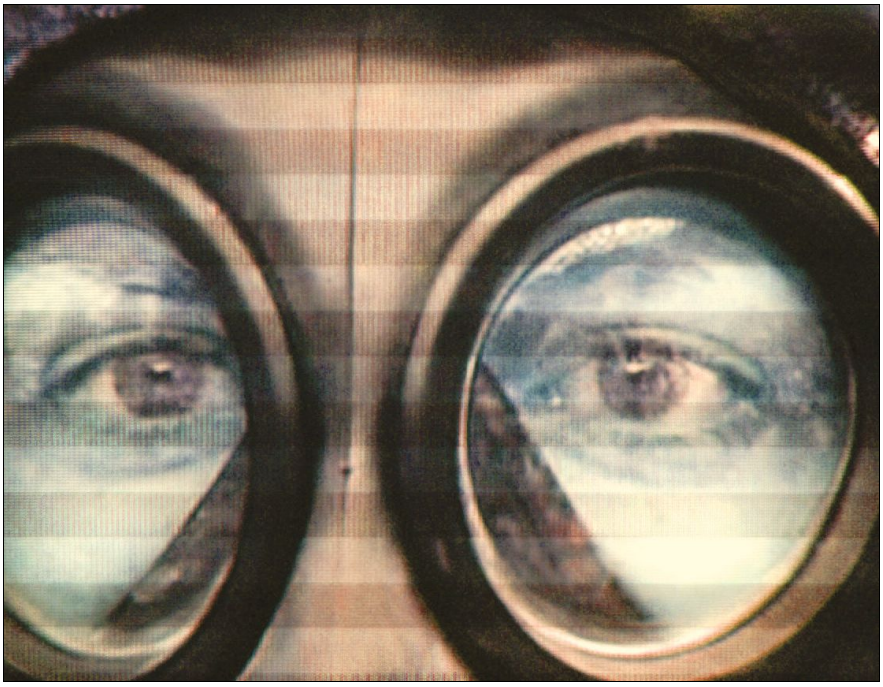
Intergroup Conflict: A social network approach



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Abstract

Network-based analysis of intergroup conflict has shown promising results with regards to understanding how conflicts develop within society. This paper gives a general overview of how one can apply structural and dynamic network approaches to shed light on conflict, and establishes a qualitative description of how mathematical concepts may be used to describe such phenomena. Two conflicts are studied within the context of the social network approach: the al Qaeda terrorist network, as well as the genocide in Rwanda. A social network approach to intergroup conflict appears to be a useful method of analyzing conflicts, and helps shed light on their prevention.

Introduction

Since the end of the Cold War, a great deal of literature has been written about new types of war (Kaldor, 1999; Rice, 1988) focusing on intrastate actors and network-based approaches to conflict. As intrastate conflicts continue to grow and threaten other states through their political and economic linkages, it is useful to approach the causes of conflict through a network-based paradigm. Developments in social network analysis and network science can be used to shed light on conflict, and such analysis shows that intergroup conflicts tend to be caused by a lack of social linkages between groups within a society, and are further fomented by network "cliques" – highly interconnected groups – that lack a strong connection to the larger social structure and model their goals to build on the social and cultural tensions present by the disparate society.

Conflict is a broad concept, and within the scope of this article, will be dealt with following a modified definition presented by Fisher, who defines conflict as:

> "*[A] social situation involving perceived incompatabilities in goals or values between two or more parties, attempts by parties to control each other, and antagonistic feelings by the parties toward each other.*" (1989, p. 6)

This investigation extends this definition to include conflict where tensions are so strong they lead to violent interaction between the groups involved.

Network Analysis Tools and Their Application to Conflict Situations

While the conventional analysis of conflict does take into account relationships between people, resource flows, and groups, it rarely combines the issues through an integrated network that can then be analysed. Doing so can help shed light on the way the conflict spreads, and the methods used by those propagating the conflict. Hammarström and Heldt (2002) successfully implemented such a model on a macro level, and were able to create probabilistic models of the reactions of states to different triggers, including invasions, alliances, and economic partnerships. A similar application may be found within an intergroup conflict paradigm.

There exist two modes of investigation within the social network analysis field: structural analysis and a dynamic approach (Watts, 2003), both of which are useful for investigating the propagation of conflicts. The former focuses on the way a network is structured and explains that the connections between groups and actors play a key role in determining what happens within the network (Barabási, 2003). The dynamic view borrows many ideas from structural analysis but recognizes that networks are not static – over time, relationships and connections change, resulting in important trends within the structure of a network. Both views are viable and will be considered in the context of this investigation.

When considering conflict situations, it is necessary to consider why the conflict is taking place. While explanations differ, there are a number of common trends. Kaldor (1999) argues that many recent civil wars promote political identities and "labelling": a dichotomy exists

between two or more groups and aggressors build on these differences. In terms of civil wars, such groups tend to be concentrated in the periphery of a state's territory (Rice, 1988), making it difficult for low-capacity governments to have any effect on the groups. This view can be extended to an international context – terrorists operate effectively within territories that their opponents have limited access to. In early stages of conflict development, such isolation allows groups to reinforce their ideas without facing competition from other influences (Watts, 2003).

It is important to note, however, that a disconnection between a group and government, or a group from the larger societal network, need not be spatial (Wellman, Carrington, & Hall, 1988). While a disconnection based on lack of territorial control can exacerbate a conflict situation, it my not be the cause. Political ideologies, ethnic and religious rivalries, and other disconnections can play a causal role instead. Furthermore, some social psychologists have suggested the specific differences used to promote conflict between groups are trivial: by being separated from a majority, a group will tend towards discrimination and create its own social identity based on arbitrary means (Fisher, 1989).

While separated from the overall social structure and operational network of the state, groups successfully waging conflicts are highly interconnected within their own networks. Called "cliques", these network structures allow for the extremely efficient distribution of resources (Delaney, 1988), which helps sustain fighting (Rice, 1988; Kaldor 1999).

Such interconnectedness also promotes diffusion of ideologies and ideas within the group, especially at the start of the conflict. By having large numbers of connections, many actors within a group have similar connections in terms of friendships, alliances, and other dealings. This, according to the structural analysis paradigm of networks, makes each actor respond similarly to their circumstances (Barabási, 2003), and can result in a positive feedback loop; as a small group of people within the network begin to organize and promote a conflict, more people will respond

with support. As these groups become the majority within their cliques, the probability that others will join increases drastically (Barabási, 2003; Noelle-Neumann, 1977), especially if those propagating the message hold some sort of authority within the group (Gleitman, 1995).

While the prevalence of conflict-oriented individuals within a network may increase, not all such situations necessarily lead to war or violence. To achieve such a scenario, the spread of information within a network must be efficient and fast. If enough people adopt the aggressor's opinion and choose to propagate it, the conflict will escalate quickly. Such growth in opinions can be modelled using a logistic growth curve (Watts, 2003).

Figure 1: A logistic growth curve. Treat *x* as time and *y* as the amount of population "infected" by an idea. The gray line represents the area of most rapid growth, or fastest adoption of the idea.

If an idea is to be accepted by a large set of groups, its initial growth will be exponential: as more peope learn about an idea, they spread it to even more individuals, allowing it to become more popular. Scientists have compared the spread of such ideas to epidemics (Watts, 2003) and call them "memes" (Dawkins, 1989). Successful memes tend to take advantage of cultural and social situations within the group of people (Dawkins, 1989). Religiously-focused conflicts are a good example of such social labelling (Schäfer, 2004). By taking advantage of religious or ethnic tensions, an idea may spread easily due to its effect on people's emotions.

If the cause of conflict is powerful enough, multiple groups may take arms independently of each other. Some researchers have attempted to explain Al Qaeda's growth in this way (Raufer, 2003); its strong ideology and ability to build on anti-American tension allows groups to be founded and operate independently of each other, but still work toward a common goal. Indeed, evidence suggests the organization is built around such a supportive system (Department

of Justice, 2004). As the conflict progresses, it is more likely that the disparate groups will eventually network with each other, causing a tight and integrated group comparable to that required for an organized conflict (Barabási, 2003). This will allow certain parts of the network to evolve into hubs, or areas with a large number of connections, and due to their centrality in the network, may be able to take on leadership roles (Krebs, 2004).

However, an idea taking advantage of present negative cultural and social trends and being promoted within a group of highly interconnected but isolated groups still needs to be accepted by a larger populace. To reach an entire population, the group must also take advantage of weak ties (Granovetter, 1973). Within social networks, the difference between strong and weak ties is important. The former tend to connect individuals within a group, but also lead to significant overlap in the amount of connections they share. For example, if two people, Mark and Alice, spend a great deal of time together, and Alice sees Matthew on a regular basis as well, the probability that Mark knows Matthew is extremely high. Thus, an idea can easily propagate between the three of them, but is unlikely to proceed beyond their tight-knit group. Weak ties, however, can act as a bridge between groups, allowing information to pass beyond the small community and, using the epidemiological analogy presented earlier, infect a large population.

It is here that the reader may notice a slight paradox. While the initial cause of conflict must be cultivated within a group separated from the larger societal network, this group must have weak ties to the rest of the network to spread the idea to the entire population. Network analysts have compared the differences between the people in each stage of social change or development as "first adopters" and "early adopters" (Watts, 2003). First adopters are people who are relatively isolated, and can adopt new and controversial views and ideas because there is a lack of pressure from their intimate links (due to their virtual nonexistence) to convince them otherwise. Early adopters are those convinced by first adopters and use their weak social

connections to spread ideas and promote their adoptions in other large groups.

Further, these weaker links must be personal. Media and propaganda play a crucial role in conflict situations (Glossop, 2001), but lack the social power or persuasiveness to cause the initial idea from penetrating the entire population (Granovetter, 1973). Word of mouth and social pressure are much more effective, especially when the pressure is exerted from group members who one associates with closely. Weak ties that bridge groups allow the initial group to exploit strong bonds within groups it has no direct contact with. Control of the media can then facilitate communication and diffusion of information.

Thus, by taking control of a small and disconnected part of a larger network, it is possible to spread conflict-focused ideologies and ideas within that network. If doing so convinces enough people, who then use their weaker links within other groups to spread the message through a personal means while also taking advantage of social and cultural tensions within the societal structure to increase the idea's effectiveness, a conflict is likely to evolve.

A More Theoretical Approach

By taking the ideas presented above a step further, it is possible to broaden the analogy of conflict and present it in a more mathematical way by viewing society as a structure where large numbers of groups connect and interact with each other. In such a model, the connections between groups are dynamic: new links are constantly forming and old ones breaking apart; some connections are weak while others strong; some are advantageous to all groups and others may actually disadvantage those involved. By quantitatively expressing the linkages between groups, one can treat society as a dynamic network constantly organizing itself to find an optimal structure where all groups, or as many as possible, are satisfied. As the society self-organizes, it may approach or distance itself from the optimal position.

At some point, however, there is a threshold, which can be modelled using a branch of

mathematics called Catastrophe Theory (Saunders, 1980). This theory can show that once tensions between groups become large enough, the entire system will collapse, which can be viewed as a conflict. Experiments have shown promising results in support of the creation of such a theory by revealing unstable network structures that break down into separate and disconnected subnetworks (Markovsky, Willer, & Patton, 1999), which can be interpreted as the creation of disjointed political and social identities and groups. This is the optimal structure for the emergence of conflict.

Case Study #1: Al Qaeda

The current situation between Al Qaeda and the United States is exemplary of the conflict spreading process outlined above. Its focused ideology with regards to American policy and strong ties to Islam (Halliday, 2002; Zimmerman, 2004) foster a separation between the Americans, which is further enhanced through its dynamic organizational structure (Department of Justice, 2004) and seemingly impenetrable network. By creating such disparities, Al Qaeda members create a unique social identity that is separate from the larger global societal network and builds on this disconnection to foster pro-conflict perspectives and projects.

Structural analysis of the September 11 network has yielded a great deal of information about Al Qaeda's structure (Krebs, 2002). While terrorists working on focused projects are highly interconnected, the overall structure lacks leaders who are central to the projects. The larger resource network also lacks connections to key figures. While some nodes do have more connections than others, the entire structure will not fall apart through the removal of a few individuals. When working on projects, Al Qaeda members are instructed to stay separate from those not part of the network (Department of Justice, 2004), allowing the distance between the terror network and the rest of society to remain unabated.

While weak links play a crucial role in the promotion of ideology and conflict, Al Qaeda

takes this further. Through analysis of its training manual (Department of Justice, 2004), it appears that nodes can essentially create themselves and join the network once they develop. Thus, Al Qaeda's success is built on an ideological foundation that others can support without prior membership within Al Qaeda cells. Furthermore, new members and those training them also lack direct contact with each other and rarely know each other by name or face, ensuring that weak ties are kept weak and groups are able to foster their own social conditions and are only overseen by the Al Qaeda network.

Evidence also suggests that the Al Qaeda network has a large number of weak and inactive ties (Krebs, 2002), making it difficult to map its organizational structure. This helps spread the ideology and explains why the network is active within so many states: weak links are bridges between what may otherwise be unrelated and uncoordinated groups, and members have the power to make use of these connections when they are organizing projects, or spreading ideas.

Thus, the Al Qaeda terrorist network is a clear example of a social network approach to conflict. By maintaining a separation between itself and the Western world, forcing its members to do the same, and making use of a negative social and cultural situation, the organization cultivates the proper network situation for conflict. It then builds on this by providing training and making use of its weak ties to obtain required resources, and to continue its war.

Case Study #2: Rwanda

Whereas the investigation's application to Al Qaeda is relatively straightforward, it is less so with the Rwandan genocide. Though the genocide is often described as an ethnic conflict, there are gray areas within this category. While around 800,000 Tutsis were killed by Hutu rebels, the two ethnic groups were more akin to economic classifications imposed on them during colonial times, when Tutsis were those who owned ten or more heads of cattle, and Hutus were agriculturalists (Orth, 2001). This disparity between the two groups was further emphasized

by a "divide and rule" mentality (von Horn, 2005) maintained during the colonial era. When discussing the genocide, Newbury and Newbury (1999) call ethnicity as a contextually configured, dynamic entity. The network analysis application shows that two disparate groups need not be ethnically or religiously divided – the social division itself will cause conflicts to arise. This division between groups is more complicated than ethnic divisions would imply, as politics played a major role in the genocide. During the start of the genocide, a significant number of Hutus were killed due to their support for the former Habyarimana regime, and moderate Hutus were later targeted due to their lack of support for the genocide (Newbury and Newbury, 1999). Thus, the genocide is similar to Kaldor's (1999) "new wars", where those in support of the conflict murdered and displaced moderates, propagating the conflict through a more brutal means than meme-like diffusion of ideologies within a network allows.

The conflict challenges the view that the optimal structure for intergroup conflict is one with separated nodes and with ideas spreading extremely quickly, as evidence suggests the conflict was planned well ahead of time, and even depended on close ties between Hutu *génocidaires* and Tutsis (Newbury and Newbury, 1999), with the media playing a major role with regards to spreading ideology and orders (Li, 2004).

While the above is true, it overlooks a number of factors influencing the conflict. While Hutu-Tutsi relations were indeed present, they were strained. Furthermore, the effects of colonialism were still felt, as were the effects of an earlier civil war started in 1990, and prior Hutu-Tutsi conflicts of the late 1950's, early 1960's, and 1972 (Orth, 2001). While the 1994 genocide may have been planned ahead of time and was dependent on intermingling between the two communities, the historical perspective shows there has been a continued divide between Hutus and Tutsis, which escalated to the 1994 genocide by a Hutu extremist policy of social labelling and population displacement, a phenomenon that was indeed adopted rapidly by the

populace. Even after the genocide, this division persists (McNairn, 2004), though is less extreme.

The media was a useful tool for Hutu extremists, but only facilitated the taking place of the genocide. The intergroup tensions mentioned above, along with the history of violence in the region, were more than enough to lead to a conflict. The infamous Radio-Télévision Libre des Mille Collines (RTLM), the main radio station used by Hutu extremists, had to compete with a large quantity of other media sources, and would not have been popular without an already tense and angry population. Thus, RTLM and other forms of media were used as tools to reinforce ideas by tying them back to social tensions with comments like "Masses, be vigilant - Your property is being taken away. What you fought for in ’59 [period of decolonization] is being taken away" (qtd. in Li, 2004) and the spreading of orders.

Without the tears within a state's social fabric, coupled with tensions between disjointed groups, and a policy favouring social division, such a conflict would not take place. Further support for this theory is given by the current rehabilitation programs in Rwanda, which work on the premise of a Rwandan nationality rather than a state composed of disparate social groups (McNairn, 2004), thus trying to bridge the problematic social disconnections.

Competing Theories

While the importance of social structures outlined above has applications to past and present conflicts and may even be used to learn more about potential ones, some social scientists do not believe that such a structural and network-focused approach is the proper way to analyze conflicts. Comparative studies of intergroup conflicts in Rwanda and Burundi (Uvin, 1999), for example, show that while the socio-political structures within the states were similar, the progression of conflict was not, giving evidence of other contributing factors. One must note, however, that while the progression of conflict was different, a conflict occurred nonetheless.

Others have suggested that social structures are just one of several important features of

intergroup conflicts like wars or genocides (Verdeja, 2002). Such a view cannot be discounted either, though the relative importance of other factors when compared to social structures is questionable – economic disparities, overdeveloped militaries, and other factors do play a role in the diffusion of conflict, but whether they simply exacerbate an already tense social situation or are the cause of one is a debate that has yet to be settled.

The network approach has been studied from a statistical point of view (Hammarström and Heldt, 2002), and has shown to be effective in predicting different properties of interstate conflict. While this investigation deals with conflict with regards to network-focused theories, its application may also be applied in a historical context as well, as it has been suggested that warfare has not changed (Henderson and Singer, 2002) significantly since the early 1900's.

Conclusion

Regardless of which conflict-focused theory one subscribes to, a network-based analysis of past and present conflicts, like the War on Terror or the Rwandan genocide, do help in shedding light on the complex social and political processes and linkages that help start conflicts and allow them to propagate. The analyses above, along with the quantitative mathematical applications and analyses, give a new perspective on the idea and role of conflict within human societies, and this investigation shows that they show promising results with regards to analysis of conflict. A combination of structural and dynamic network approaches can yield information on how conflicts begin due to disparities within social networks and the propagation of information therein, and can serve to help predict conflicts in the future, and maybe even help prevent them. The more social scientists study and learn about intergroup conflict, the more humanity will be able to prevent them.

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