

A social network approach to critical discourse studies

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Abstract

Viewing discourse as a social practice, one important task of critical discourse studies (CDS) is to unveil inequality, power, and ideologies through linguistic and discursive analysis of social events, social identities, and social relations represented in oral or written texts. As such, it lends itself to social network analysis (SNA) which aims to discover relation patterns and structures among such social actors as people, organizations, and political entities. This article proposes an integration of SNA techniques into CDS and explores this possibility via an example in diachronic study on international relations represented in news reporting on China in *The New York Times* between 1980 and 2020 by examining subject–direct object pairs to approach the target relations between national actors. It is shown that the coupling of these two approaches effectively reveals international relation networks surrounding key national actors, based on which detailed linguistic and discursive analysis further sheds light on the underlying ideological and socio-political factors in the news reports. Considering the fact that SNA consists of a great variety of network statistics, which can be broadly categorized into those related to the relative position of the actor in the network and those concerned with the structure of the network itself, there is vast space for the utility of SNA metrics in aiding CDS in further research.

1 Introduction

Targeting the semiotic dimension of social phenomena, critical discourse studies (CDS) aim to unveil how power abuse and unequal social relations are produced and sustained by written or oral texts (van Dijk, 1988; Fairclough, 1995). Viewing discourse as a social practice, CDS holds that discourse is in a dialectical relationship with social reality: on the one hand, discourse is shaped by social circumstances such as power relations and ideology; on the other hand, discourse also ‘represents, creates, reproduces and changes social reality’ (Reisigl, 2018, p. 51). Specifically, discourse helps construct systems of knowledge and belief, social events, social identities, and social relations (Fairclough, 1992, p. 64). Thus, one central concern for CDS is to reveal social relations represented in discourse and the embedded inequality, dominance, and ideology. Foucault (1980, p. 142) argues that social relations are largely relations of power. Furthermore, according to Emerson (1962, as cited in Reisigl and Wodak, 2016, p. 26), power in social relations resides not only in mutual dependence between two social actors but also in a power network of more than two

actors. As such, social relations in discourse need to be studied as networks.

Social network analysis (SNA) is a quantitative research method that aims at discovering regularities in relationships among people, organizations, political entities, and other social units (Marsden, 2005, p. 819). Over the past few decades, this approach has been used in a wide range of social sciences to explore, among many other topics, the network structure of research communities, companies, characters in a literary work, online social media users, students involved in classroom interactions, and the international community (Maoz, 2011; Scott, 2012; Panda *et al.*, 2014; Wagner and González-Howard, 2018; Ruegg and Lee, 2020). SNA allows for better explanation of social phenomena by uncovering interconnections among social entities rather than focusing on their discrete characteristics (Chiesi, 2015, p. 518). As such, there is great potential in applying SNA to CDS to better account for the networked nature of social relations as represented in discourse. However, to the best of our knowledge, no study in the field of CDS has thus far adopted SNA in the analysis of social relations.

Therefore, the aim of this study is to explore the contribution SNA can make to CDS. To show how SNA can be applied in the field of CDS, this article carries out a case study to examine international relations represented in media discourse, which are very important but relatively under-explored in the academia of discourse studies. Undoubtedly, the ways international relations are represented by media are heavily influenced by dominant ideologies and national interests of a given society (Wang, 2017; Chen and Wang, 2022), and these representations can in turn exert direct or indirect impacts on public perceptions of governments' foreign policies and relations between nations (Fairclough and Wodak, 1997, p. 258; Oddo, 2014). Specifically, by integrating SNA techniques with CDS, this study seeks to address the following questions: (1) How are networked social relations (international relations in our case study) discursively constructed? and (2) How can the application of SNA to CDS provide insights into representations of social relations and underlying ideological and socio-political factors?

2 SNA: an example of fictional network

In this section, we first use a fictional network as an example to illustrate some basic concepts of SNA relevant to the case study. Assume there are eight social actors (A–H), among which some actors are linked to each other. The number of times a certain pair of actors co-occurs is shown in Table 1 as an adjacency matrix. These actors and their connections can be graphically represented by a network graph (Fig. 1, generated by *Pajek*, a free software program for network analysis).¹

In a network graph, each actor is represented as a 'node' (also called a 'vertex'). Related nodes are connected by lines, and an arrow can be added to signal the direction of a connection. In addition, each line in a network graph may carry a 'weight' indicating the strength of the relation, which is usually marked by the line width/thickness. In Fig. 1, the line width corresponds to the frequency of a certain pair of nodes. In the case of a bidirectional link (e.g. the link between Nodes A and G), the weight of a link in a certain direction is further distinguished by the size of the arrow pointing to that direction.

Not all nodes in a network are equally important and some nodes are more popular, influential, or central than the others (Scott, 2017, p. 96). A number of metrics have been proposed to capture the centrality of a node from different perspectives. Among them, 'degree centrality' and 'betweenness centrality' are commonly used. Degree centrality is one of the simplest and most intuitive metrics, which counts the number of direct links a node has (i.e. degrees), under the assumption that the more contacts a node has in its immediate

Table 1. Frequencies of co-occurring pairs in a fictional network

Node	A	B	C	D	E	F	G	H
A		0	0	0	9	2	4	4
B	10			0	0	0	0	0
C	0	2		0	0	0	0	0
D	0	2	0		0	0	0	0
E	0	0	0	0		6	0	0
F	5	0	0	0	0		0	0
G	8	0	0	0	0	0		0
H	3	0	0	0	0	0	0	

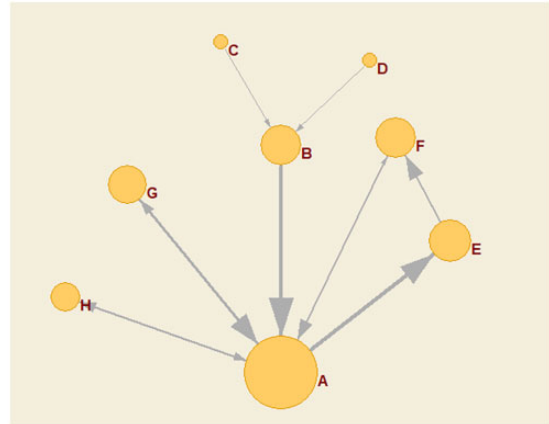


Figure 1. A fictional network

environment, the more central it is. Furthermore, we can use 'weighted degree centrality' to incorporate both the number of direct ties of a node and the weights of its links. The node size in Fig. 1 is proportional to the weighted degree centrality of a node. By comparison, betweenness centrality measures to what extent a node serves as a bridge or intersection between pairs of the other nodes in the entire network. A node with a high betweenness centrality usually acts as an important intermediary, though it may not have many direct links.

Take the fictional network in Fig. 1, for example Node A has the highest weighted degree centrality, as indicated by its largest node size. On the other hand, although Node B has a similar node size (i.e. weighted degree centrality) than those of Nodes E, F, and G (14 versus 15, 13, and 12, respectively), it has a much larger betweenness centrality (0.24 versus 0, 0.07, and 0, respectively), which highlights Node B's role as a bridge: for C and D to get to A, they have to pass through B.

Centrality measures such as (weighted) degree and betweenness centrality are used to describe the connectivity of individual nodes in a network. On the other hand, 'average degree' can be used to describe how

well a network is interconnected as a whole, calculated by averaging over the degrees of all the nodes in a network. This measure also allows for comparison between different networks (Nooy *et al.*, 2018, p. 76). In this example, the average degree of the network is 2.5.

Such analytical tools developed in SNA help to represent relations between social actors both visually and mathematically, enabling researchers to move beyond isolated actors to investigate network structures and relational patterns among actors. However, when investigating discursive representations of social relations, it is necessary to integrate SNA into corpus-based CDS. On the one hand, corpus tools help to extract linguistic patterns encoding related social entities from a sizable collection of texts, which serve as raw materials for SNA. On the other hand, statistical findings and graphs obtained by SNA provide entry points (e.g. the highlighting of certain social actors or relations) for detailed, corpus-based analysis of discursively constructed social relations. On this basis, researchers can proceed to examine the convergence and/or divergence between the represented social relations in discourse and the relations between social actors in the real world, as informed by CDS.

3 Creating relational data

In order to apply techniques of SNA to help explore discursive representations of social relations, it is necessary, in the first place, to extract relational pairs from discourse. It is relatively straightforward to find such pairs in a somewhat structured text (e.g. a conversation involving clear turn-taking; cf. Wagner and González-Howard, 2018; Rugg and Lee, 2020). However, it is much more of a challenge to extract relational pairs in unstructured texts (e.g. a news report). In the latter case, relational pairs between actors have mostly been operationalized in the literature as co-occurrences of their names in a certain stretch of texts. In the context of international relations, for example, Barnett *et al.* (2017) compared the network patterns of international relations on Facebook and Weibo (China's Twitter) based on co-occurring pairs of country/region names within the unit of an online post. In addition, to examine how relations surrounding North Korea were represented in American media discourse, Kim (2014) extracted countries and cities that were among the top collocates of *North Korea* as well as countries in the phrasal structure '[countries] like North Korea' in a corpus of US media reports.

It can be seen that in the above studies, the co-occurrence of social actors was often loosely defined, such as that within a short passage (e.g. an online post) or a fixed window of adjacent words (e.g. five words to the left/right of the node word). Such

operationalizations of co-occurrences often fail to take into consideration the order of the pair of actors in a sentence, nor their syntactic roles. Besides, even if two actors appear in the same sentence (let alone a short paragraph), they are not necessarily related in a meaningful way (e.g. *After the performances in China, the company will travel to Italy...*). Regarding a special phrasal pattern such as '[countries] like North Korea', while the relatedness between two actors can be established, they are nonetheless restricted to a very short textual window.

One way to overcome these shortcomings is to create relational pairs based on dependency parsing. Unlike constituency parsing, which analyzes a sentence into a hierarchy of phrases (in the tradition of generative grammar), dependency parsing somewhat simplifies the matter by trying to determine the grammatical relationship between words in a sentence (Osborne, 2019). An asymmetrical relationship exists between such a pair of words: one word is the *head*, which determines the grammatical category of the relation, and the other is called the *dependent*. For example, *apples* are the head and *delicious* is the dependent in the pair of *delicious apples*, where *delicious* is the *adjectival modifier* (amod) of *apples*. In a graphical representation of a dependency-parsed sentence, an arrow is conventionally used to point from the head to the dependent. Figure 2 shows the graph of a dependency-parsed example sentence.²

In Fig. 2, *China* (the first word) is the nominal subject (nsubj) of the verb *rivals* (the 9th word), which takes as its object (obj) *the United States* (the 10th, 11th, and 12th words). This example also illustrates another advantage of dependency parsing that it allows for the extraction of related actor pairs over a long distance (Evert, 2009, p. 1223), which is impossible via the traditional window-based collocation extraction method or a particular phrasal frame.

A pair of countries that are tagged *nominal subject* (nsubj) and *direct object* (dobj), respectively, within the same sentence will be loosely defined in the present study as a subject-object pair of countries, which allows us to incorporate cases where the two countries are adjacent (e.g. *China_nsubj* overtook *the United States_dobj...*) or separated by some distance (e.g. *China_nsubj* is on track this year to surpass *Canada_dobj*). The case study below will use subject-object pairs of countries as a window into their interrelations. According to Halliday's Systemic Functional Linguistics (Halliday, 1994), we use language to construe our experience of the external and internal world into six processes (the material, mental, relational, verbal, behavioral, and existential processes, which make up the transitivity system). When the verb within a subject-object pair of countries is taken into account, this

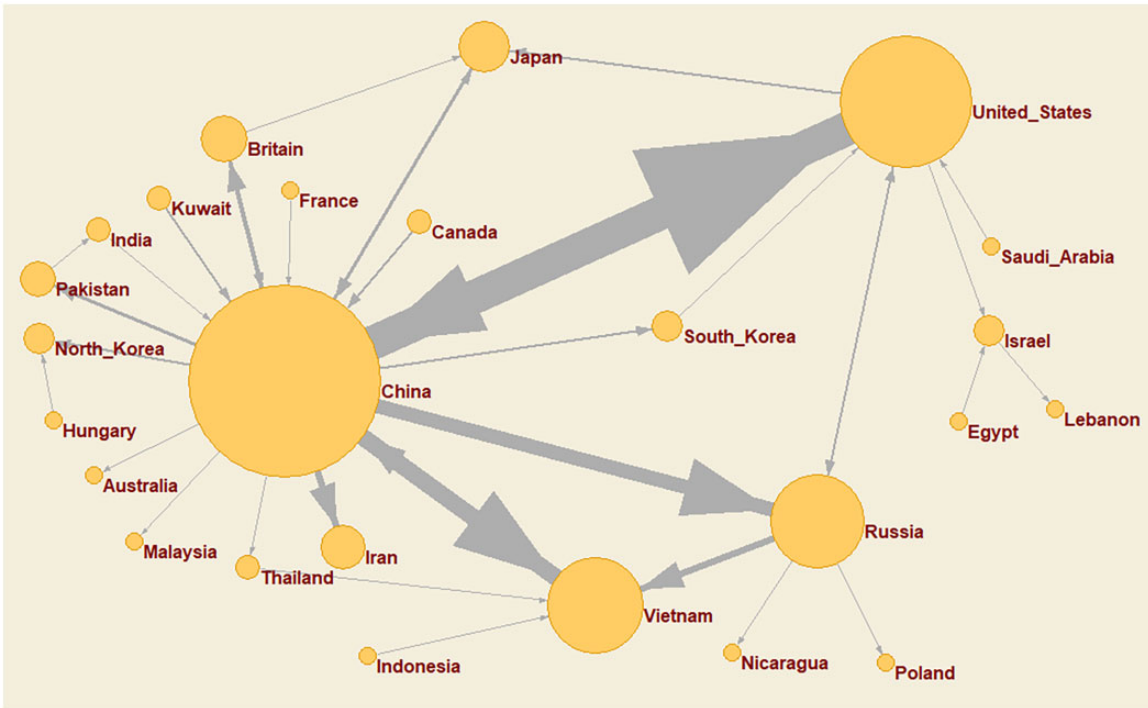


Figure 3. Network of countries in Period 1

The above results show that *China* and *the United States* are the two most prominent actors in the network. A closer examination of the subject–object pairs between the two countries reveals that the proportion of *China* versus *the United States* serving as the subject is highly imbalanced, with *China* being almost twice as likely to take the subject role (30 versus 16). When *China* serves as the subject, the most frequently associated verbs include *accuse* (6), *warn* (3), *ask* (2), *assure* (2), and *criticize* (2), most of which encode verbal processes of disapproval. Coupled with the tendency for *China* to be much more frequently placed in the subject position, this suggests that *China* tends to be represented as ready to pick a quarrel in Sino–US relations. In contrast, when *the United States* serves as the subject, the most frequent verb is *ask* (4), which is neutral in tone. For example:

- 1) Hewing to its current policy of active alignment with the third world, *China* has **accused** both the *Soviet Union* and *the United States* of a lack of sincerity in their disarmament proposals. ('China Makes Issue of Soviet Missiles', 7 October 1983)
- 2) In recent weeks, *the United States* has repeatedly **asked** *China* to stop supplying Silkworm missiles to Iran because of their use against shipping in the Persian Gulf. ('US will Penalize China on Missiles', 23 October 1987)

In addition, *Vietnam* is also a salient actor in the network in terms of both weighted degree centrality and betweenness centrality. When it comes to the subject–object pairs between *China* and *Vietnam*, an inspection of the intervening verbs reveals that *accuse* makes up the majority of the cases (twelve out of fifteen cases for *China–Vietnam* pairs, and five out of six cases for the *Vietnam–China* pairs). This clearly constructs an antagonistic relationship between the two countries. On the other hand, *China* is represented as more likely to instigate finger-pointing given its higher likelihood of being the subject than *Vietnam* (15 versus 6). One example is given below:

- 3) *China* **accused** *Vietnam* today of trying to encroach on its territory by claiming vast areas of the Tonkin Gulf and two disputed island groups. ('China Says Vietnam is Trying to Seize Parts of Tonkin Gulf', 29 November 1982)

In this example, *China* is placed in the subject position, which actively performs the action of 'accusing'. The rest of the sentence proceeds to elaborate on *China's* accusation, namely *Vietnam's* encroachment on its territory. However, it is worded that *China's* accusation is based on its own 'claim', which means it is an assertion pending further validation. Moreover, the adjective *vast* as in 'vast areas of the Tonkin Gulf' seems to give

Table 6. Country pairs involving *Iran* in Period 2

Country (subject)	Verb	Country (object)	Frequency
China	provide	Iran	4
Argentina	turn down	Iran	1
Brazil	turn down	Iran	1
Germany	turn down	Iran	1
Russia	Sell	Iran	1
Iran	Help	China	1
Iran	(could) hit	United States	1

weighted degree centrality, it ranks third regarding betweenness centrality. This points to *Iran's* important bridging role in the network. To further investigate how its links with other countries are represented, the subject–object pairs containing both *Iran* and other countries are shown in Table 6.

It can be seen from Table 6 that *China* and *Russia* seem to be in a cooperative relationship with *Iran*, as evidenced by such verbs as *provide*, *help*, and *sell*. On the other hand, *the United States* and three other countries (*Argentina*, *Brazil*, and *Germany*) are placed on the opposite side, as evidenced by the verb *hit* and the verbal phrase *turn down*. Again, an ‘us versus them’ division is discursively constructed (van Dijk, 1998, p. 267).

4.2.3 Period 3 (2001–10)

A total of 436 subject–object pairs of countries among 43 countries are found in Period 3. The top five countries by weighted degree and betweenness centralities are listed in Table 7, and the network graph of the period is displayed in Fig. 5.

It can be seen from Fig. 5 that *China* and *the United States* stand out with the highest weighted degree centralities (232 and 223, respectively). In addition, compared with the network graph of Period 2 (Fig. 4), there are some other relatively large-sized nodes such as *North Korea* (95), *Japan* (71), and *Iran* (47). In addition, among the countries with the highest betweenness centralities are *China* (0.222), *the United States* (0.179), *Iran* (0.10), *Russia* (0.033), *Germany* (0.021), and so on.

With regard to the links between *China* and *the United States*, verbs that occur at least twice within *China–United States* pairs include *overtake* (7), *surpass* (7), *trail* (4), *join* (3), *pass* (3), *press* (3), *replace* (3), *urge* (3), *criticize* (2), *displace* (2), *not surpass* (2), and *tell* (2). On the other hand, the most frequent verbs for the *United States–China* pairs include *press* (5), *accuse* (3), *persuade* (3), and *see* (2). Noticeably, *China–United States* pairs far outnumber the *United States–China* pairs (64 versus 37) in this period, reversing the trend in Period 2 and implying an increasingly active role played by *China* in the two countries’ relations as

Table 7. Top five countries by weighted degree and betweenness centralities (Period 3)

Weighted degree centrality	Betweenness centrality
China (232)	China (0.222)
United States (223)	United States (0.179)
North Korea (95)	Iran (0.10)
Japan (71)	Russia (0.033)
Iran (47)	Germany (0.021)

represented by the newspaper. Compared with the networks of the preceding two periods, the verbs within *China–United States* pairs are much less dominated by ones denoting verbal processes but are featured by such action verbs as *overtake*, *surpass*, *pass*, and *replace*. These verbs turn the spotlight on *China's* rapid progress, which is represented as posing a serious challenge to *America's* dominant status in the power relation between the two countries. Moreover, these verbs appear not only in hypothetical but also in realistic contexts. In the following example, the present perfect tense of the verb *replace* coupled with the adverb *already* underscores the existential threat from *China*. Besides, a nomination strategy (Reisigl and Wodak, 2016, p. 33) is used to define *China* metaphorically as a red-hot economy to emphasize its strong growth momentum. Together, these linguistic features add to the narrative of strategic competition between *China* and the USA.

8) *China* has already replaced *the United States* as *Japan's* biggest trading partner, and many Japanese now see their nation's and their own personal future as linked to *Asia's* red-hot economies. (‘Technologists See Brighter Prospects in Other Parts of Asia’, 24 May 2007)

Apart from the Sino-US relations, *Iran* also stands out since, despite its being No. 5 in the rankings of weighted degree centrality, its betweenness centrality ranks third, which highlights its potential role as a key intermediary among other countries. This is substantiated by the forty-seven subject–object country pairs containing *Iran* where a number of countries are involved. It is also worth noting that among the forty-seven cases, *Iran* acts as the subject eleven times and the object thirty-six times, suggestive of its passive role in the relational network. These forty-seven pairs and the associated verbs are shown in Table 8.

Table 8 shows that the verbs within the subject–object pairs between *Iran* and *the United States* contribute to a portrayal of their bilateral relationship as one involving both tension and communication. On the one hand, it seems that they are at daggers drawn as suggested by such provocative verbs as *attack*, *deter*,

In comparison, countries such as *China*, *Russia*, and *North Korea* are represented as being more or less friendly with *Iran*, given the absence of such provocative verbs as those used between *the United States* and *Iran*. With regard to *China*, the verbs *allow* (1) and *not_report* (1) indicate China’s intention to maintain its friendly ties with Iran. On the other hand, verbs such as *urge* (2), *ask* (1), and *bring...around* (1) are used to indicate that China is trying to persuade Iran to keep its nuclear program in check, thus to some extent joining the ranks of *the United States*. This is further corroborated by the verb *prevent* (1) which can also be found in the *United States–Iran* pairs. One related example is given below:

9) *China* and *the United States* both want to **prevent** *Iran* from acquiring nuclear weapons, but their ‘approach may differ’ on the best tactics to achieve that result, Deputy Secretary of State Robert B. Zoellick said Wednesday after a round of meetings on the subject in Beijing. (‘US and China Agree on Keeping Nuclear Arms from Iran, but May Differ on How, Envoy Says’, 26 January 2006)

In this example, *China* and *the United States* appear in a conjunctive structure linked by *and*, followed by the adverb *both* that adds emphasis to the statement. These linguistic patterns clearly signal the two sides’ shared stance toward Iran’s nuclear program. However, despite their consensus on this point, in the second clause introduced by *but*, their differences in dealing with *Iran* are underscored, thus sustaining a dichotomy of ‘us versus them’.

4.2.4 Period 4 (2011–20)

There are 427 subject–object pairs among 50 countries in this period. Table 9 shows the top five countries by weighted degree and betweenness centralities, and Fig. 6 presents the network graph of the period.

It can be seen that *China* and *the United States* are the two most prominent countries in terms of weighted degree centrality in the network, largely overshadowing the other countries. In addition, as regards betweenness centrality, the top-ranking countries include *China* (0.400), *the United States* (0.079), *Iran* (0.045),

Table 9. Top five countries by weighted degree and betweenness centralities (Period 4)

Weighted degree centrality	Betweenness centrality
China (298)	China (0.400)
United States (230)	United States (0.079)
Japan (38)	Iran (0.045)
North Korea (35)	Venezuela (0.024)
Russia (32)	India (0.020)

Venezuela (0.024), *India* (0.020), *Japan* (0.018), *Russia* (0.017), etc.

An inspection of the verbs within *China–United States* pairs reveals that the verbs that occur at least twice include *surpass* (13), *overtake* (8), *accuse* (5), *challenge* (4), *push* (3), *alarm* (2), *ask* (2), *blame* (2), *join* (2), and *urge* (2). The salience of such verbs as *surpass*, *overtake*, and *challenge* once again seems to emphasize that a stronger China has tilted the balance of power in China–US relations, strengthening China–threat narrative.

On the other hand, the verbs that appear at least twice within the *United States–China* pairs are *accuse* (9), *push* (6), *urge* (5), *punish* (3), *attack* (2), *criticize* (2), *force* (2), *not_accuse* (2), *not_contain* (2), *persuade* (2), *press* (2), *tell* (2), and *treat* (2). These verbs suggest that in response to China’s increasing threat to its superpower status, the USA not only continues to verbally lash out at China (e.g. *accuse*, *attack*) but also begins to resort to more concrete, hard-line countermeasures (e.g. *push*, *punish*, *force*), especially under the Trump administration. In the following example, the verb *punish* creates a highly unequal power relation in which the USA has the capability to inflict heavy penalties on China.

10) One potentially big obstacle in the way of reaching a deal is how *the United States* **punishes** *China* if it doesn’t meet its obligations. (‘Trump Says U.S. May Delay China Trade Deal Deadline’, 12 February 2019)

In addition to *China* and *the United States*, *Japan* is another prominent actor whose weighted degree centrality takes 3rd place and whose betweenness centrality ranks 6th. A closer look reveals that among the subject–object pairs of countries containing *Japan*, those between *China* and *Japan* are the most frequent (*China–Japan*: 12; *Japan–China*: 5). The verbs within *China–Japan* pairs include *overtake* (2), *alarm* (1), *accuse* (1), *alienate* (1), *discourage* (1), *force* (1), *not_invite* (1), *manipulate* (1), *press* (1), *not_provoke* (1), and *starve* (1), while the verbs within the *Japan–China* pairs include *accuse* (1), *fear* (1), *not_invoke* (1), *replace* (1), and *thwart* (1). The higher frequency of *China* serving as the subject along with the negative connotations of the accompanying verbs seems to portray China as more of a hardliner in China–Japan relation. In addition, the top verb *overtake* (2) within *China–Japan* pairs seems to align Japan with the USA as being under the threat from China due to the latter’s rapid development.

On the other hand, it can be seen from Fig. 6 that *Japan* is also connected with *the United States* in a bidirectional way. More specifically, the most frequent

linked to both *Iran* and *the United States*, the latter two countries are not linked through the subject–object dependency. By comparison, in Period 2, the three countries are linked to each other.

4.3 A summary

In relation to the first research question, the SNA results yield four distinctive networks corresponding to the four periods. These networks demonstrate the complexity of international relations as constructed in news discourse. The increasing cohesiveness of the networks coincides with China's gradual integration into the world after the inception of its reform and opening-up policies in 1978, which indicates that the reporting of *The New York Times* generally reflects China's expanding global reach over the four decades. During the four periods, the USA consistently occupies a pivotal place, which may be explained by the focus of *The New York Times* on its home country and the significant role played by the USA in the international network surrounding China in reality. This US-centered perspective and the proclaimed 'mission' of the newspaper to reflect 'social reality' can also be used to explain the highlighting of some other nations. For example, Vietnam stands out mainly in the network of Period 1, during which China was involved in border conflicts with the country. By comparison, countries such as Russia, Iran, Japan, and North Korea are given more consistent attention in the reports as the USA has had a great stake in their relations with China.

To answer the second research question, corpus-based linguistic and discursual analysis helps to shed light on the specific ways in which some salient national actors and their connections are discursively constructed. The results show that the power relations between these countries constructed in the news reports generally project a powerful America, which serves to reproduce and sustain its status as the No. 1 superpower in the world. On the other hand, China is typically represented as a country seeking to challenge established international power relations. In such cases, China is often portrayed as a hardliner, a competitor, and even a bully. This tendency echoes that of Tang (2021), who conducted a corpus-assisted critical discourse analysis of China's image in American mainstream newspapers and found that China was often negatively represented as the Criticized, the Punished, the Helped, etc.

Regarding the third research question, it can be seen from the above discussion that as an American national newspaper, *The New York Times* tends to report on the international network surrounding China through the Western lens and with an Americentric bias which is based on America's national interests. Specifically, it is shown that the newspaper tends to promote a highly

ideological categorization of the international community into an 'us' group, consisting of the USA and its allies, versus a 'them' group, consisting of America's enemies or competitors. For example, it is revealed through looking at the intervening verbs between Iran and other countries in Periods 2 and 3 that the newspaper seems to create an 'us versus them' division among countries based on the US–Iran relation, with the USA and its allies clustered together, as opposed to countries more friendly to Iran such as China, Russia, and North Korea. This alignment can be attributed to the long-standing tense relation between the USA and Iran after their severed diplomatic ties in 1980 following the 1979 Iranian Revolution. Over the last four decades, the USA has imposed a total embargo on trade with Iran in 1995, declaring Iran as a member country of the 'axis of evil' in 2002, increasing sanctions on Iran over its nuclear program over the last decade through multiple statutes and executive orders, etc.⁴ On the other hand, China has been Iran's top economic partner and has maintained a strategic relationship with the country, which poses a serious challenge to the 'US-led international order' (Green and Roth, 2021, p. 3).

5 Discussion

This exploratory study illustrates that the approach of SNA offers a new analytical angle for CDS with the assistance of corpus tools. As a form of critical social research, CDS seeks to offer 'problem-oriented explanatory critique', which entails its focus on exposing power relations internalized in discourse (Chouliaraki and Fairclough, 1999, p. 62). On the one hand, discourse encodes a number of social actors forming complex relational patterns and structures, and on the other hand, SNA is precisely intended to explore networked social relations mathematically and graphically. As such, the application of SNA in CDS stands to achieve synergy due to their overlapping concerns from a theoretical perspective.

From a methodological perspective, as CDS is problem oriented and thus aims to analyze and interpret 'social phenomena that are necessarily complex' (Wodak and Meyer, 2016, p. 2), it has to draw on insights from various disciplines in order to gain a better understanding of 'how language functions in constituting and transmitting knowledge, in organizing social institutions or in exercising power' (Wodak and Meyer, 2016, p. 7). As a result, CDS has been distinguished for its interdisciplinarity and methodological heterogeneity. This study shows that SNA is another promising addition to its methodological repertoire. It may prove especially valuable when investigating social relations as they can be too complex to be effectively captured by such traditional corpus linguistics tools as

