

The Original Trading Card Game

Wizards of the Coast has printed more than 20,000 unique *Magic: the Gathering* cards since the game's 1993 release.



Wizards, Magic & Garfield

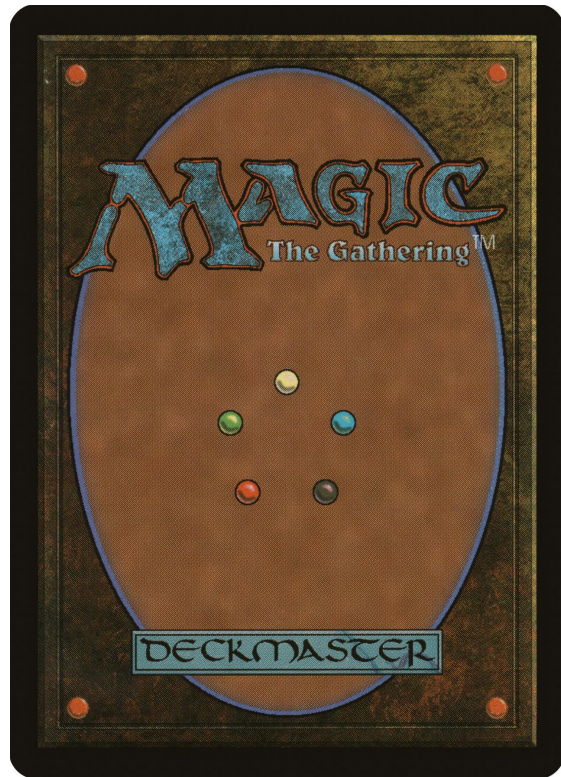
Magic: the Gathering

Often known simply as *Magic*, the iconic trading card game was the first of its kind, preceding even the well-known *Pokémon Trading Card Game*

Early Success

Developed by mathematician Richard Garfield, *Magic* was released by publisher *Wizards of the Coast* in August of 1993.

The first run of 10 million cards had sold out by the end of October, 1993.



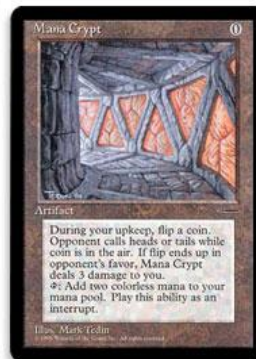
A Game of Both Skill and Chance

Unique Deck Construction

Like any other strategic game, each decision a player makes is consequential.

However, unlike traditional card games, decks are uniquely built by each player from a much larger pool of allowed cards.

After nearly 30 years of printing, there are tens of thousands of cards to choose from.



Manufacturer-Determined Rarity



Common



Uncommon



Rare



Mythic

Rarity as an Attribute

Cards are printed with a predetermined rarity, set by Wizards of the Coast.

On modern cards, rarity is indicated by a colored symbol printed on each card - older cards you just have to know!

Competitive Viability

No one - including the game designers - knows how good a card will *really* be until it gets into players' decks.

Does *WotC's* opinion on the quality or 'power' of a card really translate to games won?

Hypothesis Overview

Null Hypothesis

I began with the skeptical hypothesis that the overall rarity, or percentage of rare cards in a given competitively built deck will have *no discernible effect* on its performance.

Alternative Hypothesis

It is often the case that a rare card is not only more valuable, but also more effective in gameplay than an uncommon or a common card. I will reject my null hypothesis if we find that *decks with more rare cards garner more wins*.

Strategy

I will use a *Welch's T-test* to compare decks that placed 1st, 2nd, 3rd-4th and 5th-8th across *Magic* World Championship events between 1994 and 2020.

Data Sources

- Using a combination of the **Requests**, **Selenium** and **BeautifulSoup** Python libraries, I scraped the top performing decks from tournament results at <https://www.mtgtop8.com>
- <https://magicthegathering.io> offers a convenient API for developers that allowed me to scrape individual card data using only the **Requests** library

MTGTOP8

netdecking with the stars

VINTAGE LEGACY MODERN PIONEER HISTORIC STANDARD COMMANDER OTHER SEARCH SUBMIT

Last Major Events on mtgtop8.com

Duel Commander	Commander League V2 S2 @ Discord NEW	★★★	23/02/21
Standard	Free Japan Championship 2021 SEASON1 Special Weekly Challenge @ BIG Magic	★★★	21/02/21
Standard	SCG Tour Online - Satellite #3 @ Star City Games	★★★	20/02/21
Duel Commander	DC @ Les Chroniques du Commander	★★★	20/02/21
Standard	SCG Tour Online - Satellite #6 @ Star City Games	★★★	20/02/21
Standard	SCG Tour Online - Satellite #2 @ Star City Games	★★★	19/02/21
Modern	MTGO Modern Champ Qual	★★★	15/02/21
Vintage	MTGO Vintage Challenge	★★★	15/02/21
Standard	SCG Tour Online - Satellite #8 @ Star City Games	★★★	14/02/21
Legacy	MTGO Legacy Champ Qual	★★★	14/02/21

Next Major Events

On the last seven days, **mtgtop8.com** updated its database with **632** decks that performed in **111** events worldwide.

Now say you didn't know.

TIME SPIRAL
REBASTARD

Release : March 19, 2021



MTGTOP8

netdecking with the stars

MAGIC: THE GATHERING - DEVELOPERS

JOIN THE COMMUNITY OF DEVELOPERS BUILDING WITH THE MTG API

magicthegathering.io



BeautifulSoup



mongoDB®

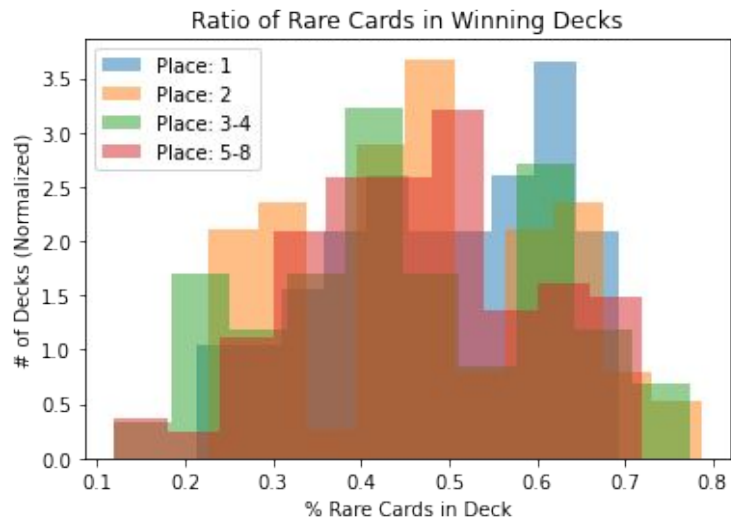


Tech Stack

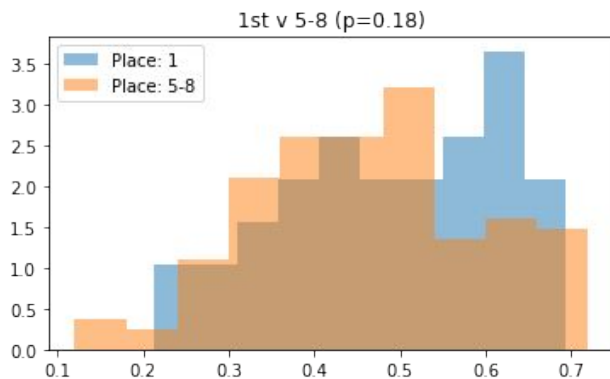
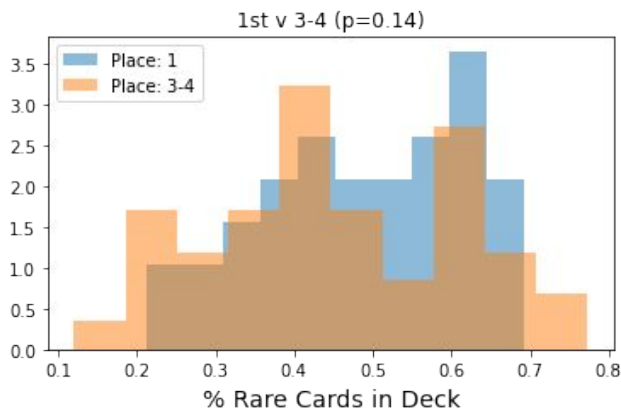
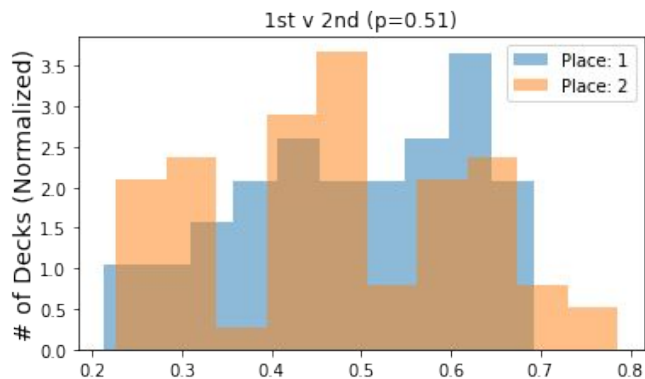
Results

After testing each group against one another, I found that the p-values for each test were more than double the established alpha of 0.05, even before applying the Bonferroni correction.

I have failed to reject my null hypothesis that the ratio of rare cards in a deck has no effect on its ability to win games on a competitive level.



Ratio of Rare Cards in Winning Decks



Reflection

Thoughts and Future Steps

- Good players - not exclusively good cards - make good decks.
- A wider range of tournament data may yield different results.
 - More than only top placed decks
 - More than only top-rated events
- Interest in more complex statistics.



Thank you!



Noah E Shreve

Email:

n.e.shreve@gmail.com

GitHub:

<https://github.com/n-sweep>

LinkedIn:

<https://www.linkedin.com/in/noah-shreve-15ab20188/>