Extended Stats Feature Guide

John Farrell (friendless.farrell@gmail.com)
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The BGG Extended Statistics (http://friendless.servegame.org/stats/) have so many features that even I can barely remember them all. This is a brief tour of the features so that other people have the chance to forget them too.

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Front Page

The front page contains a huge table of people's avatars. When there were only a few users that was useful, but now it's not so much. I will probably remove it at some stage.

Quick Stats

The Quick Stats table on the front page is a summary for all users of some faintly interesting statistics:

• how many games you own

• how many games you want

• how many games on your wishlist

• how many games you have for trade

• number of plays recorded

• number of distinct games you have recorded plays for

• the game you "should play"

• number of games in the current BGG Top 50 you have played

• number of Spiel des Jahre winners you have played

• number of The 100 you have played.

Most of these numbers are available elsewhere in the stats in a more personalised presentation. This table definitely needs to be redesigned with more interesting numbers and JavaScript scrolling so the column headers remain visible. Mostly this table can be used for estimating your amount of experience compared to other geeks.

Metrics

The Metrics table lists for all users metrics to do with their collection. It's a central tenet of the design of the statistics that we own games in order to play them, and that a user's collection should be designed to suit what that user likes to play. Hence there are many metrics which describe how much you use your collection. If you want to improve that number, there are two options – play the games, or change

your collection. Either is a suitable response. The statistics are there to help you find which games should be considered for inclusion in or removal from your collection.

The metrics table has the following numbers:

- number of games you own

- number of those which you've never played

- what percentage of your plays are of games you've played 5 times or more. Geeks are often accused of being members of the Cult of the New, always going on to the next game and never exploring the ones they've got. This statistic is usually in the range of 40% to 80%, suggesting that even the most cultish geeks still play old favourites quite often.

- the percentage of your collection you've EVER recorded a play for

- the percentage of your collection you recorded a play for in 2007/2008. These numbers do not take into account that your collection was different in 2007 to what it is now, so percentages for past years necessarily deteriorate.

- your average rating for your collection

- the BGG average rating for your collection

- average plays of games owned – just a raw mean of the number of plays recorded for each game you own.

- Friendless metric - to calculate the Friendless metric, make a list of all of your games in descending order of how many times you've played them. **Scrabble** with 173 plays comes first, **Triominos** with 0 plays comes last. For each game at the beginning with 10 or more plays, we consider that game to have earned its keep. Even better, having played one game that many times, you're forgiven one at the other end which you haven't played so much. So for playing **Scrabble** so many times we'll forgive you for never playing **Triominos**. People who play games tend to accumulate them, so we'll assume that was a gift. Then, we look at how many times you've played the last game remaining on the list... and that's your Friendless metric. The higher the better. Most bggeeks have a value of zero, so I extended the definition to go into negatives. A value of -x tells you that to get to a Friendless metric of 1 you need to play x more of your games that you've never played.

  The intent of this metric is to convince you that you really don't need more games because you haven't played the ones you've got.

- Continuous Friendless Metric – the standard Friendless metric has a weakness in that once you get that value above zero you can't increase it by playing your games with 0 plays any more. You can ensure that if you buy more games it will stay above zero for a while longer, but until you do that there's no motivation to play (or otherwise deal with) those games you've been ignoring.

- The CFM changes the Friendless metric so that you're ALWAYS rewarded for playing a game you own, but you're rewarded more for playing a game you've played less. After considering the shape of the curve I wanted for the reward function I figured out it was the exponential distribution (read about it on Wikipedia). This distribution has a parameter called lambda which determines how steep the curve is:
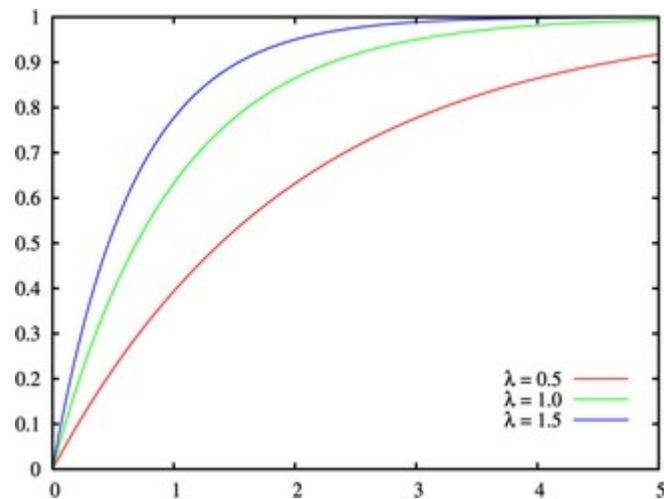
In this curve we are converting number of plays of a game to "utilisation" of the game, where utilisation means something like "the amount of novelty you've gained from that game compared to all the novelty that can ever be had". Of course that's complete nonsense as the number of plays required to have have completely experienced a game varies wildly from game to game and from player to player, but I didn't let that worry me.

I chose lambda so that 10 plays of a game was equal to 90% utilisation. That means that for each 10 plays of the game, you gain another 9 digit on your utilisation – 20 plays is 99%, 30 plays is 99.9%. Somewhere around 180 plays my computer rounds off to 100%.

By calculating this value for every game in your collection, I can determine the average utilisation of your collection. Mine is currently around 51% and slowly climbing. However I can then use the inverse of the exponential distribution CDF to turn that percentage back into a number of plays for the entire collection – which for me is currently 3.15. My average (i.e. mean) plays per game for my collection is 5.95 but that's heavily influenced by 200 plays of Scrabble – 3.15 is a more honest number, but I can't entirely get my head around what it means, but think of it as an average number of plays with no cheating.

- Your favourite year is the mean year of publication for all of the games you rate 8 or above. This gives some indication of whether you're up with the times or stuck in the past.

- The Curmudgeon Index is a number suggested by Randy Cox. This measures your position on a continuum from the person with the oldest favourite year to the person with the newest favourite year. The oldest gets a value of 100, and everyone else gets a percentage of that as their tastes become newer. See http://www.boardgamegeek.com/thread/161195.

User Page

At the top of your user page are some general numbers about you, and also the date the page was created on.

Table of Contents

The table of contents also includes links to external sites, e.g. Mikko Saari's stats pages and Aldie's pages on BGG.

Other Pages About You

The stats for a user consist of multiple pages, and this is where you'll find links to those others. Those pages are described in the Other Pages section below.

Hosted at BoardGameGeek

These are the links to your personal pages on BGG. With the newish collection interface at BGG I've added a few standard queries you might be interested in (i.e. I am interested in them).

Extended Stats

These links are to tables on this page. The links here are to tables I've defined using a particularly simple method, so there's nothing complicated in them. The following links (Best Days In Gaming, etc) are to more complicated custom tables.

Category Graphs

There is a small index of the category graphs here. You get a graph for a category if you've rated at least 30 games in that category. I might have to increase that number.

Number of Plays vs Rating

This scatter plot relates the number of times you've played a game compared to the rating you gave it. Ideally we'd all always play 10s, but since that's not going to happen we can at least hope that the more we like a game the more we play it. The size of a circle corresponds to the number of games with that rating and that many plays. The number of plays is capped at 25 so the graph doesn't need to be infinitely tall. The green line across the graph is your average number of plays for games with that rating. The numbers used for that average are also capped at 25 – maybe it would be better to use an exponential average as in the CFM (see above).

Your Favourite Games

There are 4 tables trying to determine what your favourite games are. Sure, I could just assume that your favourite games are the ones you rate highest, but that doesn't take into consideration the fact that you might lie, or deceive yourself. Other ways of determining your favourite games are:

- how much time you spend playing it
- how many months you've played it in – so, do you keep coming back to it?
- ask Friendless for some combination of the above – my formula is a simple combination of number of plays, months played, and rating.
- ask Joe Huber. I don't have a reference for the Huber Happiness Metric. I think it favours long games too much.

Categories

We then move on to some categories tables; firstly various metrics for you and each category, then a listing of what games you own for each category. I still struggle to think of St Petersburg as a card

game.

Mechanics

Similar to the categories, we produce some numbers for each mechanic.

Most Unusual Games You Own

This table lists the games you own which are rated by the fewest number of users. These are also the games which are most likely lacking in content, so consider writing a review or submitting images for these games. In the past these numbers have sometimes been screwy, but I think I've fixed that now.

Games You Should Play Soon

This table computes a number based on your rating for a game and how long it is since you've played it, and suggests that maybe you've forgotten just how much you liked it. In my case it reminds me of how I can't find an opponent for **Lord of the Rings: the Confrontation**. When you're wondering what to play, this is somewhere to look for inspiration. The second table, "Games You Should Play Soon Which You Own" is in recognition of the fact that no matter how much you liked that game you had when you were a kid, your mother threw it in the bin 30 years ago and you don't have it any more.

Favourite Games for n Players

These tables are for those situations where you know there's going to be 5 players but for the life of you you can't remember what your best 5 player games are. For me, it also helped me realise that most of my favourite games only go up to 4 players so it's stupid to plan a games party with 6 people because you'll have to play inferior games.

Why Do You Even Own These?

These are the games you rate lowly and haven't played for ages. The metric is rating divided by the number of days since you've played it. If you're going to dump stuff from your collection, these might be the ones to start with. (BTW the answers that I own **War** because the kid likes the cards, and I own **Tic Tac Toe** because it's a wooden set that really belongs to *Scrabblette*, and I own **Dante's Inferno** because the miniatures are very good, but I'll be damned if I'll ever play that game again.)

Plays By Month

This used to be my favourite table. It summarises my number of plays for the month, distinct games, new games, how many new nickels and dimes (for the calendar year), my most played game, a whole lot of year-to-date and all-time numbers, the Hot Game for the month according to Matthew Gray's metric (**http://matthew.gray.org/2005/10/games_16.html**) and the number of hours gaming you achieved in the month going by BGG's play times. The "Total Rating" column is my attempt to measure the gaming goodness you achieved in that month. I'm not happy with that number, so I might revise it in future.

The table is followed by graphs which show you various monthly metrics over the last 4 years. People who go to the Gathering of Friends have enormous spikes in April. My highest month for new games played was July 2006, which was when I went to a convention in Melbourne. The graphs make those things stand out.

Now here's a feature you may not know about. If you click on the link for the month in the Plays By Month table, you will get to the monthly analysis page. It will tell you the games you played that month, what you rated them, whether they were new, etc. So if you notice you had a good month you can look there to remember what you did.

Best Game Playing Days

The table of Best Game Playing Days is my attempt to remember those days when I played great game after great game. I haven't yet solved the problem of assessing a day of games to my satisfaction, but it's working OK. It just lists the date and what games you played, with the restriction that more than one play of a game counts as only 1.5 plays. Hence this table will often list days you spent at conventions where you flitted from table to table playing all sorts of cool stuff.

Nickels and Dimes for All Time

The Five and Dime lists are a tradition maintained by Mark Jackson in his blog: http://akapastorguy.blogspot.com/2008/03/five-dime-2007-recap.html. If, in a calendar year, you play a game 5 times, that's a nickel, and if you play it 10 times that's a dime. Mark keeps track of which games appear on people's nickel and dime lists year after year. This is your nickel and dime list *across all time*. Nickel and dime lists for various years appear on the yearly pages described below.

Dimes By Designer for All Time

I took the nickel and dime concept and applied it to designers as well, but eventually realised there were way too many nickel designers so I only include designers you've recorded 10 or more plays of. It's always interesting to scroll through the list and see designers you've never even heard of.

How Much Do You Play New Releases?

This is a very brightly coloured graph which attempts to show how the games you play in a particular time period compare to the most recent releases. I expect geeks in the USA start playing the new games a couple of months before I do here in Australia. I personally play a very high proportion of older games (1994 and earlier), mostly because of **Scrabble** and **Hex**.

Best Years

This table lists the games you rate 8 or above for each year of publication, and orders the years by decreasing number of games. Of course the years before you got into the hobby are going to suffer because it's difficult to catch up on games you've missed.

Plays of Games Owned

This is my favourite section! The histogram relates possible numbers of plays of games (maximum 25) to the number of games you own with that number of plays. A bottom-heavy histogram suggests you are not playing the games you already have. It's bad to own a game and have never played it, but it's almost as bad to own a game and only have played it once. Non-gamers look at my collection and ask have I played them all, to which I can answer that I have less than 10% I've never played, but my guilty secret is that I have more than 20% I've only played once. So my aim is to always push the histogram

numbers up the graph. New games come on at the bottom (if I haven't played them before) so buying new games is the enemy, and I do believe the guilt induced by this histogram has saved me some money.

At the top of the section there are three measurements of your Friendless metric and CFM for your whole collection, your collection without the ones you're trying to trade away, and your collection without expansions (in case you don't record plays of them). Choose the section that matters to you.

The green tick mark on the histogram is your (standard) Friendless metric. You should think of that mark as starting on the very right end of the 0 plays row. Whenever you play a game a 10th time it moves one game to the left. If it goes off the left side of the row it moves up one row. The row that it's currently in is your Friendless metric. Also, if you play games in that row, they will move up one row and the tick mark will move slightly to the left.

Then follows the histogram and a large table listing the number of plays for each game you own. The blue colouring means you are virtuous and have played that game 10 or more times. The red colouring means you are irresponsible and haven't played that game at all.

Rating By Ranking

The rating by ranking table uses Aldie's rating colours to give you a succinct visual representation of how your ratings correspond to BGG rankings. A real fan-boy has bright green at the top and red at the bottom. A free thinker has random colours all over the place. Passionate hatred for a highly ranked game will appear as a red spot high on the table, and appreciation for a maligned gem will appear as a green spot low on the table. By hovering over a cell you can get a tooltip which tells you what game that cell corresponds to.

Your Rating vs BGG Average By Category

The latest graphs are a set of scatter plots of your rating compared to the BGG (non-Bayesian) average ratings for games. Each graph represents a different category of games, and you need to have rated 30 games in the category to get the graph at all. I need to add scales on the axes, but they go from 1 to 9. The green line through the centre is "exactly agrees with BGG". More dots above the line means "you like games in this category more than BGG does", and more dots below mean the opposite. The blue line is your line of best fit, but it's not very meaningful. Notice that most BGG averages are clumped in the middle of the graph, whereas your individual ratings are more spread out – this means the line of best fit tends toward the vertical which isn't very helpful. There is no way to mark which dot corresponds to which game – there just wouldn't be the space.

Other Pages

These are all pages generated by Extended Stats. Everybody has these, but most people just look at their primary page. They're accessible through the Table of Contents.

Games Series

There are a number of series of games that I'm interested in, e.g. I collect the Gigamic Strategy Series. Other people like to play all of the Spiel des Jahre winners. Everybody should have played a few of the BGG Top 50 just so they can understand what the games other people enjoy are like. This page includes

some series of games and collates your ratings for them and whether you've played them.

If there's a series you'd like to see numbers for, please email me the list of BGG game IDs and I can add it in. If a series has new games added, please let me know as well.

Month by Month Analysis

As described above, what games you've played for each month.

CFM and Utilisation Calculator

If you're interested in the effect playing games will have on your CFM and utilisation, this is a piece of JavaScript which will help you. Instructions for use appear on the page. Due to the high number of games you probably have it will be cumbersome to use.

Generic Collection Check List

This page is just a listing of your games with checkboxes and notes fields. Try printing it out then going through and writing down why you own each game. At least you have to think about it. I used mine for a game room stocktake and found 7 games I hadn't recorded that I owned.

Personalised Recommendations

This is a game recommendation algorithm based on "what people like who like the same as you". It tends to recommend the same stuff as you could find on the BGG Top 50, so I don't like it much. Games you've rated or played are not recommended.

Crazy Recommendations

The algorithm for crazy recommendations bases its recommendations on number of players, categories, mechanics, time to play, and other things. It comes up with some stupid ideas but it seems to get more positives than the personalised recommendations. Games you've rated or played are not recommended. You're guaranteed to receive 10 recommendations which are not expansions and you don't already own.

Crazy Recommendations Analysis

This page is like Crazy Recommendations except it includes games you have rated – so you can see how the new recommendations compare to what was left out because you've already tried it.

Best Days in Gaming Calendar

This page isn't worth paying attention to at the moment. It's my experiments in using JavaScript to colour calendars according to various characteristics of the gaming you did on that day.

Yearly Pages

For the years you've been continuously recording plays for, I generate a page. This page includes nickel and dimes for year, dimes for designers, and games played at least twice in the previous year and not in that year. Just so you know.

Logging Plays of Expansions

BGG has a slight weakness in the area of logging plays of expansions. When you play a game with an expansion it's as if you're playing two games – the base game, and the expansion. It's also as if you're playing one game, i.e. there was one beginning, one end, and one winner. BGG doesn't attempt to cope with the dichotomy.

Extended stats tries to handle this problem by interpreting plays of expansions logged on BGG as plays of the base game plus the expansion. Then, for each question we ask of the data, we choose the interpretation which makes most sense. If I want to know how many games I've played this year, then a play of a game with an expansion counts as one. If I want to know how many times I've played the base game, then a play with an expansion counts as one. If I want to know how many times I've played the expansion, then a play with the expansion counts as one. BGG assumes that one play of the base game plus one play of the expansion counts as two plays, i.e. $1 + 1 = 2$, which is obviously wrong. Extended stats gets it right.

Sadly, this means that if you log both the play of the base game and the play of the expansion on BGG, your total games played will be misrepresented on BGG. So you'll need to commit to doing it the extended stats way and use the extended stats numbers, or doing it some other way and using the BGG numbers. In order for the numbers not to diverge too much, extended stats is able to infer plays of base games from expansions. If you log a play of an expansion without playing the base game, extended stats adds a play of the base game for you. So one play of the expansion equals one play of the base game plus one play of the expansion... $1 + 1 = 1$. In fact, extended stats assumes as many plays of the base game as required to accommodate all of the plays of expansions you have logged on BGG.

Extended stats does assume that the expansions are of the Carcassonne style, where one play can involve many expansions. This is not true for games like Formula De or Age of Steam, where the board expansions are mutually incompatible. In that case, you'll need to explicitly log one play of the base game for each play of the expansion. Extended stats is happy to assume that you played Age of Steam with the England, Ireland, Germany, Korea, India and China maps all at once, unless you tell it otherwise.

Examples

If I log:

2 plays of Puerto Rico
1 play of Puerto Rico expansion

on the same day, it figures out that I mean 1 play with the expansion, 1 play without. If I log:

1 plays of Puerto Rico
2 play of Puerto Rico expansion

it decides I was lying and really played PR twice. If I log:

1 x Bohnanza Expansion 1
2 x Bohnanza Expansion 2

it thinks I played Bohnanza twice, once with 2 expansions and once with 1. If I really played Bohnanza 3 times, I should log 3 plays of Bohnanza as well and no matter what it thinks the numbers will come out the same anyway.

Acknowledgements