

# Deconstructing Game Stories with Propp's Morphology

## Story Patterns in Role Playing Games and Cultural Differences

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**Abstract**— This paper is concerned with the following: (1) the applicability of Propp's morphology to game stories; (2) the identification of the required changes in the original framework to analyze game stories on an act/mission level; (3) the discovery of the logical sequence of story functions that form story patterns; (4) and the identification of commonly repeated story patterns as well as the cultural differences between American and Japanese game stories. The scope of this study is limited to Role-Playing Games (RPG); believing that the narrative value of RPGs coupled with the freedom of choice they offer, make this genre more suitable for a structural study of game narrative. To focus on the cultural differences and to identify repeating story patterns, three RPGs from the east and three RPGs from the west are selected. Each game's overall story is broken down into acts and then each act is mapped to Proppian functions.

**Keywords**— *game stories; game narrative; story analysis; narrative patterns; game stories and culture; Propp's morphology*

### I. INTRODUCTION

The structuralist study of the narrative [1,2,3] is concerned with the basic units of stories, such as actions, characters, and objects and influenced researchers from various fields. The most popular and well-known narrative study is 'Hero's Journey' [4] and the revision of it [5] but another influential study for the entertainment industry is Propp's Morphology of the Folktale [6]. In his study, Propp identified seven spheres of action and thirty-one functions that fit Russian folk tales. He is primarily concerned with an actor-action analysis but he also described how his framework might be used to generate tales. The entertainment industry, especially video games, is interested in the automatic construction of story plots and realized that the morphology may act as a blueprint for story generation systems.

Propp's morphology has been criticized for: having a linear sequence whereas computer game sequences are recursive and circular [7]; having a fixed sequence of events unrolling over time where the tale is destroyed if the sequence is broken [8]; being too constraining for an interactive drama where player actions are part of the resulting tale [9]; having severe limitations to story generation when used beyond its intended setting and the corpus where it arose from [10]; and being incapable of handling player choice or freedom [11]. In this context, researchers [12,13] also argued that since the conventional

author and reader roles are not applicable to computer games, it is impossible to de-construct game narratives based on structural approaches. Therefore, it can be argued that the narratological theory of Propp may be more suitable for sequential stories or quest type storylines rather than interactive ones, though it has already been applied to a number of game studies that have a narrative focus. The framework so far has been used for developing an augmented-reality interactive storytelling system [14], generating story plots based on case-based reasoning [15,16], providing narrative macro structures and events for both the story and the discourse levels of a narrative generation system [17,18].

This article is concerned with the building blocks of a story from a structuralist approach and is interested in the applicability of Propp's model to computer game stories with special emphasis on RPGs. In this regard, rather than simply testing the suitability of the model for game stories, we aim to revise the original Proppian functions and identify new ones if necessary. Furthermore, we are also interested in finding the logical sequence of these story functions to define story patterns and determine the commonly repeated story patterns as well as the cultural differences between American and Japanese game stories.

### II. MORPHOLOGY OF THE FOLKTALE AS A METHODOLOGICAL FRAMEWORK

Narrative analysis of games based on the popular story structure of Vogler [5] can be found for God of War [19] and Assassin's Creed [20] series, however, our primary aim is to question if Propp's structural narratology can be used to analyze the stories of computer games. More specifically, we are interested in finding repeating story patterns and identifying the cultural differences between game stories. The applicability of Propp's functions to game stories has already been assessed by Brusentsev, Hitchens and Richards [11] with three different games from three different genres (First Person Shooter, Action Adventure and RPG). The study found that Propp's functions can be mapped to the selected games at a higher level (overall story arc) and indicated that some additions are necessary to the original model to apply it to interactive stories. The researchers also stated that the selected RPG, Dragon Age Awakening, offers more freedom of choice and is more non-linear in terms

of story progression. In this sense, the narrative value of RPGs coupled with the freedom of choice they offer directed our study towards this genre.

The scope of this study is limited to RPGs, believing that this genre is more suitable for a structural study of game narratives. Instead of selecting unrelated games, we chose a game series from the east and a game series from the west in order to facilitate the discovery of repeating story patterns. We selected three RPGs from the east (Final Fantasy X, Final Fantasy XII and Final Fantasy XIII) and three RPGs from the west (Mass Effect, Mass Effect 2 and Mass Effect 3) to focus on the cultural differences and to identify repeating story patterns. Massive multiplayer online RPGs, Final Fantasy XI and XIV, are omitted since studying massively multiplayer online environments is beyond the scope of this article. Each game's overall story or main quest is broken down into acts and then each act is mapped to Proppian functions. This approach takes the structural game story analysis of Brusentsev, Hitchens and Richards [11] to a lower level where each story act is analyzed individually.

Proppian approaches to analyze different folk tales and game narratives point to the fact that all the functions of the framework cannot be observed in every study. Wama and Nakatsu [21] found four storylines in Japanese folktales instead of the single storyline in Russian folktales and pointed out the need for a new morphology. When adapted to Sesotho Folktales, an average of seven functions are observed in all folktales [22]. A study that analyzed MMORPG quest structures in terms of Propp's narratology found 13 essential Proppian functions and added five more to the original framework [23]. At the quest level of narrative, Brusentsev and his colleagues [11] found partial mapping of Proppian functions to game segments. Thus, our first assumption is that changes in the original functions might be needed and the introduction of new functions might be necessary to cover all the acts of selected RPGs.

Differences in the American and Japanese stories have also been identified by various studies. Lanham and Shimura [24] examined folktales from two countries and identified differences in terms of apology, forgiveness and change of character. Similar differences can also be found in animated films for children where generic elements of 'western' animated examples are largely absent from the 'eastern' narratives [25]. A comparison of American and Japanese comics draws attention to the individualism vs. collectivism opposition and identified the independency vs. interdependency with other characters as a major difference [26]. In terms of RPGs, the Western hero of solitude is replaced by a 'strength through unity' notion in the East [27]. Thus, our second assumption is that cultural differences between the stories of American and Japanese RPGs will be revealed in the story structures and repeated story patterns.

For this study, both researchers played the games under examination and took their own notes during game sessions. At the end of each game session, an act of a game is transferred to an excel sheet with partial mappings to Propp's framework. After the transfer of six complete game stories, the researchers compared their sheets and decided on a unified structure. On the second phase of the analysis, functions that need major revisions were identified and new functions were proposed.

TABLE I. PROPP'S FUNCTIONS AND EXPLANATIONS

| Functions (Icon)                    | Explanation  |
|-------------------------------------|--|
| 1- Absentation ( $\beta$ )          | One of the family members goes missing.                |
| 2- Interdiction ( $\gamma$ )        | Hero is warned about an action.                        |
| 3- Violation ( $\delta$ )           | The warning is ignored                                 |
| 4- Reconnaissance ( $\epsilon$ )    | Villain tries to learn/find something.                 |
| 5- Delivery ( $\zeta$ )             | Villain is successful in his search.                   |
| 6- Trickery ( $\eta$ )              | Villain tries to deceive the victim.                   |
| 7- Complicity ( $\theta$ )          | Victim helps villain unwittingly.                      |
| 8- Villainy (A)                     | Villain does evil.                                     |
| 8a.- Lack ( $\alpha$ )              | The need of a family member is explained.              |
| 9- Mediation (B)                    | Hero learns about the lack.                            |
| 10- Counteraction (C)               | Hero chooses to go after the lack.                     |
| 11- Departure ( $\uparrow$ )        | Hero leaves home.                                      |
| 12- First Function of the Donor (D) | Hero is prepared for the way to receive an item.       |
| 13- Hero's Reaction (E)             | Hero succeeds or fails the preparation.                |
| 14- Acquisition (F)                 | Hero acquires a magical item.                          |
| 15- Guidance (G)                    | Hero is sent after an object of search.                |
| 16- Struggle (H)                    | Hero and the villain battles.                          |
| 17- Branding (J)                    | Hero is branded.                                       |
| 18- Victory (I)                     | Hero defeats the villain.                              |
| 19- Resolution (K)                  | The initial lack is solved.                            |
| 20- Return ( $\downarrow$ )         | Hero starts the journey back home.                     |
| 21- Pursuit (Pr)                    | Hero is pursued by someone.                            |
| 22- Rescue (Rs)                     | Hero is rescued from the pursuit.                      |
| 23- Unrecognized Arrival (o)        | Hero arrives home or in another country, unrecognized. |
| 24- Unfounded Claims (L)            | A false hero makes unfounded claims.                   |
| 25- Difficult Task (M)              | A task has been proposed to hero.                      |
| 26- Solution (N)                    | The task is resolved.                                  |
| 27- Recognition (Q)                 | Hero is known by everyone.                             |
| 28- Exposure (Ex)                   | False hero or villain is exposed to the world.         |
| 29- Transfiguration (T)             | Hero is given a new appearance.                        |
| 30- Punishment (U)                  | The villain is punished.                               |
| 31- Wedding (W)                     | Hero is married and ascends to throne.                 |

TABLE II. MODIFIED AND NEW FUNCTIONS WITH EXPLANATIONS

| Video Game Functions | Explanation  |
|----------------------|--|
| 32- Confrontation    | Party faces with the henchmen or the villain.                        |
| 33- Outsider Help    | Party moves further with the help of a non-party character.          |
| 34- Rescue           | Rescuing or helping someone in captivity.                            |
| 35- Struggle         | Party encounters an obstacle to overcome by the hand of the Villain. |
| 36- Transfiguration  | Villain changes and gains more power after defeat.                   |
| 37- Travel           | Movements of the party within the world.                             |
| 38- Addition         | A new member joins to the party.                                     |
| 39- Bargain          | Party tries to make a deal with the villain.                         |
| 40- Capture          | A member or the whole party gets captured.                           |
| 41- Comeback         | A defeated enemy comes back.   |
| 42- Disband          | Party members leave the party.                                       |
| 43- Escape           | Party escapes from the villain's grasp.                              |
| 44- False Victory    | Defeating the villain hinders the party in some way.                 |
| 45- Gain             | Events that help the party in their journey.                         |
| 46- Gathering        | Unification of separated party members.                              |
| 47- Heroic Act       | Heroism of the party members without a gain.                         |
| 48- Loss             | Events that hinder the party in their journey                        |
| 49- Persuasion       | Party tries to get help from non-party characters.                   |
| 50- Planning         | Party tries to find a way to exploit the villain's weaknesses.       |
| 51- Reveal           | Explanation of the key points of the story to the player.            |
| 52- Sacrifice        | The event of saving the party with self-sacrifice of a character.    |

Colored for story charts, orange as a modified, green as a new function

Seven Proppian functions were re-defined. The descriptions for these functions that arise from Russian folk tales have been replaced with a different set of descriptions. These are the

struggle, the first function of the donor, the rescue, the transfiguration, the departure and the return. "Struggle" is defined as the battle between the hero and the villain but we divided it into two parts: the first one, "Confrontation", is the battle with the villain or the henchmen of him/her and the second one, "Struggle", is an obstacle to overcome provided by the villain. The first function of the donor is modified as "Outsider Help" since outsiders can directly help the player showing the right path, instead of giving an item. The original "Rescue" function represents a situation where the hero is saved from pursuit but in game stories there are many side characters that can be saved from various situations. The original transfiguration is the change in the hero but our new "Transfiguration" is the change in the villain, which usually results with new/more powers. Unlike folktales, most game stories do not end up at the starting place named as home. The player or the party leaves (departure) many locations; travels to new ones, and can also go back (return) to some of them. Thus, we combined these two functions as "Travel" representing each transition from a location to another. This function usually evokes another function to form a pair and if the player or the party does not go to that location the story does not progress. At the end of the coding, we had 31 original Proppian functions (see Table I), 6 modified and 15 new functions (see Table II).

To further explain the coding process, let us take a look at the deconstruction details of an example mission/act, "Stop the Collectors: Assemble a Team" from Mass Effect 2. The protagonist, Shepard, is charged with the duty to recruit a team (Difficult Task). The Illusive Man gives information to Shepard about potential recruits: Archangel, Convict, Professor and Warlord (Outsider Help). At this point, the player has four Dossier missions with three choices: to travel to Omega for the Professor and the Archangel, to travel to Korlus for the Warlord, and to travel to Purgatory Prison for the Convict. If the party goes to Omega after Professor and Archangel (Travel), the player learns that the Professor is Mordin, who is trying to stop a plague created by the antagonists, Collectors (Reveal). Shepard helps Mordin to stop the plague (Struggle) and Mordin joins the crew after dealing with the plague (Addition). The player also learns that Archangel is Garrus and is fighting with three mercenary gangs (Reveal). Shepard starts fighting these

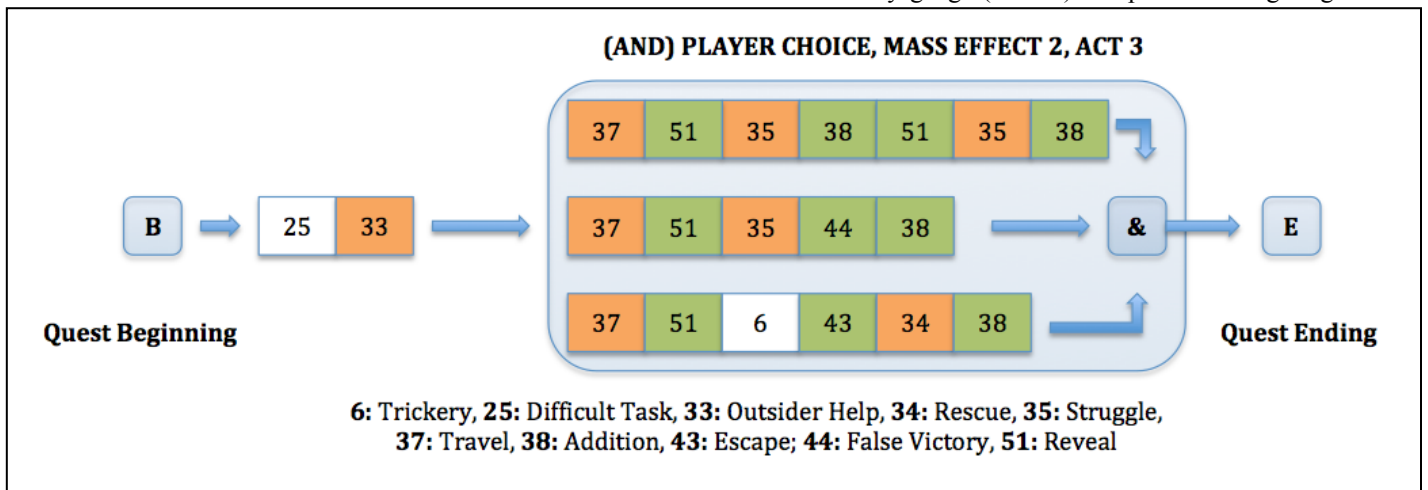


FIGURE I. Mass Effect, Act 3, Story Representation

gangs (Struggle). At the end, Garrus is found lying in a pool of his own blood but he survives and joins the crew (Addition). If the party goes to Korlus after the krogan warlord (Travel), they learn that the Warlord Okeer is trying to create a perfect krogan (Reveal). The mercenary group, Blue Suns, attacks the lab to kill Okeer and Shepard (Struggle). Shepard manages to stop the attack but Okeer dies (False Victory). Before he dies, Okeer leaves the perfect krogan soldier, Grunt, under the care of Shepard (Addition). If the party goes to Purgatory prison ship to get the biotic (Travel), they learn that Cerberus will purchase the biotic from the ship (Reveal). Warden attempts to capture Shepard for a bounty (Trickery) but the party escapes the trap (Escape), gets Jack (Rescue) and Jack joins the crew (Addition).

The functional sequence of this act is affected by a choice (see Fig. 1) and there are six different alternatives (see Figure 2). The choice is an AND choice where all the three alternatives have to be completed to progress in the story. The player can start with any Dossier mission and proceed to the next but at the end he/she has to complete three Dossier missions. This is more like an illusion of choice, rather than a choice affecting the story.

There are also OR choices in the acts where the player has to make a real choice and complete one alternative to progress in the story. This is more like a branching in the storyline and usually changes the story. Regardless of the nature of choice, what we get at the end is a sequence of story functions represented by numbers, such as the six alternatives given in Figure 2. Based on these linear number sequences, we define a story pattern consisting of n functions as a block of an act with consecutive n functions, such as the Travel-Reveal-Struggle three-function pattern represented by 37-51-35, encountered twice within the Act 3 of Mass Effect 2 (see Fig. 3).

The identification of all the possible patterns and the search for the recurring patterns in the story matrix (which represents all the acts of all the selected games) are handled by a pattern finder written in C#. The code finds all the possible patterns (n>=3) by searching through the matrix and saving a list of unique ones. Then it searches through the story matrix for the occurrence of these patterns based on our selection criteria (single game, series of games, all the games). At the end of the analysis, we focused on the similarities and differences between

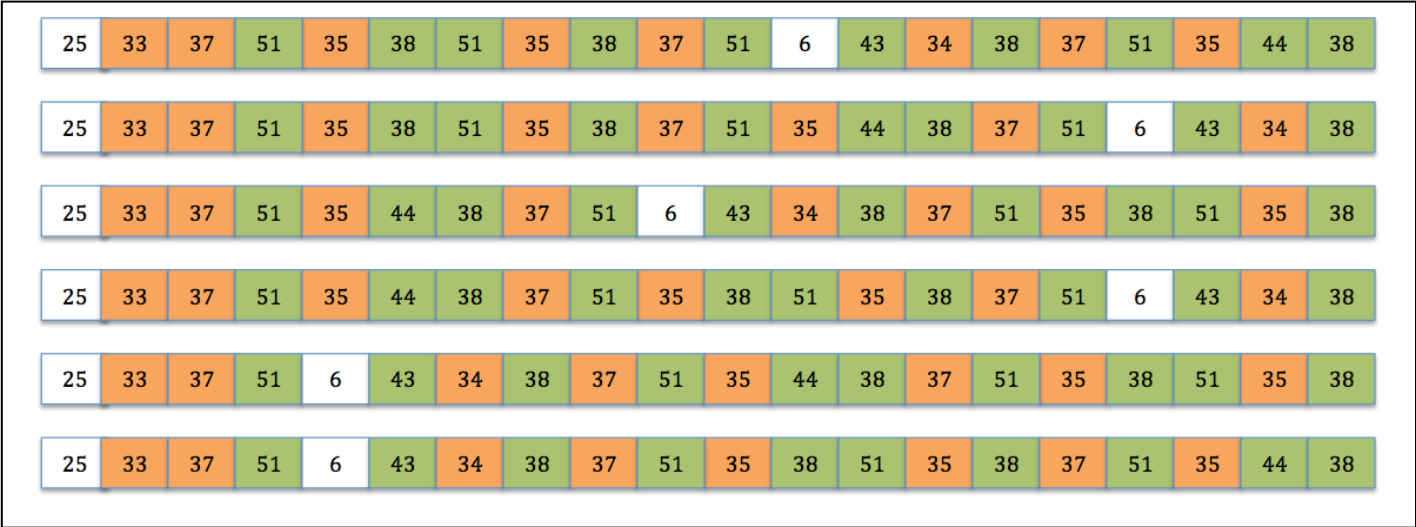


FIGURE II. Mass Effect, Act 3, Story Alternatives

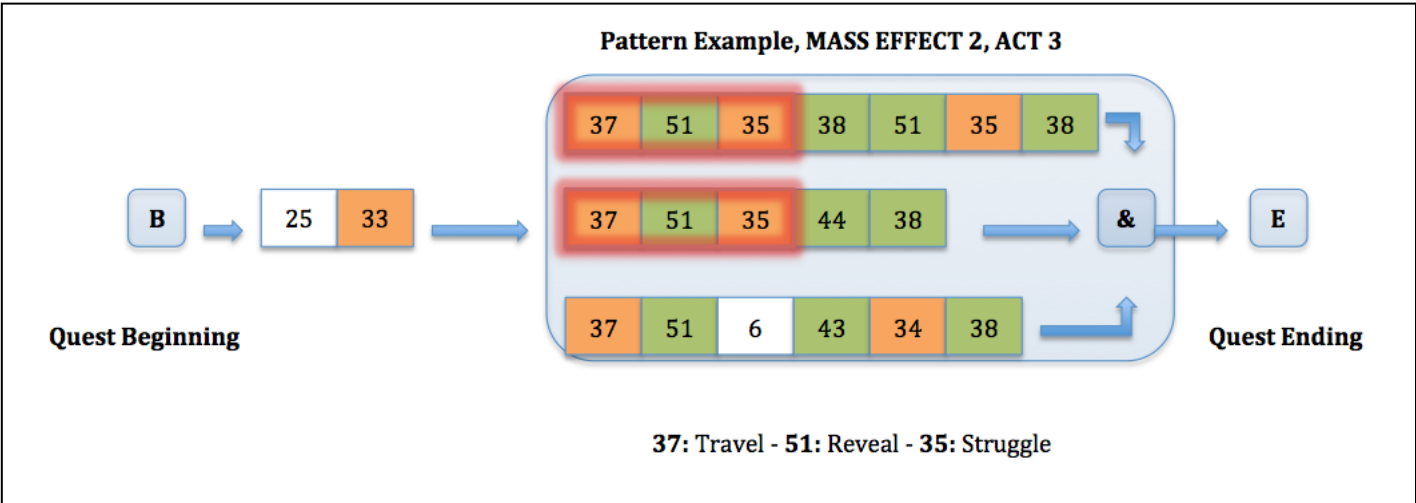


FIGURE III. Pattern Example, Mass Effect2, Act 3

the Mass Effect and Final Fantasy series to identify possible cultural differences. When we take a look at the micro-patterns (n=3, n=4), the variety (number of different patterns) and the frequency (number of occurrences for all patterns) are higher in the Mass Effect series. As for the macro-patterns (n=5, n=6), these can only be found in the Mass Effect series and there are no macro-patterns in the Final Fantasy series (see Fig. 4 and 5).

The most frequently used 3-function pattern is the Reveal-Struggle-Reveal, which can be found twelve times in the Mass Effect series and seven times in the Final Fantasy series. Two other frequently utilized patterns are Travel-Reveal-Struggle and Difficult Task-Travel-Reveal. The most common 4-function pattern for both game series is the Travel-Reveal-Struggle-Reveal, which encompasses the 3-function Travel-Reveal-Struggle pattern. The occurrences of story patterns are not high enough to make a valid conclusion but three functions (Reveal, Struggle and Travel) are emerging as the dominant components of story patterns. Five and six-function patterns are only observed in the Mass Effect series.

### III. CONCLUSION

The combination of narrativity and interactivity in computer games makes it difficult to adapt structural analyses of texts to computer games. Ryan [28] clearly made a distinction between the narrative game and the playable story. In a narrative game, the narrative meaning governs the player's actions and in a playable story, it is the player's actions that define the narrative meaning. Narrative games use a 'representological' concept of narrative where the player feels consciously present but physically absent in the expressed events and the playable stories use a 'presentological' concept of narrative where the player is physically anchored in the world of the story [29]. Ferri [30] also argued that video games are not literary or cinematographic "texts" as defined by structuralist semiotics but rather "interactive matrices", semiotic devices that produce many textual fragments. In this regard, the selected games for this study are playable stories where user choices affect the story and since the structure of game stories are different than literary texts, it demonstrated that Propp's morphology needs revisions for mapping it to game stories.

On an act level narrative, as predicted, Propp's functions can only partially be mapped to game stories. Some of the functions need modifications and new functions are needed to cover the entire acts. The main difference between Russian folk tales and game stories is that the protagonist is not alone in his/her adventures. The addition of side characters further complicates the stories and the player's relationship with these characters is one of the main reasons for function modifications and inventions. The number of locations is also a major difference between Russian folk tales and game stories. Folk tales start with a departure where the hero leaves his/her home and at the end of the story the hero returns to the same location. The definition of 'home' for a game protagonist is usually blurry and the hero travels between various locations to complete the acts of a story. Finally, representing 'player choice' with Proppian structures is possible with AND/OR structures but it complicates the representation of story patterns.

The cultural differences between the American and Japanese stories can be observed from the variety and frequency of story

patterns. American game stories use more patterns and the repetition of patterns is higher than the Japanese counterparts. The non-existence of five and six-function patterns in Japanese game stories also needs attention. In line with this, we can imply that American games are using the same structures over and over in their stories whereas the Japanese games are using different story building blocks where the pattern repetition rates are lower. The identification of prominent n-function story patterns is not possible since the number of occurrence for each story pattern is usually very low but the Reveal, Struggle and Travel functions are the most popular individual patterns utilized in story patterns.

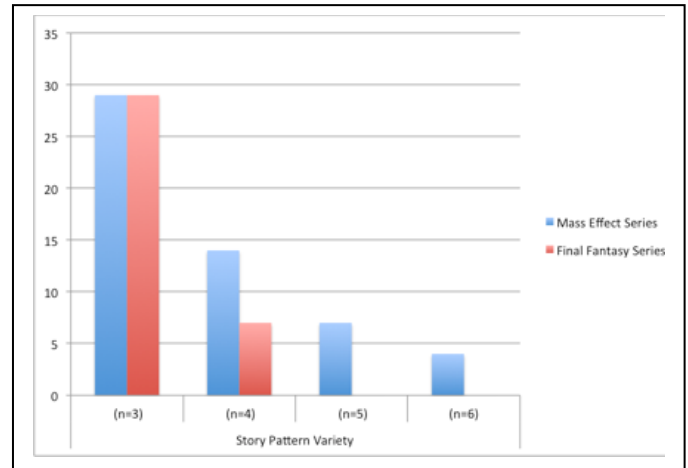


FIGURE IV. Story Pattern Variety, Mass Effect and Final Fantasy comparison

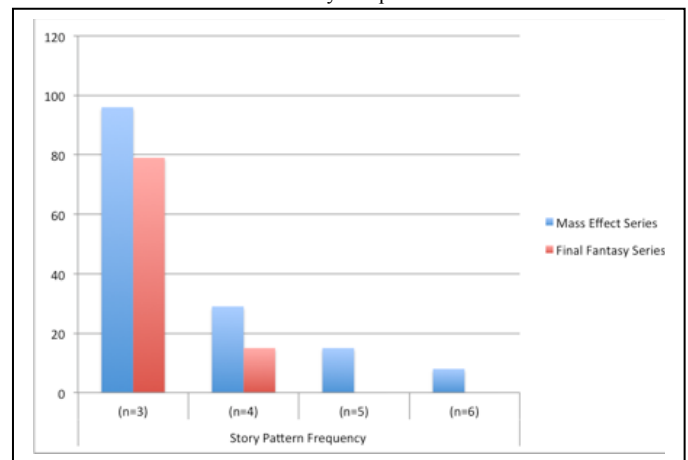


FIGURE V. Story Pattern Frequency, Mass Effect and Final Fantasy comparison

The applicability of Propp's model to computer game stories is addressed in this study with the revised and new functions, showing that an act level mapping is possible. Representing choice, finding the logical sequence of story functions and determining the commonly repeated story patterns are also accomplished within the scope of our study but it is not possible to make valid conclusions about the cultural differences between American and Japanese game stories. In this regard, the modified framework of Propp needs mapping to more Eastern and Western games in order to make a solid comparison.

Differences can be observed in terms of pattern variety, pattern frequency and pattern structures but the generalizability of the results requires more research and analysis focusing on RPGs from both cultures.

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