BTPD: A Multilingual Hand-curated Dataset of <u>Bengali</u> <u>Transnational Political Discourse Across Online Communities</u>

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Understanding political discourse in online spaces is crucial for analyzing public opinion and ideological polarization. While social computing and computational linguistics have explored such discussions in English, such research efforts are significantly limited in major yet under-resourced languages like Bengali due to the unavailability of datasets. In this paper, we present a multilingual dataset of Bengali transnational political discourse (BTPD) collected from three online platforms, each representing distinct community structures and interaction dynamics. Besides describing how we hand-curated the dataset through community-informed keyword-based retrieval, this paper also provides a general overview of its topics and multilingual content.

1 Introduction

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48 49 Computer-mediated communication in online communities profoundly shapes contemporary political discourse. Prior computer-supported cooperative work (CSCW) research has studied the discussions of political issues with one's peers in the context of Bengali communities, especially focusing on their postcolonial conditions, decolonial efforts, and intriguing cultural and political dynamics in the Global South [15, 18, 21]. Often dubbed as "adda," such political discourse is a "something quintessentially Bengali, ... an indispensable part" of Bengali practices [9]. The Bengali people are the third largest ethnic group in the world [4], native to South Asia. Through the postcolonial partition of the region, Bengali communities were divided between Bangladesh and India [11], particularly in the states of West Bengal, Assam, and Tripura. Such a colonial formation of transnational dynamics among the Bengali communities makes the political perceptions and discourse historically complex [10]. The region has also become geopolitically important in recent times due to its strategic position in South Asian trade and connectivity, migration dynamics, and being situated within and near emerging global powers (e.g., China, India) and major stakeholders in many global issues (e.g., climate change) [2, 27]. Moreover, with around half a million Bangladeshi Bengalis living in the US[1, 63], as well as many Indian Bengalis who often identify as Indian-Americans, and with growing Bengali communities in major Canadian cities [8], the influence of such large ethnic enclaves on North American politics and the economy is steadily growing [45].

CSCW community often develops datasets of computer-mediated political discussions and empirically studies those interactions [32, 62, 66]. As contemporary political discourse among the Bengalis frequently takes place online [15], a dataset of their political discourse would enable CSCW researchers to study its transnational dynamics, complexities, and significance. However, despite Bengali being the sixth-largest native language [42] and having a strong web presence, there exist fewer resources in different linguistic data sites and consortia for Bengali than for other major languages [40]. Given their diverse backgrounds, Bengali communities adopt different online platforms based on platform-specific affordances, i.e., perceived and actual interaction possibilities, and tailor their political discussions accordingly. In this paper, we develop a dataset¹ of Bengali transnational political discourse (BTPD) with multilingual support, collected from three online platforms of different community structures and objectives, namely Reddit, Politics Stack Exchange², and Bengali Quora³. In the following sections, we will explain ways to conceptualize different types of online communities and review existing research, outline our data collection, preprocessing, and organization strategies, and describe the dataset using natural language processing (NLP) methods.

¹ Publicly available upon the paper's acceptance. ² https://politics.stackexchange.com/ ³ https://bn.quora.com/

50 2 Literature Review

51 While most existing research on political discussions online focuses on online platforms, such as 52 Twitter and Facebook [14, 34, 39] that are typically understood as "social media," Bruckman argues 53 that these online communities should be viewed as a prototype-based category [6], defined not 54 by rigid inclusion and exclusion rules, but by their prototypical members. Though social media 55 platforms are more representative of online communities, which are often riddled with political 56 misinformation [65], Question-and-Answer (Q&A) platforms, which usually offer better information 57 quality with adequate support for fostering connections among users [26], can also be viewed 58 as online communities. Moreover, the degree to which a platform embodies the prototypicality 59 of a community can be viewed as a cultural construct [6]. For example, while prior studies on 60 Quora focused on collective wisdom, reputation, quality of answers-objectives that are typical for 61 Q&A sites [52, 53, 67], Das and colleagues demonstrated how the Bengali users from Bangladesh 62 and India fostered transnational communities based on their linguistic and cultural similarities 63 and participated in sociopolitical discussions through this platform [19, 21]. While most political 64 discourse datasets rely on news sources or single platforms [49], that may not reflect the holistic 65 online political discourse. Considering that different platforms facilitate user interaction differently, 66 any datasets on political discourse should be curated across multiple sites.

67 Similar to many other fields adjacent to CSCW, such as human-computer interaction (HCI), 68 NLP, and algorithmic fairness [40, 44, 58], most research and resources in computational social 69 science, for example, in studying political discourse, overwhelmingly focus on the Global North 70 contexts [7, 12, 23, 33, 38, 43]. With recent studies focused on discourse in the Global South, 71 countries like India, Brazil, Indonesia, and Nigeria [25, 47, 48, 50] have facilitated cross-cultural 72 analyses of global political participation [41, 51]. However, there exists a dearth of datasets for 73 studying the transnational Bengali ethnolinguistic communities in Bangladesh and India. While 74 most NLP datasets in this under-resourced language have focused on tasks like sentiment analysis 75 and hate speech detection [22, 54, 56], some recent datasets have focused on bias evaluation [16, 17], 76 Q&A [60], machine translation [31], etc. Though some recent single platform-sourced datasets of 77 public opinion in Bengali exist [13, 30], they primarily feature product reviews or discussions on 78 global events rather than political discourse directly relevant to the Bengali people. Moreover, most 79 Bengali datasets are shaped by the construct of nationality, framing it either as a language specific to 80 Bangladesh or as a regional language in India. This paper seeks to address this gap by foregrounding 81 the transnational Bengali political discourse in Bangladesh and India. Following recommendations 82 in human-centered data science [3, 36] and common practices in HCI and CSCW [20, 61], we 83 hand-curated the dataset from multiple online communities through keyword search. 84

3 Dataset Creation

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3.1 Choice of Platforms

Drawing on Bruckman's argument that community is best understood as a prototype-based cate-88 gory [6], we chose three online platforms that exhibit varying degrees of different prototypicality 89 as communities. For our paper on preparing a corpus of Bengali political discussions online, we 90 collected political discussions from Reddit, the Politics Forum on Stack Exchange (PoliticsSE), and 91 Bengali Quora (BnQuora). Among these, Reddit aligns most closely with traditional notions of 92 community due to its persistent user identities, subreddit-based governance structures, and ongoing 93 interactions centered around shared interests [68]. In contrast, though users build reputations and 94 some expert-driven communities develop around specific topics on Stack Exchange, this platform 95 prioritizes high-quality information exchange through structured Q&A rather than sustained inter-96 action for social bonding [55] and, thus, is a less prototypical example of a community. Compared 97

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to these two, BnQuora falls somewhere in between. Though it has a looser sense of community compared to Reddit, as discussions in Q&A threads are more individual-driven than group-based, [19]
have found its effectiveness in fostering a sense of social relationship among Bengali users from
different regions based on their cultural similarities, reinforcing Bengali ethnolinguistic identity,
and facilitating political discourses.

3.2 Data Collection

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We collected data from these platforms through keyword searches. The list of keywords and data
 collection process varied across platforms based on their technical scaffolds and topical focus.

Reddit. Reddit facilitates decentralized discussions through subreddits, which are often 3.2.1 109 geographically anchored or based on similar cultures and interests. Therefore, we could look for 110 subreddits related to politics and Bengali contexts. Since most politics-related subreddits (e.g., 111 r/politics) are US-centered or strongly guided by US-adjacency (e.g., r/Ask_Politics) as found 112 by [28], to collect posts on Bengali politics, following [21], we included the subreddits related to the 113 geographic regions where Bengali people live (r/bangladesh, r/westbengal) and their political 114 centers (r/Dhaka, r/kolkata) and their shared linguistic backgrounds (r/bengalilanguage) as 115 communities where discussions on politics in Bengali social contexts are likely to occur,. These 116 subreddits are moderated and use flairs (e.g., "Seeking advice/পরামর্শ") that indicate the type and 117 topic of the content. For our data collection, we looked for posts in those subreddits that used the 118 flairs: "Politics/রাজনীতি", "Discussion/আলোচনা," and "News/সংবাদ." 119

We used the Python Reddit API Wrapper (PRAW) to collect data from January 25, 2025, to 120 February 17, 2025. This period reflects the code execution time, not the posting times of the posts. 121 We collected the posts' titles, URLs, bodies, flair, times of posting, and comments. While Reddit 122 employs a nested branching structure for comments, we stored the comments as a flat list. Based on 123 our long membership in the previously mentioned subreddits, we have observed certain differences 124 in how flairs are used in various subreddits. After data collection, we similarly noticed how different 125 subreddits used flair more or less frequently to indicate political posts and how the same flair 126 in various subreddits resulted in differing numbers of political posts as well as posts unrelated 127 to politics. For example, political posts in r/bangladesh often bear the flair "Politics/রাজনীতি", 128 whereas r/westbengal uses the flair "News/সংবাদ" and uses the flair "Politics/রাজনীতি" less 129 frequently. In both subreddits, the flair "Discussion/আলোচনা" is used in posts related to politics 130 as well as other topics. Hence, to keep the corpus relevant to Bengali political discussions, we 131 excluded posts on other topics (e.g., posts bearing the "Discussion/আলোচনা" flair but focusing on 132 different topics). Table 1 lists the subreddits and numbers of members and collected posts. 133

134	Table 1. Subreddits and their number of members (top $x\%$ of largest communities on Reddit) and political
135	posts from there included in our dataset.

Subreddit	#Members	#Political posts
r/bangladesh	75K (2%)	601
r/westbengal	5.5K (10%)	206
r/Dhaka	54K (3%)	309
r/kolkata	331K (1%)	49
r/bengalilanguage	26K (4%)	55

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3.2.2 PoliticsSE. In contrast to the diverse topics discussed in our selected subreddits, PoliticsSE
 is a Q&A forum solely for political discourse, ensuring the inherent topical relevance of its posts.
 As such, for our data collection, we can prioritize the contextual relevance of the data to Bengali
 communities rather than concerns about the broader topical focus. We retrieved PoliticsSE's

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latest data dump from the Internet Archive, which includes data from the platform's launch until 148 December 31, 2024. As before, we used the keywords mentioning the regions where the Bengali 149 people are native (e.g., Bangladesh, West Bengal), their political centers (e.g., Dhaka, Kolkata) 150 and their language and community name (Bengali) to identify posts on PoliticsSE related to the 151 context of Bengali communities based on their titles, bodies, and tags. We manually read through 152 the posts and only retained the unique posts while excluding the ones not directly related to political 153 discussion in the Bengali context (e.g., posts that mention Bangladesh as a passing example while 154 generally discussing different parliamentary structures around the world). We also retained their 155 metadata, such as URLs and posting time. Table 2 shows the number of posts identified using 156 keywords from the PoliticsSE data dump and the ones relevant to Bengali politics. 157

Table 2. Keywords, number of posts mentioning those keywords, and number of posts relevant to Bengali
 political discussion among those identified posts.

60	Keyword	#Posts identified through keywords	#Posts identified as relevant
51	Bangladesh	234	209
2	West Bengal	14	14
3	Dhaka	10	10
4	Kolkata	5	5
5	Bengali	19	17
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BnQuora. Quora's Q&A structure, which encourages diverse perspectives on a given topic, 3.2.3 167 fosters in-depth discussions on controversial subjects, including politics [35, 64]. Similarly, as 168 described in the previous section, BnQuora provides a unique space for in-depth analysis of Bengali 169 political discourse without significant concerns about the contextual or broader topical relevance. 170 Hence, instead of searching with keywords on the broad topic (e.g., politics), Das et al. [20] 171 recommended using more specific terms related to the broader topic to identify Q&A threads to 172 collect data from BnQuora. We conducted a Qualtrics survey to know what specific topics are crucial 173 to contemporary Bengali political discourse. The survey presented common political discussion 174 points [46] as options while allowing participants to add unlisted responses. We circulated the 175 survey through our social networks as members of Bengali communities in Bangladesh and West 176 Bengal and through Bangladeshi, Indian, and South Asian student organizations at two North 177 American universities. We thematically consolidated the 74 responses received between October 5 178 and 21, 2024, into a list of key topics/themes in Bengali political discussions and used the ten most 179 prominent ones to collect our dataset. Besides these topics, we used other related keywords (see 180 Table 3) to search for Q&A threads on BnQuora. We periodically ran a Python script using Selenium 181 from November 1, 2024, to February 15, 2025, to automate browser interactions (e.g., refresh, scroll) 182 to manage dynamic page content, which collected Q&A threads containing those keywords. 183

3.3 Data Preprocessing and Organization

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Our collected data from PoliticsSE and BnQuora are primarily in English and Bengali, respectively, 186 with occasional use of the other language for certain terms or phrases. However, the languages 187 of Reddit data vary significantly, including Bengali and English, with occasional code-switching 188 and Romanized Bengali, i.e., phonetic Bengali using English fonts. We translated all collected 189 posts in Bengali and English using OpenAI's API with the GPT-4 engine, which is comparable to 190 commercial translation products [37], using the following prompts: "You are a translator who can 191 translate {Bengali/English} and Banglish (Bengali in romanized fonts) to {English/Bengali}." 192 In our capacity as natively Bengali-speaking researchers, we also manually verified and fixed 193 the translations if needed. Hence, for each unique post ID, besides the original post, which may 194 have used a mix of languages, we have its translations in Bengali and English. This makes our 195

198	Topical Themes	Keywords	#Q&A
199			threads
200	foreign policy	পররাষ্ট্র নীতি	140
201	constitution	সংবিধান	246
202	secularism	ধর্মনিরপেক্ষতা	57
203	public education	সরকারি শিক্ষাক্রম	18
204	cultural identity	বাঙালি, বাংলাদেশি, বাংলাদেশী, ভারতীয়, ইন্ডিয়ান	87
205	LGBTQ+ rights	সমকামী/ট্রান্সজেন্ডার অধিকার	42
206	political parties	আওয়ামী লীগ, জামায়াতে ইসলাম, তৃণমূল কংগ্রেস, বিএনপি, বিজেপি	119
207	religion	ধর্ম, মুসলিম, ইসলাম, হিন্দু, ধর্মীয় সংখ্যালঘু	29
208	women's rights	নারী অধিকার	131
209	ethnic minorities	আদিবাসী, ক্ষুদ্র নৃতাত্ত্বিক জনগোষ্ঠী	7

Table 3. Key topics of Bengali political discussions, related keywords, and number of Q&A threads collected.

dataset uniform and multilingual, including a total of 2235 posts' original titles and bodies, their
translations in Bengali and English, answers and comments, posting time, and tags, if available.
Though the concern of misinformation is often intensified in political discussions and our dataset
comes from online communities with varied information quality, where StackExchange platforms
like PoliticsSE are seen as reliable [55] but Reddit has documented misinformation issues [5, 59],
not screening for misinformation while including a post in our dataset allowed BTPD to stay true
to the dynamics and reflect the nature of political discussions in Bengali communities online.

4 Dataset Content

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In this section, we provide a brief descriptive overview of our developed dataset. After preprocessing (e.g., excluding stopwords, stemming), Table 4 shows that lengths (average and median) and timestamps of the earliest and the latest posts in our dataset varied significantly across platforms.

Platform	#Sentences	#Words	Earliest and latest posts
Reddit	37.1, 15.0	198.0, 99.5	2023/01/02, 2025/02/17
PoliticsSE	16.2, 10.0	130.3, 90.0	2012/12/13, 2024/12/22
BnQuora	23.7, 12.0	213.4, 109.0	5 years ago, 2025/02/15

Table 4. Overview of the collected data by platforms.

As described earlier, our multilingual dataset includes the Bengali and English versions of each post. To compare the variances in the Bengali and English versions of the posts, we used principal component analysis (PCA) on their TF-IDF (Term Frequency-Inverse Dense Frequency) vectors. Examining the differing elbows in the scree plot (see Figure 1(a)), we can see that the number of principal components needed to retain a fixed proportion of variance (e.g., 80%) varies across languages–for instance, approximately the first 500 for Bengali and 1000 for English.

Figure 1(b) shows the common words appearing in our dataset using a wordcloud. Though we 235 addressed language-specific characteristics (e.g., Bengali's bidirectional structure) and provided 236 Unicode fonts, the existing NLP tools could not visualize the Bengali wordcloud properly. We 237 conducted topic modeling of the titles and bodies of the posts to get an overview of the broad 238 topics included in our dataset. Given the lack of enough evidence of how common topic modeling 239 approaches like latent Dirichlet allocation (LDA) and non-negative matrix factorization (NMF) 240 work in Bengali, we tried to identify topics through clustering of the posts based on their sentence 241 embeddings but did not find this approach informative. Since NMF works better than other common 242 approaches like LDA for topic modeling of short texts [24, 29], in Table 5, we report ten topics 243 identified by NMF on the posts' English translations with each topic's corresponding top five words. 244

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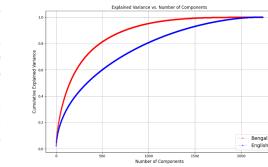




Fig. 1. (a) Scree plots of principal component analysis of Bengali (in red) and English (in blue) versions of the posts in our dataset (b) Common words in the English translations of the posts

Table 5. Topics identified in the English versions of the posts by NMF with common words.

Topic	Words	Topic	Words
0	assist, sorry, request, information, content	1	country, like, people, Awami-League, time
2	constitution, according, written, country,	3	West-Bengal, chief-minister, BJP, Mamata-
	Indian		Banerjee, state
4	India, foreign-policy, Dr-Ambedkar, Hindu,	5	Indigenous, people, communities, tribes,
	draft		Bengalis
6	provide, text, translation, information, need	7	women-rights, men, Islam, equal, freedom
8	Bengali, Trinamool, Congress, BJP, parties	9	Bangladesh, secularism, Pakistan, war,
			prime-minister

While some of these topics (e.g., 0, 6) are generic, some topics closely relate to particular domains of Bengali political discourse. For example, topics 3 and 8 focus on West Bengal's state-level politics in India, whereas topic 9 covers Bangladesh's historical political issues, and topic 5 deals with the politics around settler Bengalis and the Indigenous and ethnic tribes in Bangladesh. Interestingly, topic 7 seems to engage closely with equality of rights and freedom across different genders in Islam. Overall, topics 4, 7, and 9 highlight the centrality of religion and caste to politics in Bengal by mentioning words like Islam, secularism, Hindu, and Dr. Ambedkar (an Indian social reformer with great contributions in alleviating underprivileged castes, who, being elected from the Bengal region, chaired the Indian constitution drafting committee [57]). While some of the top words shown in Table 5 are identical to words used for keyword-based search, NMF surfaced more important keywords and identified connections among the words that were not implied during data collection.

5 Conclusion

This poster follows traditional NLP strategies while being informed by CSCW and social computing scholarship in considering different prototypical examples of online communities. It develops a textual corpus of transnational Bengali political discussions, which would address a resource need in one of the major global languages and be useful for examining cross-platform information dynamics and cultural and longitudinal shifts in political discourse in one of the largest global ethnolinguistic communities. While future research should contribute more data instances to BTPD from other online communities, include additional metadata like fact-checking labels, and link the online discussions with reliable sources, this artifact would facilitate political deliberation among Bengali communities and critical algorithmic audits of political biases of Bengali NLP systems, such as large language models, automated content moderation, and recommendation systems.

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