Analysis and Generation of Japanese Folktales Based on Vladimir Propp's Methodology

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Abstract

We aim to develop an automatic generation of interactive stories. For this aim, we have analyzed Japanese folktales. In this area, there exists famous research conducted by Vladimir Propp. He analyzed more than 100 Russian magic-inspired folktales by segmenting each of them into a series of short segments and classified each segment into one of 31 functions. Here, we tried to analyze about 20 Japanese folktales adopting his method and found several interesting facts that differentiate Japanese folktales from those of Russia.

1. Introduction

When we want to accomplish something, we always have some kind of story in mind. Furthermore, when we look back at our past, it appears as a series of events. This is the reason why it is sometimes said that "life is just like a story."

After all, story is an essential element in our lives. The existence itself of words such as "*parody*" and "*homage,*" which imply artworks inspired by original works, means that the stories contained in various kinds of artworks have attracted many people.

Vladimir Propp [1] is the leading expert in the field of storytelling. He hypothesized that a story consists of a concatenation of short plots called "*functions*." Based on this idea, he analyzed more than 100 Russian magic-inspired folktales and found that about 30 functions are enough to construct all of the folktales. Of course, there were lots of predecessors. For example, the Brothers Grimm, known for "*the Grimm Fairy Tales*," collected various kinds of folktales, and such folktale collections helped in analyses of folktales. Although there were other classifications by Wundt and others at that time, Propp thought those classifications were not sufficient, especially in the case of Russian magic folktales. He succeeded in extracting the essence of "story" based on his concept of "*function*."

The approach described in this paper is based on Propp's idea. Our target is to develop an "Interactive Folktale System" taking Japanese folktales as an example, and for this purpose we analyzed Japanese folktales. If it were possible to classify not only magic folktales but also folktales in general, particularly Japanese ones in this work, according to his methodology, we could develop a database of "short stories" by segmenting Japanese folktales and try to develop a support system of story generation using the database.

As a famous tool for story generation, "*Dramatica*" [2] (Screen Play System, Inc.) has been developed for the US movie industry. It enables producers to drastically cut the cost of moviemaking, which is generally very expensive, and has attracted much attention. It asks users various questions concerning stories, and based on their answers gives them materials and advice for story generation. In Japan, too, the study of story generation has become active in recent years [3].

If we succeeded in constructing such automatic story generation systems or story-generation support systems, it would be very easy for any user, not only movie directors and screenplay writers, to generate stories at

any time. This would result in greater diversity of contents and surely extend the range of "Entertainment" [4]. If we applied such a system in the field of education, it would help the process of juvenile cultivation of aesthetic sentiments. The following sections of this paper describe Propp's methodology and our analysis of Japanese folktales utilizing it.

Table 1. Thirty-one functions

[Code]Function	
0. [α] initial situation	16. [H] The hero struggles with the villain
1. [β] Absentation	17. [J] Branding or marking the hero
2. [γ] Interdiction	18. [I] Victory over the villain
3. [δ] Violation	19. [K] The liquidation of misfortune or lack
4. [ε] Reconnaissance	20. [↓] Return of the hero
5. [ζ] Delivery	21. [Pr] Pursuit of the hero
6. [η] Trickery	22. [Rs] Rescue of the hero
7. [θ] Complicity	23. [O] Unrecognized arrival
8. [A] Villainy	24. [L] Claims of a false hero
(8. [a] Lack)	25. [M] Difficult task
9. [B] Mediation, the connective incident	26. [N] Solution of a task
10. [C] Consent to counteraction	27. [Q] Recognition of the hero
11. [↑] Departure, dispatch of the hero from home	28. [Ex] Exposure of the false hero
12. [D] The first function of the donor	29. [T] Transfiguration
13. [E] Reaction of the hero	30. [U] Punishment of the false hero or villain
14. [F] The acquisition, receipt of a marginal agent	31. [W] Wedding
15. [G] Transference to a designated place; guidance	

2. Theory and Background

Vladimir Propp analyzed more that 100 magic-inspired Russian folktales based on the hypothesis that a story consists of a concatenation of short plots [1]. He tried to classify the short plots extracted from those magic folktales and found that there are 31 categories and that these are sufficient to construct all of the Russian magic folktales. However, as he himself pointed out, his methodology works well specifically for Russian magic folktales, which form a particular category among folktales in general.
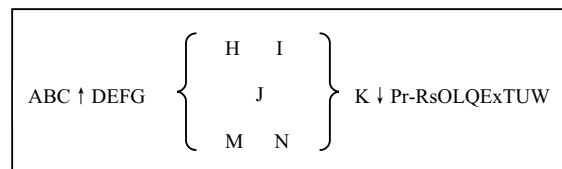
2.1. Thirty-one Functions of Propp

Propp arrived at an interesting conclusion through the process of analyzing Russian magic folktales. He found that different characters in the field of folktales achieve similar actions frequently. These acts are regularly used as universal material and fundamental components of folktales, and he called them "*functions*." Table 1 shows the 31 functions of Propp.

Based on his finding that the number of functions is restricted, he conjectured that the ordinal succession of functions in each magic folktale is always constant. Figure 1 shows the basic structure of the folktales found and proposed by him.

ABC ↑ DEFG { H I / J / M N } K ↓ Pr-RsOLQExTUW

Figure 1. Basic structure

2.2. Signification and Potentiality

As mentioned at the beginning of this chapter, Propp himself pointed out that the above rule holds true for Russian magic folktales but is not generally applicable to narratives, especially artificially produced tales. Propp's idea, in other words, represents only the characteristics of the Russian magic folktales he analyzed. Although some researchers tried to apply it to constructing a support system for story generation, in most cases the materials they study involve Russian magic folktales, similar to the work of Propp [5] [6]. Taking these situations into consideration, any attempt to apply his methodology to Japanese folktales would seem

contradictory. However, if it could be shown that his methodology is applicable to Japanese folktales, this would imply that his idea could be applied to various fields, thus facilitating the construction of a system that can automatically generate various types of stories.

Table 2. Analysis of "*Momotaro*"

Text	Function
Long, long time ago in a certain place, there were some grandparents. *snip*	[α] Initial situation
One day, when the grandmother was at the riverside doing laundry, she saw a big peach floating down from upriver. *snip*	[Q] Recognition of the hero
Up hill and down dale, Momotaro and his group got to the seashore. *snip*	[G] Transference to a designated place
"I'm Momotaro, the strongest in Japan, punishing you devils!" *snip*	[H] The hero struggles with the villain
They made it back to his Grandparents safely.	[↓] Return of the hero

3. Analysis of Story

Japanese folktales are alive and well in diverse ways [7]. Folktales are essentially handed down orally from parent to child or from grandparent to grandchild. The descriptions used in relaying the story, as a matter of course, depend mainly on specific speakers who try to entertain their audience by telling these stories. This causes some differences even in the same folktale from one locality to another, or even from one family to another. We picked out more than 20 Japanese folktales from a popular folktale book [8] published in Japan for the purpose of maintaining consistency. In the following sections, analyses are given for "*Momotaro*" and "*Click-Clack Mountain*" as two examples of Japanese folktales.

3.1. "Momotaro" (The adventures of a Peach boy)

As is common in most folktales, the prologue of the story begins with the "Initial situation" [α] (ex. long, long time ago in a certain place…). The circumstances and scene including the main characters become clear, and then the story revolves around these characters.

Table 2 shows an analysis of "*Momotaro*." It begins with the "Initial situation" and revolves around Momotaro, a leading character. He grows up fast and comes to have a determination to get rid of the devils that are endangering the villagers. On the way to Demon's Island, he meets a dog, a monkey, and a pheasant, and he makes them his companions by giving them "Kibidango," a sweet millet dumpling. Up hill, down dale, and across the sea, his group finally arrives at their destination, Demon's Island. They punish devils to get back stolen property. Finally, they make a triumphant return to Momotaro's village. Figure 2 shows the structure of "*Momotaro*" based on the model of Figure 1.
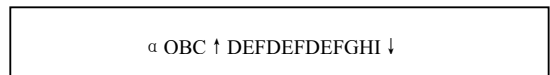
> α OBC ↑ DEFDEFDEFGHI ↓

Figure 2. Structure of "*Momotaro*"

3.2. "Click-Clack Mountain" (Return of a Rabbit)

Table 3 shows an analysis of "*Click-Clack Mountain.*" It also begins with the "Initial situation," and the main characters, again Grandparents, are explained in turn.

Although the grandfather punishes a mischievous raccoon, the grandmother is killed by this shifty animal while the grandfather is away. He is disconsolate at her death, and then a rabbit, a friend of the Grandparents, inspires the determination to seek revenge against the raccoon for the murder. The rabbit burns the raccoon at the stake using flint, hitting the notes "*Click-Clack*," the onomatopoeia behind this folktale, and rubs pepper, disguised as medicine, into the raccoon's wounds. Finally, the rabbit puts the raccoon in a ship of mud and sinks it with the raccoon to the bottom of the river. Figure 3 shows the structure of "*Click-Clack Mountain*" based on the model of Figure 1.

Table 3. Analysis of "*Click-Clack Mountain*"

| Text	Function
Long, long ago in a certain place, there were some good-hearted Grandparents. *snip*	[α] Initial situation
Grandfather caught Raccoon swathed in a rope. *snip*	[U] Punishment of a false hero or villain
Shifty Raccoon had an evil design to get out of here. *snip*	[η] Trickery
Rabbit living in the front mountain, seeing Grandfather disconsolate at her death, consoled him and gave him the determination to avenge himself on Raccoon. *snip*	[C] Consent to counteraction
Raccoon saw the firewood in his back burst into flames. *snip*	[A] Villainy

α BCU β η θ ABC ↑ η θ A η θ A η θ A
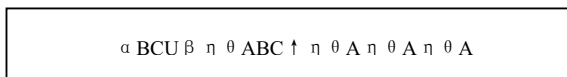
Figure 3. Structure of "*Click-Clack Mountain*"

4. Discussion

"*Function*" as defined by Propp represents just the action of the characters. In other words, function itself contains a role of subject or object in a short scene. For example, with the eleventh function in Table 1, [↑] Departure, the composition of "the hero leaves his home" is predetermined. Also for the eighteenth function, [I] Victory over the villain, the condition that "A works on B" is included in the function. In this case, A is a hero and B is a villain (a hero defeated a villain) or A is a villain and B is a hero (villain is defeated by a hero). From these examples, it seems the reason why the roles of main characters are included in the definition of each function is that the main characters have some kind of symbolism. Devils in "*Momotaro*" and Raccoon in "*Click-Clack Mountain*" are emblematic of an adversary that threatens the lives and livelihoods of people. Furthermore, we can assume that Propp realized the symbolism in the magic folktales he analyzed, so he may have hypothesized the concatenation of short plots called "*functions*" as having a role system of subject-object relationships. Through our analysis, we found that this is true in the case of Japanese folktales.

We noted an interesting factor while analyzing more than 20 Japanese folktales based on Propp's methodology. Rabbit in "*Click-Clack Mountain*" plays second fiddle in the early part, which features Grandparents and Raccoon; however, Rabbit stands in the spotlight, as if a leading character, in the later part of the story. On the other hand, "*Momotaro*" has a clearly established role of hero, and the behavior of each character changes little in this story. This seems to suggest that a certain regularity may be found by analyzing Japanese folktales in more detail.

A new classification of Japanese folktales taking a different approach from Propp's idea is also under

review. Table 4 shows four provisional groups of Japanese folktales. We hypothesized that folktales classified as "Grand Finale" bring the story to an end by punishing villains, or otherwise resolving a problem, as seen in "*Momotaro.*" The group called "Anecdote of Birth" contains stories about the origin of names and beings. "Divine Justice" includes stories teaching that 'as you sow, so shall you reap,' such as "*Click-Clack Mountain.*" Finally, "Estrangement" involves stories that

Table 4. Four provisional story groups

1.	Grand Finale
2.	Anecdote of Birth
3.	Divine Justice
4.	Estrangement

5. Conclusions

This paper describes the approach of applying Propp's methodology to a category of Japanese folktales. We anticipated many hurdles because we tried to analyze Japanese folktales rather than the Russian ones he analyzed. However, we could successfully analyze 20 representative Japanese folktales by utilizing the 31 functions defined by Propp. At the same time, we found that there is no single basic storyline, as in the case of Russian folktales, but several basic storylines. By carefully analyzing each story, we found that there are basically four representative storylines in the case of Japanese folktales: grand finale, anecdote of origin, divine justice, and estrangement. We also found interesting phenomena such as the role of character behavior, i.e., whether there are any transitions in a character's behavior, and a methodology distinct from Propp's was explored. Based on our findings, we are now trying to develop a model of generating Japanese folktales. This will require, in keeping with this approach, an increase in the number of analyzed folktales beyond 20, from the viewpoint of developing a model. In addition, we should not only make a database of "stories" according to their "*function*" segmentations but also develop a support system for story generation using our own way of concatenating short plots. As the

stage a final parting scene. Perhaps our future analysis will alter or refine these four tendencies, but in any case a methodology distinct from Propp's idea will help in developing a novel model of story generation.

concept of "storytelling" [9] has recently attracted much attention, we can expect that related fields will become even hotter pursuits in the future.

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