Movie Release Analysis: The Barbie Movie's Persistence in Mainstream Culture and Film Post-Release

Tess Gompper[1], Mingchen Ju[1], Mill Toyingsirikul[1],
Laura Ladaru[1]

[1]McGill University

tess.gompper@mail.mcgill.ca, mingchen.ju@mail.mcgill.ca, pornrat.toyingsirikul@mail.mcgill.ca, laura.ladaru@mail.mcgill.ca

Introduction

In the ever-evolving landscape of contemporary cinema, the release of a highly anticipated movie triggers a surge of discussions, opinions, and critical assessments. This study undertakes a comprehensive exploration of the post-release dialogues surrounding the *Barbie* movie, with a specific emphasis on comparing its trajectory to that of its competitor, Oppenheimer, both launched on July 21, 2023. Our primary objective was to discern the audience's sentiments and perceptions, evaluating Barbie's position in mainstream media and pop culture in relation to its counterpart.

To achieve this, we meticulously annotated 616 articles spanning seven recently released movies: *Transformers: Rise of the Beasts*, *The Marvels*, *Saltburn*, *Priscilla*, *The Hunger Games: The Ballad of Songbirds and Snakes*, *Five Nights at Freddy's*, and *Anatomy of a Fall*, alongside the movie released simultaneously with *Barbie—Oppenheimer*. These articles provided a rich and diverse dataset that formed the basis for our conclusions regarding the significance of Barbie in the broader context of contemporary film discourse.

While Oppenheimer gained praise through positive reviews, robust box office sales, and extensive critical analysis, Barbie's prominence in discussions related to film culture remained undeniable. This intriguing puzzle prompts a deeper exploration into the varied factors that contribute to a film's impact, beyond traditional metrics. Amid the compliments surrounding Oppenheimer, Barbie not only carved out a distinctive space as the most talked-about subject in film culture but also sustained its relevance in discussions related to awards.

This stark contrast in reception between Oppenheimer and Barbie suggests that, despite perhaps not sharing the same level of anticipation, Barbie left an enduring mark among both the general population and dedicated fans of dolls alike. As we navigate the intricate layers of this analysis, our objective is to shed light on all the dimensions of Barbie's impact, especially its lasting resonance in the broader cultural discourse. The following sections will describe our rigorous methodology, present detailed findings, and engage in insightful discussions, collectively contributing to a nuanced understanding of Barbie's significance in the post-release cinematic reality.

Data

In our project, we gathered a set of around 700 news articles from NewsAPI.org, and each of them are focusing on one of the selected movies: *Transformers: Rise of the Beasts*, *The Marvels*, *Saltburn*, *Priscilla*, *The Hunger Games: The Ballad of Songbirds and Snakes*, *Five Nights at Freddy's*, and *Anatomy of a Fall*, *Oppenheimer, and Barbie*.

Initially, in our data collection, we considered adding 'movie' as an extra keyword alongside movie titles to capture relevant articles. However, to avoid the risk of omitting significant coverage and introducing biases in the volume of coverage for selected movies, we decided to collect 100 articles for each movie individually and use only their titles as keywords. This strategy makes sure that each post was highly likely to be related to one of the movies and in English which fostering relevance and consistency in the dataset. However, we faced a limitation with NewsAPI.org's free tier while collecting data. It only allows access to articles from the past month. This constraint meant that for some movies, such as 'Transformers', we couldn't reach the target of 100 articles, which potentially impacted the uniformity of our dataset.

During our open coding process., we manually removed articles that unrelated to our selected movies, not in English or duplicated. This process ensures the analysis would be based on the most pertinent and representative information. Additionally, we classify the articles into various categories, such as Box Office Sales, Announcements, Reviews, People in Film, Roundups, Film in Culture, and Awards, Nominations and Festivals. These categories were produced through an open coding exercise which will be discussed in coming pages.

One more thing I would like to mention is that we opted to exclude the movie Trolls Brand Together from our comparison instead of adding extra keywords when we gather posts for this movie in order to keep the same standard for gathering articles. This decision was made because we found that many of the articles collected for Trolls' were not relevant to the movie, even though we followed the same keyword-based collection method. This is because numerous articles, initially identified using the keyword "trolls" in reference to the newly released Trolls movie, proved to be unrelated due to their focus on the social media term "trolls". In social media,

a "troll" is someone who deliberately posts provocative content to incite reactions. This differs from the term "trolls" in movies, which, in our case, refers to fantastical creatures and is unrelated to online provocateurs. We also struggled to find a sufficient number of articles for the movie. However, we were comfortable making this decision as we felt we maintained a satisfactory total number of articles. We also felt that although the inclusion of *Asteroid City* in our analysis potentially could have supported our results, the exclusion of the movie would not largely affect or change them.

Pictured below is the breakdown of all our collected articles by movie. You can see that very similar portions of the total are dedicated to the vast majority of the movies. With the exception of *Transformers* as we discussed above and of articles which discuss multiple movies.

Article Breakdown by Movie
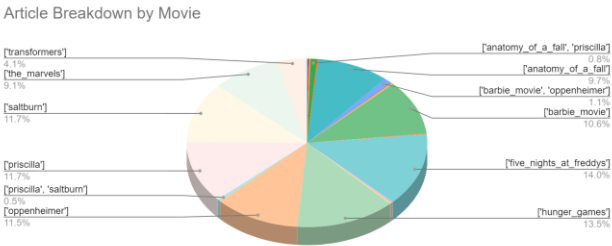
The pie chart for Percentage Breakdown for Article Categories is pictured below. This chart shows the breakdown of our articles into our seven chosen categories. This chart was our jumping-off-point for analyzation of our movies from our data.

Percentage Breakdown for Article Categories
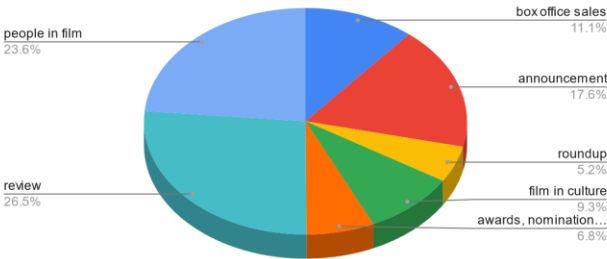
We ultimately compiled a dataset containing 616 posts. The final data set is confirmed to have diversity on theme, balance between movies relevance in content and consistency in language. Also, it has focused categories and exclusion of irrelevant data. These are the baseline characteristics that would allow this study to deliver meaningful insights.

Methods

In examining the post-release dialogues surrounding recent cinematic releases, our analytical approach was designed to extract valuable insights from a diverse dataset comprising

616 articles. The selected movies - *Transformers: Rise of the Beasts*, *The Marvels*, *Saltburn*, *Priscilla*, *The Hunger Games: The Ballad of Songbirds and Snakes*, *Five Nights at Freddy's*, *Anatomy of a Fall*, and *Oppenheimer*—formed the foundation of our investigation.

Typology through Open Coding:

Our analysis began with open coding, initially applied to a subset of 200 articles and later extended to the entire dataset. Some of our initial typologies included categories such as *Actors*, *Directors*, and *Musicians,* however we opted to merge these primary categories into one: *People in Film*, due to the wide variety in number of articles per initial category and the similarity of content. Contrarily, the category *Box Office Sales* was an obvious and necessary category for us from the start. This meant the *Box Office Sales* category was consistent through open coding rounds, only having slight refinements in definition. In the end, articles were systematically categorized into predefined topics - *Box Office Sales*, *Roundup*, *Announcement*, *Film in Culture*, *Awards, Nominations and Film Festivals*, *Review*, and *People in Film* - based on the content discerned from titles and descriptions. This structured approach enabled a facilitated examination of diverse aspects within the media discussions.

Data Annotation and Statistical Analysis:

Utilizing Google Sheets, our team meticulously annotated the dataset, ensuring consistency and accuracy. Simultaneously, we employed Google Sheets to collect relevant statistics, using the *Data > Columns stats* function for retrieving counts of all categories per a certain movie and counts of all movies per a certain category. This facilitated the generation of insightful pie charts, offering a visually engaging representation of the analysis.

Topic Characterization and Quantitative Analysis:

To gain deeper insights into each category, we computed the top 10 words with the highest TF-IDF scores, leveraging the entire dataset of 616 articles. This process enabled the characterization of topics by identifying key terms that held significant weight within each category. Additionally, quantitative methods were employed to analyze the distribution of topics across the dataset, providing statistical clarity on the notoriety of various themes within discussions surrounding the selected movies.

Our comprehensive approach to data collection, annotation, and analysis, coupled with the strategic use of Google Sheets for statistical insights, Python for TF-IDF scoring, and GitHub for code and results repository, formed the basis of our study. This methodology allowed for a thorough exploration of the visibility and reception of Barbie relative to other recent movies.

Results

To understand different aspects of the movie, we created and categorized each movie article into 7 topics. First, we will introduce the topics and their definitions.

1. **Box office sales**: articles that refer to the amount of sales the box office is expected to make, has made, or failed to make regarding a movie.

2. **Roundup**: articles that group movies based on release dates or genre

3. **Announcement**: articles that provide an announcement, making public some information related to a movie or event such as announcing the release date of a movie/event, the platforms where the movie is shown, or information regarding previews and trailers ahead of the cinematic release.

4. **Film in culture**: articles that cover pop culture and mainstream trends related to recent movies that have been released.

5. **Awards, nominations and film festivals**: articles related to the announcement of awards and/or nominations of movies or actors and film festivals.

6. **Review**: articles that provide a review or general impressions and feedback regarding a movie.

7. **People in film**: articles that specifically refer to staff in the film industry, involved in the making of a film such as actors, directors etc.

The topics "Box office sales" and "Awards, nominations and film festivals" help us gain more insight into the success of the movies in terms of achievements such as profits and awards. "Film in culture" conveys a similar idea, showing us the success of the movies in terms of popularity and how they impact the audience outside of the theater. However, compared to the two topics mentioned previously, "Film in Culture is less official and anyone can contribute. The "Roundup" category consists of articles that mention multiple movies, whereas other topics primarily focus on a single movie. The "Announcement" and "Review" categories both focus on general aspects of the movie. Articles related to general information before the movie's release are categorized as an "Announcement," while after the movie's release, they are considered a "Review." To categorize any article, we can first ask ourselves whether the article can fit into any topic other than "Announcement" and "Review." If the answer is no then it has to be either "Announcement" or "Review," depending on the time period and general topic of the article. Thus, our typology is comprehensive.

Next, we will discuss the topic engagement and characterization.

Five Nights at Freddy's constitutes 25.3% of the articles in "Box office sales," making it the movie with the highest engagement within this topic. This is also reflected in the tf-idf score, where the words "freddy" and "nights" both receive a score of 0.22. *Five Nights at Freddy's* is the second-highest in "Roundup" at 15.6%, while *The Marvels* hold the highest percentage of 18.8% in this category.

Although *The Marvels* constitutes the most of the "Roundup" category, it only makes up 4.64% of the "Announcement" category

and 0% of "Film in culture" and "Awards, nominations and film festivals."

Saltburn, the newest movie in our focus, has the highest percentage of 18.2% in "Announcement." The words related to *Saltburn* include "keoghan" and "saltburn" and have tf-idf scores of 0.14 and 0.13, respectively. Conversely, the oldest movie in our focus, *Transformers: Rise of the Beasts*, makes up a very low percentage of the "Announcement" category at 4.6%.

Articles about *Barbie* make up 45.6% of "Film in culture" which is significantly higher than other movies. The top 10 words in this qopic contain multiple Barbie-related words, including "barbie," "doll," and "mattel." The lowest topic that *Barbie* contributes to is "Review," with a percentage of 3.1%. It is the second-lowest in this topic, with *Transformers: Rise of the Beasts* being the lowest at 2.5%.

In "Awards, nominations and film festivals," *Anatomy of a Fall* makes the highest contribution at 32.6%. However, there is no word related to this movie present in the tf-idf score of this topic. The only movie-related word that appears is "barbie," which is the second-highest movie at 23.3%. Many movies have "Awards, nominations and film festivals" as their lowest topic engagement. This includes *Oppenheimer, Five Nights at Freddy's, Priscilla,* and *The Marvels. Transformers: Rise of the Beasts* makes up 7% of this topic. Although the number does not seem impressive, this topic is actually the one in which *Transformers* has the highest engagement.

Five Nights at Freddy's makes up the highest percentage of the "Review" category with 20.2% And *Priscilla* and *The Marvels* are the second-highest contributors after *Five Nights at Freddy's with* 19.6%. Also, *Priscilla* and *The Marvels* have the highest engagement with "Review" compared to other topics.

From the tf-idf score of "Review," the words related to *Five Nights at Freddy's*, "freddy" and "nights", have a combined score of 0.47. *The Marvels*-related word, "marvels" and "marvel", have a combined score of 0.41. Lastly, *Priscilla*-related words, including "priscillia," "presley" and "coppola," have a total score of 0.53, which is the highest.

In "People in film," 20% of the articles are *The Hunger Games: The Ballad of Songbirds and Snakes.* Half of the tf-idf word list in this topic is comprised of *The Hunger Games*-related words including "hunger," "games," "rachel," "zegler" and "ballad." This movie has the highest engagement in "People in film," but it has 0% engagement in "Roundup."

To summarize, *Five Nights at Freddy's* has the highest engagement in 2 topics. *Saltburn*, *Barbie*, *Anatomy of a Fall* and *The Hunger Games: The Ballad of Songbirds and Snakes* each have the highest engagement in 1 topic. The movie with the least engagement overall is *Transformers,* where its highest contribution is 7% *in* "Awards, nominations and film festivals."

Discussion

In collecting and analyzing data on seven newly released movies: *Transformers: Rise of the Beasts*, *The Marvels*, *Saltburn*, *Priscilla*, *The Hunger Games: The Ballad of Songbirds and Snakes*, *Five Nights at Freddy's*, and *Anatomy of a Fall*, and one movie released at the same time as *Barbie*: *Oppenheimer* we discovered much about how *Barbie* has persisted in both mainstream culture and recent film discussion five months post-release.

Of the 65 collected and annotated articles regarding only *Barbie* and 10 articles on *Barbie* and one other movie we discovered that 34.7% of articles on *Barbie* were categorized as "Film in Culture", this was followed by 17.3% "People in Film", and 14.7% "Awards, Nominations and Film Festivals.

Breakdown of Categories for the Barbie movie
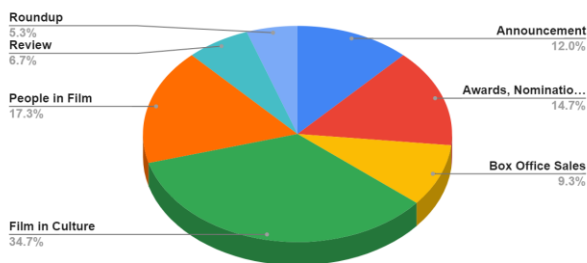
These statistics tell us that *Barbie*, even five months after its cinematic release, can still be seen as having a major impact on mainstream culture. This is particularly notable when we make a comparison to *Oppenheimer*, another highly anticipated movie released on the same date as *Barbie*. When we look within the "Film in Culture" category of articles alone, we see that *Barbie* made up 45.6% of articles in this category and *Oppenheimer* made up just 5.3%. It is also worth noting that *Barbie* is seen in "Film in Culture" articles almost the same amount as all seven recently released movies combined (these make up 49.3% of the articles in this category). This indicates the extreme relevance and impact of *Barbe* on mainstream culture.

We also see *Barbie*'s large cultural impact when we look at the 10 words in the "Film in Culture" category with the highest tf-idf scores:

- barbie: 0.30

- buy: 0.18

- halloween: 0.17

- movie: 0.15

- mattel: 0.12

- year: 0.12

- games: 0.12

- hunger: 0.11

- doll: 0.11

- owlkitty: 0.11

The word "barbie" receives a score of 0.30 and *Barbie*-related words ("barbie", "mattel" and "doll") sum to an impressive combined score of 0.53. It is perhaps most interesting that "barbie" receives a score of exactly double the word "movie"(which ranks fourth in the list with a score of 0.15), a word which we would expect to score quite highly given our dataset of movie-related articles. This expectation is confirmed in the tf-idf scoring of words in other categories, with "movie" coming in third for the "announcement" category, "film" in third for "awards, nominations and film festivals", and "movies" coming in first for "reviews". This once again indicates *Barbie*'s continuing relevance in mainstream culture.

As it is now established that *Barbie* is very present in mainstream culture, despite being five months post-release, I will discuss how *Barbie* has also persisted in film discussion and maintains its relevance in the film industry despite the many new, highly anticipated movies coming out in November. When we look at articles that discuss *Barbie* and another movie, we see that *Oppenheimer* is discussed seven times, and *Saltburn*, *Anatomy of a Fall*, and *The Marvels* are each discussed in one article along with *Barbie*.

Due to the cinematic hype around "Barbenheimer" it makes sense that when discussed along with another movie, *Barbie* is discussed the most with *Oppenheimer*. But it is interesting that they are both still being discussed five months later.

Another indicator of *Barbie*'s post-release relevance in film discussion is that it is being discussed in relation to *Saltburn* and *Anatomy of a Fall* which make up 18.6% and 32.6% of the "Awards, Nominations, and Film Festivals" category. The prevalence of these two films in the "Awards, Nominations, and Film Festivals" category indicates their success and appreciation as high-quality films and *Barbie* is right up there with them despite being five months older than the other two films.

Movie Percentage Breakdown for "Awards, Nominations and Film Festivals"
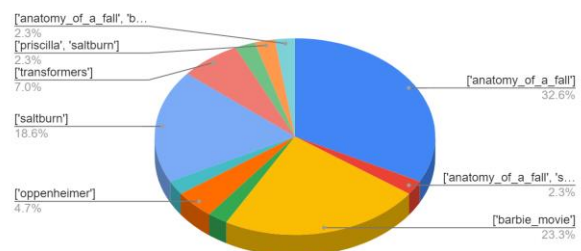
Let us now dive deeper into the "Barbenheimer" phenomenon. As previously mentioned, we know that *Barbie* and *Oppenheimer*

were both highly anticipated films that were released on the same day creating a pop-cultural moment coined as "Barbenheimer". Both *Barbie* and *Oppenheimer* received large amounts of press at the time of their release, and we still see articles being produced about them today, as we observe in our data collection. However, the two films are being talked about in largely different ways five months post-release.

Of our collected articles, we have 10.6% on *Barbie*, 11.5% on *Oppenheimer,* and 1% that discusses both. Although we have a similar number of articles for both movies, they deal with vastly different subjects. Here is a breakdown of how the two movies fared in each of our categories:

• Roundup: *Barbie*- 12.5%, *Oppenheimer*- 12.5%

• Review: *Barbie*- 3.1%, *Oppenheimer*- 4.9%

• People in Film: *Barbie*- 8.3%, *Oppenheimer*- 17.9%

• Film in Culture: *Barbie*- 45.6%, *Oppenheimer*- 5.3%

• Box Office Sales: *Barbie*- 10.3%, *Oppenheimer*- 22.6%

• Awards, Nominations and Film Festivals: *Barbie*- 23.3%, *Oppenheimer*- 4.7%

• Announcements: *Barbie*- 7.4%, *Oppenheimer*- 15.7%

Barbie articles make up much more of the "Film in Culture" and "Awards, Nominations and Film Festivals" than *Oppenheimer* which strengthens our conclusion of *Barbie*'s cultural relevance when we consider how much it outperforms a movie released at the exact same time. The two movies perform the same and similarly in the "Roundup" and "Review" categories respectively. This makes sense as five-month-old movies are unlikely to receive many new reviews and as many people have already seen the movie due to the extreme hype around their releases, it would not be of much benefit to each movie to mention them in round-ups.

What is worth discussing is how *Oppenheimer* outperforms *Barbie* in the "Box Office Sales" and "People in Film" categories. I argue that *Barbie*'s lack of performance in these categories in relation to the similarly released movie does not imply a detriment to *Barbie*'s long-term performance. *Oppenheimer*'s outperformance in the "Box Office Sales" category makes complete sense when we consider that *Oppenheimer* was shot and released in IMAX and *Barbie* was only re-released in IMAX in September. As we can see in the data, a large number of the *Oppenheimer* articles refer to IMAX, so this statistic does not imply a larger success of *Oppenheimer* but a larger focus on the financials of IMAX movies.

Similarly, *Oppenheimer*'s outperformance in the "People in Film" category does not imply a lack of longevity for *Barbie*. In the data, we see that 1/3 of the *Oppenheimer* articles in the "People in Film" category focus on the movie's director, Christopher Nolan. Similarly, in our tf-idf scores for the category, "Nolan" receives a 0.21 and "Christopher" receives a 0.17 making them the third and

sixth highest scoring words of the category. Thus, this statistic does not imply a larger success of *Oppenheimer* over *Barbie*, but a larger press focus on Christopher Nolan as a director.

Overall, our data collection, annotation and analysis revealed that *Barbie* remains a successful and culturally relevant film, even five months post release, and continues to be relevant in current film discussions.

Group Member Contributions

• Tess Gompper

  • Data collection, open coding, and annotation

  • Discussion section

• Laura Ladaru

  • Data collection, open coding, and annotation

  • Introduction section

  • Methods section

• Mill Toyingsirikul

  • Data collection, open coding, and annotation

  • Results section

• Mingchen Ju

  • Data collection, open coding, and annotation

  • Data section

References

Github Repo:

https://github.com/tgompper1/movie-release-analysis

TF-IDF Scores per Category:

Announcement:

• trailer: 0.26

• new: 0.18

• movie: 0.14

• film: 0.14

- keoghan: 0.14

- hunger: 0.13

- digital: 0.13

- saltburn: 0.13

- games: 0.13

- release: 0.13

Awards, Nominations, and Film Festivals:

- awards: 0.45

- nominations: 0.36

- film: 0.23

- gotham: 0.22

- festival: 0.21

- year: 0.19

- grammy: 0.19

- barbie: 0.17

- best: 0.13

- strangers: 0.13

Box Office Sales:

- box: 0.43

- office: 0.43

- million: 0.30

- weekend: 0.23

- freddy: 0.22

- nights: 0.22

- marvels: 0.16

- opening: 0.15

- 78: 0.11

- mcu: 0.10

Film in Culture:

- barbie: 0.30

- buy: 0.18

- halloween: 0.17

- movie: 0.15

- mattel: 0.12

- year: 0.12

- games: 0.12

- hunger: 0.11

- owlkitty: 0.11

- doll: 0.11

People in Film:

- elordi: 0.26

- jacob: 0.23

- nolan: 0.21

- hunger: 0.19

- games: 0.19

- christopher: 0.17

- rachel: 0.15

- zegler: 0.15

- ballad: 0.14

- movie: 0.14

Review:

- freddy: 0.24

- marvels: 0.24

- nights: 0.23

- priscilla: 0.23

- marvel: 0.17
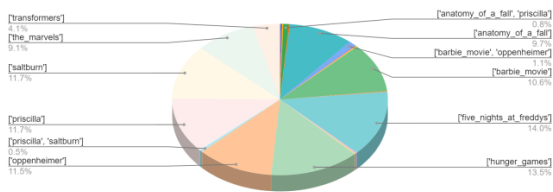
- movie: 0.16

- games: 0.16

- film: 0.16

- presley: 0.16
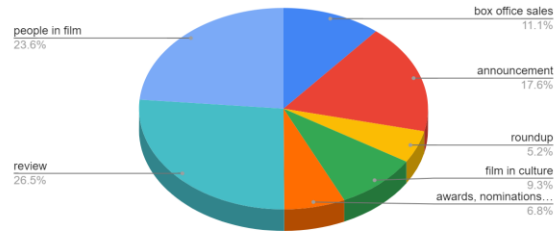
- coppola: 0.14

Roundup:

- movies: 0.44

- watch: 0.24

- like: 0.17

- marvels: 0.17

- november: 0.15

- best: 0.13

- mcu: 0.13

- check: 0.12

- freddy: 0.12

- new: 0.12
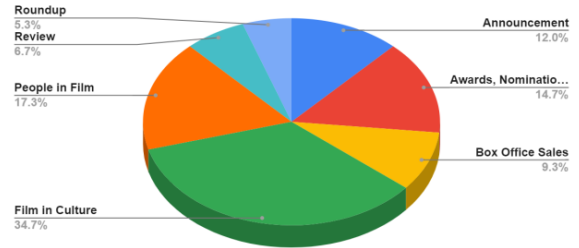
<u>Breakdowns by Category:</u>
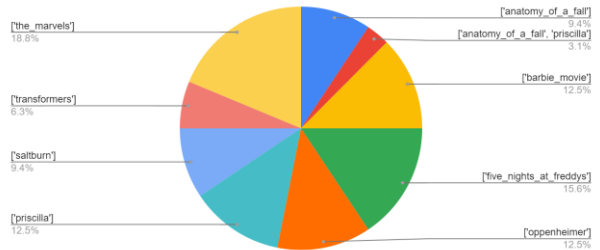

Article Breakdown by Movie
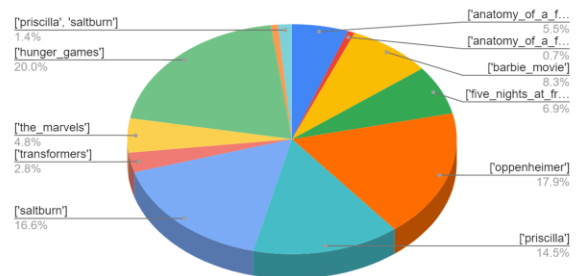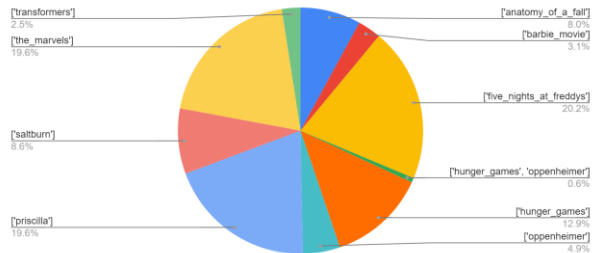

Percentage Breakdown for Article Categories

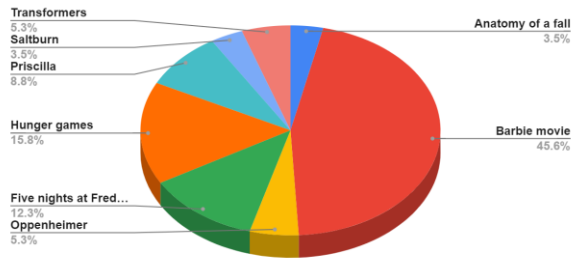Breakdown of Categories for the Barbie movie
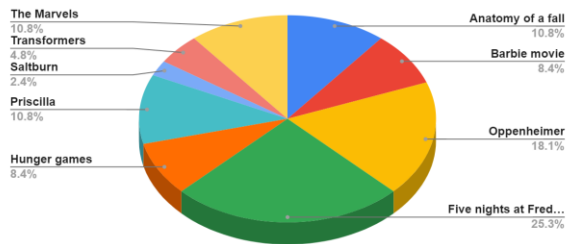

Movie percentage breakdown for Roundup Category
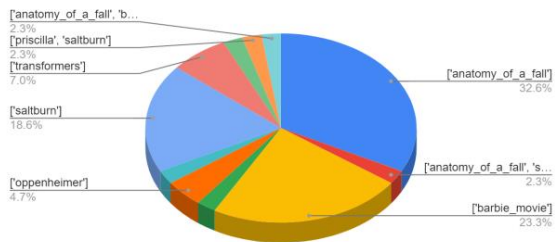

Movie Percentage Breakdown for "Review" Cateory

Movie Percentage Breakdown for "Film in culture" Category

Transformers
5.3%

Saltburn
3.5%

Priscilla
8.8%

Hunger games
15.8%

Five nights at Fred…
12.3%

Oppenheimer
5.3%

Anatomy of a fall
3.5%

Barbie movie
45.6%

Movie Percentage Breakdown for "Box office sales" category

The Marvels
10.8%

Transformers
4.8%

Saltburn
2.4%

Priscilla
10.8%

Hunger games
8.4%

Anatomy of a fall
10.8%

Barbie movie
8.4%

Oppenheimer
18.1%

Five nights at Fred…
25.3%

Movie Percentage Breakdown for "Awards, Nominations and Film Festivals"

['anatomy_of_a_fall', 'b…
2.3%

['priscilla', 'saltburn']
2.3%

['transformers']
7.0%

['saltburn']
18.6%

['oppenheimer']
4.7%

['anatomy_of_a_fall']
32.6%

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2.3%

['barbie_movie']
23.3%

Percentage Breakdown for Announcement Category

['hunger_games', 'tra…
0.9%

['transformers']
4.6%

['the_marvels']
4.6%

['saltburn']
18.5%

['priscilla']
4.6%

['oppenheimer']
15.7%

['anatomy_of_a_fall']
14.8%

['barbie_movie']
7.4%

['five_nights_at_fred…
10.2%

['hunger_games']
17.6%