

Exploring the Evolution of Gender Power Difference through the Omegaverse Trope on AO3 Fanfiction*

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Abstract

This study examines the evolution of gender power differences within the Omegaverse trope on the Archive of Our Own (AO3) fanfiction platform. The Omegaverse, a fan created trope defined by distinct secondary gender categories (Alpha, Beta, Omega), provides a lens to explore and critique gender dynamics. We used connotation frames and the Riveter NLP pipeline to measure power dynamics in Omegaverse slash relationships between characters. Our corpus includes English stories across eight prominent fandoms, including Japanese anime, K-pop, Western TV series, and Western films. Our findings show Alphas generally exhibit higher power scores than Omegas, consistent with the trope's constructs, but with notable variance between fandoms, while most fandoms exhibit more within-group consensus when more fans start writing. This research offers insights into how fan communities evolve and challenge traditional power structures.

Keywords

Gender studies, cultural analytics, fanfiction, media studies

1. Introduction

Across a variety of cultural fields, researchers have identified pervasive gender inequality, characterized by the underrepresentation and marginalization of women. This disparity is evident both in who is able to produce cultural works and who is depicted within them [12]. Gender, conceptualized as a societal construct, has historically played a pivotal role in shaping the narratives and themes of literary works. In contemporary literary scholarship, the examination of gender biases and representations emerged as a critical area of study [1].

Within literary genres, fanfiction stands out as a highly popular storytelling form, extensively accumulating a large number of stories on online platforms fueled by the development of digital social reading [16]. Its roots trace back to the Star Trek fanzines of the 1960s and 1970s, with the advent of the internet in the 1990s drastically altering its production, dissemination, and consumption [10]. These fan-generated stories often venture into uncharted and sometimes unconventional directions [17], reflecting contemporary popular culture's gender perceptions.

One distinctive feature of fanfiction is using original characters or settings, derived from TV shows, books, movies, or other media to create new stories [11]. Within this realm, slash fanfiction allows for a more diversified adaptation and creation of characters' genders and

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gender hierarchies compared to other literary genres. Slash fanfiction notably involves gender transformations and shifts in sexual orientation. It is a sub-genre characterized by narratives most commonly authored by women [5] that explore male-on-male sexual and/or romantic relationships. By queering heterosexual male characters, slash fanfiction provides an avenue to scrutinize the canonical notions of gender, identity, and sexuality. The focus of this study is on the gender-based difference of social and sexual power in the Omegaverse, a special trope developed by fanfiction authors, and how these hierarchies evolve across different popular fandoms.

2. The Omegaverse: A Unique Trope to Explore Gender Dynamics

The Omegaverse, or Alpha/Beta/Omega (ABO) Dynamics, offers an inventive approach to tackling gender stereotyping and associated prejudices [8]. Inspired by "wolf pack hierarchies", this fictional framework introduces a speculative social system where characters are divided into three biologically-driven categories: alpha, beta, and omega, to intensify social and sexual dynamics [4]. Within this universe, alphas typically hold dominant roles, omegas are often depicted as submissive, and betas occupy a middle ground. This genre explicitly problematizes consent, power imbalances, and biological determinism, to challenge social norms around relationships and autonomy, which makes it a speculative fantasy space for exploring themes of social power hierarchies and biology [6].

The concept of secondary genders such as Alpha, Beta, and Omega allows characters of the primary gender, both female or male, to become leaders like Alphas, diminishing the opposition between the primary genders of men and women to some extent. Nonetheless, the design of this worldview with secondary genders also emphasizes that biology ostensibly dictates sexual and social roles, and it introduces gender hierarchy into queer fanfiction more freely and exaggeratedly [18][19][22]. According to Entrikin [7], the Omegaverse encompasses two main behavioral scripts: the dominant script, which is aggressive and proactive, and the submissive script, embodying a more passive gatekeeping role. These scripts often mirror 'heterosexual' dynamics with the physical and social power of Alphas and the outwardly subservient and physically weaker stance of Omegas [18][19].

Yet, scholars also note that the gender hierarchies and notions depicted in Omegaverse fanfiction narratives contrast with the foundational worldviews of the Omegaverse setting. Popova [18] argues that rather than uncritically adopting gendered sexual scripts and socially constructed power differentials, Omegaverse stories are employed by their creators and audiences as a critical tool. These narratives problematize power and consent, offering avenues for negotiating meaningful, consensual intimate relationships within broader abusive social structures. Goldmann [8] also stated that this alternative social structure, while initially appearing to reaffirm Western gender stereotypes and traditional, sexist narratives, is critically reinterpreted by fanfiction authors. They creatively contest and deconstruct the classification of characters as Alphas, Betas, or Omegas, challenging the stereotypes associated with these categories. Particularly, the stereotypical expectations associated with Alphas and Omegas often do not align with the portrayal of the protagonists. These characters are depicted as either aware of such

reductive perspectives and intentionally distancing themselves or not fitting the conventional physical expectations of Alphas or Omegas. In doing so, authors intentionally address these dynamics, challenging stereotypes and biases as their characters navigate the challenges posed by societal norms.

If there exists a characteristic of reflection and correction within the Omegaverse trope, then the formation of this characteristic should also be the result of continuous evolution and iteration. Yet current research focused on the gender hierarchy represented in the Omegaverse has not started from the development trajectory of Omegaverse fanfiction, to comb through whether there are dynamic changes and overall trends in the portrayal of gender hierarchy as it rapidly develops and attracts an increasing audience.

Therefore, the focus of this study is on the gender-based hierarchies of social and sexual power in the Omegaverse trope and how these hierarchies evolve and interact with the trope's increasing popularity. The primary research question is: Are there gender-based power differences that are frequently occurring along with the Omegaverse trope?

To explore this question, we address two subquestions: (1) How do the power dynamics of Alpha, Beta, and Omega characters in slash relationships differ across various fandoms? Is there a significant difference between top fandoms? (2) Do these dynamics evolve over time?

3. Corpus: Omegaverse on AO3

We utilize the GOLEM database [15], which contains 8 million stories and related metadata from the Archive of Our Own (AO3) platform, spanning from 2000 to September 2022. Users on AO3 can upload their works and categorize them using an extensive tag system based on fandoms, genre, emotions, and other criteria. Fanfiction within the Omegaverse setting can be identified through the "Alpha/Beta/Omega Dynamics" tag, which authors use to signal this trope. Additionally, a corresponding tag, "Non-Traditional Alpha/Beta/Omega Dynamics", often signifies stories that subvert traditional gender roles within the Omegaverse framework, with the number of such fanfictions being approximately one-tenth of those with the traditional Omegaverse tag. Since 67% of works tagged with "Non-Traditional Alpha/Beta/Omega Dynamics" also carry the "Alpha/Beta/Omega Dynamics" tag, and given AO3's tag-based categorization system, our study focuses on the most conventional Omegaverse label, "Alpha/Beta/Omega Dynamics" to keep consistency. Using this tag, we selected 92,124 fanfictions containing the Omegaverse trope, which account for 1.15% of all stories collected in the GOLEM database ¹.

As illustrated in Figure 1A, there has been a notable upward trend in the publication of Omegaverse trope fanfiction since 2010. Considering the simultaneous expansion of the AO3 platform, we utilized the annual total number of published fanfiction on AO3 to reveal the growth rate of the ABO trope relative to the overall fanfiction production (Figure 1B). What stands out is not only the increasing number of ABO stories but also their expanding proportion within the entire fanfiction corpus over time. This indicates a growing interest in the ABO theme among AO3 users.

¹Due to copyright restrictions, the story content cannot be made publicly available. The corpus metadata, our code, and computation results can be accessed at https://github.com/GOLEM-lab/Omegaverse_Study/

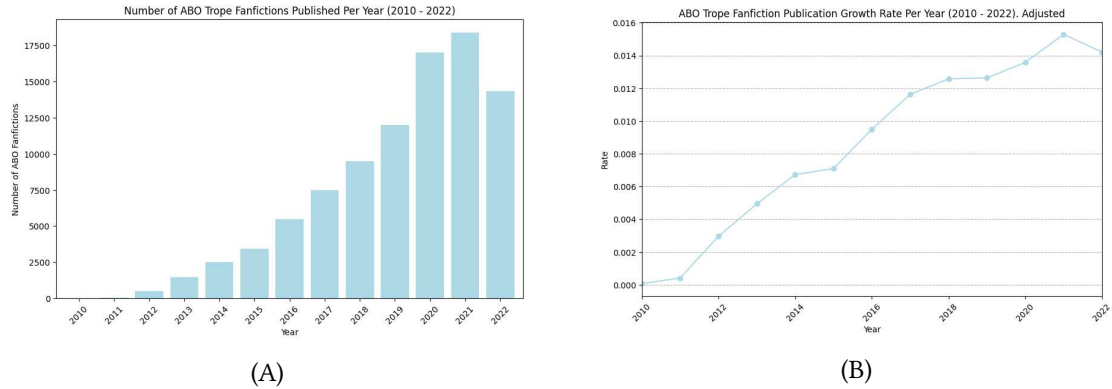


Figure 1: (A) Number of ABO Trope Fanfictions Published per Year (2010.1-2022.9). (B) ABO Trope Fanfiction Growth Rate Adjusted per Year (2010.1-2022.9).

M/M pairings, which depict romantic relationships between male characters, constitute a significant portion of AO3, accounting for 46% of the total. This trend is even more pronounced within the Omegaverse, where such stories represent 70% of the total. Furthermore, 4.23% of all fandoms on AO3 include at least one Omegaverse fanfiction. Fandoms dominated by male leading characters, such as the Japanese Shounen anime *My Hero Academia*, the Korean pop boy band BTS, and *Marvel universe*, are more prevalent in Omegaverse fanfiction compared to the general AO3 trend.

Following this, based on observations of popular fandoms and corresponding slash relationships within the Omegaverse corpus, we selected eight slash relationships from the top 15 in the original Omegaverse corpus to build a narrower corpus. These relationships originate from Japanese anime, K-pop, Western TV series, and Western film universes. These eight slash relationships account for 12.8% of all ABO stories in the AO3 platform and span the timeline from 2010 to 2022, representing different stages of popularity. This selection balances Eastern and Western cultural industries, as well as different types of media, ensuring a relatively robust sample of the overall creation trends within the Omegaverse trope.

4. Methods: Gender Power Difference Measurement

Within the domain of computational linguistics, exploring gender dynamics typically involves delving into the descriptive language surrounding persons, focusing particularly on the behaviors/verbs or nouns/adjectives employed in their representation [14].

We first analyze the proportions of verbs and adjectives in the corpus, with results showing a higher proportion of verbs. Consequently, for this initial analysis, we choose to focus on verbs to measure gender power differences. Then we leverage information from online fan encyclopedia to enhance the accuracy of character coreference resolution. Next, we identify the secondary genders of characters and calculate the gender power differences between Alpha and Omega characters in slash relationships. Finally, we critically analyze the computational result together with close reading and human evaluation.

Using SpaCy², we conducted a statistical analysis of the parts-of-speech (POS) distribution within the Omegaverse corpus. We compared this distribution to a benchmark of CMU Movie Summary Corpus [3] since connotation framework was set for studying gender dynamic in movie summary scripts (Table 1). Our analysis revealed that both corpora have a high proportion of verbs, though the Omegaverse corpus exhibiting a slightly lower frequency of verbs, adjectives, and adverbs, and a higher frequency of pronouns compared to the CMU Movie Summary Corpus. The shared high proportion of verb usage makes verb-based gender power measurement methods suitable for analyzing online fanfiction.

Table 1
POS Distribution of the Omegaverse Corpus

	Verbs (%)	Nouns (%)	Adjectives (%)	Adverbs (%)	Pronouns (%)
Omegaverse Corpus	27.12	27.48	10.11	11.23	24.07
CMU Movie Summary	28.93	36.87	10.35	7.39	16.46

We initially employ the Python library Riveter [2] and its power-agency verb lexicon to quantify gender hierarchy within fanfiction texts. Subsequently, we use close reading methods to verify the quality of the measurement results. Riveter is a natural language processing (NLP) pipeline designed to analyze the dynamics of power and agency between entities in texts, including characters, thereby testing whether fanfiction’s transformative potential can be substantiated with quantitative methods.

To quantify the levels of agency and power associated with each character in the texts, Riveter leverages the theoretical foundation of Connotation Frames and the power and agency lexicons developed by Sap et al. [21]. Connotation Frames, pioneered by Rashkin et al. [20], introduced a model for assessing the connotations of verb predicates concerning an AGENT and THEME’s value, sentiment, and effects, integrating these frames into the analysis of interpersonal dynamics within texts. This approach models the power differential between the AGENT and THEME, alongside the general agency of the AGENT of the verb predicate.

Sap et al. [21] enriched this framework with a lexicon of verbs, each assigned scores based on their usage frequency in relevant corpora, such as *New York Times* articles and movie script corpora, for sentiment and power and agency frames respectively. This evolving interest in Connotation Frames among researchers, especially within cultural analytics and digital humanities, shows their utility in exploring the framing of interpersonal dynamics across diverse datasets and inquiries [13][9]. Ultimately, considering the use of English lexicons in the Riveter pipeline and the characteristics of fanfiction writing, we selected English-language stories within the Omegaverse Corpus, with word counts ranging from 200 to 10,000 words, as the final corpus for measuring gender power differences.

To identify gender hierarchy in literature, it’s crucial to accurately recognize the gender of fictional characters within the text. However, in Omegaverse fanfiction, our focus on gender hierarchy revolves around the secondary genders of Alpha, Beta, and Omega. Additionally, since M/M slash relationships dominate the Omegaverse trope, with male characters assigned

²<https://spacy.io/>

different secondary genders, traditional pronoun and name-based gender classification methods are ineffective.

Instead, we organize characters based on explicit secondary gender attributes provided by authors in metadata tags. Using this information, we could detect the secondary gender attributes of corresponding characters. Then, we employ the Riveter pipeline to perform named entity recognition and coreference resolution to calculate social dynamic scores for the two relevant characters involved in slash relationships in fanfiction. To enhance recognition comprehensiveness, we utilize character names and aliases retrieved from the wiki website *fandom.net*, as well as character-related names and nicknames appearing in fanfiction metadata, as the basis for named entity recognition. After running the Riveter pipeline to get the power score per character, we delete the stories with extreme scores where only one or a few verbs have been calculated. Then we identify the secondary gender of characters and compute the gender power difference of the alpha character and omega character.

5. Results

Before analyzing the results, we close read a sample of 40 stories to assess the effectiveness of the verb lexicon-based method. This selection balanced time and gender power score variations, including five stories from extremely positive and negative representatives and earlier period’s representatives. Two human evaluators independently read and assessed each story. They then discussed their assessments to reach a consensus. Given the fragmented nature of fanfiction narratives and the broad concept of gender power differences, we used a simplified three-category classification: positive difference, no significant difference, and negative difference.

As shown in Table 2, after excluding one fanfiction that used *Omegaverse*-related tags but did not adhere to the trope’s conventions, 27 out of 39 stories had human judgments that aligned with Riveter’s results, yielding an accuracy of 70%. In three stories where Riveter indicated a negative gender hierarchy, close reading revealed that despite more active descriptions of the Omega character, the actual narrative still portrayed the Alpha as dominant and the Omega as passive.

Table 2

Human Evaluation of Riveter Gender Power Difference Computation Results. (When human evaluation and Riveter result are greater than zero, it indicates a positive gender power difference, meaning Alpha character’s power score is higher than Omega character’s. When they are less than zero, it indicates a negative gender power difference, meaning Omega character’s power score is higher than Alpha character’s. A human evaluation result of “Equal” signifies that evaluators uniformly consider the power of Alpha character and Omega character to be relatively equal.)

Human Evaluation	Riveter Result	
	> 0	< 0
> 0	15	3
Equal	5	4
< 0	0	7

Additionally, we evaluated Riveter’s verb-based recognition accuracy, finding it could accurately capture most actions of the characters. However, due to limitations in coreference resolution, it could not detect finer details of bodily movements, such as “his arm” and “his hand.” Despite these limitations, the manual validation demonstrated a high consistency between the connotation frames-based gender power difference measurement and human judgment. The data quality of the Omegaverse corpus was also affirmed as reliable.

Consequently, based on these computational results, we analyzed the evolution of gender power differences across various fandoms within the Omegaverse. The final result based on 3,468 fanfiction works in the Omegaverse corpus is shown in Table 3, and the change over time is presented in Figure 2.

Table 3
Corpus Statistics

Cluster	Slash Relationship	Total Omega-verse Corpus	in English, word count [200, 10000] Amount	Alpha/Omega Riveter Score Amount	Gender Power Difference Average	Gender Power Difference Std	Unique Author Rate (%)
Japan anime	Bakugou Katsuki / Midoriya Izuku	2214	1284	792	0.083850	0.228258	62.75
	Katsuki Yuri / Victor Nikiforov	1006	547	283	0.046665	0.215431	61.48
K-pop	Jeon Jungkook / Park Jimin	1832	790	499	0.074532	0.188775	74.55
	Jeon Jungkook / Kim Taehyung V	1545	632	392	0.076218	0.214993	77.30
Western TV series	Castiel / Dean Winchester	2194	1124	771	0.092453	0.245118	46.82
	Will Graham / Hannibal Lecter	846	462	228	0.285113	0.384073	68.42
Western film universe	James “Bucky” Barnes / Steve Rogers	1312	565	284	0.078453	0.218858	69.01
	Steve Rogers / Tony Stark	804	386	220	0.052256	0.248804	65.91

First, gender power differences of Alpha and Omega characters in slash relationships are broadly exhibited across different fandoms. Despite many stories in each fandom receiving negative gender power difference scores and close readings confirming the subversion of traditional hierarchies and promotion of gender equality, for all fandoms the gender power differ-

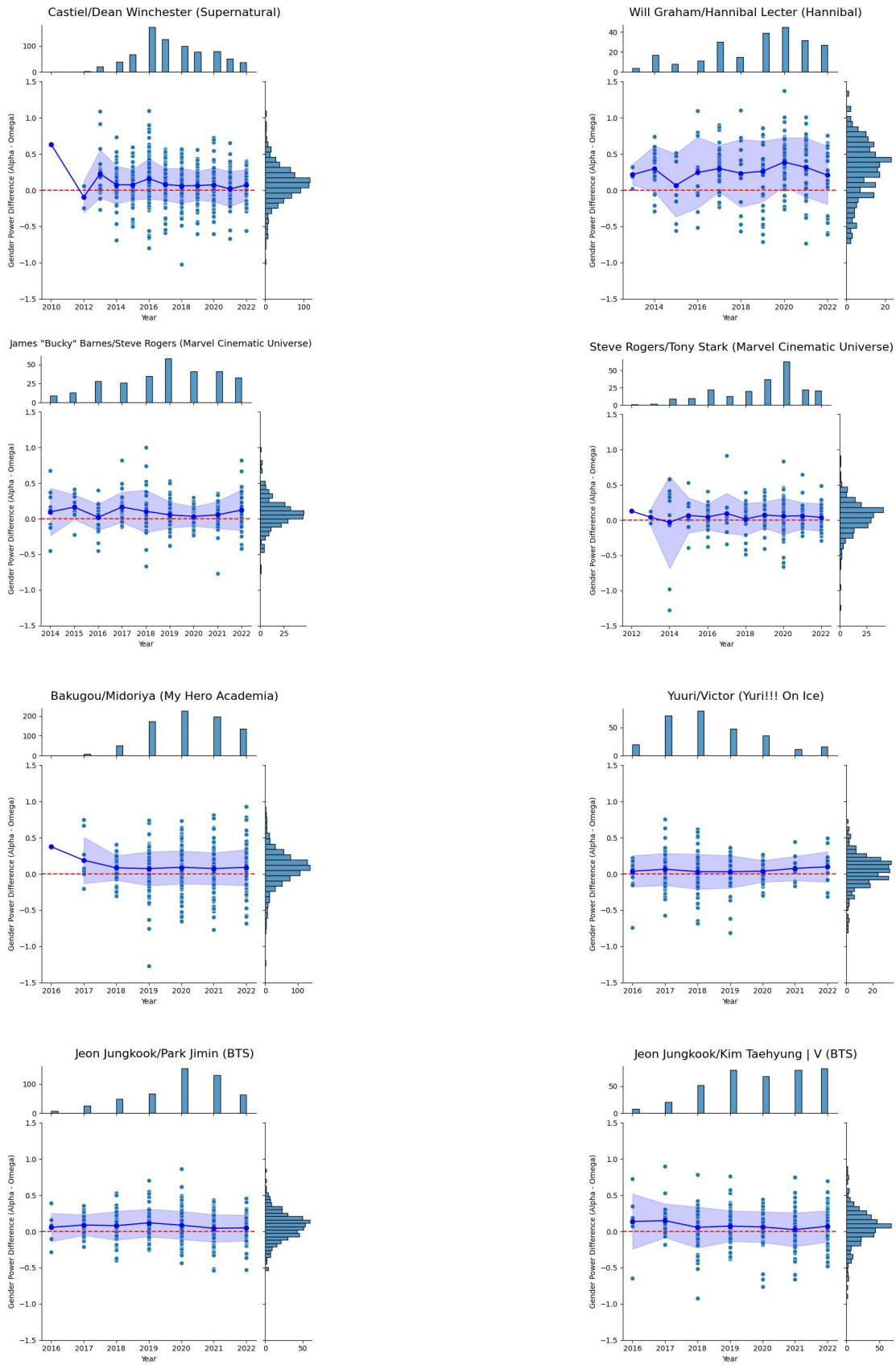


Figure 2: Gender Power Difference Evolution of Omegaverse Corpus over Time

ence scores approximate normal distribution with a mean above zero. This means that most of the times authors use the Omegaverse trope consistently with its definition. Moreover, Western TV and movie-related fandoms generally have higher scores than Japan Anime and K-pop-related fandoms. The fanfiction stories about the Will Graham/Hannibal Lecter pairing from *Hannibal* show the highest average and variance in gender power differences, likely due to the series' inherent violent and extreme elements. In contrast, pairings like Katsuki Yuuri/Victor Nikiforov from *Yuri on Ice* and Jeon Jungkook/Park Jimin from BTS, both of which have the smallest mean and variance in gender power differences, highlight how specific fandom characteristics influence these dynamics. *Yuri on Ice* being a female-oriented romantic anime, shows stable and low gender power variance, echoing the original plot. Similarly, BTS pairings, despite high activity in recent years, maintain low mean and variance scores, reflecting a consistent portrayal within the K-pop fanfiction community.

This leads to the second common phenomenon we noted: most fandoms exhibit more within-group consensus when more fans start writing. Initially, when only a few people created Omegaverse-themed stories, there was a higher average gender power difference. As more fans began writing, the average gender power difference significantly decreased, and the variance correspondingly narrowed. The fanfiction published in 2010 with the Castiel/Dean Winchester pairing from *Supernatural* is the earliest Omegaverse story in this corpus, showing a significantly higher-than-average gender power difference score, which close reading supports. Similar patterns occur in *My Hero Academia*. However, as more stories are created, the two pairings from *Marvel Cinematic Universe* demonstrate stable low gender power differences and low variance during the period between 2019 and 2020 when there was a active fanfiction creation (for example, for the Steve/Tony pairing, there were 37 stories in 2019 and 63 in 2020, compared to just 22 stories over the four years from 2012 to 2015). Similarly, Bakugou/Midoriya and two K-pop-related pairings share a similar pattern from 2019 to 2022, indicating that when a new trope becomes widely popular, authors and readers form a consensus over time, leading to consistent portrayal patterns within these fan communities. Initially, fans creating the Omegaverse trope may prefer dramatic gender hierarchy settings, but as the trope gains popularity, more authors use it as an opportunity for reflection. Additionally, the periodic fluctuations observed in Western TV series and film universes suggest that the mean and variance of gender power differences may vary cyclically, potentially influenced by changes in fan engagement and preference developments within fan communities.

Overall, these findings underscore the widespread presence and relative stability of gender power differences in Omegaverse fanfiction. This study highlights the dynamic interplay between fan engagement and gender power portrayal in these narratives, offering insights into how fan communities evolve and challenge traditional power structures.

6. Limitations and Future Works

Our study uses an Omegaverse corpus that includes only English short to medium-length fanfiction from the top fandoms, in which multiple fanfiction works may be written by the same authors. Additionally, by comparing gender power difference computation results across different fandoms, we observed a possible interaction between the original plot and power dynamics. This

suggests that the original plot and narrative genre can bias the power dynamics, as seen in the *Hannibal* and *Yuri on Ice* examples.

In the next step, we plan to create a corpus with more variety in terms of fanfiction language, fandom plots, and themes, while controlling for author uniqueness. Additionally, we will also incorporate more nuanced linguistic features, such as adjectives and adverbs, to enhance our analysis. Tags potentially related to gender dynamics, such as "Non-Traditional Alpha/Beta/Omega Dynamics" will also be systematically integrated into the evaluation process.

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