

ConnectDots: Visualizing Social Network Interaction for Improved Social Decision Making

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Decision making involves evaluating information related to choices and finding a selection that will satisfy the purposes of the decision task. In business and economic contexts, decisions are made to maximize profit and minimize loss. Understanding risk in these instances plays a major role in the perception of success and failure in decision outcomes (Kahneman & Tyversky, 1979). In the area of information analysis, the risks associated with choices also inform the perception of decision outcomes. When investigated in social contexts, the everyday choices revolving around social interactions for an individual are made based on the exorbitant amount of information that is available through the many media sources used for communication and their pre-existing sociality models (Fisk, A.P., 1991). When evaluating the outcomes of interaction choice in social situations, the social model in which an individual views their relationship with another plays a large role in the perception of satisfaction or success of the social decisions. Although these decisions also involve loss and risk, there is not a major research initiative to understand methods for improving the analysis of risk and gain in social decision making situations.

The advent of new communication technologies such as email, instant messaging, handheld computers, and cell phones which also provide text messaging opportunities to those who previously would have only communicated face to face or through written correspondence. This new group of interaction media has spawned the development of technology to also collect and organize the wealth of information produced from the use of these devices. Email archiving and organizing clients, address book and contact information software that stores information from a variety of sources, as well as online chat and instant messaging clients allow for the collection of this information, however do not give an indication of the patterns of media use and communication that a person engages in during their everyday activities. Given the complexity and abundance of information about the frequency, means, or interconnectedness of a person's interactions within their social network, it would be difficult for a person to evaluate this information in order to understand their current social practices with hopes of making decisions that could better maintain or grow their social networks.

We seek to find a correlation between the quantitative information surrounding personal social interaction through email and instant messaging and the sociality models in which a person attributes to those within their social network. The visualization tool will collect information on the frequency of interaction with members of one's social network and the frequency of use of different media types. Once this information is collected the user is queried with a survey to acquire their perceived relationship with individuals within their network. Using questions drawn from scales used to measure affiliation and dominance rating within social relationships, this information will be correlated with quantitative information and visualized to show the patterns of interaction that an individual engages in with those whom they share the same types of social relationship models.

The visual metaphor that is used is a tree based metaphor, with indicators of relationship status, health, and age indicated by naturally occurring visual cues. The visualization is a user-centric view of their social network, with branches representing the connections that the user has with those within their network. Branch length represents the frequency of interaction with the person. The foliage attached to each branch represent the amount of interaction that has occurred for each type of media used to interact with the person represented by the branch (i.e. email, IM, etc.) Different media types will have different color assignments to also distinguish. The variation of the color is an indicator of the time frame in which the interactions of certain media types have occurred. For example, if there are few calls that are made between the user and a network member, and the last call occurred a significant time ago, you would expect a smaller bud, with a darker or muted frequency of the color to indicate an aging, versus a more vibrant frequency of the color to indicate newness. Also, dominance and hierarchy will be displayed through the height of branches within the tree visualization. Those branches representing those whom the user has dominance relationships with would be found higher up in the tree.

Through the presentation of this information, users will be able to view this large data set of interaction information and more easily perceive the patterns of interaction therein. With this information, a person can also become more aware of their current decision making practices for their social network, and observe how their relationships are affected. This will allow for the opportunity to engage in interventions to prevent relationship dissolution, as well as give better indicators to users of their methods for establishing and maintaining what they perceive as successful relationships.