

Audiences of Seattle Men's Chorus and Seattle Women's Chorus as Seen in Network Graphing

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INTRO

For this project, we wanted to analyze the relationships of audience members of the Seattle Men's Chorus and Seattle Women's Chorus to one another. Using data provided by the organization, we were able to analyze which concerts were more popular amongst individual audience members. We wanted to find the answers to the following questions. Are there particular audience members that frequently attend concerts? Also, which ZIP codes contain the highest concentration of audience members? As a gay chorus, would ticket sales be concentrated in ZIP codes with higher-than average numbers of same-sex heads of household?

ORGANIZATIONAL BACKGROUND

Seattle Men's Chorus was founded in 1979. With nearly 300 singing members, it is one of the largest community choruses in the US. It is also the largest gay men's chorus in the world. Seattle Women's Chorus was founded in 2002. It has nearly 200 singing members. While they perform separately, and attempt to maintain separate branding identities, they operate under the same parent organization, Flying House Productions. Flying House Productions ranks third among Washington State's music organizations in terms of budget, audience exposure, and ensemble size.

Each chorus performs two or three major concerts per year. The Men's Chorus Holiday (i.e. Christmas) concert is the organization's flagship concert, with six performances at Benaroya Hall, which seats approximately 2,200. Ticket sales from the Men's Chorus Holiday concerts typically bring in \$500,000 in revenue. Other (non-holiday) performances are held at McCaw Hall, the Paramount Theater, or Meany Hall.

DATA

Seattle Men's Chorus and Seattle Women's Chorus was kind enough to supply us with data on ticket buyers for all of their concerts over the past six years. With thousands of tickets sold per year, this was a robust set of data. Ticket sales are tracked through the Ticketing Resource Group (TRG) ticketing system. Representatives from all of the major performing arts organizations in the Seattle area form an umbrella organization to share audience data (mailing lists) and resources.

Other entities include Seattle Symphony, Seattle Opera, Seattle Theater Group, Village Theater, Seattle Art Museum, and others.

We would have liked to look at the relationships of audience members of those other organizations. However, we were unable to access information about specific audience members without their permission. Regardless, even with just the audience member data of Seattle Men's Chorus and Seattle Women's Chorus, we had over 20,000 lines of data made available. Thus, we ended up truncating the data, and looking at just the past three years (2009-2011).

Data from TRG for the most part was quite clean and separated quite nicely from a spreadsheet/database point of view. There were individual columns for first and last names, concert attended, address, city, ZIP, gender (title), number of tickets purchased, and ticket level (cost).

PROCESS

For purposes of analyzing the data, we kept the Women's Chorus audience data separate from the Men's Chorus audience data. Starting with the Women's Chorus, we used "Patron Name" and "Concert attended" as vertex 1 and vertex 2, respectively, and kept the other data attached for further analysis. We chose to use circles with bold colors to represent individual concerts (concert nodes). The offshoots (edges) represent individual audience members for each given concert. The nodes representing individual audience members are the same color as the concert they attended.

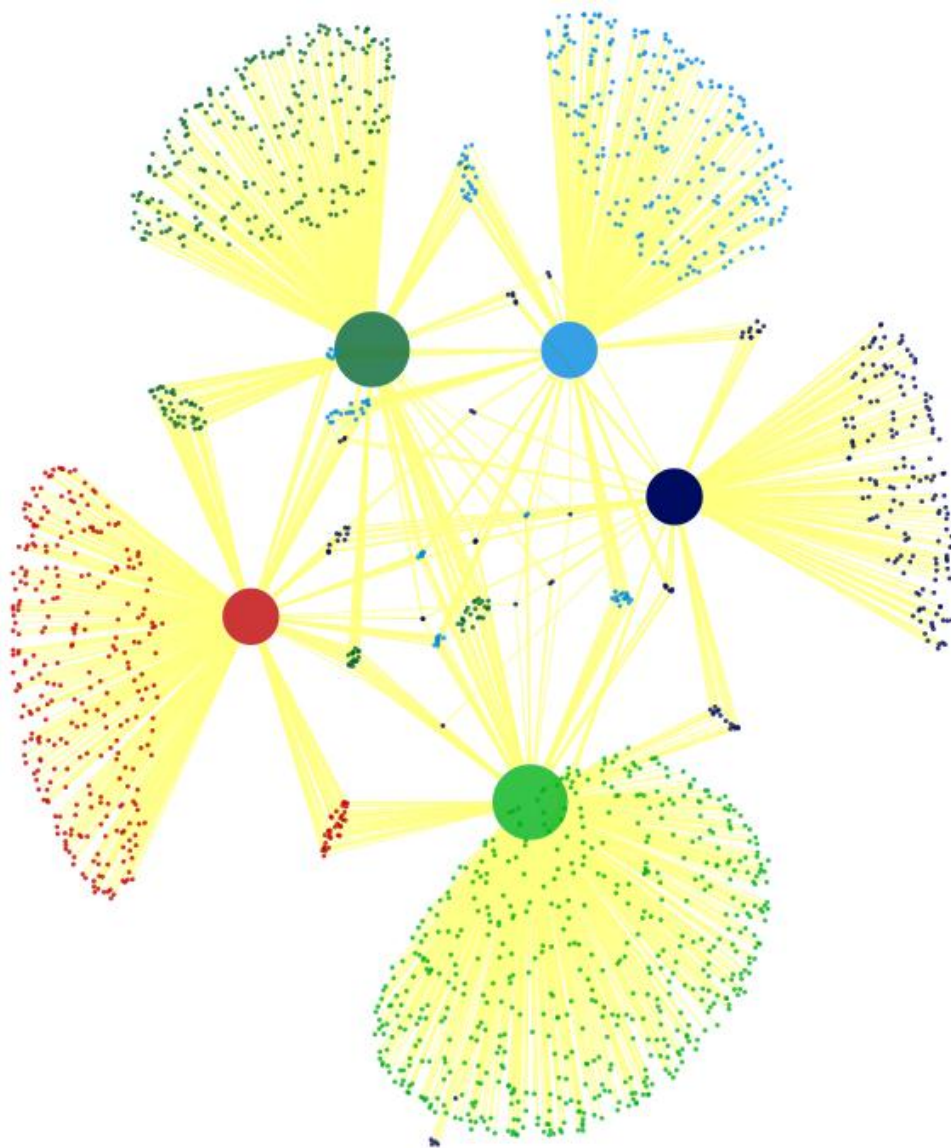
In the cases where an audience attended two, or three + concerts, we changed their nodes to yellow and orange, respectively. We wanted to highlight these audience members, as they have high potential to be repeat customers.

We then decided use "ZIP code" as Vertex 1 and keep "Concert" as vertex 2 to get a broader idea of where audience members are coming from.

We then repeated the process for the Men.

Figure 1a

Seattle Women's Chorus
Harel-Koren Fast Multiscale
(Vertex Size- In-degree)



Created with NodeXL (<http://nodexl.codeplex.com>)

The large colored circles represent concerts, while the attached nodes represent individual audience members. Dark blue: *Winter Swing into Laughter*, Light Blue: *We are Family*, Dark Green: *Lullaby of Broadway*, Red: *Making Spirits Bright*, Light Green: *Glitter and be Gay*. Note that *Glitter and be Gay* was a joint concert between the Men's Chorus and Women's Chorus. Thus explains the larger audience size.

Graphic 1b

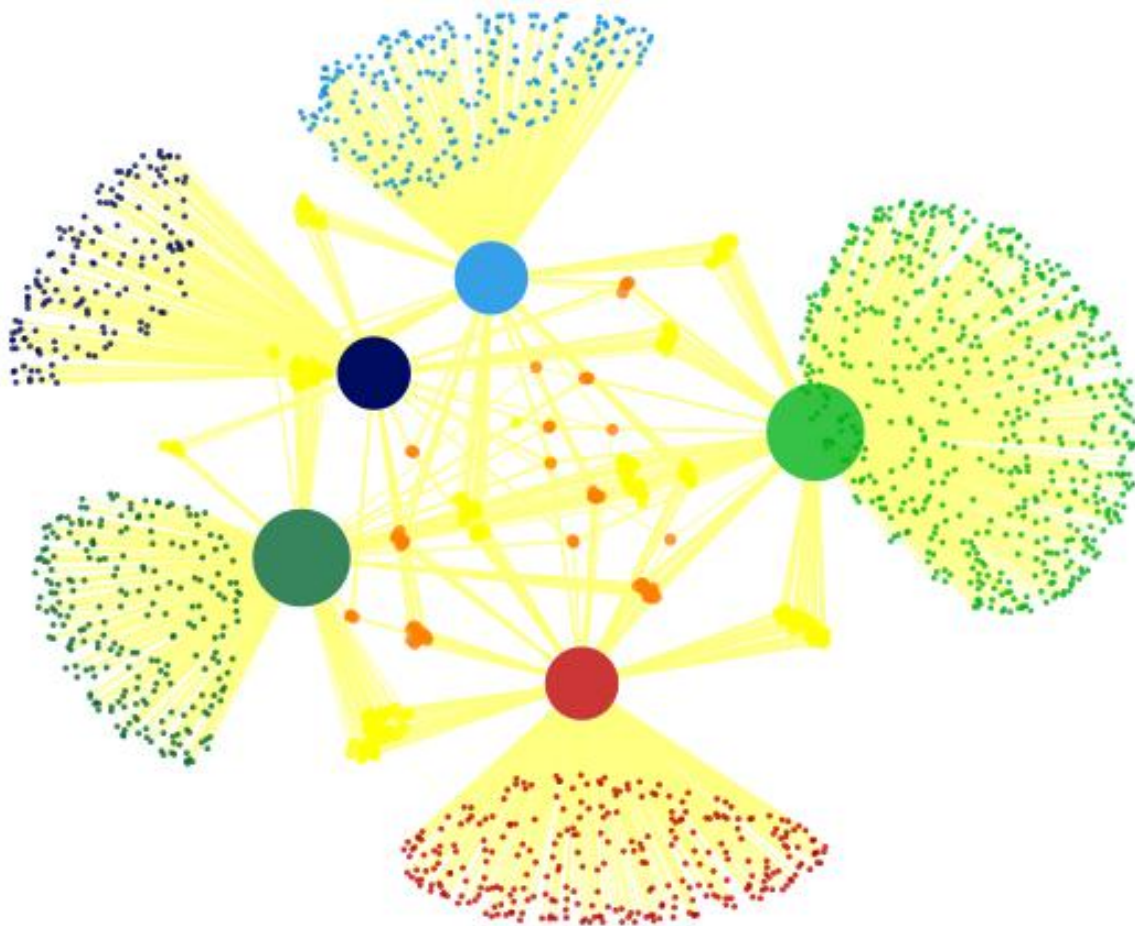
Harel-Koren Fast Multiscale (By betweenness)

Vertex size - betweenness,

Visibility – eigenvector centrality

Yellow dots: Audience members attended 2 times

Orange dots: Audience members attending 3+ times



Created with NodeXL (<http://nodexl.codeplex.com>)

This graphic enables us to more easily identify individual audience members who attended 2 concerts and 3+ concerts. These audience members are great for targeting additional ticket sales.

Figure 2

Seattle Women's Chorus
Circle (By In-Degree)
Vertex size – Eigenvector
Opacity – Betweenness
Visibility - In-Degree (above 10)

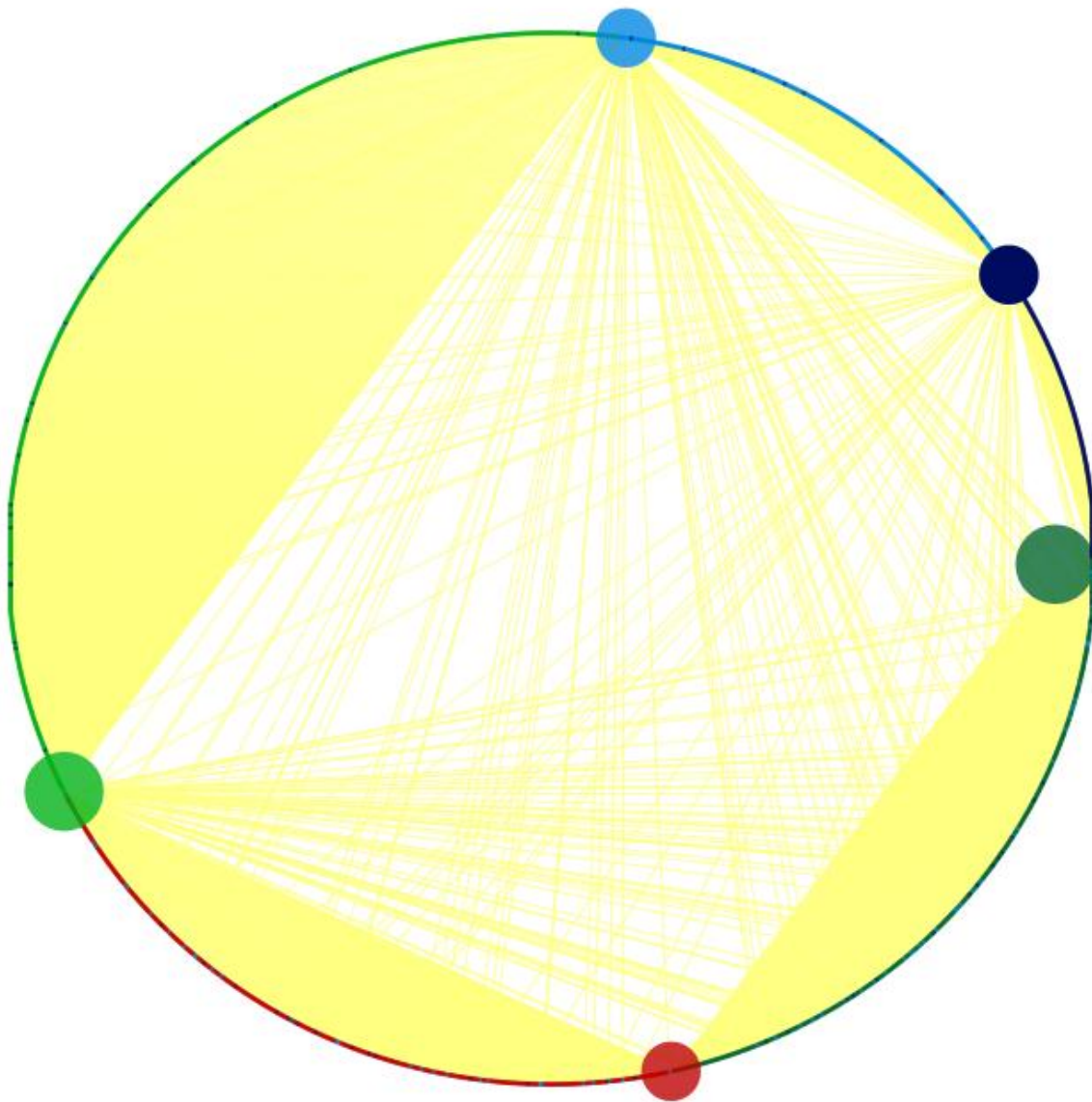
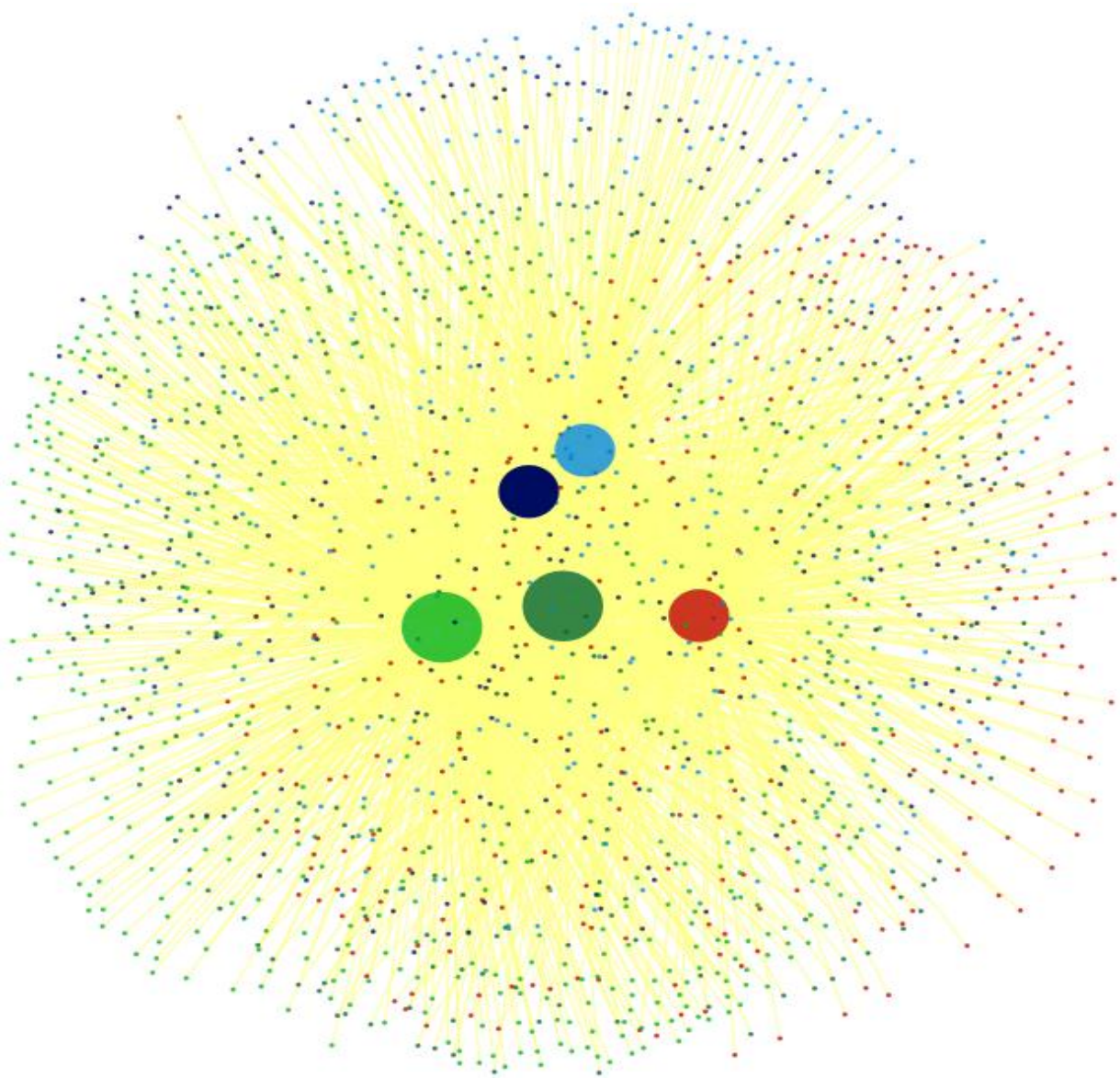


Figure 3

Seattle Women's Chorus
Fruchterman layout (by In-Degree)
Vertex size – Eigenvector
Opacity – Betweenness
Visibility - In-Degree



Created with NodeXL (<http://nodexl.codeplex.com>)

Figure 4

Seattle Women's Chorus

Harel-Koren Fast Multiscale (By betweenness)

Vertex size - betweenness,

Visibility - eigenvector centrality

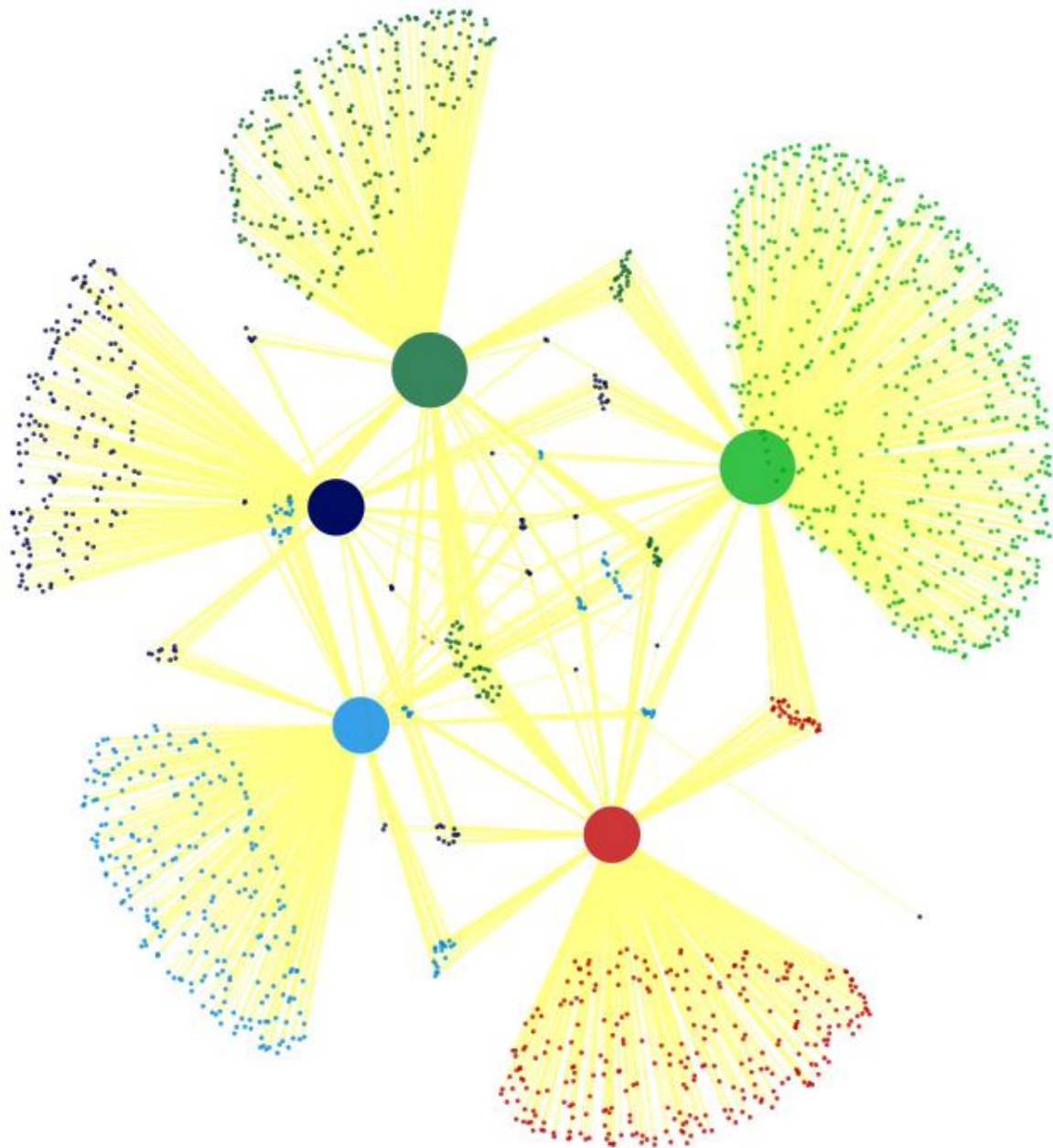
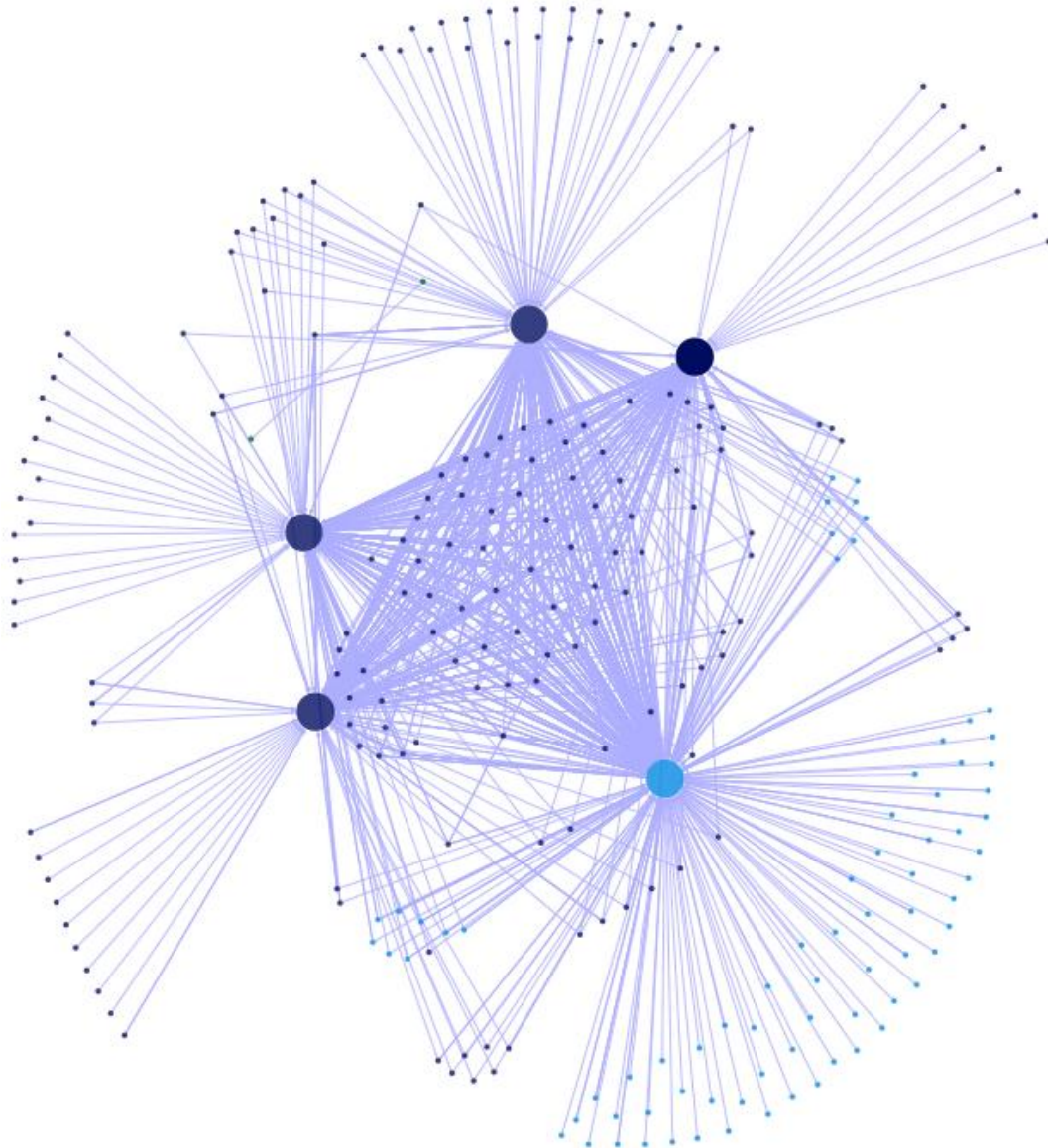


Figure 5

Seattle Women's Chorus

By ZIP Code



Created with NodeXL (<http://nodexl.codeplex.com>)

Contrary to what one might have thought, the top three ZIP codes for ticket sales were:

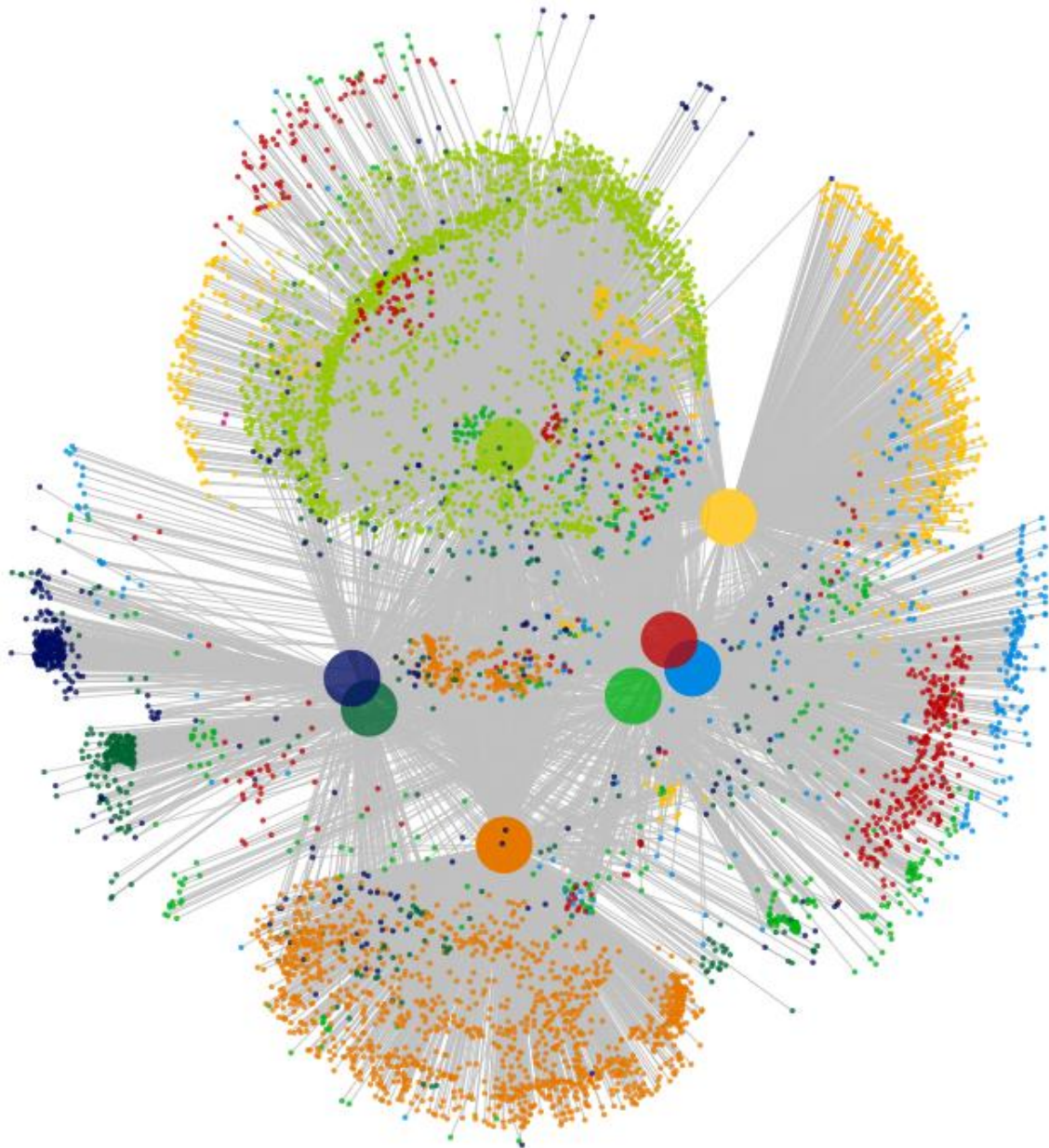
98103 (Fremont/Wallingford, Phinney, South-West Greenlake)

98115 (Ravenna, Wedgwood)

98122 (Madrona)

This information would be helpful in putting together targeted advertising (i.e. bus billboards or direct mail) to targeted neighborhoods.

Figure 6a
Seattle Men's Chorus
Harel-Koren Fast Multiscale
(Vertex Size- In-degree)



Created with NodeXL (<http://nodexl.codeplex.com>)

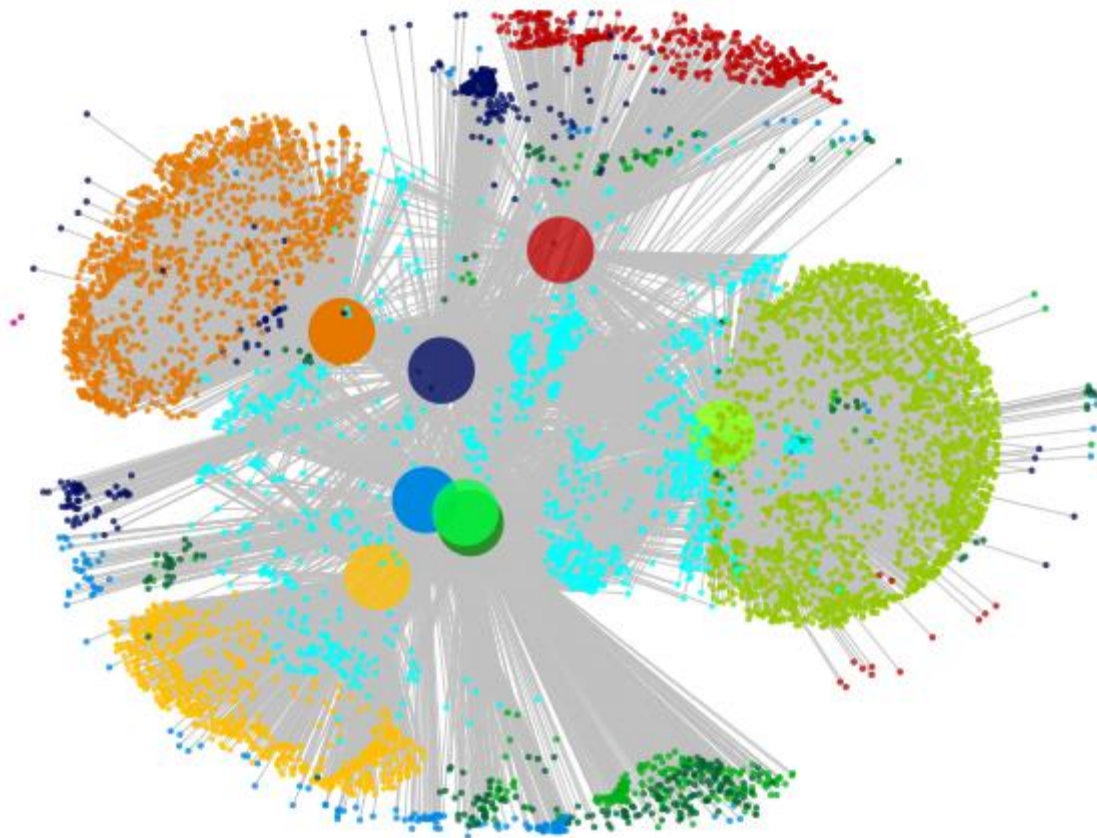
As you can see, the audience for the more-established Men's Chorus is much larger than the Women's Chorus. Orange: *Holiday Glee*, Yellow: *Singing... In the rain*, Dark Green: *Ole Ole Ole*, Turquoise: *Heartthrobs*, Light Green: *Santa Baby*, Red: *Glitter and be Gay*. With 9 performances, *Holiday* (i.e. Christmas) concerts tend to draw larger crowds.

Figure 6b

Harel-Koren Fast Multiscale

Vertex size – clustering coefficient

Vertex Visibility – clustering coefficient



Created with NodeXL (<http://nodexl.codeplex.com>)

Essentially, the same as the previous graph. However, we turned nodes (audience members) who attended 2 or more concerts light blue.

Orange: *Holiday Glee*, Yellow: *Singing... In the rain*, Dark Green: *Ole Ole Ole*, Turquoise: *Heartthrobs*, Light Green: *Santa Baby*, Red: *Glitter and be Gay*.

Figure 7

Seattle Men's Chorus

Circle (By In-Degree)

Vertex size – Eigenvector

Opacity – Betweenness

Visibility - In-Degree (above 10)

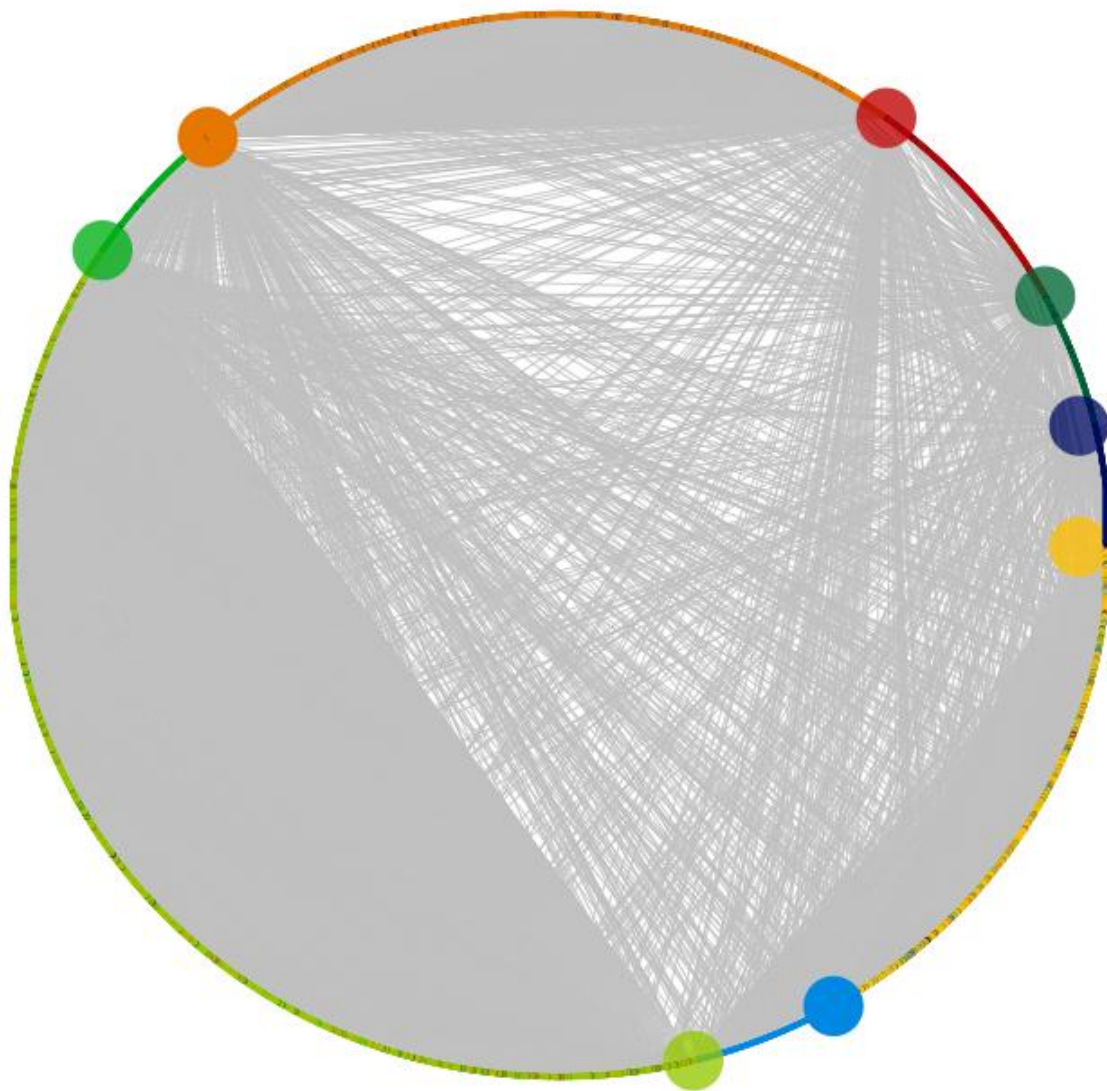


Figure 8

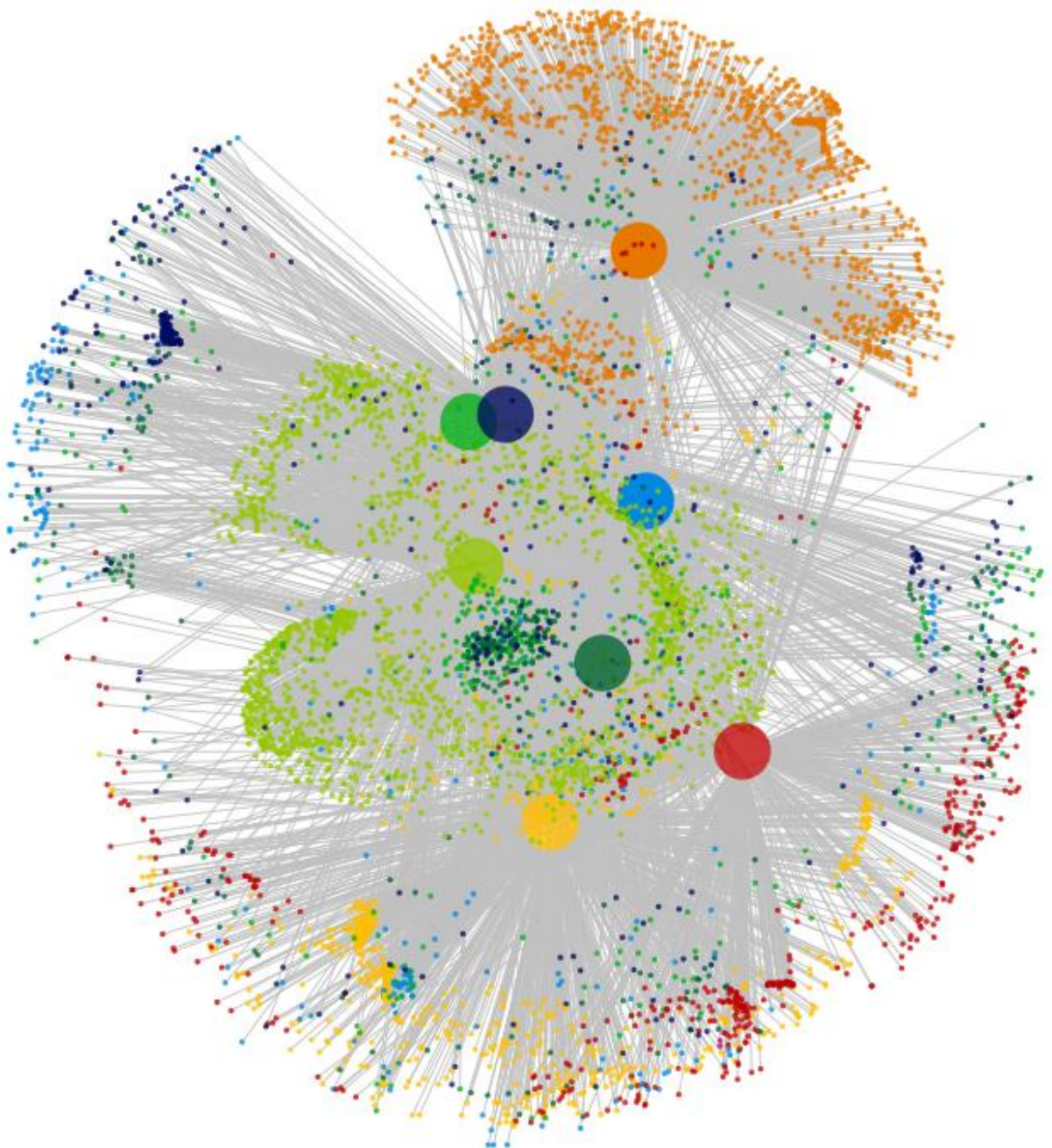
Seattle Men's Chorus

Fruchterman layout (by In-Degree)

Vertex size – Eigenvector

Opacity – Betweenness

Visibility - In-Degree



Created with NodeXL (<http://nodexl.codeplex.com>)

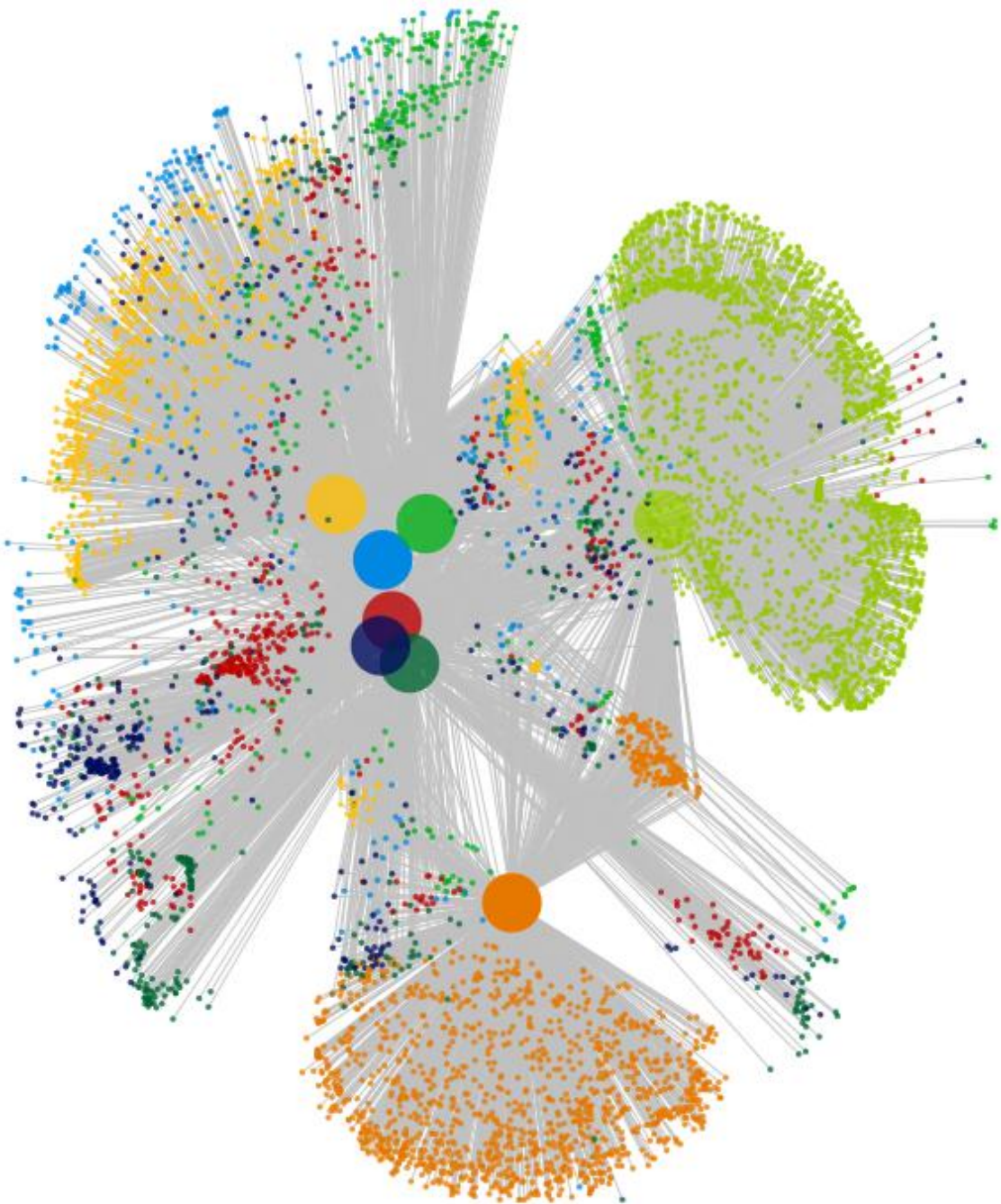
Figure 9

Seattle Men's Chorus

Harel-Koren Fast Multiscale (By betweenness)

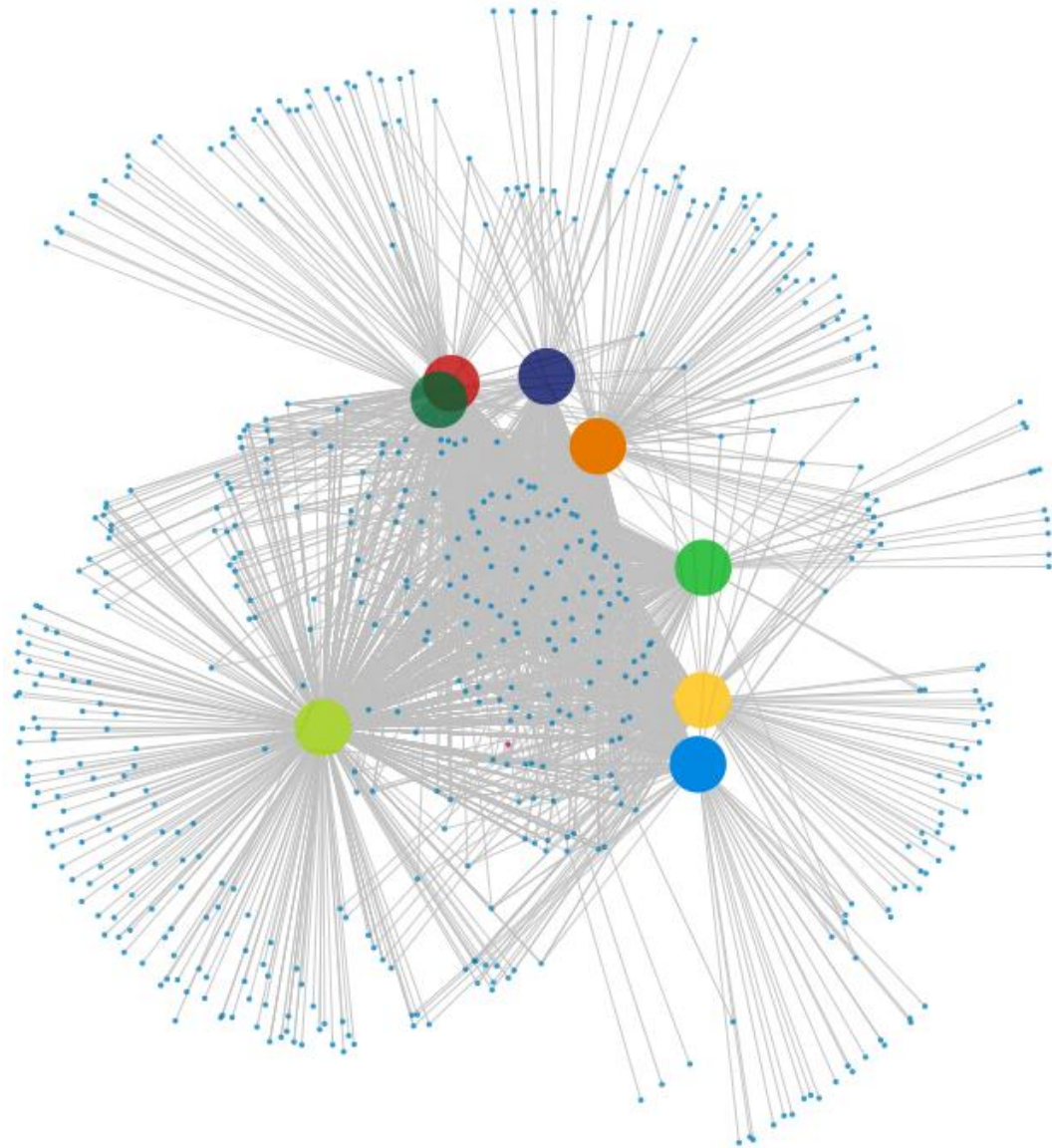
Vertex size - betweenness,

Visibility – eigenvector centrality



Created with NodeXL (<http://nodexl.codeplex.com>)

Figure 10a
Seattle Men's Chorus
By ZIP Code

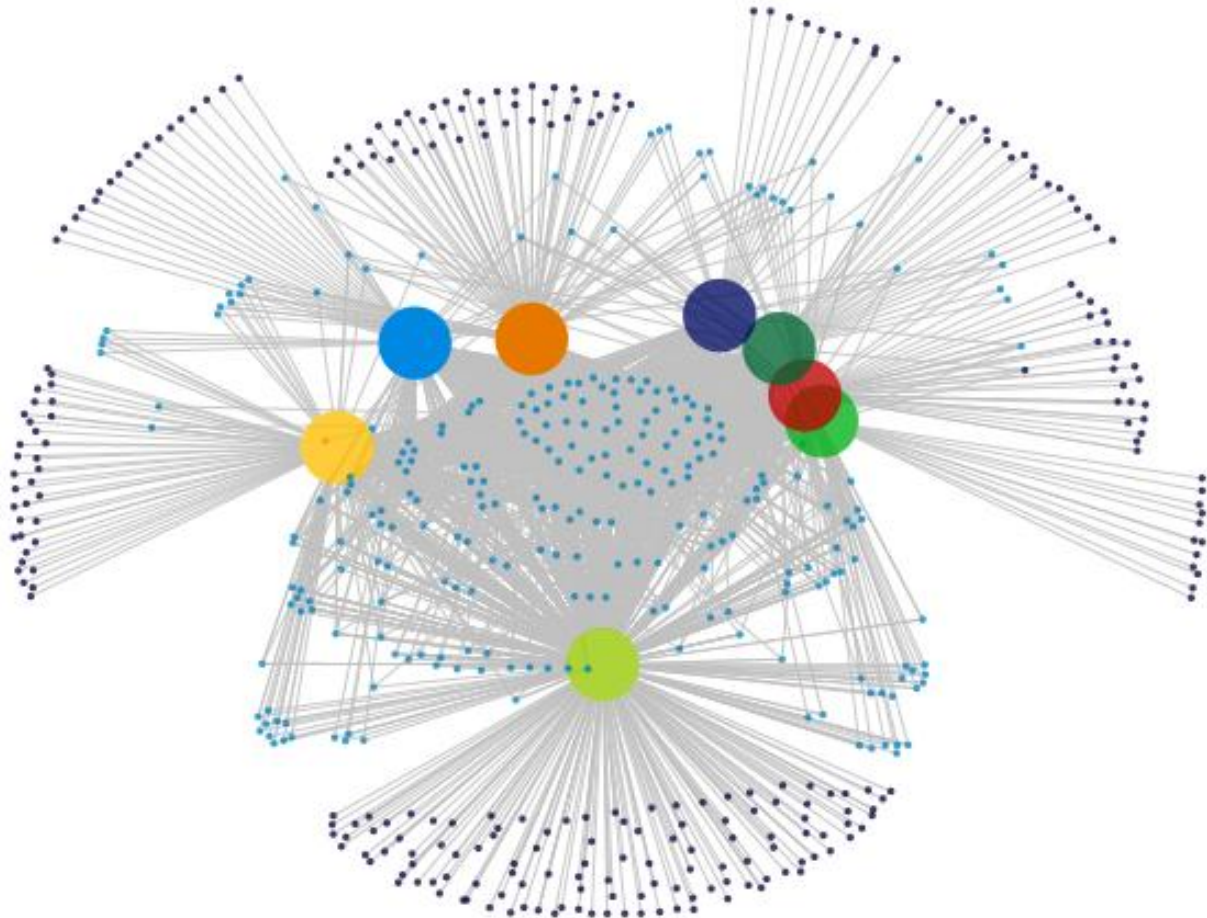


Created with NodeXL (<http://nodexl.codeplex.com>)

These are the top ZIP codes among audience members of the Seattle Men's Chorus.

- 98115 Wedgwood, Ravenna, View Ridge, Magnusson Park
- 98103 Fremont, Wallingford, Phinney, Green Lake
- 98102 Capitol Hill, Eastlake
- 98112 Capitol Hill, Montlake, Broadmoor

Figure 10b
Seattle Men's Chorus
By ZIP Code



Created with NodeXL (<http://nodexl.codeplex.com>)

Essentially the same as the previous graph, however, this one highlights ZIP codes that have higher concentrations of audience members who attended 2+ concerts.

OVERALL FINDINGS

Clearly the Men's Chorus has an overall larger audience than the Women's. Also, even though the choruses are gay-oriented, their audiences seem to come from not your typically expected neighborhoods (Capitol Hill, Madison Park), but in more family oriented ones such as Wallingford/Greenlake, Magnusson Park, and Redmond. The Men's Chorus and Women's Chorus

also have distinctly different audiences. Thus, it is beneficial to maintain separate branding identities.

POTENTIAL APPLICATIONS FOR DATA

We were able to isolate the individual audience members who were more frequent attendees (either 2+ or 3+ times.) Knowing who these individuals are, one could potentially develop a direct mail (email or postal) to provide incentives to those members. ZIP code neighborhood data could be used to develop micro-region specific marketing (i.e. bus billboards, cable-head ends, etc) to attract additional audience members.