Verifying the Authorship of Saikaku Ihara's Arashi ha Mujyō Monogatari in Early Modern Japanese Literature: A Quantitative Approach

Ayaka Uesaka
auesaka@mail.doshisha.ac.jp
Organization for Research Initiatives and Development
Doshisha University, Japan

Introduction

This study focuses on *Arashi ha Mujyō Monogatari ("The Tale of Transient Popular Kabuki Actor Arashi's Life"; 1688)*, a novel from the early modern Japanese literature, written by Saikaku Ihara (1642–93). It is a first work of a Kabuki actor's life in Japan (Kabuki is a traditional stage arts performed exclusively by male actors with the accompaniment of live music and songs). Then we will examine the "authorship problem" in Saikaku's works using the tools of quantitative analysis.

Saikaku was a national author whose novels were published in 17th century. Saikaku's works are known for their significance for developing Japanese contemporary novels. One recent hypothesis has stated that he wrote twenty-four novels, however, it remained unclear which works were really written by Saikaku except *Kōshoku ichidai otoko ("The Life of an Amorous Man"; 1682)*, *Shōen Ōkagami ("The Great Mirror of Female Beauty"; 1684)*, *Kōshoku ichidai onna ("The Life of an Amorous Woman"; 1686)*, *Kōshoku gonin onna ("Love Stories about Five Women"; 1686)*. Although the study of his works has continued, these fundamental doubts about his authorship remain.

Meanwhile, the potential of quantitative analysis of textual data and the related field of the digital humanities have also dramatically advanced. However, quantitative analysis of Japanese classical works has been behind. It has been a problem due to complications regarding development of morphological analysis software and also delayed digitalization of Japanese classical works.

Previous Studies

Found by Noma in 1941

Noma found and introduced *Arashi ha Mujyō Monogatari* in 1941. He mentioned that the novel was actually written by Saikaku, for the following reasons (Noma, 1941 and 1964). (1) The handwriting of the novel belongs to Saikaku; and (2) He found a similar writing error in *Arashi ha Mujyō Monogatari* and Saikaku's work.

Arguments for Saikaku's authorship

The handwriting is not crucial in deciding if they are Saikaku's novels. According to Emoto *et al.* (1996), among his twenty-four novels, the handwriting of nineteen works does not belong to Saikaku. Moreover, Saikaku made a fair copy of other writer's draft such as *Kindai Yasa Inja ("The story of a hermit"; 1686)* by Kyōsen Sairoken (? -?) and *Shin Yoshiwara Tsurezure ("The book of commentary on the licensed quarters of a certain area"; 1689)* by Sutewaka Isogai (? -?).Mori (1955) has argued that Saikaku's novels are an apocryphal work mainly written by Dansui Hōjō (1663-1711) except *Kōshoku ichidai otoko.*

As he gained a national audience, Saikaku was pressured to write on demand and in great volume. At first he wrote only one or two novels a year, however in the two years from 1687 to 1688 he published twelve books, with a total of sixty-two volumes. Saikaku's style and approach also changed at this point (Shirane, 2004).

It is possible that Saikaku had some assistance (Nakamura,1969). *Arashi ha Mujyō Monogatari* was published in this period. Moreover, *Arashi ha Mujyō Monogatari* does not have a preface, epilogue, signature, namely it is not specified that it was written by Saikaku. Despite the authorship problem of *Arashi ha Mujyō Monogatari* remains unanswered, little work has been done about it. For that reason, this study re-examines the authorship of *Arashi ha Mujyō Monogatari* using a quantitative approach.

Databases

Database of Saikaku's Works

First, we digitized all the text of 120 works of Saikaku (24 novels, 80 poem books, etc.) based on the first edition of each works (see Figure 1). Second, Since Japanese sentences are not separated by spaces, we built the rule with early modern Japanese researchers, who were editors of *Shinpen Saikaku Zenshu ("The new complete works of Saikaku")*. Finally, based on this rule, we added spaces between the words in all of the sentences. In addition, the grammatical categories' information was added. According to our database, there are 710,355 words contained in his 120 works.
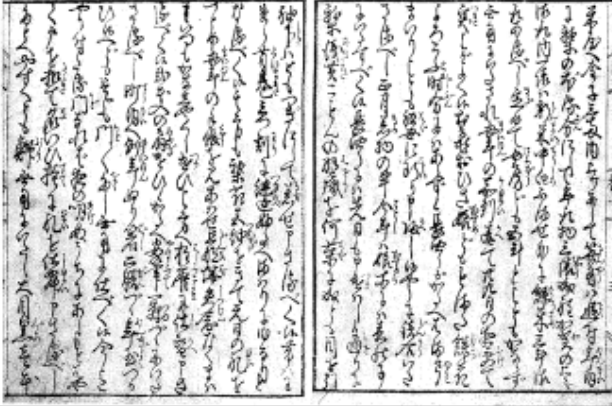
Figure 1: Saikaku's publication

Saikaku's novels	*Kōshoku ichidai otoko, Shōen Ōkagami, Kōshoku ichidai otnna* and *Kōshoku gonin onna*
Dansui's novels	*Shikidou otsuzumi, Chuya youjin ki* and *Budou hariai okagami*

Table 1: The authenticated novels of Saikaku and Dansui

Database of Dansui's Works

We also made the database of Dansui's novels *Shikidō Ōtuzumi* (*"The Great Drum of Love";* 1687), *Chuya yōjin ki* (*"The Night and Day of Precaution";* 1707) and *Budō hariai Ōkagami* (*"The Great Mirror of Martial Arts";* 1709), using same methods and rules of Saikaku's database. According to our database, there are 53,838 words contained in these works. The next section considers the doubts about the authorship problem of *Arashi ha Mujyō Monogatari*.

Analysis and Results

In our previous studies, we have analyzed Saikaku and Dansui's novels, and have clarified the following two points by extracting their writing style using principal component analysis (PCA) and cluster analysis (hierarchical clustering): (1) A comparison of the Saikaku and Dansui's novels showed ten prominent features: the grammatical categories, words, nouns, particles, verbs, adjectives, adverbs, adnominal adjectives, grammatical categories bigrams and particle bigrams (Uesaka, 2015, 2016); and (2) Using these features, we analyzed Saikaku's four posthumous novels (many researchers have raised questions about the authorship, because these novels were edited and published by Dansui after Saikaku's death). We found these four posthumous works indicated same features of Saikaku's novel, therefore we concluded that these four posthumous novels belonged to Saikaku (Uesaka・Murakami,2015ab, Uesaka, 2016).

In this study, we compared *Arashi ha Mujyō Monogatari* to Saikaku and Dansui, as authenticated novels of them (see Table 1) by ten prominent features using PCA and cluster analysis to see the differences in each novels. The analysis revealed differences of writing style between *Arashi ha Mujyō Monogatari*, Saikaku and Dansui.

We conducted PCA with correlation matrix and these novels fall into three groups: Saikaku, Dansui and *Arashi ha Mujyō Monogatari* (see Figure 2). Furthermore, we conducted a cluster analysis. There also appears to be a considerable difference among *Arashi ha Mujyō Monogatari*, Saikaku and Dansui's novels. When calculating distances between each novels, we normalized the frequency of each words, and used the Kullback–Leibler divergence and the algorithm from the Ward method. Furthermore, we obtained similar result of the other nine features: the grammatical categories, words, nouns, particles, verbs, adjectives, adverbs, adnominal adjectives and particle bigrams.
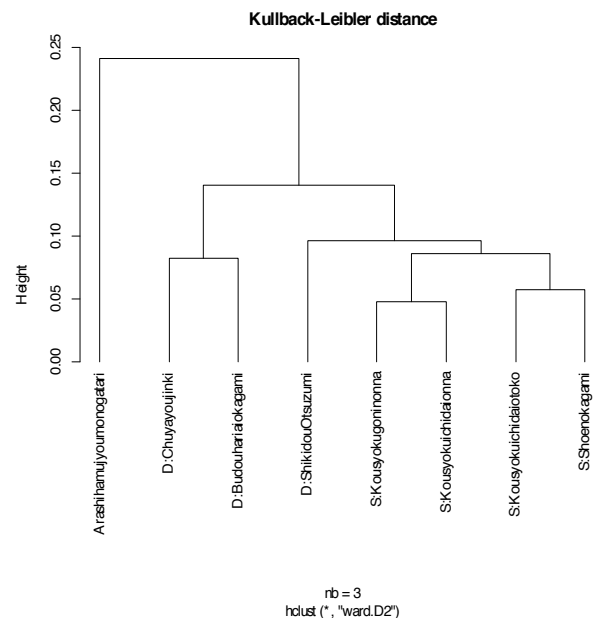

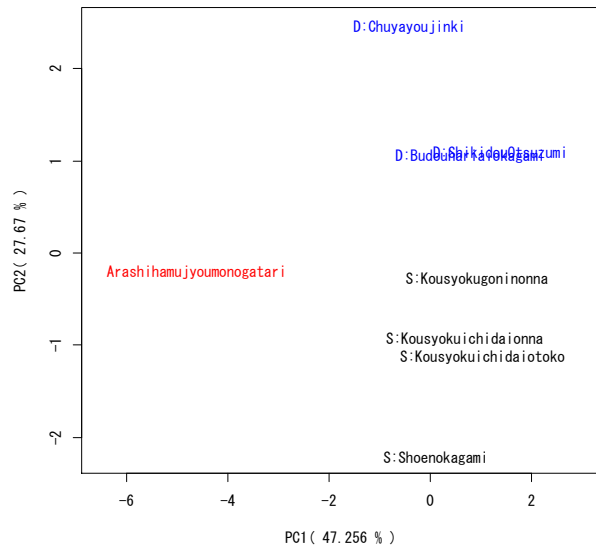Figure 2: PCA results for grammatical categories bigrams

Figure 3: Cluster analysis results for grammatical categories bigrams

Discussion and Conclusion

When comparing ten prominent features using PCA and cluster analysis, we found that *Arashi ha Mujyō Monogatari* was significantly different from Saikaku and Dansui's works. A number of features indicate that *Arashi ha Mujyō Monogatari* is not Saikaku and Dansui. In order to clarify *Arashi ha Mujyō Monogatari's* author, we need to conduct more detailed analysis. It is necessary to add the data of other writers with the possibility of the author of *Arashi ha Mujyō Monogatari*, for example, Kiseki Ejima(1666-1735) and Ichirōemon Nishimura(?-1969). We have been building the database of these author's 13 novels, and we will do comparisons in the future study.

Acknowledgements

Bibliography

Emoto, Y. and Taniwaki, M. (1996). Saikaku Jiten ("A Saikaku Dictionary"). Tokyo:Ouhu Publishing.

Mori, S. (1955). Saikaku to Saikaku Bon ("Saikaku and Saikaku's Novel"). Tokyo:Motomotosha Publishing.

Nakamura, Y. (1969).Saikaku Nyumon("The Introduction of Saikaku's Research"). In:Kokubungaku kaishaku to kansho(" Japanese literature-Explanation and Appreciation") 34(11). pp.10-25. Tokyo: Shibundo Publishing.

Noma,K. (1941). Arashi ha Mujyō Monogatari ("The Tale of Transient Popular Kabuki Actor Arashi's Life-Explanation and Understaning"). In: Saikaku Shin Shinkō ("Saikaku New Article";1981). pp231-290. Tokyo:Iwanami Publishing.

Noma,K. (1964). Sairon Arashi ha Mujyō Monogatari ("Re-explanation of the Tale of Transient Popular Kabuki Actor Arashi's Life"). In: Saikaku Shin Shinkō ("Saikaku New Article";1981). pp291-313. Tokyo:Iwanami Publishing.

Shirane, H. (2004). Early Modern Japanese Literature: An Anthology 1600–1900. New York: Columbia University Press.

Uesaka, A. (2015). A Quantitative Comparative Analysis for Saikaku and Dansui's Works, Proceedings of Japan-China Symposium on Theory and Application of Data Science, pp.41〜46, Kyoto:Doshisha University Faculty of Culture and Information Science.

Uesaka, A. & Murakami, M. (2015a). Verifying the Authorship of Saikaku Ihara's Work in Early Modern Japanese Literature: A Quantitative Approach. Digital Scholarship in the Humanities. 30(4). pp.599〜607. Oxford: Oxford University Press.

Uesaka, A.& Murakami, M. (2015b). A Quantitative Analysis for the Authorship of Saikaku's Posthumous Works Compared with Dansui's Works. Proceedings of the Digital Humanites2015.

Uesaka, A. (2016). Saikaku Ikōshu no Chosha no kentō ("Verifying the Authorship of Saikaku's Posthumous Works"). pp187-263. In: The Computational Authorship Attribution. Tokyo: Bensei Publishing.