & Syed, K. H. (2021). The strategic relations of Pakistan and Russia in 21st Century. *Research Journal of Social Sciences and Economics Review*, 2(1), 259–265. <https://ojs.rjsser.org.pk/index.php/rjsser/article/view/252>

- Konwer, S. (2023). Russia-Pakistan Relations and the 'China Factor'-Implications for India. *Strategic Analysis*, 47(4), 349–362.
- Kosovych, O. V., Kotovska, T. I., & Kulyk, S. A. (2022). Diplomatic communication. Discourse analysis. Вчені записки ТНУ імені БІ Вернадського. Серія: Філологія. Журналістика, 33(72), 156–160.
- Kurita, M. (2019). Pakistan-Russia Relations: Developments and Limitations. *NIDS Commentary*, 85.
- Lee, E. S. (2024). Topic Modelling: Comprehensive Analysis of Sport Climbing Research Trends in Korea from 2000 to 2024. *한국체육과학회지*, 33(4), 32–45.
- Li, X., & Lei, L. (2021). A bibliometric analysis of topic modelling studies (2000–2017). *Journal of Information Science*, 47(2), 161–175. <https://doi.org/10.1177/0165551519877049>
- Marten, K. (2020). NATO enlargement: evaluating its consequences in Russia. *International politics*, 57(3), 401–426.
- Naqvi, A. H., & Masood, Y. (2017). Rejuvenating Pakistan-Russia Relations. *Strategic Studies*, 37(4), 18–38.
- Ogunleye, B., Lanco Barrantes, B. S., & Zakariyyah, K. I. (2025). Topic modelling through the bibliometrics lens and its technique. *Artificial Intelligence Review*, 58(3), 74.
- O'Neill, J., Robin, C., O'Brien, L., & Buitelaar, P. (2016). An analysis of topic modelling for legislative texts. *CEUR Workshop Proceedings*.
- Pakistan and Russia commemorate 75th Anniversary of establishment of Diplomatic Relations*. (2023, May 1). Ministry of Foreign Affairs of Pakistan. <https://mofa.gov.pk/pakistan-and-russia-commemorate-75th-anniversary-of-establishment-of-diplomatic-relations>
- Păunescu, A., & Chirătescu, I. M. (2019). Diplomacy and Motivation in the Political Discourse. *Revista de Stiinte Politice*, (62), 12–21.
- Pimentel, P. C., & Panke, L. (2020). Diplomatic discourses: are they an object of Political Communication research?. *Intercom: Revista Brasileira de Ciências da Comunicação*, 43, 53–71.
- Rasool, M. (2024). The Impact of Full-Spectrum Diplomacy on Public Perceptions and Cultural Exchanges between Russia and Pakistan. *Arbor*. <https://arborjournal.com/index.php/view/article/view/13>
- Schnober, C., & Gurevych, I. (2015, October). Combining topic models for corpus exploration: Applying LDA for complex corpus research tasks in a digital humanities project. In *Proceedings of the 2015 Workshop on Topic Models: Post-Processing and Applications* (pp. 11–20).
- Shah, A. R. (2021). The geopolitics of Pakistan's 2018 greylisting by the Financial Action Task Force. *International Journal*, 76(2), 280–297.
- Singh, P. (2024, December 12). *Pakistan-Russia relations mark shifting sands in South Asia*. The Diplomat. <https://thediplomat.com/2024/12/pakistan-russia-relations-mark-shifting-sands-in-south-asia/>
- Sultana, T., Afshan, S., & Fatima, Z. (2019). Pak-Russia relations in the emerging geo-strategic environment. *Journal of European Studies (JES)*, 35(1), 36–53. <https://asce-uok.edu.pk/journal/index.php/JES/article/view/81>
- Tariq, R., Isawasan, P., Shamugam, L., Asmawi, M. A. H. A., Azman, N. A. N., & Zolkepli, I. A. (2025). Exploring Social Media Research Trends in Malaysia using Bibliometric Analysis and Topic Modelling. *EAI Endorsed Transactions on Scalable Information Systems*, 12.
- Tong, Z., & Zhang, H. (2016, May). A text mining research based on LDA topic modelling. In *International conference on computer science, engineering and information technology* (pp. 201–210).
- Usman, M. T., & Ahmad, M. (2022). Balancing the Veto Power: Prospects and Possibilities of Pakistan's Inclusion in Security Council as a Permanent Member. *South Asian Studies*, 37(02), 377–386.
- Verbytska, A. (2024). Topic modelling as a method for framing analysis of news coverage of the Russia-Ukraine war in 2022–2023. *Language & Communication*, 99, 174–193.
- Walsh, J., Cave, J., & Griffiths, F. (2024). Combining Topic Modeling, Sentiment Analysis, and Corpus Linguistics to Analyze Unstructured Web-Based Patient Experience Data: Case Study of Modafinil Experiences. *Journal of Medical Internet Research*, 26, e54321.
- Watson, A. (1982). *Diplomacy: The dialogue between states*. Routledge.
- Yaqoob, H., & Qureshi, A. (2025). Pakistan-Russia Relations within the Framework of the SCO: A Regional Analysis. *NUST Journal of International Peace & Stability*, 90–105. <https://doi.org/10.37540/njips.v8i1.188>
- Zaidi, S. M. S., & Ahmad, A. (2022). From friend to foe: Post-9/11 Pakistan-US relations; a realist perspective. *Asian Journal of Comparative Politics*, 7(4), 727–743.
- Zhang, J. (2015). *Interpersonal Prominence and International Presence: Implicitness Constructed and Translated in Diplomatic Discourse*. Cambridge Scholars Publishing.