Motivation: We wish to visualize communities in a newsgroup environment. We also intend to differentiate between inactive users and lurkers. In this sense, a lurker is defined as someone who only reads posts on the newsgroup without contributing.

Idea: Our visualization will cluster subscribers into groups based on how they use the newsgroup. Each group is placed randomly on the screen and each subscriber to the newsgroup is also represented on the screen near their assigned group. Each subscriber will be represented by a polygon. The size of a subscriber’s polygon indicates how active that user is on the newsgroup. The number of sides on the polygon indicates the leadership of that user. The brightness of a polygon shows how recently that user has been active on the newsgroup. Finally, the closeness of a subscriber’s polygon to its group will indicate how close that user is to that group. The interface will also allow information about a user to popup when the user mouses over a person’s shape.

Methodology: Subscribers will be assigned to a group based on how often they reply to each other’s posts. A point system will be used to determine how close individual users are to each other. Replying directly to a user’s post adds 5 points to the association of the replier to the replyee. This also adds 3 points to the association between the replier and the parent of the replyee. Finally, 1 point is added to the association between the replier and the grandparent of the replyee. These numbers are arbitrarily chosen. From this, a spectral clustering algorithm should be able to group the subscribers into groups. Loners will be grouped together in a special area to reduce cluttering of the screen. Based on how close a subscriber is to a group, the distance that user’s polygon is to that group can be determined. Each time a user posts, that user’s polygon will grow slightly larger. The number of sides of a subscriber’s polygon is based on how often that subscriber starts a new thread (replies to a thread for technical newsgroups). The brightness of a polygon is based on when that user last logged on to the newsgroup. The more recently a user has logged on, the brighter that user’s polygon is.

Reasoning: We believe cliques, leaders, outcasts, lurkers, and inactive users can be discovered with the above visualization. Leaders will be large and have many sides to their polygon. They will also have many other users in their group. Outcasts will have the same characteristics, but will be in groups by themselves. Lurkers will be bright, small, and triangular. They will also be in groups by themselves. Inactive users will be the same as lurkers, but they will be dim. Our metric for deciding a leader based on how many threads they start seems like a reasonable assumption. Leaders start conversations and have followers listening to their statements. Dimness seemed like an appropriate visualization for activeness. The inactive users appear to fade away. Users who post often will get bigger in size, to indicate how much of the newsgroup’s resources they use. The polygon and sided-ness analogy stems from the book Flatland. In it characters are represented by polygons and their number of sides indicates stature in society.

Questions/Concerns: One aspect of group dynamics not shown in our visualization is when certain individuals split their time between multiple groups. In our implementation, each user is stove piped into a group. Is too much going on? Is there a good way to show how different people belong to multiple groups?