

# ChatGPT as a Narrative Structure Interpreter

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**Abstract.** Narrative structures define the skeleton of narratives and help at identifying common structures in stories, that then can be used to compare structures, define variations, and understand prototypical [structural] components. However, narrative structures are just one piece of the puzzle, their interpretation is what gives room to the stories seen in transmedia storytelling. In principle, a structure can be interpreted and developed with a myriad of stories, but requires some type of corpus to develop it further. Large language models such as ChatGPT could be employed for this task, if we are able to define a good narrative structure and give the tools to the algorithm to develop them further. For this paper, we use a narrative structure system called TropeTwist, which employs interconnected tropes as narrative structures, defining characters, conflicts, and plot devices in a relational graph, which gives raise to a set of trope micro- and meso-patterns. Using ChatGPT and through the web interface, we communicate all the possible elements to be used from TropeTwist and tasked ChatGPT to interpret them and generate stories. We describe our process and methodology to reach these interpretations, and present some of the generated stories based on a constructed narrative structure. Our results show the possibilities and limitations of using these systems and elaborate on future work to combine large language models for other tasks within narrative interpretation and generation.

**Keywords:** Narrative Structures · Large Language Models · ChatGPT · Games · Story Generation.

## 1 Introduction

Narrative structures are fundamental to the definition of stories, and different authors have propose different ways to structure them based on the stories they analyze and the systems before them [6, 21, 7, 5]. These structures define the design and configuration of stories, important elements within them and their relation, and key characteristic events. Barthes argues that these can be used to define how a story is to be developed [6], and could be used as an abstract representation.

Structures could be identified and be recurrent among stories, but interpreted in a plethora of ways; usually due to structures being more complex than just a single element. For instance, the hero’s journey is described in 17 stages [9] or Propp’s analysis on the morphology of russian folktale revealing 31 “narremes” [21]. This makes interpreting structures challenging. Some systems such

as Szilas’ ID Tension [26] or Scheherazade [12] consider elements of narrative structure in their design. However, most of these systems are, to some extent, complex since they need to represent and define many aspects of the story, making them richer. This is mainly done to simplify the interpretation process. For instance, the story beats in the narrative game *Façade* encoded a large amount of information (prerequisites, mandatory and optional inputs, actions, dialogues, and possible outputs) to facilitate their selection, concatenation, and final interpretation [17]. On the other hand, there are systems such as TropeTwist [2], that simplify the authoring process of the structure by not encoding as much information, but complexifies the interpretation step.

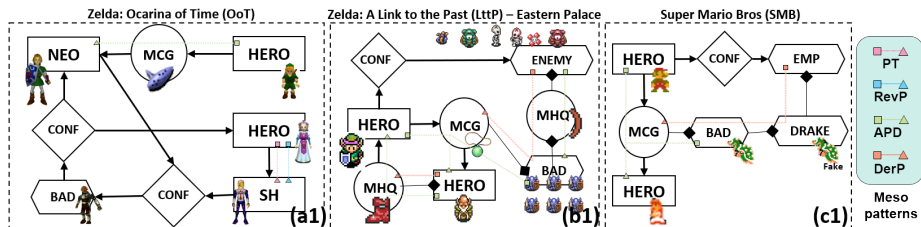
There are some advantages with these simplified systems such as more diversity at the interpretability step, faster development of structures, and simpler definitions, but interpreting these structures become a more complicated endeavor. A single narrative structure in TropeTwist can be interpreted in many ways, and its authors discuss that the ones presented in their paper are just a single interpretation - aligned with the structurally described game. Therefore, interpreting these [and other] type of narrative structures is a big challenge for narrative generation.

In this paper, we approach this challenge using large language models (LLM) and ChatGPT given its easy-to-use interface and the way we communicate the system rules. Given LLMs nature, varied outputs can be requested from the same prompt. We combine TropeTwist as narrative structure system and chatGPT as interpreter and generator. We present preliminary results from interfacing with chatGPT, analyze these qualitatively, discuss limitations and problems with using these type of models, and present our future work directions to foster ideation in the creative process.

## 2 Background

Propp [21] analyzed Russian folktales and their structure, which resulted in 31 steps; emphasizing that the arrangement of these structural steps gave meaning to the story discourse. Bremond [7] expanded Propp’s analysis and proposed concepts and developed them into *sequences* as temporal and causal structures considering narrative possibilities resulting from choices. Contemporary to this, Barthes [6] proposed fundamental narrative unit to better assess and identify narrative structures. Baikadi and Cardona-Rivera [5] further discuss these fundamental units as *narremes*, encoding narrative state. TropeTwist [2], the system we use in this paper, use narrative structures with tropes [13, 16] as the core way to define narrative in games and propose ways to generate them.

Furthermore, narrative, story, and quest generation have been tackled with different techniques such as planning algorithms [23, 29, 15] or grammars [11, 4]. Lately, large language models and systems using these techniques such as GPT and ChatGPT have been used for the generation of narrative and quests [24, 28], and other type of content for games [27, 25]. For instance, Chung et al. [10] explored the challenge of guiding narrative in GPT models, proposing a tool



**Fig. 1.** Narrative structures of existing games created using TropeTwist and the set of available nodes. Adapted from [2].

to sketch stories with GPT-3. Méndez and Gervas preliminary evaluated the potential use of ChatGPT for story sifting and its limitations [18], which had a similar objective as the one in this paper; to preliminary evaluate ChatGPT capabilities for narrative interpretation.

### 3 TropeTwist and ChatGPT

TropeTwist and ChatGPT were combined to generate narrative structures and interpretation and stories, respectively.

#### 3.1 TropeTwist

TropeTwist [2] is a narrative structure system that uses tropes as its base resource [14, 13], and employs them as nodes and patterns, in a narrative structure graph. TropeTwist can be used to define generic and structural aspects of a story, leading to the identification of events, roles, and narrative elements. All of these are represented as nodes in an interconnected narrative graph. Nodes represent tropes (characters, conflicts, and plot devices) and can be connected to other nodes by means of three different connections: unidirectional edges ( $\rightarrow$ ), denoting a relationship from a node to another node; bidirectional edges ( $\leftrightarrow$ ), denoting a reflexive relationship between two nodes; and entailment edges ( $\diamond$ ), denoting a node entails another. The authors developed three narrative structures depicting different games and situations shown in figure 1, which we use to experiment in this paper. TropeTwist’s full definition, and how their graphs are composed, generated, and evaluated can be found in the original paper in more detail [2, 3].

#### 3.2 ChatGPT

ChatGPT is a system and chatbot developed by OpenAI in the end of 2022 that builds on top of the previously developed Generative Pre-trained Transformer (GPT) models [22, 8]. GPT models are Large Language Models (LLM) that are trained with a large amount of text data and can be used to tackle many of the

natural language processing (NLP). ChatGPT training is based on Reinforcement Learning from Human Feedback [20], where human AI trainers provide and rank conversations with the system<sup>1</sup>.

## 4 Process and Methodology

In this paper, TropeTwist is used to define narrative structures and ChatGPT (GPT version 3.5) to interpret them and generate a basic story. We defined the narrative structure of the general arc of *Zelda: Ocarina of Time* (ZOoT) [19] like in the original TropeTwist paper (shown in figure 1.a). This narrative structure graph was then used as a prompt for ChatGPT, and ChatGPT was tasked to interpret and generate a story.

TropeTwist system was adapted, compressed, and formalized as a chat prompt for ChatGPT. All possible tropes were given to ChatGPT along with their overarching category with a brief description of each adapted from table 1 in the TropeTwist original paper [2] as well as the connections and their description. Then, the narrative structure to be interpreted was given to ChatGPT as a prompt. The following are the prompts used for ChatGPT:

The following are the type of tropes that exist in the system. There doesn't need to be temporality within the system. Whenever you find one of these within "[ ]" you can replace it with the appropriate information:

Heroes:

- [HERO]: generic hero
- [5MA]: 5 man band (5 heroes)
- [NEO]: the chosen one
- [SH]: super hero

Enemies:

- [ENEMY]: generic enemy
- [EMP]: the empire is a collective enemy
- [BAD]: Specific enemy, which is the ultimate cause for all the bad.
- [DRAKE]: the dragon is a type of enemy that can be anything and is the right hand of [BAD]

Conflicts:

- [CONF]: Non-specific problem to overcome between characters

Plot devices:

- [PLD]: a feature or element that drives the plot forward
- [CHK]: a plot device relevant to the story
- [MCG]: A plot device with irrelevant nature to drive the story
- [MHQ]: A plot device important to resolve a conflict

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<sup>1</sup> <https://openai.com/blog/chatgpt>

**Table 1.** Sample generated stories with ChatGPT using as narrative structure the one presented in figure 1.a.

<p>In the peaceful kingdom of Elysia, a renowned hero named Leon ([HERO]1) stumbles upon an ancient artifact known as the Crystal of Destiny ([MCG]1). Intrigued by its mysterious powers, Leon embarks on a quest to unravel its secrets. Little does he know that the crystal holds the key to the emergence of a chosen one, Sophie ([NEO]1). As Sophie discovers her destiny, a conflict ([CONF]1) arises that threatens the tranquility of Elysia. A malevolent sorcerer, Lord Mortis ([BAD]1), seeks to unleash chaos and darkness upon the kingdom. Sophie finds herself entangled in this conflict, driven by her innate abilities and the weight of her newfound responsibility.</p> <p>However, Lord Mortis is not content with a single conflict. He manipulates forces and orchestrates another crisis ([CONF]2), determined to crush Sophie's spirit and thwart her journey. Unbeknownst to him, this conflict also draws the attention of another hero, Emily ([HERO]2), who possesses extraordinary superhuman powers ([SH]1).</p> <p>As Emily joins forces with Sophie, their combined strength and determination become a beacon of hope in the face of Lord Mortis's malevolence. Together, they confront their fears and insecurities, forging a powerful alliance to stand against the encroaching darkness.</p> <p>The conflict ([CONF]1) intensifies as Sophie and Emily face Lord Mortis and his minions. United by their unwavering resolve, they navigate treacherous landscapes, engage in epic battles, and ultimately expose Lord Mortis's true intentions. In a climactic showdown, Sophie's latent powers fully manifest, elevating her to a new level of strength and mastery. With Emily's support, she confronts Lord Mortis head-on, unleashing a wave of light and hope that banishes the darkness from Elysia. As the kingdom celebrates their victory, Sophie and Emily part ways, knowing that their bond and the triumph over evil will forever be etched in the annals of Elysian history. Sophie embraces her role as the chosen one, while Emily continues her journey as a beacon of justice and inspiration for those in need.</p> <p>In a world plagued by darkness and oppression, a [HERO]1 emerges. Little do they know that their journey will lead them to uncover a hidden truth that will shape their destiny. The [HERO]1 encounters a mysterious plot device ([MCG]1) that holds the key to unlocking their true potential. As the [HERO]1 delves deeper into their quest, they begin to realize that they are more than just an ordinary hero. They are the [NEO]1, the chosen one destined to bring balance and restore peace to the land. This revelation sets them on a path of self-discovery and understanding their true purpose.</p> <p>However, the path to fulfilling their destiny is not easy. The malevolent [BAD]1, the ultimate cause of all the chaos and suffering, becomes aware of the [NEO]1's existence. [BAD]1 sees the potential threat posed by the [NEO]1 and sets in motion a series of conflicts ([CONF]2) aimed at stopping them. Unbeknownst to [BAD]1, their actions inadvertently lead to an unexpected encounter. During a particularly intense [CONF]2, [HERO]2 reveals their true identity as [SH]1, a super-powered being capable of extraordinary feats. This revelation surprises both [BAD]1 and [HERO]2, creating a unique dynamic in the conflict.</p> <p>Meanwhile, [NEO]1, driven by their newfound purpose, faces another conflict ([CONF]1) directly with [BAD]1. The clash between [NEO]1 and [BAD]1 intensifies as they challenge each other's beliefs and motivations. Each confrontation brings them closer to understanding the true nature of their entangled destinies.</p> <p>Simultaneously, [SH]1, now aware of their own significance, embarks on a personal journey to reconcile their superpowers with their role as a hero. They encounter various obstacles and conflicts ([CONF]1) orchestrated by [BAD]1, ultimately leading to a final confrontation between [SH]1 and [BAD]1. The story reaches its climax as the intertwining conflicts and destinies of the [NEO]1, [HERO]2/[SH]1, and [BAD]1 converge. The resolution of these conflicts holds the key to the world's fate and the ultimate triumph of either darkness or light. The question remains: Will the [NEO]1 fulfill their prophecy and overcome [BAD]1, or will the forces of evil prevail?</p>
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The following are the type of connections that exist between tropes and nodes. They will be within “ ” you can interpret them as you want:

Connections:

- ‘->’: connection from an element towards an element
- ‘<->’: bidirectional connection between elements
- ‘<>-’: connection representing entail. A element entails another element.

Finally, there might be more than one hero, enemy, conflict, and plot device named the same. I will write a number outside the “[ ]” to represent the same element.

## 5 ChatGPT as Interpreter

We evaluated ChatGPT possibility to be used as an interpreter of narrative structures and generate stories by evaluating qualitatively the interaction with the systems and its output. Following the process described in section 4, we defined the narrative structure in figure 1.a as a prompt for ChatGPT. We used two prompts for ChatGPT, one where we asked ChatGPT to interpret, describe, and generate a story from the structure (sample shown in table 1 row 1), and

another with our interpretation, requesting ChatGPT to generate a story from it (sample shown in table 1 row 2). The following is the prompt without our interpretation:

Now, lets test this! The following is a narrative structure I designed (it will be in different lines but it all belong to the same structure). Please interpret the structure, describe it using the information above, and develop a story of around 200 words from it.

[HERO]1 ‘->’ [MCG]1 ‘->’ [NEO]1  
 [NEO]1 ‘->’ [CONF]1 ‘->’ [BAD]1  
 [BAD]1 ‘->’ [CONF]2 ‘->’ [NEO]1  
 [BAD]1 ‘->’ [CONF]2 ‘->’ [HERO]2  
 [HERO]2 ‘->’ [SH]1  
 [SH]1 ‘->’ [CONF]1 ‘->’ [BAD]1

Our interpretation added the following paragraph:

My interpretation of that narrative structure is the following:

The [BAD]1 has a [CONF]2 with [HERO]2, but a plot twist is that [HERO]2 is actually [SH]1, and [SH]1 who has a [CONF]1 with [BAD]1. Simultaneously, [HERO]1 has as first objective to collect the [MCG]1 and that would mean that the [HERO]1 is the [NEO]1. Now, given the apparition of [NEO]1, [BAD]1 has a [CONF]2 with [NEO]1, and reciprocally, [NEO]1, has a [CONF]1 with [BAD]1.

We prompted ChatGPT multiple times with both prompts to interpret and generate stories resulting in slightly different stories but with a similar interpretation. The structure might have been straightforward with the connections used and some parts could be seen as temporal and causal steps. For instance, [HERO]1 ‘->’ [MCG]1 ‘->’ [NEO]1, and the subsequent connection between [NEO]1 ‘->’ [CONF]1 ‘->’ [BAD]1, could be interpreted as the need of [HERO]1 to find [NEO]1 before any conflict with [BAD] to arise. However, when focusing on the game that the structure is based on, we see that these are not necessary.

The resulting stories proposed interesting arguments and developments yet not as diverse as expected. For instance, they all account for some artifact that needs to be acquired and inspected ([MCG]1) and with that the [HERO]1 will encounter and find [NEO]1. However, the use of the artifact and how NEO appears differs in the stories. The story remained similar when using our interpretation, but certain parts were adapted to it, such as [HERO]1 ending being [NEO]1 rather than finding them when investigating [MCG]1. Conflicts were interpreted as-is. Instead of seeing them as conceptual, the system interpreted as a particular event or series of challenges that needs to be overcome.

## 5.1 Limitations

TropeTwist has a small sample of categories and tropes, which limits the structures that can be defined. We did not give ChatGPT access to the possible patterns or tested the reflexive and entailment connections, which could give space

to even more wide narrative interpretations. Further, we acknowledge that the challenges of using tropes could be amplified with LLM and ChatGPT given that these systems already encode many biases, and should be used with caution. Regarding creativity, tropes could be seen as something to avoid. Yet, we see their simple definition and connections, and possible wide range of interpretations as a strength when used adequately.

## 6 Conclusion and Future Work

We presented our process, methodology, and prompts for a preliminary exploration of using ChatGPT as a narrative interpreter and generator when provided a formal definition of a narrative structure with TropeTwist [2]. The samples presented in table 1 are just some of the stories generated by one narrative structure depicting the overarching story arc of ZOoT.

We see the potential of LLMs and ChatGPT to receive a formalization of narrative structure systems and for them to interpret and generate stories, and even generate structures themselves. This could then allow to fully generate a story at different stages of the narrative (structure, interpretation, story). However, we see this combination between TropeTwist and ChatGPT as a mixed-initiative tool that can help the generation and production of stories, where a quick interaction loop would be necessary. As starting point, TropeTwist is already implemented in a mixed-initiative tool (Story Designer [3]) that interfaces between narrative and level design [1]. Our evaluation was qualitative and based on our expectations, which needs to be further supported with user studies and deeper analysis of the interaction. For instance, what are the parts that create more meaningful differences in the final story and how can we emphasize those are open questions. Understanding the value of these systems and their usability and user experience is a fundamental next step.

In general, while the system’s output was not as diverse as expected, the slight differences in the generated stories create an interesting starting point for constructing a story or as a step in a refinement process.

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