Perceptions of Turkey in the US Congress: A Twitter Data Analysis

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Abstract

The way we interact with individuals, companies, and communities has been altered by our usage of online social media sites and services. Simultaneously, the use of social media as a data source for social scientific inquiries has increased substantially in recent years. This study uses Twitter data analysis to investigate the views of United States (US) Members of Congress on Turkey, and to see if these perceptions reflect some of the trends in US-Turkey relations. Our initial view is that the Twitter conversations among Members of Congress appropriately reveal changes in the course of perceptions vis-a-vis relations between the two countries. With that assumption in mind, we evaluated Twitter data from 2009 to 2021, and analyzed it using statistical methodologies, network analysis, computational text analysis, and topic modeling tools. The findings indicate that Twitter data is a useful proxy for evaluating the perception of Turkey among US Members of Congress.

Keywords: Social Media Analysis, Twitter, US-Turkey Relations, US Senate, Foreign Policy Analysis

ABD Kongresi'nde Türkiye Algısı: Twitter Veri Analizi

Özet

Bireyler, şirketler ve topluluklarla etkileşim şeklimiz, çevrimiçi sosyal medya sitelerini ve hizmetlerini kullanmamızla değişti. Eşzamanlı olarak, sosyal bilim araştırmaları için bir veri kaynağı olarak sosyal medyanın kullanımı son yıllarda önemli ölçüde artmış durumda. Bu çalışma, Amerika Birleşik Devletleri (ABD) Kongre üyelerinin Türkiye hakkındaki görüşlerini araştırmak ve bu algıların ABD-Türkiye ilişkilerindeki bazı eğilimleri yansıtıp yansıtmadığını görmek için Twitter veri analizini kullanmaktadır. Makalede temel hareket noktamız, Kongre üyeleri arasındaki Twitter konuşmalarının, iki ülke arasındaki ilişkilere yönelik algıların seyrindeki değişiklikleri uygun bir şekilde ortaya koyduğu yönündedir. Bu varsayımı göz önünde bulundurarak bu çalışma, 2009'dan 2021'e kadar Twitter verilerini ağ analizi, hesaplamalı metin analizi ve konu modelleme araçları gibi uygun istatistiksel yöntemler kullanarak analiz etmektedir. Çalışmanın bulguları, Twitter verilerinin ABD Kongre üyeleri nezdinde Türkiye algısını değerlendirmek için yararlı bir araç olduğunu göstermektedir.

Anahtar Kelimeler: Sosyal Medya Analizi, Twitter, ABD-Türkiye İlişkileri, ABD Senatosu, Dış Politika Analizi

Introduction

The importance of individuals, social movements, and international networks has grown dramatically, as a result of the information revolution and the rise of social media. Similarly, the use of social media has expanded well beyond traditional media platforms, even for policymakers. Officials from various nations and domains are now using social media sites and services to engage with the public, and to express their perspectives on a wide range of subjects and topics. State and non-state actors are utilizing social media to promote their policy objectives to garner support, participate in diplomacy, and affect foreign policy outcomes. In this sense, a social media analysis has enormous potential for the determination and implementation of foreign policy, because it provides a significant amount of information about the perspectives, beliefs, and communication styles of users.[1] Thus, social media data has become a source of data for foreign policy research.[2]

The number of US Members of Congress (USMCs) who utilize social media has grown in recent years, as they employ social media technology to support their overall office communication strategies, and to distribute information.[3] According to Pew Research, the congressional social media landscape has changed dramatically in recent years. These shifts have been most noticeable on Twitter. In comparison to 2016, the average member of Congress now tweets nearly twice as frequently (81% more), has nearly three times as many followers, and receives nearly six times as many retweets on their average post.[4] A total of 532 of the 535 members of Congress had a campaign or personal Twitter account as of August 2021. Between 2009 and 2021, 154 of 163 Senators and 770 of 830 Representatives had a Twitter account.

Turkish American relations cover frequently researched topics from diverse perspectives, using a variety of techniques and approaches. Hence, it is impossible to present here a concise list of such a vast literature, but to the best of the authors' knowledge, no single study has yet examined congressional presence on Twitter in connection with Turkish American ties. During the literature review, we found only one study that had used Twitter data, which has only a few accounts from key foreign policy decision-makers from the two countries, but none from the US Congress itself.[5] Furthermore, the methods employed in that study are limited to a few typical Twitter indicators, which are incomparable to those used in this study in terms of scope and context. By studying a data set of 547 Twitter accounts belonging to USMCs and their Twitter messages between 2009 and 2021 this paper seeks to contribute to the growing literature on social media analysis in International Relations (IR). It should be noted that when it comes to Turkey and Turkish Foreign Policy (TFP), academic research in this

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1   Trevor Rubenzer, "Social Media and Foreign Policy", Oxford Research Encyclopedia of Politics, 2017, https://oxfordre.com/politics/view/10.1093/acrefore/9780190228637.001.0001/acrefore-9780190228637-e-485. 22 (Accessed 20 December 2022).; Matthew A. Baum and Philip B.K. Potter, "Media, Public Opinion, and Foreign Policy in the Age of Social Media", *The Journal of Politics*, Vol. 81, No 2, 2019, p. 747–756.

2   Christopher Steinitz and Hilary Zarin, "An Initial Look at the Utility of Social Media as a Foreign Policy Tool", 2012, https://www.cna.org/archive/CNA_Files/pdf/dop-2012-u-002538-final.pdf (Accessed 20 December 2022).

3   Jacob R. Straus and Mathew E. Glassman, "Social Media in Congress: The Impact of Electronic Media on Member Communications", *CRS Report (Washington, DC: Congressional Research Service)*, 2016, https://sgp.fas.org/crs/misc/R44509.pdf (Accessed 5 September 2022).

4   Patrick Van Kessel et al., "Congress Soars to New Heights on Social Media", *Pew Research Center: Internet, Science & Tech*, 2020, https://www.pewresearch.org/internet/2020/07/16/congress-soars-to-new-heights-on-social-media/ (Accessed 15 September 2022).

5   Ali Şevket Ovali, "Türkiye-ABD İlişkilerinde Twitter Diplomasisi", *Uluslararası İlişkiler,* Vol. 17, No 65, 2020, p. 23–45.

field is still negligible, yet there have been important early attempts.[6] Many more comprehensive and systemic pieces of research employing social media data should be conducted in the IR discipline, and this study aims to contribute to this growing literature.

The first section discusses social media and IR. The second section deals with the role of Congress in US foreign policymaking and Turkish American relations, briefly. The third section introduces the data collection and the data itself along with the several methods and techniques used in this article. The following results and discussion section provides the analysis drawn from the data. The last section overviews the findings and offers some ideas based on these findings with respect to the state of Turkish American relations.

Social Media and International Relations

The internet and other information technologies are no longer a peripheral component in the conduct of all types of daily activity. Among these new technologies and communication channels, smartphone technology and the rise of social media, in general, have opened up a whole new range of study options in the social behavioral sciences.[7] Similarly, the role of social media in IR is now a burgeoning field of research.[8]

Social media platforms are now significantly more effective and popular than traditional media resources, which previously dominated the media-public opinion-foreign-policy nexus.[9] Therefore, an important aspect of social media is that they offer public spheres where global public opinion is shaped. According to Habermas, public spaces are a constellation of communication areas in society that allow exchanges of information and ideas, facilitating discussion and the formation of public opinion.[10] In modern computer-oriented societies, the public sphere has increasingly become virtual, via numerous internet forums and social media services.[11] Social media and other online platforms provide an extra-societal, transnational public sphere, where global public opinion is formed and circulated. This turns social media into a fertile environment for investigating public opinion.

Digital diplomacy is a new type of public diplomacy that uses advanced information and communication technologies and social media tools to carry out various public diplomacy goals, such as

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6 Emre Hatipoğlu et al., "Sosyal Medya ve Türk Dış Politikası: Kobani Tweetleri Üzerinden Türk Dış Politikası Algısı", *Uluslararası İlişkiler,* Vol. 13, No 52, 2016, p. 175–197; Emre Hatipoğlu et al., "Automated Text Analysis and International Relations: The Introduction and Application of a Novel Technique for Twitter", *All Azimuth: A Journal of Foreign Policy and Peace*, Vol. 8, No 2, 2018, p. 183-204; Binnur Ozkececi-Taner, "Reviewing the Literature on Sequential/Dynamic Foreign Policy Decision Making", *International Studies Review*, Vol. 8, No 3, 2006, p. 545–554; Maria Prosperina Vitale et al., "Unveiling Network Data Patterns in Social Media", Gabriella Punziano and Angela Delli Paoli (eds.), *Handbook of Research on Advanced Research Methodologies for a Digital Society*, IGI Global, 2022; H. Akın Ünver, "Computational International Relations: What Can Programming, Coding and Internet Research Do for the Discipline?", *All Azimuth: A Journal of Foreign Policy and Peace*, Vol. 8, No 2, 2019 p. 157–182.

7 Vanessa Peña-Araya et al., "Gaining Historical and International Relations Insights from Social Media: Spatio-Temporal Real-World News Analysis Using Twitter", *EPJ Data Science*, Vol. 6, No 25, 2017 p. 1–35.

8 Mylynn Felt, "Social Media and the Social Sciences: How Researchers Employ Big Data Analytics", *Big Data & Society*, Vol. 3, No 1, 2016.

9 Baum and Potter, "Media, Public Opinion, and Foreign Policy in the Age of Social Media".

10 Jürgen Habermas, *The Structural Transformation of the Public Sphere: An Inquiry into a Category of Bourgeois Society*, Thomas Burger (trans.), Cambridge, MIT Press, 1989.

11 George A. Barnett et al., "Measuring International Relations in Social Media Conversations", *Government Information Quarterly*, Vol. 34, No 1, 2017 p. 37–44.

advocacy, lobbying, nation branding, cultural diplomacy, and so on. Among the social media channels, Twitter is an especially interesting case for foreign policy and diplomacy practice and research. In essence, Twitter may be regarded as a micro-blogging service which allows users to communicate by sending brief messages that roughly correspond to their ideas and opinions on a certain subject. With this design, it has evolved into a medium for first-hand information and opinions on a variety of topics. Leaders and government agencies, especially embassies, use Twitter to chronicle their most important daily actions, communicate with international and domestic audiences, respond to queries and comments, and share perspectives with colleagues and counterparts in open forums.[12]

Congress and US Foreign Policy Making

Concerning US foreign policy, Congress is regarded as the legislative branch.[13] However, several historical examples show that congressional engagement on foreign policy can prove to be contentious and difficult across a wide variety of issues for any US administration.[14] Several pieces of research have found it difficult to determine the factors in USMC's foreign policy decision-making. Many studies find that ideology, party affiliation, and, in certain cases, individual members' leadership are important determinants.[15] Indeed, any elected official must strike a compromise between the preferences of the general population, particular constituencies within the electorate, pressure from party leaders in Congress, and their own ideology.[16] When it comes to foreign policy issues, however, pressure from party leaders and ideology are the two most important factors affecting USMCs' stand on any particular issues.[17] Nevertheless, a crucial point when it comes to the role of Congress and foreign policymaking is that without Congress's approval and backing, no US president can maintain long-term policies. Congress's involvement is also important in attracting the public's attention to and legitimizing foreign policy. Therefore, beyond who controls the White House, the role of Congress complicates any prediction of the direction of US foreign policy. In other words, congressional views on a country might hinder the formation of a coherent foreign policy for that country.

US-Turkish Relations: A Brief Background

The USA and Turkey have a long-shared history based on common political, security, and economic interests. This long-enduring relationship, however, has deteriorated from a strategic alliance or strategic partnership into a full-fledged crisis of strategic insecurity and misalignment in the last decade.[18]

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12 Eytan Gilboa, "Digital Diplomacy", Costas M. Constantinou, Pauline Kerr and Paul Sharp (eds.), *The SAGE Handbook of Diplomacy*, 1st Edition, Los Angeles, SAGE Publications Ltd, 2016, p. 544.

13 R. Zoellick, "Congress and the Making of US Foreign Policy", *Survival*, Vol. 41, No. 4, 1999 p. 20–41.

14 James M. Lindsay, *Congress and the Politics of U.S. Foreign Policy*, Baltimore, Johns Hopkins University Press, 1994, p.5

15 Gyung-Ho Jeong, "Measuring Foreign Policy Positions of Members of the US Congress", *Political Science Research and Methods*, Vol. 6, No 1, 2018, p. 181–96.

16 Steven D. Levitt, "How Do Senators Vote? Disentangling the Role of Voter Preferences, Party Affiliation, and Senator Ideology", *The American Economic Review*, Vol. 86, No 3, 1996, p. 425–441.

17 Peter Gries, *The Politics of American Foreign Policy: How Ideology Divides Liberals and Conservatives over Foreign Affairs*, 1st edition, Stanford, California,Stanford University Press, 2014.

18 Michael A. Reynolds, "The End of a 'Strategic' Relationship? How American-Turkish Relations Hit Historic Lows", *Foreign Policy Research Institute*, 2018, https://www.fpri.org/article/2018/09/the-end-of-a-strategic-relationship-how-american-turkish-relations-hit-historic-lows/ (Accessed 11 September 2022)..

Turkey's position and commitment to NATO and the USA as a strategic ally have been routinely questioned by high-level officials in Washington,[19] who see Ankara as a disruptive force, jeopardizing US foreign policy objectives in the wider Middle East.[20] Turkey's cozy relations with Russia and China;[21] Turkey's acquisition of Russian S-400 systems against all warnings from Washington;[22] Turkey's unilateral actions in Syria, Libya, and the Eastern Mediterranean;[23] and Turkey's growing differences with Gulf countries and Israel are among the concerns that US officials have vehemently debated in recent years.

Similarly, the Turkish authorities have long been skeptical and concerned about US policies and postures in the region. Two events have played a significant role in the growing Turkish resentment against the US. The first is the failed coup attempt of 2016, and the US refusal to respond to Turkey's request for the extradition of Fethullah Gulen, a former imam accused of plotting it. Turkey was shaken not only by the coup event itself but also by the silence of its traditional friends in its aftermath. Since then, Turkey's suspicion toward the US has been driven by anti-Americanism[24] and conspiracy theories.[25] However, direct US aid to the PKK, a group classified as a terrorist organization by the US and Turkey, and the development of a new PKK statelet in Northern Syria are likely to be the most significant obstacles in this respect.[26]

Nonetheless, Turkey, a mid-sized regional power, continues to capture US policymakers' attention.[27] Perceptions in the US of Turkey as a 'junior partner', as opposed to Turkey's self-identification as 'an independent and assertive regional power', is a critical dynamic that plays out in determining the course of US-Turkey relations. In such an environment, the US-Turkish relationship has reached a point of uncertainty or crisis over the last few years. Following the withdrawal of the Patriot Missile Defense System in 2015, the attempted coup in 2016, and Turkey's procurement of S-400 air defense systems, US-Turkey relations have entered a downward spiral of actions and counteractions, threatening the two nations' strategic alignment.

19 Steven A. Cook, *Neither Friend nor Foe: The Future of US-Turkey Relations*, Wahington, *Council on Foreign Relations*, 2018; Robin Wright, "After Six Decades, Turkey Is Now a U.S. Ally in Name Only", *The New Yorker*, November 14, 2019, https://www.newyorker.com/news/our-columnists/after-six-decades-turkey-is-now-a-us-ally-in-name-only (Accessed 5 September 2022).

20 Unal Cevikoz, "Turkey's Relations with Nato & Russia: A Foreign Policy Impasse ?", *Turkish Policy Quarterly*, Vol. 17, No 2, 2018, p. 39–50; Burcu Sari Karademir, "A Dance of Entanglement: The US-Turkish Relations in the Context of the Syrian Conflict", *Uluslararası İlişkiler*, Vol. 16, No 62, 2019 p. 27–43.

21 H. Tarık Oğuzlu, "Turkish Foreign Policy at the Nexus of Changing International and Regional Dynamics", *Turkish Studies*, Vol. 17, No 1, 2016 p. 58–67.

22 Karol Wasilewski, "Turkey's Purchase of the S-400 System: Prospects and Consequences", *PSIM*, 2017, https://pism.pl/publications/Turkey_s_Purchase_of_the_S_400_System__Prospects_and_Consequences (Accessed 20 December 2022); Can Kasapoglu, *Turkey's S-400 Dilemma*, Centre for Economics and Foreign Policy Studies, 2017, https://edam.org.tr/wp-content/uploads/2017/10/s400en.pdf (Accessed 19 September 2022).

23 Marc Pierini, "How Far Can Turkey Challenge NATO and the EU in 2020?", *Carnegie Europe,* 2020, https://carnegieeurope.eu/2020/01/29/how-far-can-turkey-challenge-nato-and-eu-in-2020-pub-80912 (Accessed 19 September 2022).

24 Tim Arango and Ceylan Yeginsu, "Turks Can Agree on One Thing: U.S. Was Behind Failed Coup", *The New York Times*, August 2, 2016, https://www.nytimes.com/2016/08/03/world/europe/turkey-coup-erdogan-fethullah-gulen-united-states.html (Accessed 15 September 2022).

25 Burak Bilgehan Özpek, "How Russia Exploited Nationalism in Turkey to Expand Its Influence in Syria", *Middle East Policy*, Vol. 28, No 2, 2021 p. 109-118.

26 Hakan Mehmetcik and Arda Can Çelik, "The Militarization of Turkish Foreign Policy", *Journal of Balkan and Near Eastern Studies*, Vol. 24, No 1, 2022 p. 24–41.

27 "Report on U.S.-Turkey Relations", *USNI News*, January 5, 2022, https://news.usni.org/2022/01/05/report-on-u-s-turkey-relations (Accessed 15 September 2022).

Material and Methods

Material

The data was collected from Twitter using the User API function (which collects a user's tweets) and filtered for specific terms (Turkey in our case). The data collection approach used in this research involved acquiring tweets by filtering the output of the stream-by-user account option, thus creating a collection of 3,049 tweets sent by 547 USMCs in the period 2009-2021. [28] Given that we were solely interested in certain accounts and their presence on Twitter, we believe the volume of obtained Twitter data is adequate and representative in terms of studying perceptions among the USMCs concerning Turkey. Initially, in the Twitter search, we used 'Turkey' as a search term, along with usernames. This resulted in various undesirable results with references, among others, to such things as Thanksgiving, turkey (the bird),[29] or universal healthcare comparisons. We removed these types of unwanted/unrelated tweets, following which there remained 1,980. More than two million likes, over half a million replies, and more than half a million retweets have resulted from these 1,980 Twitter entries. At this point, we also created a new data variable corresponding to the following time frames: 2009-2012, 2013-2015, 2016-2018, and 2019-2021, with the purpose of observing changes over time in specific tweet metrics, topics, and rhetoric. We also created a variable consisting of the geo-codes for every individual USMC according to the state they represent. We also computed sentiment scores for each tweet, using a general-purpose sentiment lexicon.

Methods

Various analytical approaches may be used to study social media and their associated data, the applicability and usefulness of which may vary. Some are also more difficult to utilize, because they require sophisticated technical skills or materials.[30] However, various approaches to Twitter data have been developed and have evolved substantially in recent years.[31]

Twitter metrics are derived from the comparative and descriptive statistics of raw figures on tweets per user, date, re-tweet, reply, and like counts. For a Twitter data analysis, Twitter metrics and the resulting comparative and descriptive statistics are particularly valuable key metrics, and they have remained one of the most essential aspects of analysis. Furthermore, they are among the most widely accepted standards for quantitatively describing Twitter user activities. This article analyzes USMCs' perceptions of Turkey. Given the scope of that research question, traditional Twitter metrics would not be enough.

Another technique for looking at Twitter data is to analyze the tweet (the content/text) itself. In doing so, common standards include sentiment analysis, probabilistic/statistical topic modeling; examining word and phrase frequencies, and associated statistics. Sentiment analysis and opinion mining, to investigate people's views, feelings, evaluations, attitudes, and emotions, based on written language, is one way to do that. Twitter sentiment analysis is an issue of burgeoning interest among various academic fields[32]. We have used the 'bing-sentiment-lexicon', a general-purpose English sen-

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28   For the replication data of this manuscript, please see https://dataverse.harvard.edu/dataset.xhtml?persistentId=doi:10.7910/ DVN/RHSDV3

29   This is a recurring issue, and it has recently resulted in a rebranding of Turkey to become Türkiye. See "Why Turkey Is Now 'Türkiye', and Why That Matters", *TRT-World*, 2022, https://www.trtworld.com/magazine/why-turkey-is-now-turkiye-and-why-that-matters-52602 (Accessed 25 September 2022).

30   Ravi Gupta and Hugh Brooks, *Using Social Media for Global Security*, New York, John Wiley & Sons, 2013, p. 239.

31   Luke Sloan and Anabel Quan-Haase, *The SAGE Handbook of Social Media Research Methods*, E-book Edition. Sage, 2017.

32   Bing Liu, "Sentiment Analysis and Opinion Mining", *Synthesis Lectures on Human Language Technologies*, Vol. 5, No 1,

timent lexicon that categorizes words in a binary form, as either positive or negative, and we have included that variable in the initial data set.[33]

Topic modeling is one of the most frequently used methods in tweet analysis for discovering common themes, concepts, or issues within a given network of users,[34] and is used in this study to identify common themes in the USMCs' tweets. The purpose of topic modeling includes text clustering through natural language processing (NLP) techniques. This study also provides a coherence score for a specific subject by calculating the degree of semantic similarity between terms.

We also used network analysis to uncover network dynamics, along with various additional Twitter metrics. Because Twitter is a networking platform, network analysis is an excellent tool for studying its data [35]. Network analysis is used to monitor user interactions and understand how they utilize social media, by analyzing different indications such as user account lists, user followers or friends, or user groups. Researchers investigating follower connections on Twitter, for example, can map networks of ideas based on current debates, and examine the dynamics of interpersonal networks by evaluating information via networks, diagrams and maps. In this study, network analysis is employed to investigate different topics and similarities of topics across party affiliations among various USCMs.

The most challenging aspect of working with large amounts of data is gathering, cleaning, and preparing it for usage. Working with social media data presents a similar set of challenges. Researchers must utilize specifically created tools to filter and analyze postings and extract meaningful, valuable inferences from the huge volume of material uploaded to social media networks. The computer languages Python (data extraction, cleaning, and shaping) and R (data analysis and visualization) were used in this investigation. We also utilized Gephi to perform network analysis. Topic modeling was carried out with the help of R and a third-party program named Topic Modeling Tool.

Results and Discussion

Spatial and temporal activity analytics

Spatial-temporal activity analytics is the primary descriptive statistic for Twitter data analysis. In our case, this means comparing the frequency of year-on-year tweet numbers and identifying high- and low-frequency periods. In our data set, the average number of tweets was 152 per year. In descending order, the years with the highest frequency of tweeting activity are 2019, 2018, 2020, and 2016, with 746, 289, 229, and 222 tweets respectively (See Figure 1). These are the four years in which the total number of tweets outnumbered the yearly average. From Figure 1, 2019 appeared to be an aberration in terms of US-Turkey relations, resulting in a high frequency of tweets, which is a clear indication of some crises in Turkish-American relations in that year. [36]


2012 p. 1–167.

33 "Opinion Mining, Sentiment Analysis, and Opinion Spam Detection", https://www.cs.uic.edu/~liub/FBS/sentiment-analysis.html#lexicon (Accessed 5 September 2022).

34 Zeinab Khanjari Nezhad Jooneghani, "Comparison of Topic Modeling Methods for Analyzing Tweets On Covid-19 Vaccine", July 20, 2021, https://thescholarship.ecu.edu/handle/10342/9414 (Accessed 5 September 2022).

35 Shavindrie Cooray, "A Qualitative Enhancement to Quantitative Social Network Analysis", *The Information Society*, Vol. 37, No 4, 2021 p. 1–20.

36 This is one method of studying foreign policy using Twitter data. You can choose examples or periods from these descriptive metrics derived from data and then explore them in-depth by process tracing or other advanced content analysis techniques. This frequently yields critical information, as it does in the case of US-Turkey relations, as raw figures on the tweet, retweet, reply, and like counts implies that 2019 would be recognized as the most volatile year in US-Turkey ties in modern times, and it is worth investigating those events as a case study.

Figure 1. Temporal Tweet Counts Per Year
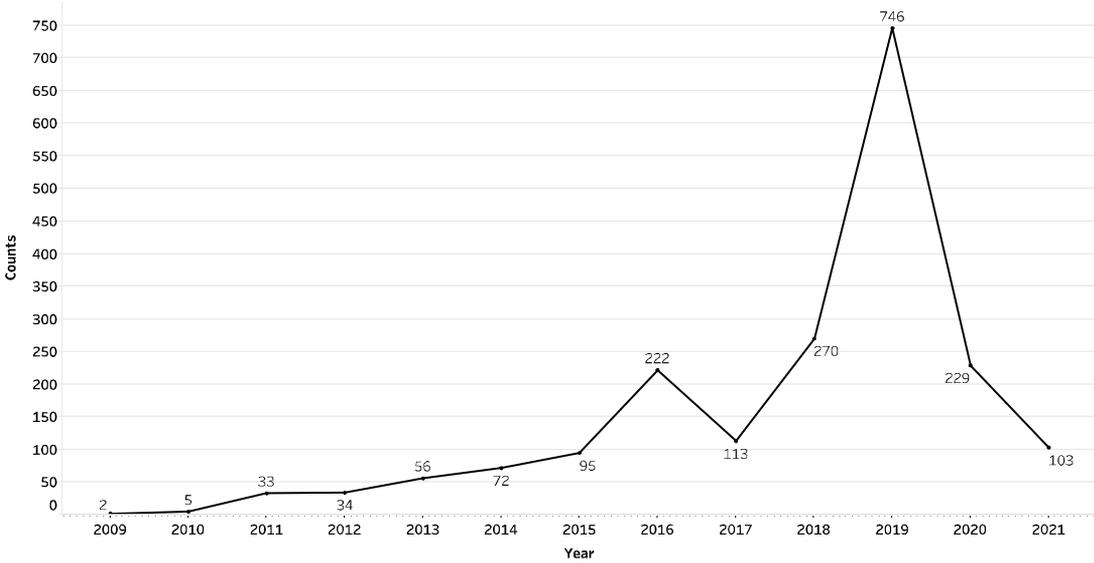
Indeed, when we look at the trajectory of US-Turkey relations, we see that 2019 was a year of crisis. As the two nations' divergent policies on Syria harmed bilateral relations, Turkey's counter-terrorism operations in northern Syria in 2019 became a heated topic in Congressmen's tweets, reflecting the general pattern in relations. Figure 1 clearly displays the temporal patterns, and we see that tweet numbers increased in three instances specifically. A closer look at the specific dates of high-frequency activity reveals that October 2019 and July 2016 were two high-frequency dates. An even closer look at the specific months and days in 2019 reveals that October 10 (49 tweets), 16 (54 tweets), and 17 (52 tweets) were the most high-frequency tweet dates. There were also higher frequency dates on October 7 (35 tweets), 11 (11 tweets), 15 (11 tweets), and 30 (44 tweets). Thus, we may suggest that the last quarter of 2019, along with June-July 2016, were two especially significant periods when Turkish-American relations were most affected. To understand the nature and importance of the events taking place during these days, we computed topic classifications based on word frequencies. Yet, before moving into the content analysis through word frequencies and topic modeling, it is worth spending some time on some of the other descriptive twitter metrics.

Descriptive Metrics

One such metric is spatial analysis. From the raw tweet count, we can see that Florida, California, Texas, New York, and Illinois are high-frequency locations. Nonetheless, the raw data shows that the geographic distribution is broad, with practically every state represented. Similarly, party distribution is diversified, implying that Turkey is discussed equally among both Democrats and Republicans. Figure 2 is a list of the most active USMCs in terms of their tweet numbers. From the raw tweet count, the most active users are Republican Senator Lindsey Olin Graham of South Carolina (71 tweets), Democratic Representative Frank Joseph Pallone of New Jersey (64 tweets), Republican Senator James Paul Lankford of Oklahoma (59 tweets), Democratic Senator Christopher Scott Murphy of Connecticut (57 tweets), Democratic Senator Robert Menendez of New Jersey (45 tweets), and former Republican Senator John

Sidney McCain of Arizona (41 tweets). This measure merely demonstrates that these UMSCs are the most vocal in Congress when it comes to Turkey. Some of these senators are active and popular on Twitter, with millions of followers, such as Lindsey Olin Graham, who has 2.1 million followers. As a side note, Bernie Sanders, who has more than 18 million followers[37] is an outlier in terms of follower counts and other important Twitter metrics such as replies, likes, and retweets.

Figure 2. Most Active Users
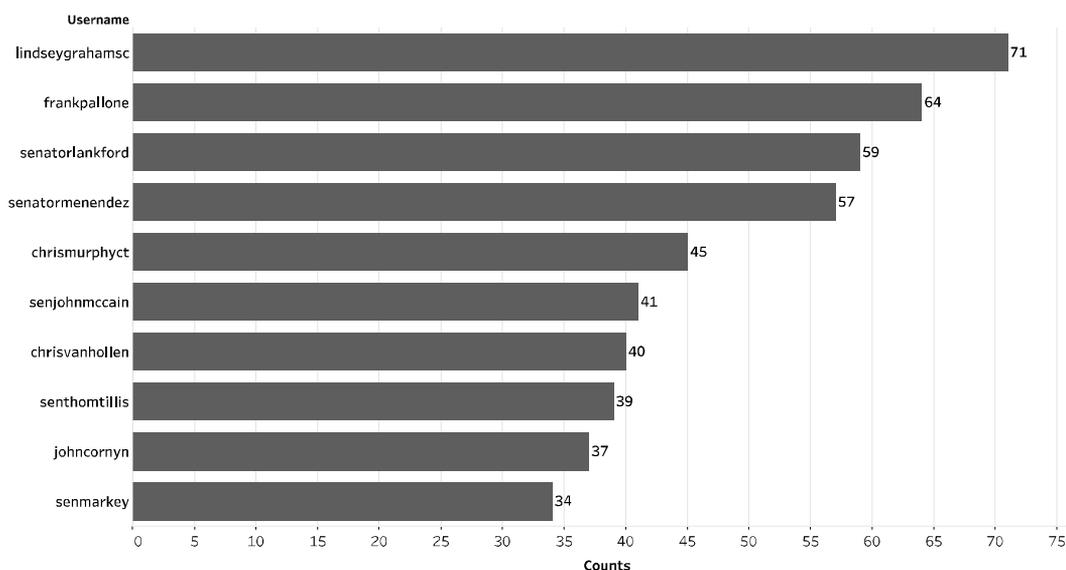
There are descriptive metrics other than temporal and spatial statistics. Re-tweet, like, and reply counts are several common Twitter metrics that are employed in Twitter data analysis as descriptive statistics. These metrics are especially important in identifying the users most active in creating conversation in the Twittersphere. We have already mentioned that Senator Lindsey Graham is the most prolific USMC, with 71 tweets in the last six years. He is also much more viral than many others in Congress. Table 1 displays the top ten most-retweeted, most-liked, and most-replied to senators in a cumulative manner, indicating the total number of retweets, likes, and replies. Senator Lindsey Graham is the most retweeted, liked, and replied to the senator on Twitter about Turkey-related issues, according to the table. However, there are other Twitter users whose individual tweets gather much more attention. For instance, Bernie Sanders, Adam Bennett Schiff, Christopher Scott Murphy, and Nancy Pelosi are among those members of Congress who tweeted about Turkey and who have created broader visibility and impact with one single tweet. That is, they become much more viral with fewer tweet counts by creating more impactful conversations in the Twittersphere. A similar pattern can be seen for the like and reply counts as well. This is indicative of the fact that their views are much more shared by the wider public.

Table 1. Cumulative Retweet, Likes and Replies Count per Top-10 Users

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Most Retweeted

	name	cs_retweet
1	Lindsey Graham	2440082
2	Chris Murphy	1725544
3	Adam Schiff	1274470
4	Senator Chris Van Hollen	561939
5	Bernie Sanders	526002
6	Rep. Frank Pallone	465219
7	Senator Bob Menendez	424070
8	Tulsi Gabbard	423547
9	Chuck Schumer	256801
10	Ed Markey	221911

Most Liked

	name	cs_likes
1	Lindsey Graham	10053515
2	Chris Murphy	4835266
3	Adam Schiff	3668360
4	Bernie Sanders	2267887
5	Tulsi Gabbard	1762701
6	Senator Chris Van Hollen	1182604
7	Rep. Frank Pallone	1076567
8	Senator Bob Menendez	1000744
9	Chuck Schumer	932175
10	Justin Amash	462399

Most-Replied

	name	cs_replies
1	Lindsey Graham	8114836
2	Adam Schiff	308224
3	Tulsi Gabbard	246780
4	Sen. James Lankford	232755
5	Rep. Frank Pallone	226803
6	Chris Murphy	180730
7	Senator Bob Menendez	179392
8	Senator Chris Van Hollen	179062
9	Senator John Cornyn	85515
10	Chuck Schumer	77775

Moreover, raw retweet, like, and reply counts are also very much in line with the total tweet count, in indicating 2019 as an outlier in Turkish-American relations. Raw numbers show the number of retweets, likes, and replies per year increased dramatically in 2019, indicating that a lot was going on on the ground.

The indicators derived from #hashtags and mentions are the second type of descriptive statistics for Twitter data. #Hashtags are often used in Twitter terminology while discussing a topic or concept. However, when speaking to or about someone, @Mentions are used (the user account of a person, brand, group, etc.). Hashtags and mentions are both very specific features for building a network of intra-user interactions that indicate common themes and opinions across subjects and persons. For these metrics, the following two figures (Figure 3-4) provide the Top 10 Hashtags and Mentions.
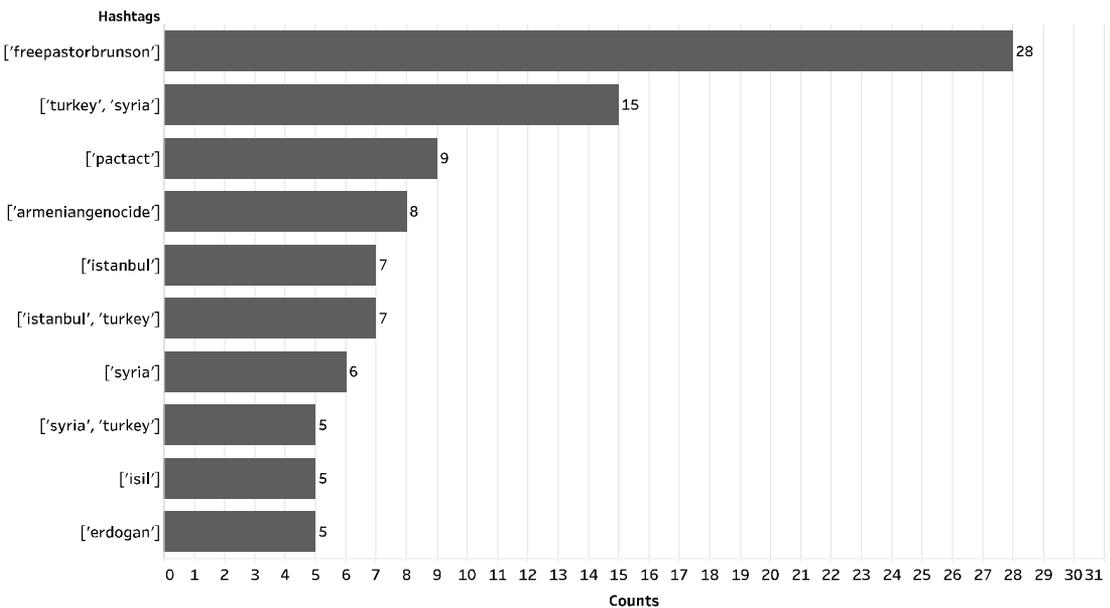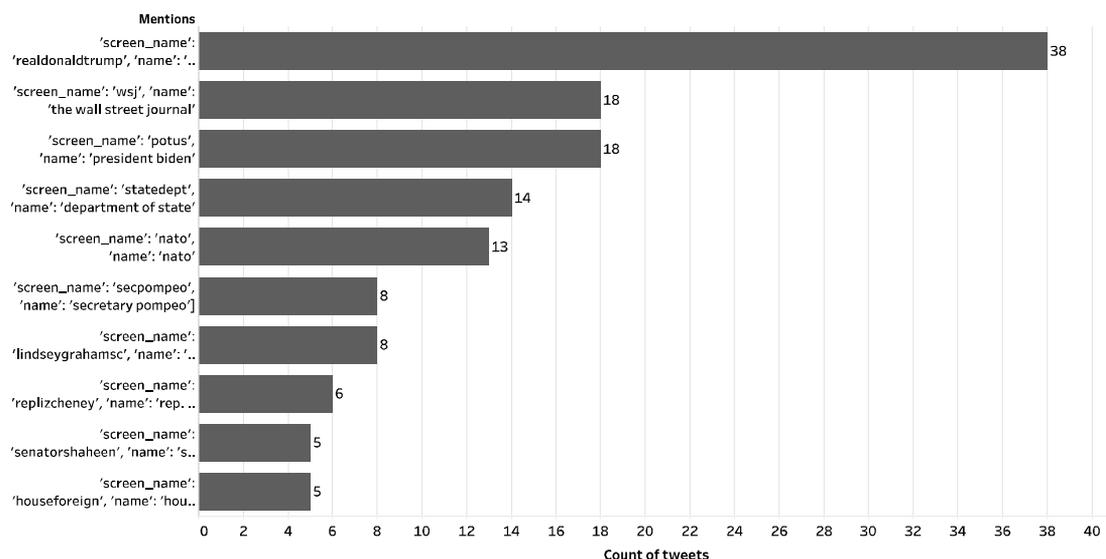
Figure 3. Top-10 Hashtags

Figure 4. Top-10 Mentions

However, in a more general interpretation, we may say that there are only a few common themes in the hashtags, which correlate to the same subjects identified using topic modeling and word/term frequencies.

Content Analysis I: Terms/words frequency

In Figure 5, we can see that over time and among USMCs, Syria-related issues were quite a common concern when it comes to Turkey-related conversations on Twitter and this is true across different party affiliations. Earlier in this paper, we referred to high-frequency dates in terms of tweet counts. We have pointed out two high-frequency periods, namely the latter half of June 2016 into July, and October 2019. The first time frame here actually corresponds to both June 28, when three ISIS suicide bombers slaughtered forty-one people at Istanbul's Ataturk airport, and July 15, when a group of Turkish soldiers attempted a coup. The second time frame corresponds to Turkish military operations in northern Syria in 2019, which commenced when the green light for such was given by President Trump, and again the topic lists show the words from which we can predict the events unfolding. It should be noted that most of the tweets were posted in the 2016-2018 and 2019-2021 periods: 28% and 50% respectively. Therefore, from raw frequency metrics, Syria, Trump, and Erdogan are the three words that appear most often in the USMCs' tweets, and these tweets better correspond with Turkish American relations since 2016. This finding is not at all surprising, and reflects the fact that US-Turkey relations have been dominated by events in Syria since 2013. The Syrian civil war is not being handled well by either Washington or Turkey [38]. Nonetheless, the continuous confrontations and their spillover effects are making US-Turkey relations increasingly hostile, something which is strongly present in the data.

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38 Nicholas Danforth, "Lessons of the Syrian Conflict: Toward a Better Intervention Debate", *CNAS Middle East Security Program*, 2021, https://www.cnas.org/publications/reports/lessons-of-the-syrian-conflict (Accessed 5 December 2022).

In these figures, the tweets are partly representative of what was going on and how events were impacting on US-Turkey relations. This graph depicts predicted outcomes with intriguing nuances. We observed that the subject most discussed in 2019 was Turkey's activities in Syria, whereas in 2016 discussions were largely dominated by the issue of terror, with the ISIS terror attacks in Istanbul also tweeted about. Surprisingly, there were very few references to either the PKK in 2019 or to the failed coup attempt in 2016. Yet, the military assistance provided by the US for the People's Protection Units (YPG), the Syrian offshoot of the PKK, which is recognized as a terrorist organization by the US as well, has long been a bone of contention in US-Turkey relations. While the fallout from the failed coup attempt in July 2016 shook Turkey, the silence from the US and other western capitals was even more damaging [39]. The group accused by Ankara of plotting the failed coup is based in the United States, and Turkey has designated it as a terrorist organization since the coup, naming it the Fethullah Terrorist Organization (FETO). In a broad reading, we may say that Turkey's unilateral activities in Syria provoked strong anti-Turkish feelings among US policymakers, even as the latter underestimated sentiment in Turkey against both the PKK and the July 2016 coup attempt. Overall, this suggests that the two countries' attempts to transmit information and influence people who receive it as part of their public diplomacy and strategic communication with each other are misaligned.

Simple word/term frequency serves well in most tweet text data analysis. With that intuition, we can even look at n-grams and bi-grams, which are text mining and natural language processing procedures based on computational linguistics and probability techniques.

Figure 5. N-grams and Bi-grams
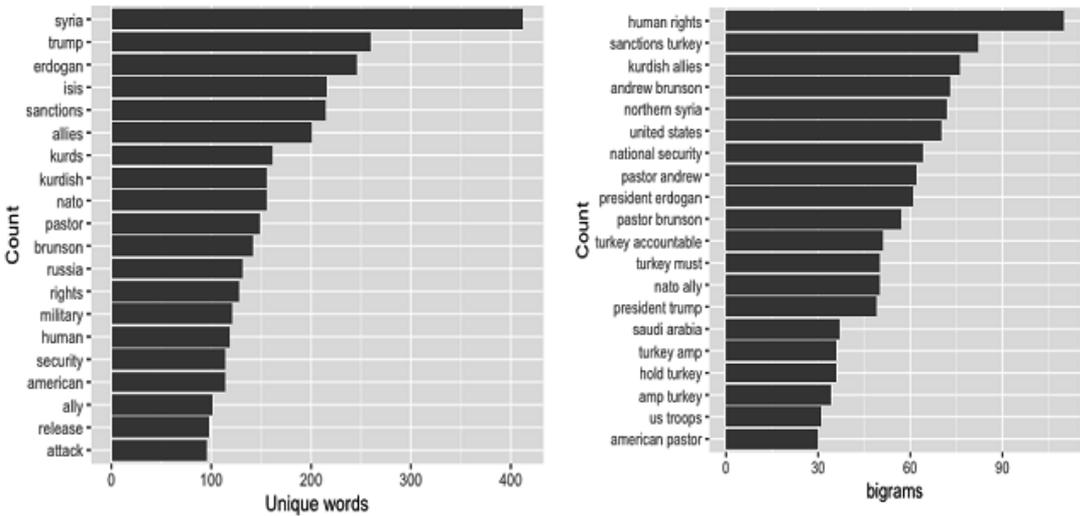
The figure 5 provides unique words and bigrams. The unique words on the left-hand side of the figure are quite similar to the word frequencies. The frequency distribution of each bigram in a string is often employed for simple statistical text analysis, and it is much more informative than any other n-grams. It is indeed informative to investigate the bigrams from the USMCs' tweets when it comes to US-Turkey relations. We see that human rights, sanctions, the Kurdish issue (Northern

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39   Arango and Yeginsu, "Turks Can Agree on One Thing".

Syria), and the Andrew Brunson[40] issue are the top issues affecting US-Turkey relations, reflecting the fact that every year brought a new crisis in relations between the two. From this single figure, we can suggest that while the Pastor Andrew Brunson issue was short-lived, it greatly affected perceptions of Turkey in the US Congress. Turkish officials generally underline that the US has never truly comprehended the effects of the 2016 failed coup attempt on Turkey's perceptions of the US, while it is clear from our USMC tweet data that Turkey has never truly comprehended the effect of the Brunson issue on perceptions of Turkey in the US. Of course, bigrams also again verify the Syrian civil war's toxic role in US-Turkey relations. President Donald Trump's repeated statements about his intention to pull US troops out of Syria caused much confusion regarding his administration's position, which is mirrored in the USMCs' tweets.

In short, what these USMCs say and how they view things are crucial in terms of US policy toward Turkey, since they influenced individual perspectives, attitudes, and beliefs about Turkey, generating public opinion voiced by a significant portion of US society. As a result, their perspectives are not incidental to US-Turkey relations, but fundamental in defining the course of the relationships between the two countries.

This is a real-life example of the two-step flow of communication model, which argues that most individuals establish their ideas through the influence of opinion leaders, who are influenced by the mainstream media.[41] Background information on Turkey in the mainstream Western media is generally presented from the perspective of countries that may be deemed unfriendly to Turkey or from the standpoint of those who have negative views about Turkey.[42] There is also a significant change in the mainstream US media. Turkey's portrayal in the US media has moved from that of being a critically important ally against the Soviet Union to being somewhat untrustworthy and unpredictable, with implications for the broader Middle Eastern and Mediterranean strategy.[43] In turn, Turkey-related news items broadcast in the major US media have influenced the image of Turkey in the American public, and this is replicated in the discourse of the American elites and policymakers. When it comes to Twitter, opinion leaders are influential on the network, but they are not the original content creators.[44] From this vantage point, it would be a useful study design to investigate social media material alongside traditional media information in terms of expert opinion and perceptions of foreign policy.

Content Analysis II: Sentiment Analysis

Probably the best way to measure the general tone regarding Turkey in the US Congress is to look at the sentiment analysis of the tweets posted by USMCs on Turkey. Even in terms of raw sentiment scores, we see that relations with Turkey became a negative issue in Congress in the period 2019-2021. Cumulative sentiment scores per year-groups, as depicted by Figure 6, show that positive senti-

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40 He was an American pastor of the Izmir Resurrection Church who was detained in Turkey in October 2016 for being linked to the Gülenist Terror Group (FETO) and the PKK, as well as involved in espionage. He had been in Turkey since the mid-1990s.

41 Hans-Bernd Brosius and Gabriel Weimann, "Who Sets the Agenda: Agenda-Setting as a Two-Step Flow", *Communication Research*, Vol. 23, No 5, 1996 p. 561–580.

42 Yusuf Devran, "The Portrayal of Turkey in the British Media: Orientalism Resurfaced", *Insight Turkey*, Vol. 9, No 4, 2007, p. 100–115.
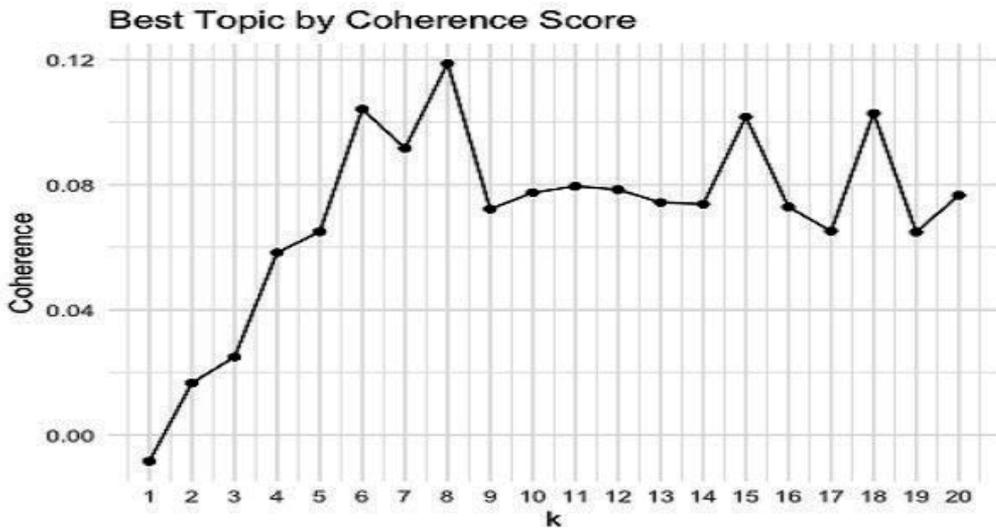
43 Wright, "After Six Decades, Turkey Is Now a U.S. Ally in Name Only"; Cook, *Neither Friend nor Foe*.

44 Sujin Choi, "The Two-Step Flow of Communication in Twitter-Based Public Forums", *Social Science Computer Review*, Vol. 33, No 6, 2015 p. 696–711.
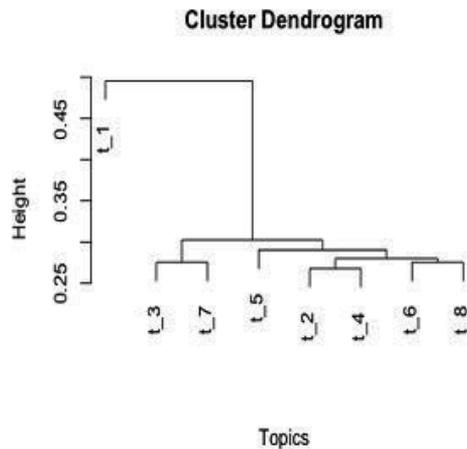
ment towards Turkey in the US Congress fundamentally changed in the 2009-2021 period. According to raw sentiment scores, the USMCs with the highest negative sentiment scores are Republican senator Adam Daniel Kinzinger of Illinois and Democrat Andrew N. Kim of New Jersey, Democrat Dwight E. Evans of Pennsylvania, Democrat Robert Menendez of New Jersey, and Democrat Richard Blumenthal of Connecticut, a finding which may be informative for Turkey in its attempts to correct perceptions of the country in the US Congress.

Figure 6. Sentiment Scores

From the Figure 6, the first half of October 2018 shows an interesting rise in positive sentiment following the dip in 2016-2017. These two weeks in October 2018 correspond to the release of Pastor Andrew Bronson by Turkey, followed by his prayer session with President Trump in the White House.

Content Analysis III: Topic Modeling

Topic modeling, which is an NLP technique to identify the topics in a given document, is another way to look at the content of a conversation on Twitter. We have computed several probabilistic models based on the Latent Dirichlet Allocation (LDA) clustering approach. In this approach, we divided the text corpus into small textual units, taking every single tweet separately and singling out several terms for modeling. When it comes to Twitter analysis, this approach yields better (interpretable) results. We have also grouped results by year groups. Figure 7 shows different models and their respective coherence scores arrived at by calculating the degree of semantic similarity between high-scoring terms in the topic, and reported as a single score. We also computed a dendrogram to visualize the intrinsic relations between various models and their topics.

Figure 7. Topic Modeling

In terms of the total word frequency metrics, the most frequent words listed in the previous section are quite applicable to interpretation along with the previous topic modeling exercise. Here also we see Syria, NATO, Kurds, and Pastor Brunson among the words most frequently used in our USMC tweets. When we look into the time span of the topics discussed by USMCs, we see that except for the first two periods in 2009-2015, most of the models we have computed are not relevant at all. The most relevant topic was Topic 1. However, in 2019-2021, the agenda of US-Turkey relations entirely changed and became filled with various other issues. Given the fact that most of the tweets were posted in the period 2016-2021, this suggests that the modeling is indeed applicable and informative about the text we derived from the USMCs' tweets. Another way to look into the changes in topics across time is to present them in a bar chart reflecting simple term frequency across years (in color) option. Interestingly, Figure 8 reveals that sanctions and human rights issues are the two issues most discussed over four periods.

Figure 8. Top 10 topics per periods
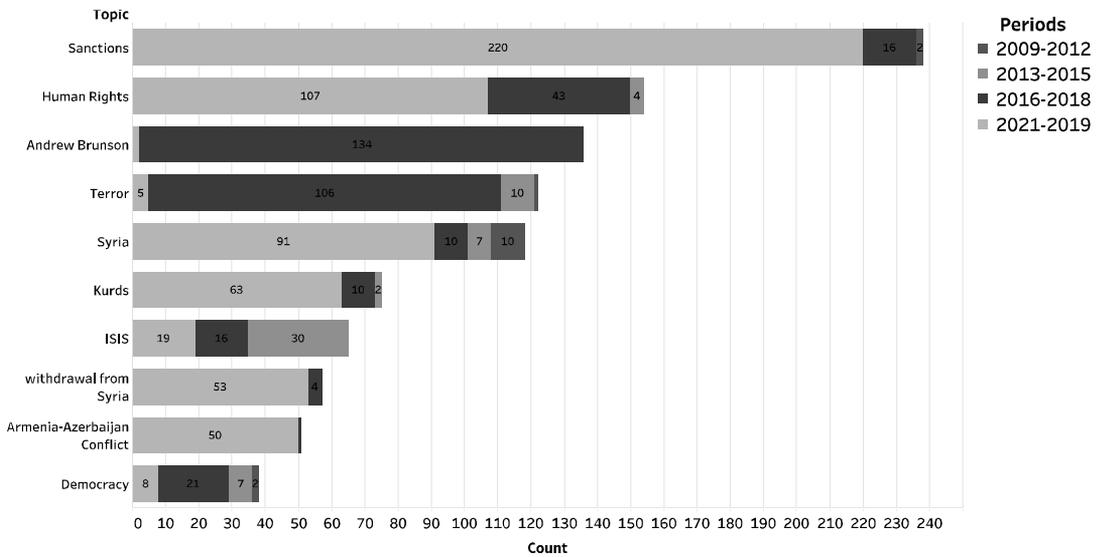
Network Analysis

When it comes to network analysis, we have computed three networks to see which topics are more used in the user networks and if there is a difference between party affiliations and topics. In the networks graph, presented in Figure 9, we see that there are no emerging subgroups among the users, yet several topics are more visible than others. These topics correspond with our word/frequency and topic modeling analysis and can be listed as Syria, sanctions, human rights, terror, Kurds, Pastor Andrew Brunson, freedoms and democracy.

Figure 9. Topics Network
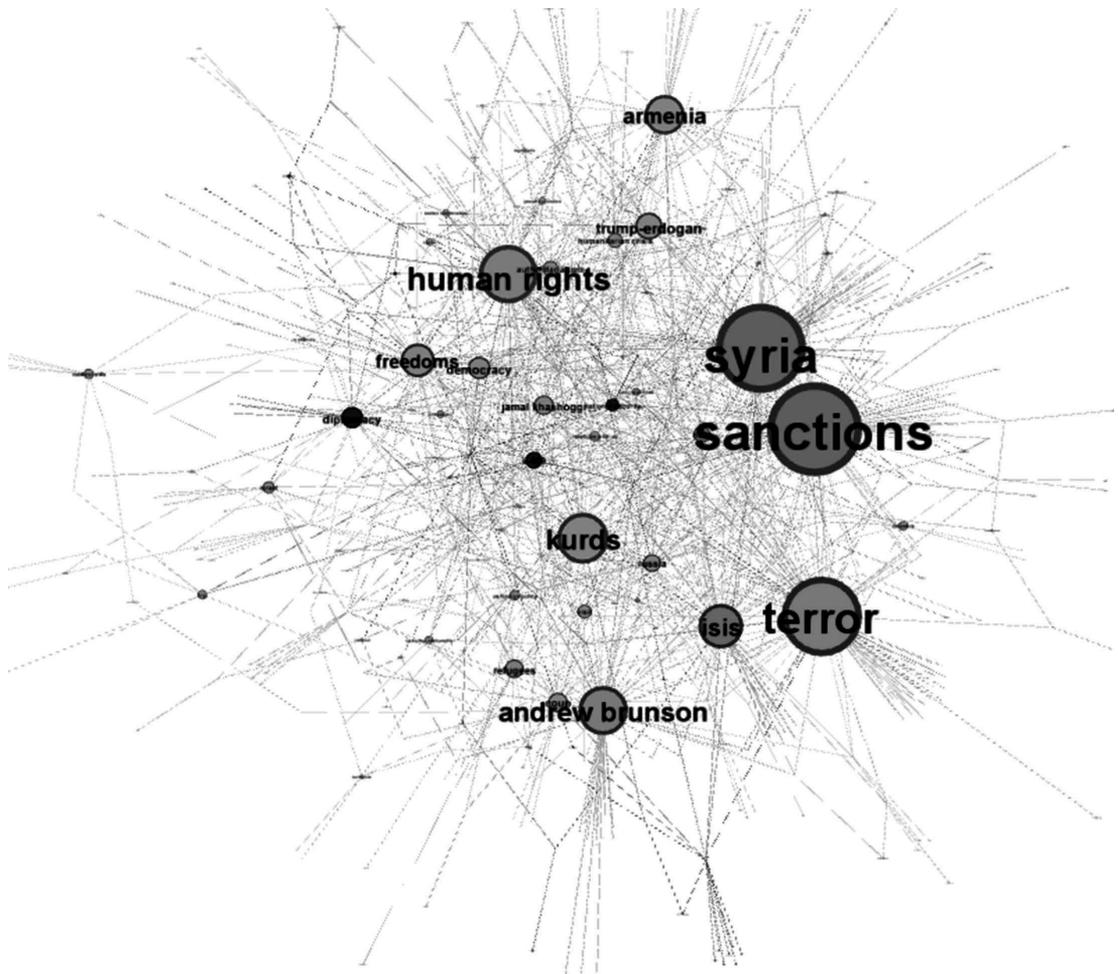
However, the most interesting finding here is that the topics are indeed diverged by party affiliations yielding few common topics. When USMCs discuss Turkey on Twitter, there is an interesting divergence between party affiliations and the topics and hashtags they use.
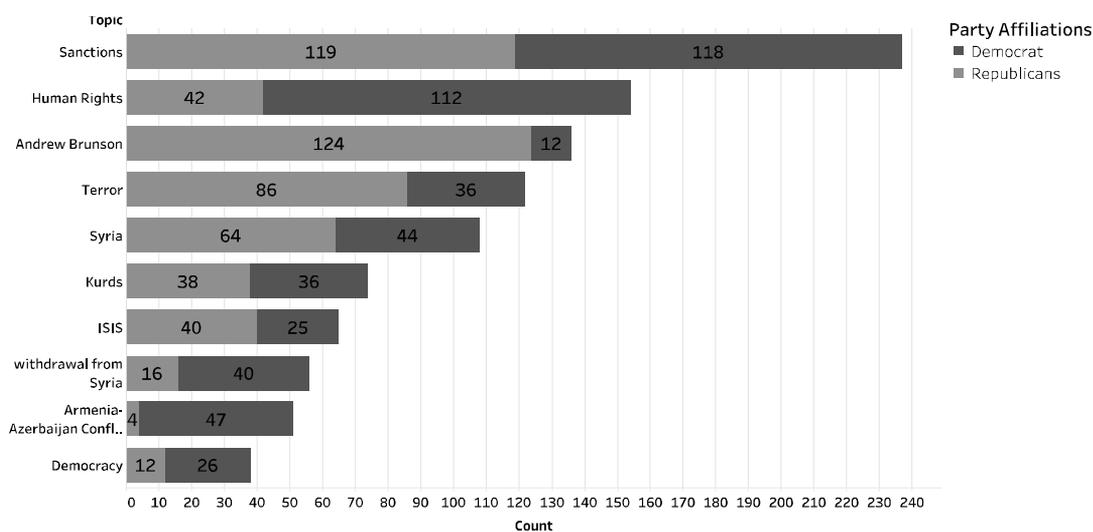
Figure 10. Topics and Party Affiliations

Figure 10 shows that there are very few common topics here. According to the data, the only common theme across parties is sanctions, followed by Syria and human rights. That is important because it demonstrates a shared belief among USCMs that Turkey should be sanctioned. Syria, refugees, and Kurds are other common topics across party lines, indicating the corrosive effect of the Syrian civil war on Turkish American relations. Hashtags are also representative of how issues have shifted dramatically across party lines. For example, Andrew Brunson-related tweets are the most popular hashtags and topics in Republican accounts, whereas Democrats tend to focus on issues such as human rights, freedoms, and democracy.

Conclusion

Since its launch in 2006, Twitter has become the most popular social networking platform in the hands of institutions, decision-makers, and foreign policy leaders. By analyzing data derived from Twitter, using a number of tools and techniques unique to Twitter data analysis, this article aims to give insight on congressional viewpoints toward Turkey. According to spatial-temporal activity analytics, the years with the highest frequency of tweet activity are 2016, 2018, 2019, and 2020, with 2019 having the most activity. Geographic distribution and party affiliations both demonstrate that activity is diverse, with nearly every state and party represented. Senator Lindsey Graham was the most active USMC in terms of tweet activity. The total number of tweets, as well as the number of likes, replies, and retweets, all point to 2019 as a year of aberration in US-Turkey relations. This is a very relevant takeaway for future studies on US-Turkey relations. A case study of events in and around 2019 might help us comprehend the issues in contemporary US-Turkey relations. Among these events, Syrian-related concerns have dominated the news for a long time, and hence have also heavily engaged USMCs. That is, the Syrian civil war has had major toxic effects on US-Turkey relations, and the relationship would undoubtedly be in much better shape if this toxic war had never broken out. Turkey's unilateral actions in Syria engendered widespread anti-Turkish sentiment among US officials, while the US au-

thorities misjudged Turkish public opinion's hostility against the PKK and underestimated the effect of the July 2016 coup attempt on Turkish politics. Based on the data, we may conclude that the Pastor Brunson crisis, while short-lived, had a significant impact on US Congress perceptions of Turkey, yet this issue has been mainly raised by Republicans, receiving little attention from Democrats.

Individuals use their media environment to learn about things; leaders create and sell narratives through the mass media, because reality is derived from perception rather than fixed postures of thought. Thus, the logic behind the main problematic here is that USMCs convey their perceptions of Turkey and US-Turkey relations through their Twitter posts. With these simple assumptions, we can make several inferences from their tweets. First, the tone of the tweets is generally negative, with negative sentiment scores. According to the data, total sentiment scores were the lowest in 2019 and 2016, respectively. The first two weeks of October 2018 showed an unusual rebound in positive sentiment, following the decline in 2016-2017. This time frame coincides with Turkey's release of Pastor Brunson, who upon returning to the US held a prayer session with President Trump in the White House. Topic modeling exercises also yield similar results. Syria, Kurds, ISIS, NATO, and Russia, along with Pastor Brunson, were among the top subjects discussed by USMCs on Twitter. However, while discussion themes have varied over time, sanctions and human rights problems have remained the two subjects most discussed. It would be highly beneficial to design a survey data study on these crises among US policymakers including USMCs. However, it is important to note that very few issues are shared by all parties. Among these Syrian civil war-related issues, sanctions appear to be the most prevalent. This can be interpreted as an indicator of the toxic effect of the Syrian conflict on Turkish-American relations, as well as a reaction among USCMs to Turkey's S-400 acquisition. Other issues have shifted dramatically across the political spectrum. For example, hashtags and topics related to Andrew Brunson are the most popular in Republican accounts, whereas Democrats are prone to focus on issues such as human rights and democracy. This also demonstrates that Turkey should consider these party affiliation differences when attempting to mend relations with the US.

Not only does social media facilitate communication among individuals and groups, but it also offers scholars massive volumes of easily accessible data. Overall, using social media data to analyze foreign policy and international relations is a novel and worthwhile initiative. It is necessary to investigate new methodologies, procedures, and approaches for extracting significant social, political, and demographic information from social media data. Many more such endeavors are required to achieve this goal. This article is, first and foremost, a modest contribution to the growing body of literature.

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