## Ahmedabad University

# WORKING PAPER

# Behavior Analysis in Conflict Resolution Network: 12 Angry Men

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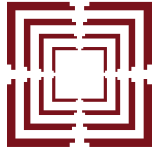# WORKING PAPER

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Abstract: Conflict resolution is a multi-level process where a network of interactions is not guided by a single emotion. The individuals who are engaged in conflict resolution cannot be segregated just on positives and negatives interactions within the network. Each stage has multiple interactions where the domination of particular behavior leads to change in positions or opinions. To map such interactions involves social network analysis through a qualitative approach. In the real world, information of such interactions is not available thus movie '12 Angry Men' is analyzed. According to the Library of Congress, USA, 12 angry men is cultural, historically and aesthetically represents one of the best courtroom drama. The movie includes more than 850 interactions among 12 jury members in 96 minutes over a murder trial. Through the analysis of script, interactions are mapped considering the nature of their positive and negative behavior and ego-network diagrams. Longitudinal analysis leads to understanding the changing behavioral pattern of the network in 5 different phases. It also represents the importance of influence and use of

various emotions for successful conflict resolution. Detailed analysis of dominant emotions, network dynamics and its impact on conflict resolution provides insight into the effective conflict resolution mechanism through social network analysis tool.

**Introduction**

12 angry men are one of the most appreciated and recommended films to understand the human interactions and importance of individual's influence on the group (Armstrong and Berg 2005; Sunstein 2007). The film is a dramatic representation of a jury room discussion over a murder trial among 12 jury members. The research focuses on understanding group dynamics, development of transitory networks and conflict resolution tactics by observing different characters on the movie within the jury room. The objective also includes mapping of social networks and later its dynamic nature longitudinally about the decision of the trial. Analysis of each juror and their conversation with peer jurors are mapped using social network analysis tool. With the context of the film, interactions among the group of people are dynamic and with changing behaviors, group polarization changes. Individuals and their positions also vary based on the explicit information, personality, individual's background and experiences (Veenstra et al. 2013). Peer relationship influences and shapes one's behavior. Attitudes and opinions have a significant impact on dominance and control in a group (Mercken et al. 2009; Mercken et al. 2010).

The study emphasizes on the process of conflict resolution and changing behavior with the longitudinal approach. Each character of the film in the jury room shows different attitudes and behavioral expressions towards the case. Henry Fonda, as Juror 8, defies the initial collective decision of other 11 jurors, i.e. 'Guilty' for the boy. His tactics and traits influence others to change their opinions to 'Not guilty' eventually. With the use of thematic research method, interactions are coded with negative (for 'Guilty' verdict for accused) and positive (for 'Not Guilty' verdict for accused). Behavioral traits are also assigned to the conversation during the films. The analysis indicates the transitioning ego-networks and change of opinion with changing influence and behavior of the jurors. With such transitioning network patterns, the research focuses on the significant impact on network behavior of actors for resolving the conflicts with influence.

**Literature Review**

*Social Network Behavior and Ego Networks*

Social network analysis method has re-emerged as a popular tool among the sociologists and anthropologists (Tichy et al. 1979; Martinez et al. 2003; Freeman 2004). Understanding behavioral ties among the individuals, groups, and communities have also become an important tool to predict the actions and reactions in different contexts (Borgatti et al. 2009; Wang et al. 2016). Barnes (1954) introduced the concept of social network for exploring social links of individuals between an individual and society. Such analytical presentation of social ties successfully indicates the influence of the people involved in the network (Christakis et al. 2013; Serrat 2017). According to Wrzus et al.

(2013), social network analysis considers the relational ties like friendliness, support, antagonism, conflict, predator-prey relationship and more kinds considering the social and behavioral factors. 'Actors' as the nodes in the network are responsible for the network structure (Albanese and Van Fleet 1985). Due to the nodes, network effects successfully impinge upon the behaviors, opinions, outcomes and other characteristics of the nodes (Franzese et al. 2012). For the network behavior analysis, edges represent the characteristics, weight, and the distance between two or more nodes to account for the intensity of the interactions among members of the network (Tichy et al. 1979). Dynamic networks include individual influencers and situational variables to enable the change. Moreover, emotions, behavior, social connectedness and knowledge sharing become critical enablers to diffuse the modification of the dynamic networks (Ahuja 2000; Veenstra et al. 2013; Jose et al. 2016; FeldmanHall 2017)

Burt (2001) suggests that nodes and edges change with time, proximity, interdependence, and interpersonal relations. According to Tobler's law "everything is related to everything else, but near things are more related than distant things" (Sui 2004). Gilles and Sarangi (2006) observed that interdependence among the nodes might arise with interactions and sharing of information. Some actors' actions may affect the marginal utility of others' actions (Hays and Kachi 2012). Proximity and exposure determine the significant structural change in the network structure. Frequent exposure or experiences and ability to adopt the information leading to the possibility of similar opinions (Bowler and Brass 2006; Zuber 2015; Wakefield and Wakefield 2016).

Kilduff and Tsai (2003) included personality as an important variable for the network structure. A few studies adopt various dimensions on exploring the relationship between traits of the actor and networks. Anderson (2008) applied the interactionist approach to prove that how personality variables can affect the social network use. Many other researchers studied about the extent to which people change their behavior to match the perceived demand of the situation (De Federico de la Rua 2007; Anderson 2008). Kilduff (1992) found that personality of individuals shapes the networks and certain individuals relying on the network to make their opinions. Network with diverse actors, cognition of the situation relies on the information channel which is dependent on the structure of the network. Cacioppo et al. (1996) proposed two kinds of cognitive actors: 1) cognitive misers, who do not deep think about the problem while developing the opinion and, 2) concentrated cognizer, who think deeply about issues. Formation of networks includes both the types of actors. Later plays a major role in bringing the information through critical thinking, intelligence and analysis then former tend to change their opinion based on the provided arguments by the 'concentrated' cognizer (Anderson 2008).

Collins (2004) redefines the interaction ritual chain theory to explain the social networks and emotions. It provides an understanding of how emotions are developing robust and weak network relations with various actors. Emotions are important factors as they influence individual's personality and behavior. It also contributes to the formation of opinions. Collins observes that dominant behavior (position) leads to an increased emotional energy to others. During the interactions, people with higher emotional energy may gain the control and dominates the interaction (Collins 2004, Doern et al. 2014).

Moreover, individuals with dominant behavior may indulge into negative emotions like shame, conflict, and anger to have an advantage over the lower positions.

*Conflict and Behavior Network*

Conflict stages are derived out of various interactions positive and adverse. It is essential to quantify the nature of emotions that may go through the process of conflict and its resolution. We suggest that this question can be addressed by investigating a network-based approach towards the connection between interpersonal relationships and emotions. To the extent that groups can capitalize on the advantages related to having strong (i.e., groups with numerous and intense ties) or weak (i.e., groups with few and less severe ties) relationships in the group, and capitalize on the advantages of the group interactions and the movements they are experiencing. This study indicates that when groups are interacting they are showing of both negative and positive emotions, and the nature of conflict and its handling mechanisms leads to change in social capital for individuals in groups. One would also look at these interactions cannot be represented by single nature of emotions, i.e., positive or negative, they need to be rationalized and identified based on the impact they will be bringing in the conversations. In the stages of the conflict, the quantum of emotions does not remain constant. The stage of conflict when it is moving from status quo to newer stages where the results are changing the networks can represent what might be interactions and who is influencing the process the most. In case of conflicts, influences are coming from various sources, and they need not be positive always. Elaborating on how conflict can create or hinder the chance for social interaction, the motivation to exchange and invest in relationship quality, and the ability to act together to reach a team's collective goal. This study attempts to confirm the impacts of network developments in resolving group conflict and also how gaining social capital by one of the members can create a transition. By carrying out this nature of the study, we are trying to fill in a gap where the nature of network formation among groups is also indicative of the movement the conflict resolution process will move. Secondly which are the dominant emotions which play during the time of transitions is important for us to look at and also identify the impact of the same. A long-held notion in the conflict literature is that nominal levels of task conflict may be beneficial to groups, whereas relationship conflict is detrimental to groups. Task conflict may encourage greater understanding of the issues being examined (e.g., Simons & Peterson, 2000) and has been shown by Tjosvold and colleagues, in the form of constructive controversy, to lead to greater team confidence and also towards the results. The network study shows these interactions and also the positive and negative emotions associated with it.
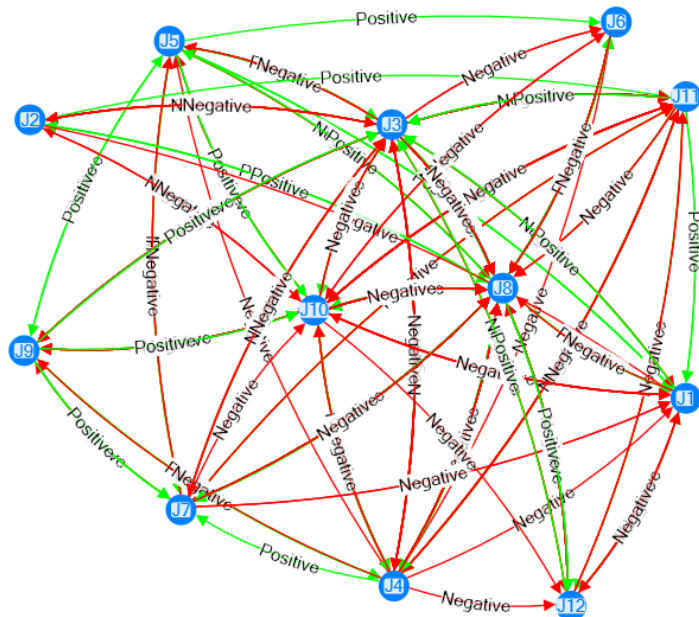
**Methodology**

Social network analysis based on the interactions provides a detailed discussion of network behavior and its transitions. It also considers the behavior of the 'Actors' aka nodes and its influence on the perception of the individuals in the network. To study such ego-network based phenomenon, researchers have selected the film *'12 Angry Men'* which is highly acclaimed English feature film. The movie includes the discussion among 12 jurors about a judicial trial of a teenage boy who allegedly killed his father. 12 individuals

from different social and economic background discuss different points based on facts and logical explanations to prove their points. The movie demonstrates conflict resolution, group polarization, argumentation, perceptions and decision-making, and many other academic concepts (Novian Rizan Jaya 2017). Critics have argued that 12 Angry Men be a bit of a fairy tale with gripping, entertaining content (Sunstein 2007). However, it has embedded behavior networks and its transition with an engaging method. The flow of the movie involved changing opinions with influence. Group polarization pattern changes with time-based on the six voting phase. Change of votes is dependent on the arguments, prejudices, casual approaches towards the task, prejudices and biased opinions.

To analyze the impact of behavior and emotions on the formation of the network among the characters, researchers have used a script of the movie and repetitively watched the feature film. Thematic analysis approach is the most appropriate method to understand patterns and themes of arguments as well as developing social networks with different kinds of interactions (Bateson 1943; Attridge – Stirling 2001). For coding of raw data, two critical variables are analyzed: 1) Nature of the conversation, i.e., negative and positive; 2) Emotions conveyed during the conversation. Coding of the first variable considers individual's opinion about the decision. Nodes (actors) using words in favor of the boy's innocence are coded with 'Positive.'



**Figure 1 Ego-Network Analysis (Phase 2-6)**

Similarly, those who speak against the accused's innocence are coded with 'Negative.' The Certain conversation which does not contain any qualitative information related to case verdict, are 'Neutral.' Second, by analyzing the movie and script several times, emotions attached to the conversation made by 12 jurors are observed and coded. Coding for emotions has twelve types of behavioral components: 1) Positive behavior that includes Companionship, Approval, Nurturance, Seek Safe Haven, Satisfaction, and Intimate disclosure, 2) Negative behavior that includes Dominance, Criticism, Relative Power, Conflict / Quarrelling, Antagonism, and Pressure. During the observation, such traits were coded using the binary coding method for large datasets.

With every changing phase, transition and nature of conversation are responsible thus detailed network maps represent transition with time. This longitudinal research includes behavior networks and changing votes based on the conflict resolution tactics.
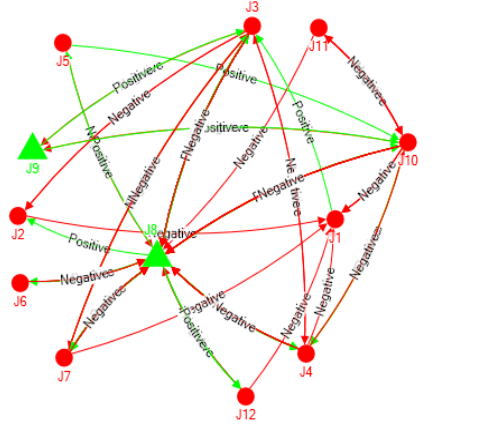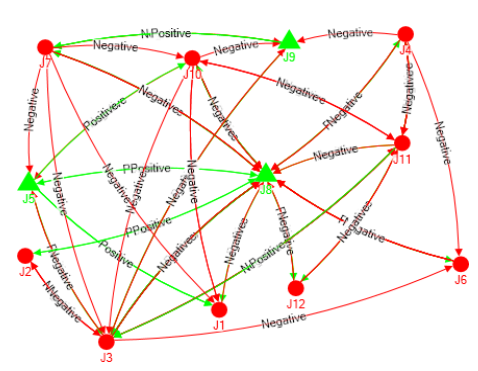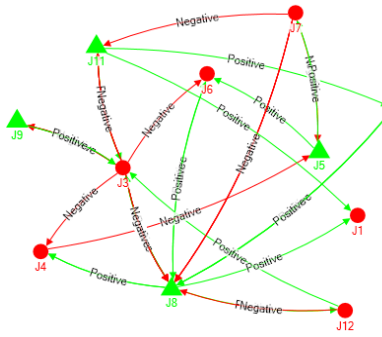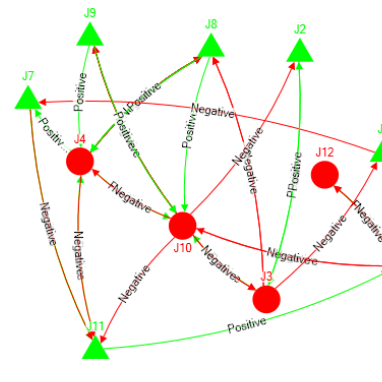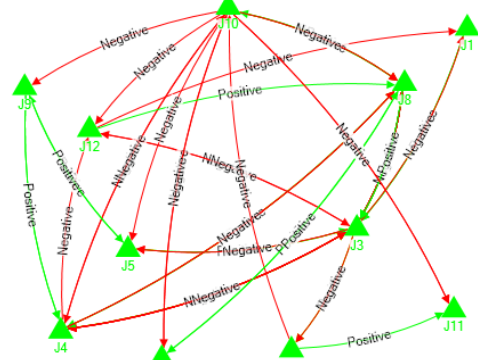
**Analysis**

12 angry men are one of the classic fictional themes which shows the nature of interactions that occur between various parties during the time of conflict (Sunstein 2007). Conflict is not a stationary stage but a dynamic process which represented both positive and negative nature of interactions, what starts off one point of questioning by Juror 8 (phase 1, see Table 1) becomes a point of change for everyone who is part of the jury. Juror 3, Juror 10's interactions are dominantly negative, and their dominant interactions are on the side of negative emotions represented in the ego-network diagrams (Fig. 1). Conflict resolution is a multi-stage process, and it cannot be kept in a form where it is moving from point A to Point B, the movie shows these various conflict resolution stages by multiple stages of voting (6 phases). The interaction during these particular stages is a representation of the top emotions changing from phase 1 to phase 6, where initially companionship is the highest in number emotion it changes to approval and satisfaction when the vote changes towards the 'Not Guilty' side.

**Table 1 Coding of Nodes and Edges**

| | | | | |
|---|---|---|---|---|
| ▲ | Juror with 'Not Guilty' vote | → | 'Positive' interaction | |
| ● | Juror with 'Guilty' vote | → | 'Negative' interaction | |

**Table 2: Interaction and Dynamic Behavior Diagrams (Phase 2-6)**

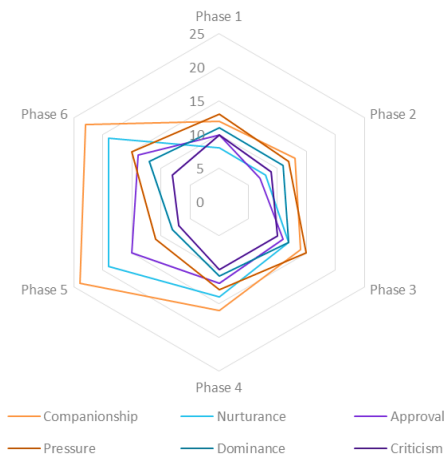| | |
|---|---|
| Phase 2<br>'Not Guilty' – J8, J9<br>'Guilty' – J1, J2, J3, J4, J5, J6, J7, J10, J11, J12 |  |
| Phase 3<br>'Not Guilty' – J8, J9, J5<br>'Guilty' – J1, J2, J3, J4, J6, J7, J10, J11, J12 |  |

| | |
|---|---|
| Phase 4<br>'Not Guilty' –<br>J8, J9, J5, J11<br>'Guilty' – J1,<br>J2, J3, J4, J7,<br>J10, J12 |  |
| Phase 5<br>'Not Guilty' –<br>J8, J9, J5, J11,<br>J7, J1, J2, J6<br>'Guilty' – J10,<br>J12, J3, J4 |  |
| Phase 6<br>'Not Guilty' –<br>J8, J9, J5, J11,<br>J7, J1, J2, J6,<br>J10, J12, J4, J3<br>'Guilty' - None |  |

Point A to Point B; the movie shows these various conflict resolution stages by multiple stages of voting (6 phases). The interaction during these particular stages is a representation of the top emotions changing from phase 1 to phase 6, where initially companionship is the highest in number emotion it changes to approval and satisfaction when the vote changes towards the 'Not Guilty' side. It is also important to note how certain parties will become insignificant in this interaction which happens with the case of juror 7, Juror 10 and Juror 2. The changing interactions are also representation what can be the change in position when a particular information is out, e.g., when during phase 3 of voting juror 5 brings out information and the way it changes the interaction. The change happens for both on positive and negative sides where intimate disclosure and seeking secure base is more important as the transition is going on.

According to Fig 2, there is a common pattern which represents the nature of the interaction, i.e., when it starts, there are some negative interactions, and in the later phases, positive interactions become more significant. Specifically when one considers phase 3 and phase 4; During this phases, much information is brought on board, and the decisions are changed. One more point to observe is that there are always subgroups of interactions when transitions will happen, which is going on in case of phase 3 and phase where juror 5, juror 11, and juror four are undergoing interaction. Juror 8 has to keep changing these subgroups to get people on his side. Conflict is also dependent on how social positions are perceived and accordingly the views will be changing. The paper aims to point out that these transitions are of complicated nature and are outcomes of various behaviors, as it happens with emotions that during a changing scenario there is not one kind of feeling in interplay. Same ways by the network ego grams we wish to represent the multiple interactions(840 +) and their changing nature in conflict part. People usually want to be perceived favorably by other group members, even on a jury. Sometimes people's publicly stated views are, to a greater or lesser extent, a function of how they want to

**Figure 2: Pattern Analysis of Behavior (Phase 2-6)**



present themselves and to be perceived. Once they hear what others believe, some will adjust their positions at least slightly in the direction of the dominant position.

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