Introduction
Modern board games are currently experiencing a golden age. There has been a huge increase in the number of games being produced, both in the United States and abroad. These games run the gamut from relatively simple, lightly themed games (such as Ticket to Ride, a set collection game about trains) to the surprisingly complex and in depth ones (such as Die Macher, a four-hour game about the German political system). Given this wide range of game types, this report seeks to analyze board game popularity through the lens of the gamers that make up the world-wide board gaming community.

Data Set
All data was gathered from BoardGameGeek.com. This database includes records for over 61,000 board games and hundreds of thousands of user profiles.

For this analysis, the top 500 ranked board games were collected through the Board Game Geek XML API. This data includes, for example, game name, designer, weight (a measure of difficulty), year of publication, and game category. Additionally, a list of the board games owned by each user was collected. For the following images, each vertex represents a board game, while edges are based on co-ownership. That is, two board games will have an edge between them if 25 or more users own the game. The edge weights are simply the total number of users owning both games.
Insights

Gamers Don't Fear Difficulty and Are Resistant to Popular Opinion

The image above groups the games based on their average, user-submitted weights. These weights are a measure of how difficult a game is, with a weight of 1 being easiest and a weight of 5 being most difficult.

As stated above, each vertex represents a board game while the edges represent their shared-existence in users collections. The size of each vertex encodes the betweenness-centrality of the vertex while the color represents the game's ranking on Board Game Geek. The edges between groups have been hidden for legibility.

First, notice that there is a lack of homogeneity to the sizing of the vertices in each group. Instead, one can see a mix of all sizes evenly distributed amongst them. This shows that game difficulty does not greatly affect whether or not a game is purchased. If it did, we would instead see the majority of large vertices in a single group.

Also, there is also a fairly even spread of coloring within each group. This implies at least two things. First, the ranking of board games based on user ratings is not heavily influenced by the difficulty of the game. Second, the fact that there are large vertices (i.e. vertices with a high betweenness-centrality) that are both lightly and darkly colored shows that, many gamers have purchased the game despite its ranking. More to the point, these games make up a sort of core collection for the "average" gamer, regardless of the popular opinion of these games.
A prime example of this is The Settlers of Catan. Since its publication in 1995 in Germany, its rating on Board Game Geek has steadily plummeted. This is largely in part due to the aforementioned golden age of gaming. The slew of new and innovative games has made The Settlers of Catan seem less innovative over the years. However, it is often considered to be a gateway game, introducing the hobby of board gaming to new players. Additionally, it is credited with beginning the rebirth of board gaming in the United States. Several other examples of games that have a low rating but are considered to be seminal works have been labeled in the graph.

**Niche Gamers Still Own Diverse Collections**

Often, gamers will self-identify with a particular genre of board games. For example, certain gamers will tend focus their attention on large, complex games that simulate war. These "wargamers" revel in the complexity, realism, and historical significance of the games and scenarios that play out on their table tops and will often claim to eschew the playing or purchase of other types of games. However, it would seem that the data does not quite agree with the concept of the niche gamer who purchases only those games in their chosen genre.

The image above arranges the top 500 board games based on their category, e.g. Wargame, Strategy Game, etc. As above, color and size encode rank and betweenness-centrality, respectively. Additionally, the edges are indicative of co-ownership and are hidden between groups for legibility. Finally, edges with fewer than 40 co-owners have been filtered out in order to reduce visual noise in the graph.
One of the most striking features of this visualization is the lack of edges amongst some of the niche genres. Despite a very strong following for war games on Board Game Geek, there are very few gamers who own multiple games within the smaller genres. One might attribute this to the complexity of these games. Certainly once one has taken the considerable time and effort necessary to learn such a game there may be little desire to repeat the process with a completely different game.

This, however, does not hold for all of these genres. Party games, for example, are designed to have a wide appeal. It is surprising that there aren't stronger connections between these games.

As an aside, it is unfortunate that the label for Children's Games (in the bottom right corner of the image) is not visible, though this is due to the automatic box sizing and the lack of label options for groups (see critiques section below).

Strategy and Family games are highly connected, though this is to be expected as they are the genres with the widest appeal. In fact, there are more connections between the war games and the family games (a surprising relation, given their subject matter) than there are between the war games themselves. This is borne out by the inter-group edges, which have been left of this visualization as they it became unreadable with their inclusion.

**Reiner Knizia's Popularity Goes Beyond Hype**

Reiner Knizia is a well-known and well-regarded board game designer. With more than 20 years of experience and over 400 published board games, it is no surprise that many board gamers know his name. But the question is not whether people know his name or not but rather do they buy his games.
The image above has divided the top 500 board games based on their designer. The color and shape of the vertices is also determined by the designer and are used simply to aid in visually distinguishing the groups. The size, however, is representative of the board games' ranks.

As before, the edges represent co-ownership and are hidden between groups for legibility.

Most designers included in this group only have a single board game within the top 500. This is understandable, as it is common for game designers to have only a handful of games to their name. Knizia's prolific publishing history is a bit of an anomaly. Despite this, however, it can be seen that there still several designers who have multiple highly ranked games.

The interesting thing to note is that the majority of designers with multiple games are not highly connected. In other words, despite high ratings, not many gamers own multiple games from the same designer. While there are certainly a few exceptions to this, Knizia's portfolio of games is leaps and bounds above the others in terms of its connectivity.

Knizia's games are often classified by their tight mechanics, strong mathematical background, and light theming. This tends to make his games very similar to each other. To some, this is a reason not to purchase many of his different games. However, to many others, Knizia's consistency in his design of good, fun, and engaging games has led them to fill out their collections with many of his classic designs.

**NodeXL Critique**

Certain functions are inconsistently located. For example, layout options exist in multiple places. If I want to change the color of a vertex I may do so in the spreadsheet, or I might need to change settings under group options, or perhaps make a change in the graph options, and it's not always clear which of these options overrides the other ones.

The inability to undo actions makes exploratory learning difficult. This is compounded by the fact that, as stated above, not all controls of a given type are centrally located, essentially forcing the user to explore their options and risk reaching a state in which their graph is unrecoverable.

Given the above critiques, I had great difficulty in changing the font of the Group Labels. Some of my labels do not fit in their respective images because of this. Despite much effort, I was never able to find options that would fix the issue. Thus, this critique is either about the lack of group label options or it is again in regards to the inconsistent interface issues raised above.