Gender and Power in Japanese Light Novels

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Abstract

In Japanese culture, the light novel – a combination of text and anime-style illustrations–is a relatively new literary form. It derives from the broader otaku culture, which is also associated with video games, manga, cosplay, anime, and other forms of Japanese popular culture. Though the light novel lacks the global reach of some of these other genres, such as manga and anime, it nonetheless attracts millions of readers across a range of gender and age groups. While distinct subgenres of the light novel have emerged, such as romance, adventure, horror, and harem, issues of gender stereotyping, power imbalances and other forms of inequality remain strongly entrenched. These issues can be attributed to how otaku culture is rooted in heterosexual male desire. This paper offers a quantitative assessment of these issues of gender inequality. We analyze 290 light novels, scraped from the Baka-Tsuki Translation Community Wiki, in terms of the power relationships between female and male characters as they evolve over the course of each novel. We find patterns consistent with issues of gender stereotyping and power differentials. More specifically, we find that female characters consistently wield less power than male characters, especially toward the end of each novel. We find some variation in specific subgenres. We conclude with close readings of two light novels, demonstrating how a power frames approach to analyzing gender stereotypes in otaku culture augments existing work on the subject.

Keywords

gender inequality, power frames, otaku culture, light novels, Japanese literature

1. Introduction

In Japanese culture, the light novel–a combination of text and anime-style illustrations–is a relatively new literary form. It derives from the culture of fan fiction associated with the broader otaku culture, which is also associated with video games, manga, cosplay, anime, and other forms of Japanese popular culture. Though the light novel lacks the global reach of some of these other media and cultural forms, such as manga and anime, it nonetheless attracts millions of readers across a range of gender and age groups. While distinct genres of the light novel have emerged, such as romance, adventure, horror, and harem, issues of gender stereotyping, power imbalances, and other forms of inequality remain strongly entrenched. These issues can be attributed to how otaku culture is strongly rooted in heterosexual male desire.

Otaku is a complicated term that encompasses consumer practices and fandom-related activities as well as media and cultural production [9]. More specifically, otaku describes a particular

type of fan who actively seeks comprehensive knowledge about the media they consume–to the extent of having "erotic fantasies" about them [7]. It has been argued that the abundance of eroticism (and also violence) within these media forms–Kumiko Saito studies anime and manga, for example–is not necessarily due to the reader or viewer's (or creator's) actual sexual desire, but is understood to be both created and consumed within an "imagined autonomous world of representations" that is detached from reality [7]. While there exist categories of both male and female otaku, with female otaku characterized by stories of male homosexual romance, otaku culture remains dominated by men, with most otaku characterized by an abundance of female characters depicted in ways that fulfill the desires of heterosexual men [6] [4]. As a result, most of the characters in these stories occupy typical–and very often stereotypical–gender roles.

At the same time, the rising popularity of the light novel has resulted in a proliferation of genres, not all of them targeted at heterosexual male readers. For instance, the shoujo (young girls) genre is aimed at young female readers and features themes of romance and emotion from a young heterosexual female perspective. On the other hand, the harem genre is aimed at adult heterosexual male readers and as a result, contains more explicit sexuality. Across these genres, a defining feature is the light novel's emphasis on introducing many and multiple characters over the development of a detailed plot [7]. This feature prompted the research described below, in which we analyze the aggregate power relationships of male and female characters in different subgenres of the light novel. Our goal was to determine the degree to which the characters adhere to stereotypical gender roles, whether the power relationships in these novels shift over time in meaningful ways, and whether there are some genres that consistently subvert gender stereotypes. (We did not consider non-binary genders, as our focus was on stereotypical male and female roles).

In this way, we contribute to the growing body of work that employs computational approaches to analyze gender, including Underwood 2018, which investigates the changing significance of gender in fiction written between 1780 and 2007, both in terms of authorship and characterization [10]; Kraicer 2019, which examines the "social positions" of female characters in novels written between 2007 and 2017 [5]; and Cheng 2020, which assesses several historical trends in anatomical depiction and its correlation with gender [3]. Our study explores similar themes of gender inequality in fiction but from an East Asian perspective. We also bring a "power frames" approach to this question [8], and devise our own methods of validation.

2. Data

2.1. Data Collection

In order to create our corpus, we scraped the English translations of 56 light novel series that were listed under the category of Light Novel (English) on the website of Baka-Tsuki Translation Community. We choose to collect our data from Baka-Tsuki because it houses the largest collection of light novels in English on the Internet, and because the translators voluntarily upload their translations to the site for sharing with the public. When scraping the novels, we employed the following criteria for inclusion: first, it needed to have at least one genre label; and second, it needed to have a complete English translation in a relatively standard format. We treated different volumes in the same series as separate books, in keeping with how light

novels are published and read. We excluded any "side stories," which are sometimes included in volumes of light fiction, which otherwise include stories in sequential order, because it is difficult to determine whether a side story comes before or after the main story in terms of plot, and we did not want to disrupt the main storyline. Finally, because different translators use different words to indicate a distinct volume, such as "phase" or "part," we took these additional terms into account in the scraping process.

Our final corpus consisted of 289 volumes across 17 genres (16,914,599 total tokens; 98,563 unique tokens). The majority of volumes in the series were tagged with multiple genre labels, as pictured in Figure 1. While the corpus represents a small sample of all light novels ever published, most of the series included in the corpus can be considered "classic" novels, as indicated by the fact that about 71% of the series in the corpus have been adapted into anime.
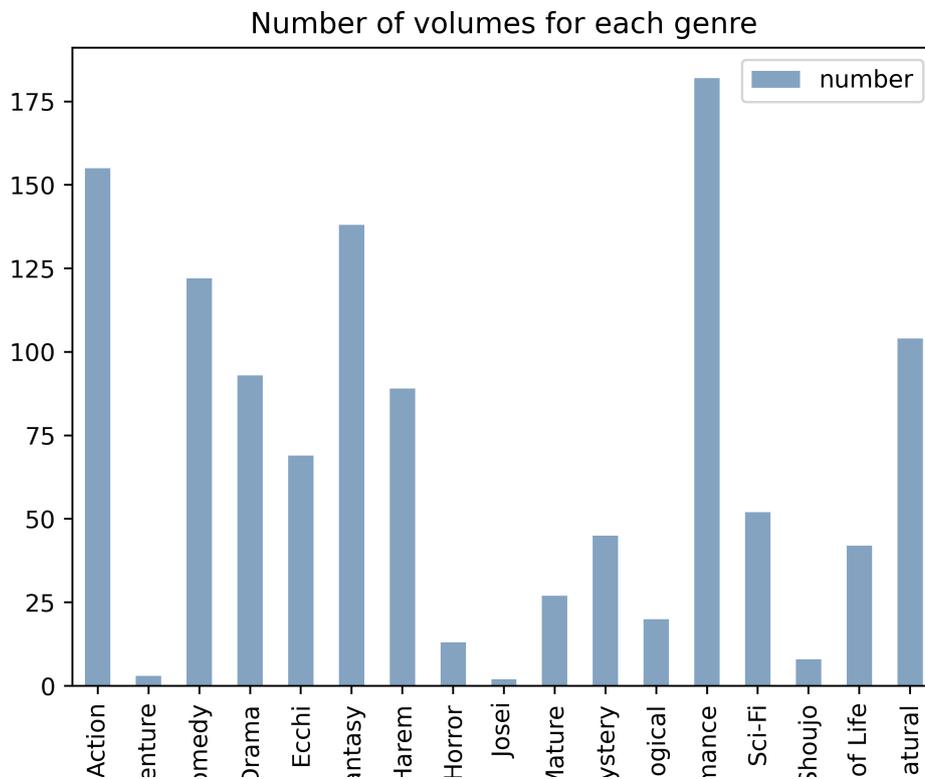
Figure 1: Distribution of genre tags in the Baka-Tsuki corpus

2.2. Data Cleaning

After scraping the text from the website and removing the side stories, we also manually removed all of the series that did not adhere to the volume structure, and all of the volumes that did not adhere to the one-story-per-chapter structure. (These were outliers; a typical series is

broken into volumes, and a typical volume consists of 5-10 chapters). We also removed all novels in which the translator opted not to translate the text owing to its mature content. (These were indicated by the phrase, "the text may be inappropriate to people aged under 18.") We then manually confirmed that all chapters were placed in the correct volume, and all volumes were placed in the correct order, and fixed any incorrect placement or ordering. Finally, we removed the series that contained more than 20 volumes, as we were concerned about issues of over-representation.

3. Data Processing and Preliminary Analysis

3.1. Main Character Identification

We used BookNLP [1] to extract the names and mentions of the characters in our corpus. We then ordered the characters by number of mentions, as we wanted to focus our analysis on the major characters of each volume. Depending on the genre of the novel, there is significant variation in the number of characters in each volume (with a minimum of 10 and a maximum of 193). In order to determine the cut-off point between the major characters and the less important ones, we normalized the number of mentions of each character in each volume across the corpus. Below in Figure 2 we plot the sum of normalized character mentions for characters with different frequency ranks. We then picked the point of maximum curvature, which is 9, as the cut-off point for the definition of a major character.

3.2. Main Character References and Referential Gender

After identifying the nine main characters for each novel, we used BookNLP to extract the proper references and referential gender for each. Because the referential gender is inferred by the references to the characters with the text, it is sometimes inconsistent. Therefore, we used the argmax of the gender distribution provided by BookNLP to assign the gender of the character for the purposes of this project. We then further divided each volume into five sections of equal length (without breaking sentences), and we ran BookNLP again on each subsection-or stage-of the volume. From this, we obtained information about each of the nine main characters by matching proper references. (A match was met if the character in the subsection was mentioned by at least one of the proper references of an identified main character). After locating the main characters, we extracted the actions (verbs) for which the character was agent or patient in that stage, as well as the objects they possessed, and any modifiers. We use this verb list to calculate the power score, as described in the next section.

3.3. Main Character Power Scores

We employed the power frames lexicon curated by Sap et al. in order to determine a power score for each of the major characters [8]. In the lexicon, each verb has a label that indicates whether the agent or the patient/theme associated with the verb has more power, or whether the two have equal power. In order to employ this lexicon, we lemmatized the verbs in the lexicon and the list of verbs we obtained for each character from BookNLP. Then, we compared the list of
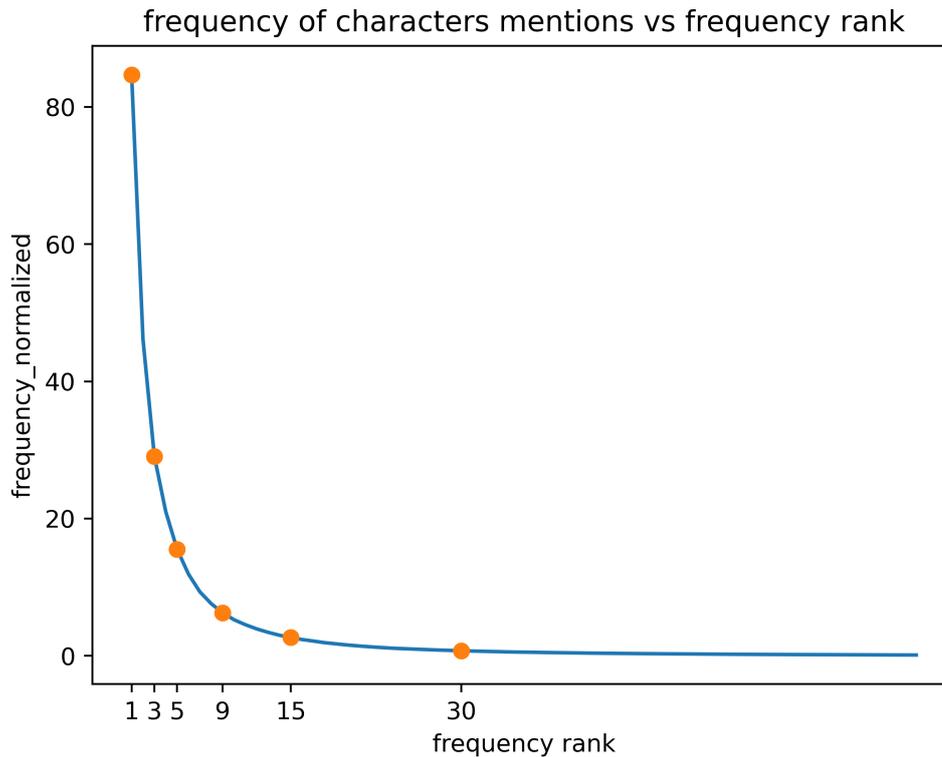
Figure 2: The sum of normalized mention frequency for characters with different frequency rank (i.e. importance in the story) across the corpus

verbs for the characters with the lexicon, adding or subtracting from the total power score of the character as indicated. We then normalized the power scores by dividing the current score by the total number of verbs in the list. In this way, we were able to take into account the differences in length and number of verbs in each novel. The final power score was a value between -1 and 1, with 1 indicating high power status, and -1 indicating low power status.

A notebook documenting these analyses can be found here: https://github.com/kristinagxy /lightnovel_gender

4. Results

4.1. Power Over Time – All Genres

In Figures 3 and 4, we plot the mean power scores of the male and female characters in each stage of each novel, separated by genre. The bold gray line indicates the mean across the whole corpus.

As is evident in the visualizations, most of the genres follow a similar pattern, with female power decreasing over the course of the novel, and male power remaining consistent through-
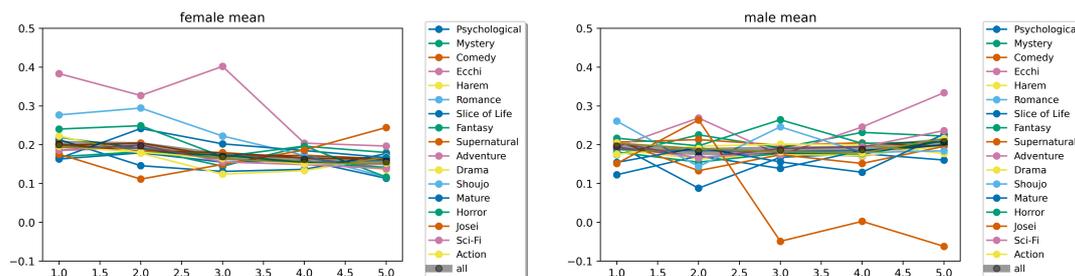
Figure 3: Mean power scores of female characters **Figure 4:** Mean power scores of male characters

out. There are some outliers, however. For instance, the female mean power for adventure novels is higher than the others; and for josei (adult women's) novels, it follows a different path altogether. This pattern seems intriguing, but upon closer look, the josei genre has the least number of volumes in the corpus. Therefore, it may not be statistically significant.

We were eager to evaluate the statistical significance of these scores. But we could not use standard methods such as the t-test, since the scores were calculated from volumes in different series, meaning that they came from different distributions. Even for volumes in the same series, the distribution was not guaranteed to be the same. To circumvent this issue, we decided to take the average of power score for each gender in each stage of each novel, and calculate a boolean score to indicate whether the average power of the female characters was larger than that of the male. In this way, we sidestep the problem of between-volume differences since the resulting booleans come from a binomial distribution. Then, for each stage, we perform a one-tailed binomial test with the null hypothesis of $\pi = 0.5$. The null hypothesis describes a situation of balanced power where the probability of female having a higher power score is 0.5. The p-values of the test, which represent the likelihood of seeing an outcome at least as extreme as the actual result given the null hypothesis, are reported below.

4.2. Power Over Time – Statistically Significant Genres

In this section, we focus on genres with interesting trends that have a reasonably large number of samples ($N > 20$). We begin with action novels ($N = 155$). As is pictured in Figure 5, at the beginning of the story, the difference between the power of male and female characters is small, although the male characters' power is always a little higher than that of the female characters. However, while the power of the female characters gradually decreases over time, the power of male increases dramatically at the end of the story, resulting in a comparatively large gap in power scores. The p-value at the final stage is 0.0005, indicating strong evidence that the gap exists.

In Figure 6, we show the resulting evolution of power in fantasy novels ($N = 138$). Before the final stage of the story, the power of male and female characters have relatively balanced values as well as high p-values, favoring the null hypothesis of equal power. However, at the final stage, as in the adventure genre, the two powers diverge, also with a small p-value.

The power balance in mature novels ($N = 27$) follows a different pattern. Here, in Figure 7, the power of female characters remains higher than that of male characters until the final
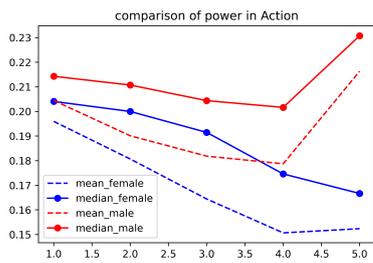
Figure 5
Gender and power in action novels

Table 1
Proportion estimates and p-values for action novels

stage	proportion of novel that follow the mean power trend	p-value
stage 1	0.57	0.0540
stage 2	0.58	0.0337
stage 3	0.53	0.255
stage 4	0.55	0.124
stage 5	0.64	0.000497
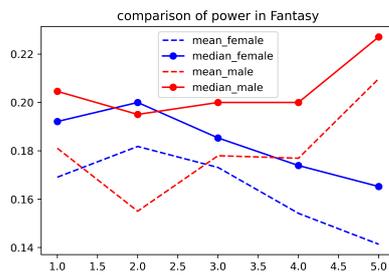
Figure 6
Gender and power in fantasy novels

Table 2
Proportion estimates and p-values for action novels

stage	proportion of novel that follow the mean power trend	p-value
stage 1	0.54	0.208
stage 2	0.47	0.787
stage 3	0.50	0.500
stage 4	0.54	0.215
stage 5	0.63	0.00232
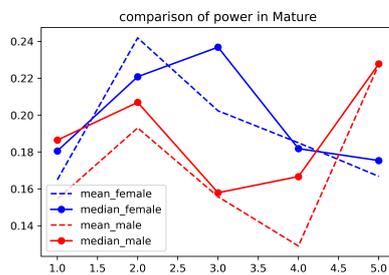
Figure 7
Gender and power in mature novels

Table 3
Proportion estimates and p-values for mature novels

stage	proportion of novel that follow the mean power trend	p-value
stage 1	0.46	0.721
stage 2	0.64	0.115
stage 3	0.36	0.946
stage 4	0.50	0.581
stage 5	0.69	0.0375

section of the novel. In fact, the power differential increases until the middle of each story–an intriguing trend. However the p-values for the first four subsections are quite high. It is only in the final section, when male power is higher, that the p-value indicates more than chance.

Figure 8 describes novels in the "slice of life" genre ($N = 42$), a genre typically aimed at a female readership. Interestingly, at the beginning of the story, female characters possess higher power than male characters, with a relatively low p-value of 0.100. As the story progresses, the power of female and male characters gradually become balanced, as demonstrated by high p-
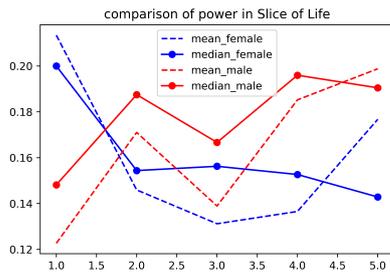
Figure 8
Gender and power in slice of life novels

Table 4
Proportion estimates and p-values for slice of life novels

stage	proportion of novel that follow the mean power trend	p-value
stage 1	0.63	0.100
stage 2	0.47	0.708
stage 3	0.47	0.702
stage 4	0.56	0.304
stage 5	0.4	0.912
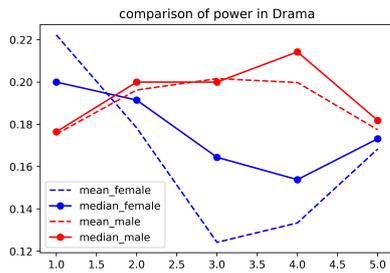
Figure 9
Gender and power in drama novels

Table 5
Proportion estimates and p-values for drama novels

stage	proportion of novel that follow the mean power trend	p-value
stage 1	0.55	0.247
stage 2	0.51	0.455
stage 3	0.58	0.0910
stage 4	0.63	0.0138
stage 5	0.46	0.777

values indicating that the power gap is most probably due to chance.

In the drama genre ($N = 93$), the power scores show yet another trend. Before the final section, the power of female characters decreases and the power of male characters increases, widening the power gap. The power gap reaches its maximum in section four, supported by a low p-value. However, by the end of the story, the two power scores converge, admittedly with a high p-value that favors the null hypothesis of balanced power.

Figure 10 shows the evolution of power in harem ($N = 89$), romance ($N = 182$), and ecchi ($N = 69$) genres. The three are very similar genres and have many overlapping titles. We observe that their trend lines are also similar, with an increasing power gap and small p-values at the end. For harem and ecchi, which are two major male-oriented genres, the power of female characters decreases consistently throughout the story.

Figure 11 shows the comparison of power across all genres. We can see that the power of female characters decreases over time, while the power of male characters remained relatively high. Interestingly, the p-value decreases as well as the story progresses, implying that the power gap is supported with increasing certainty.

4.3. Power Over Time - Additional Validation

To test the validity of the power frames approach to measuring power, we shuffled all the verbs for each stage and randomly reassigned them to the characters, with each character receiving
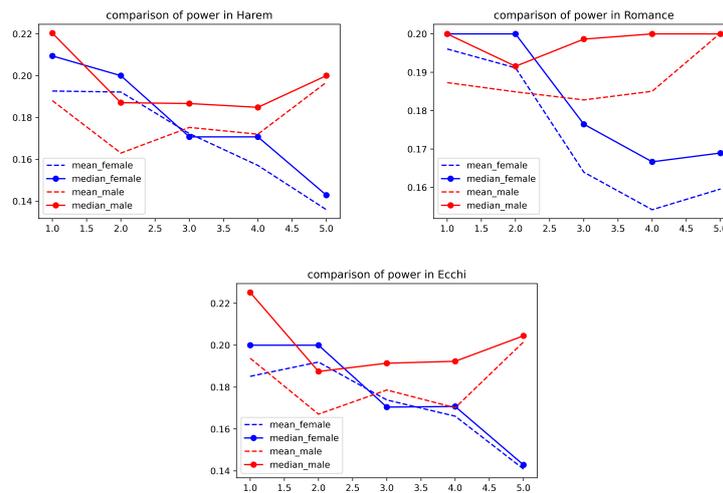
Figure 10: Gender and power in harem, romance, and ecchi novels
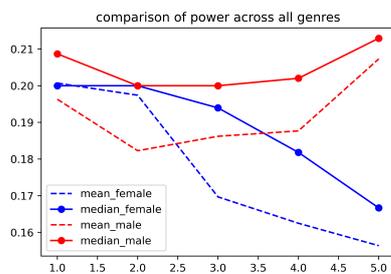
Figure 11

Gender and power across all genres

Table 6

Proportions estimates and p-values across all genres

stage	proportion of novel that follow the mean power trend	p-value
stage 1	0.45	0.948
stage 2	0.48	0.807
stage 3	0.55	0.0784
stage 4	0.57	0.0183
stage 5	0.59	0.00276

the same number of verbs he/she originally had. We performed one hundred simulations for each of the five stages, and compared the simulated mean power scores for female and male characters across the whole corpus with the original mean scores. Specifically, we wanted to know the likelihood that the original means came from the same distribution as the simulated means. A reasonable assumption is the simulated power scores come from a Student's t-distribution. We obtained the p-values by calculating the probability of getting a more extreme value than the original mean using the cdf (cumulative distribution function). The results can be found in Table 7.

Interestingly, the random assignment of verbs gave a higher mean power score than the original mean for both female and male characters. For the female characters, the calculated power score in the first two stages does not have much difference from random assignment. The later three stages clearly depart from the simulated random results, as indicated by an increasingly low p-value towards the end. This coincides with the pattern of p-value for power

Table 7

Calculated mean, and simulated mean, and p-values across all genres at each stage

stage	female			male		
	calculated mean	simulated mean	p-value	calculated mean	simulated mean	p-value
stage 1	0.203	0.203	0.972	0.199	0.201	0.808
stage 2	0.200	0.209	0.318	0.185	0.211	0.00658
stage 3	0.171	0.195	0.00588	0.188	0.196	0.500
stage 4	0.164	0.203	2.484e-05	0.190	0.204	0.172
stage 5	0.158	0.204	1.202e-06	0.210	0.205	0.577

gap in Section 4.2. For the male characters, however, most of the time the calculated power is similar to random assignment results. Therefore, it seems that it is mainly the decreasing power of female characters that contributes to the power gap, also similar to what we observe in Section 4.2. Also notice that the simulated means for female and male characters at each stage are very close to each other, further supporting the validity of the power frames method.

5. Close Reading the Gender Power Gap

What does this power gap look like in writing? To explore this question, we returned to the text of one light novel, associated with the harem genre, that exemplifies the growing power differential between male and female characters. The novel, the first volume of the Absolute Duo series, centers on Tor, a young man enrolled in Koryo Academy, a high school in which students battle each other with weapons known as Blaze. The novel opens with a depiction of the entrance test required to enter Koryo, in which Tor must battle his enemy, a young woman named Imari. He states his goal very clearly: "I will show her the difference in our ability and make her give up" (Chapter 1). Here, Tor is the agent of the verbs "show" and "make," resulting in an increase in his associated power score. This is confirmed by the power conveyed through the sentence itself, in which Tor envisions a one-way battle in which he "shows" Imari his skill and "makes her give up." After Tor enters Koryo, he encounters several female teachers who are more skilled than he is, contributing to the female character power score. But Tor retains his dominant position in the novel. As Tor becomes a stronger fighter, the female characters around him grow to both trust and adore him. By the end of the novel, Tor is consistently making statements such as, "I will definitely protect you" (Chapter 7). Again, Tor as the subject of the verb "protect" contributes to the male character power score, an indicator of the increasingly dominant role that Tor assumes in the novel.

We also wanted to explore one of the novels associated with high female power scores, even as there were few of them in our corpus. For this close reading, we turned to a josei novel, the first volume of the series Anohana: The Flower We Saw That Day. Anohana tells the story of six childhood friends who once formed a group called Super Peace Busters, but who grew apart after one of the friends, a girl named Menma, died in an accident. The story is told from the perspective of a boy, Jinta, another one of the friends, who realizes that he (and only he) can see Menma's ghost. The beginning of the novel mostly serves to introduce the

characters and the backstory of the group, and contains lines such as: "That wish could only be fulfilled when everyone in the Super Peace Busters was together" (chapter 3). Here, the passive construction of the verb "be fulfilled" avoids assigning agency to any of the characters. As the story unfolds, Jinta tells the others in the group that he has seen Menma, but they don't believe him. His decreasing power is represented in lines such as, "Every kind of sophisticated feeling was stuck on my body like glue, making me maximally displeased" (chapter 10). Here, Jinta is the object of the displeasure, rather than its agent. By the same token, Menma's ghost emerges as a more powerful character in the novel, influencing Jinta and the other friends even as they cannot see her.

6. Discussion and Next Steps

In her qualitative study of gender representation in hentai (pornographic anime and manga), Kristina Barancovaitė-Skindaravičienė (2013) argues that masculinity and femininity are produced through bodily representation, what she describes as "indexical signs of gender" [2]. These include size, age, race, genitals, dress, and magic power attributes. Barancovaitė-Skindaravičienė claims that male characters appear to be more powerful and dominant than female characters due to these indexical signs. We find that this same power imbalance is encoded in language—and more specifically, in the relation between the agents of verbs and the objects those verbs act upon. Furthermore, by tracking the changes in power over the course of the novels, we find that any equal power relationship between male and female characters that is present at the beginning of these novels becomes more unbalanced over time, with male characters consistently gaining more power by the novels' end, with strong statistical significance.

There is some variation based on theme, however. For genres that target female audiences (e.g. shoujo, josei, slice of life), as exemplified by Anohana: The Flower We Saw That Day, novels often begin by positioning the female characters with more power. As the story proceeds, however, the female characters cede some of their power. By the end, male and female characters often have balanced power. One group of novels we did not explore were those where young girls act as heroines and protectors; most of these novels involve only female characters, and so would require a different approach to a power analysis. In the future, we hope to incorporate these as well as additional shoujo and josei novels into our study. The pattern of power in josei novels is clearly different from the majority of the other genres, but we require additional novels from the genre in order to confirm our hypothesis.

References

[1] D. Bamman, T. Underwood, and N. A. Smith. "A Bayesian Mixed Effects Model of Literary Character". In: *Proceedings of the 52nd Annual Meeting of the Association for Computational Linguistics (Volume 1: Long Papers)*. 2014, pp. 370–379.

[2] K. Barancovaitė-Skindaravičienė. "Construction of Gender Images in Japanese Pornographic Anime". In: *Regioninės studijos [elektroninis išteklius]* 7 (2013), pp. 9–29.

[3]   J. Cheng. "Fleshing out models of gender in English-language novels (1850–2000)". In: *Journal of Cultural Analytics* 5.1 (2020), p. 11652.

[4]   K. Hemmann. "Short Skirts and Superpowers: the Evolution of the Beautiful Fighting Girl". In: *US-Japan Women's Journal* (2014), pp. 45–72.

[5]   E. Kraicer and A. Piper. "Social Characters: the Hierarchy of Gender in Contemporary English-language Fiction". In: *Journal of Cultural Analytics* 3.2 (2019), p. 11055.

[6]   A. Miho. "The Construction of Discourses on Otaku: The History of Subcultures from 1983 to 2005". In: *Debating Otaku in Contemporary Japan: Historical Perspectives and New Horizons* 105 (2015).

[7]   K. Saito. "Magic, Shōjo, and Metamorphosis: Magical Girl Anime and the Challenges of Changing Gender Identities in Japanese Society". In: *The Journal of Asian Studies* 73.1 (2014), pp. 143–164.

[8]   M. Sap, M. C. Prasettio, A. Holtzman, H. Rashkin, and Y. Choi. "Connotation Frames of Power and Agency in Modern Films". In: *Proceedings of the 2017 conference on empirical methods in natural language processing.* 2017, pp. 2329–2334.

[9]   Y. Sone. "Canted Desire: Otaku Performance in Japanese Popular Culture". In: *Cultural Studies Review* 20.2 (2014), pp. 196–222.

[10] T. Underwood, D. Bamman, and S. Lee. "The Transformation of Gender in English-language Fiction". In: *Journal of Cultural Analytics* 3.2 (2018), p. 11035.