

Tagging Narrative with Propp's Character Functions Using Large Language Models



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Text2Story 2024
Seventh International Workshop on Narrative Extraction from Texts
Glasgow, Scotland, 24th March 2024

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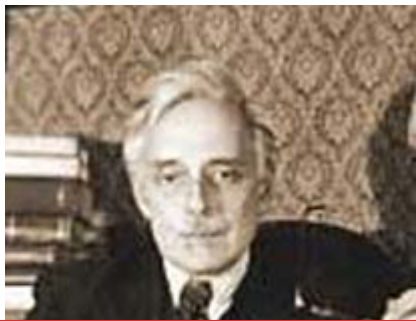
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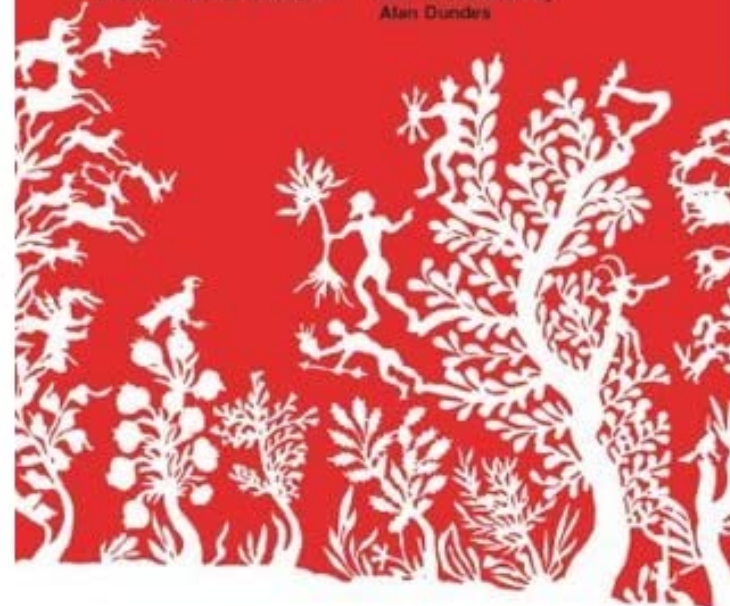
A Corpus of Discourses for Stories

Morphology of the Folktale

By V. Propp

First Edition Translated by
Laurence Scott with an
Introduction by
Svatava Pirkova-Jakobson

Second Edition Revised and
Edited with a Preface by
Louis A. Wagner
New Introduction by
Alan Dundes



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Russian folk tales compiled
by Afanasiev

APPENDIX II

FURTHER TECHNIQUES OF ANALYSES

1. Analysis of a simple, single-move tale of class H-I, of the type: kidnapping of a person.

131. A tsar, three daughters (α). The daughters go walking (β^1), overstay in the garden (δ^1). A dragon kidnaps them (A^1). A call for aid (B^1). Quest of three heroes ($C\uparrow$). Three battles with the dragon (H^1-I^1), rescue of the maidens (K^4). Return (\downarrow), reward (w°).

$\beta^1\delta^1A^1B^1C\uparrow H^1-I^1K^4\downarrow w^\circ$

2. Analysis of a simple single-move tale of class M-N of the type: expulsion by water, coming ashore (A^{10}).

247. Merchant, wife, and son (α). A nightingale foretells the humiliation of the parents by the son. (Prophecy. Table I, No. 8. This serves as the motivation for the villainy.) The parents place the sleeping boy in a boat and set it adrift ($A^{10\uparrow}$). Boatmen take him with them (G^2). They arrive at Xvalýnsk (substitute for a faraway kingdom). The tsar sets the following task: to guess what the ravens cry in the royal courtyard and to drive them off (M). The boy resolves the task (N), marries the tsar's daughter (W^*), travels home (\downarrow); en route he recognizes his parents at an overnight lodging place (recognition).

$\eta^2A^{10\uparrow}G^2M-N W^*\downarrow Q$

Remark: The little boy fulfills the task because he has known the language of the birds from birth. Here element F^1 is dropped out—the transmission of a magical property. Consequently, the helper is also absent, and his attributes (wisdom) are transferred to the hero. The tale has preserved the rudiment of this helper: the nightingale which has foretold the humiliation of the par-

Table 1

Character functions proposed by Propp.

Absentation	The villain or a member of the family leaves the home	Branding	The hero is marked or identified
Interdiction	A prohibition is imposed on the hero	Victory	The hero defeats the villain.
Interdiction violation	The interdiction is violated	Liquidation of lack	Villainy or lack resolved
Reconnaissance	The villain attempts to obtain information	Return	The hero returns
Delivery	The villain gains information or an object	Pursuit	The villain chases the hero
Trickery	The villain deceives the hero to gain an advantage	Rescue from pursuit	The hero is saved from pursuit or danger
Complicity	The victim submits to deception.	Unrecognized arrival	The hero arrives unrecognized
Villainy or lack	The villain causes harm or injury or someone lacks something they want	Unfounded claims	A false hero claims hero status
Mediation	Misfortune is made known	Difficult task	The hero is given a difficult task
Counteraction	The hero reacts to the villain's actions	Solution	The task is accomplished or resolved
Departure	The hero leaves home	Recognition	The hero is recognized or acknowledged
1st donor function	The hero is tested by a potential donor	Exposure	The villain's identity or deception is exposed
Hero's reaction	The hero reacts to the test	Transfiguration	The hero undergoes a transformation.
Receipt of agent	The hero acquires a magical agent	Punishment	The villain receives punishment or consequences.
Transfer	The hero is hero directed or taken to new location	Wedding	The hero marries or is rewarded
Struggle	The hero and villain engage in direct conflict.		

Propp's spheres of action

- the villain
- the donor (provider)
- the helper
- the princess (or sought-for person)
- the dispatcher
- the hero or victim
- the false hero.

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Propp includes in his book (Appendices II and III) a number of examples of how character functions might be assigned to tales in the corpus.

He presents them as assignments of character functions to spans of synopses of the plot of the tale in question.

These synopses have been used as input to the system.

The tales considered correspond to numbers:

93, 104, 123, 127, 131, 133, 139, 155, 198, 244 and 247.

Tale 104 with character functions as assigned by Propp

A girl called Vasilisa has a miraculous doll (*Acquisition of Magical Agent*). The tsar does not have a wife (*Lack*). Vasilisa goes to town. Vasilisa settles in an old woman's house (*Unrecognised Arrival*). The old woman buys Vasilisa some flax. Vasilisa spins unusually fine yarn from the flax. The doll makes a loom for Vasilisa in one night (*Acquisition of Magical Agent*). Vasilisa weaves unusually fine linen on the loom. The old woman takes the linen to the tsar. The tsar orders that shirts be sewn by the one who has spun and woven the linen (*Difficult Task*). The girl sews the shirts from the linen (*Task Resolved*). The tsar sends for Vasilisa. Vasilisa marries the tsar (*Wedding*).

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ChatGPT's response to the question: "Do you know about Propp's character functions?"

Vladimir Propp, a Russian folklorist and scholar, identified and analyzed common narrative elements in Russian folktales. One of his most notable contributions is his identification of "morphology of the folktale," which includes what he termed "character functions." Propp identified 31 character functions that frequently appear in folktales. Here's a brief overview of Propp's character functions:

Propp's character functions as understood by ChatGP (1)

1. Hero: The central character whose actions drive the narrative forward.
2. Villain: The antagonist who opposes the hero and creates conflict.
3. Donor: A character who provides the hero with an important magical item or assistance.
4. Helper: A character who aids the hero in their quest.
5. Princess/Prize: The sought-after object or person that motivates the hero's journey.
6. False hero: A character who initially appears to be the hero but is later revealed as deceitful or unworthy.
7. Dispatcher: The character who sends the hero on their quest.
8. Helper's Object: An item or tool provided by the helper to aid the hero.
9. Magical agent: A supernatural object or ability that aids the hero in their quest.
10. Interdiction: A prohibition or rule that the hero must follow.
11. Violation: The hero's breaking of the interdiction.
12. Reconnaissance: The hero gains information or gathers allies to aid them.
13. Delivery: The villain learns information or acquires the hero's sought-after object.
14. Trickery: The villain attempts to deceive or manipulate the hero.
15. Complicity: A character knowingly helps the villain.
16. Villain's lack: A need or desire that motivates the villain's actions.

Propp's character functions as understood by ChatGP (2)

17. Mediation: A character intervenes to resolve conflicts or aid the hero.
18. Counteraction: Actions taken to thwart the villain's plans.
19. Departure: The hero leaves home or sets out on their journey.
20. First function of the donor: The hero encounters the donor and receives assistance or magical items.
21. Hero's reaction: The hero responds to the actions or challenges presented.
22. Receipt of a magical agent: The hero gains a magical item or ability.
23. Guidance: The hero receives advice or guidance from a mentor or wise figure.
24. Struggle: The hero faces obstacles or battles opponents.
25. Branding: A mark or recognition bestowed upon the hero.
26. Victory: The hero overcomes the villain or achieves their goal.
27. Liquidation: The villain is defeated or punished.
28. Return: The hero returns home or completes their journey.
29. Pursuit: The villain or antagonist pursues the hero.
30. Rescue: The hero is rescued or aided by another character.
31. Unrecognized arrival: The hero returns home or achieves success incognito, unrecognized by others.

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Propp's character functions as understood by Gemini

- Sphere of action 1 - Preparation: initial situation, absentation, interdiction, violation, reconnaissance, delivery of information, trickery, complicity.
- Sphere of action 2 - Departure: mediation, beginning of the counteraction.
- Sphere of action 3 - The Hero's Actions: hero's departure, first function of the donor, tests of the hero, acquisition of magic agent, hero's reaction, spatial translocation, struggle, branding, victory.
- Sphere of action 4 - Return: liquidation of the lack, return, pursuit, rescue, unrecognized arrival, false hero's claims.
- Sphere of action 5 - Recognition and Reward: difficult task, exposure of the false hero, transfiguration, wedding.
- Sphere of action 6 - Resolution: punishment, resolution.

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Prompt used for Zero-Shot Tagging

Can you annotate this tale using Propp's character functions?

A girl called Vasilisa has a miraculous doll. The tsar does not have a wife. Vasilisa goes to town. Vasilisa settles in an old woman's house. The old woman buys Vasilisa some flax. Vasilisa spins unusually fine yarn from the flax. The doll makes a loom for Vasilisa in one night . Vasilisa weaves unusually fine linen on the loom. The old woman takes the linen to the tsar. The tsar orders that shirts be sewn by the one who has spun and woven the linen. The girl sews the shirts from the linen. The tsar sends for Vasilisa. Vasilisa marries the tsar.

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Zero-Shot Tagging Using ChatGPT

A girl called Vasilisa has a miraculous doll (*Acquisition of Magical Agent*). The tsar does not have a wife (*Lack*). Vasilisa goes to town. Vasilisa settles in an old woman's house (*Unrecognised Arrival*). The old woman buys Vasilisa some flax. Vasilisa spins unusually fine yarn from the flax. The doll makes a loom for Vasilisa in one night (*Acquisition of Magical Agent*). Vasilisa weaves unusually fine linen on the loom. The old woman takes the linen to the tsar. The tsar orders that shirts be sewn by the one who has spun and woven the linen (*Difficult Task*). The girl sews the shirts from the linen (*Task Resolved*). The tsar sends for Vasilisa. Vasilisa marries the tsar (*Wedding*).

Lack: The tsar lacks a wife.

Dispatcher: Vasilisa goes to town.

Helper: Vasilisa settles in the old woman's house and receives aid from the miraculous doll.

Task: The old woman buys flax for Vasilisa, who spins unusually fine yarn and weaves linen.

Delivery: The old woman takes the linen to the tsar.

Task: The tsar orders shirts to be sewn from the linen spun and woven by the same person.

Performance of task: Vasilisa sews the shirts.

Arrival: The tsar sends for Vasilisa.

Final union: Vasilisa marries the tsar.

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Characters:

Hero: Vasilisa

Dispatcher: None explicitly identified (opportunity arises naturally)

Donor: Doll (magical helper)

Prize/Princess: Tsar (implicitly)

False Hero: None explicitly identified

Narrative Functions:

Sphere of Action 1: Preparation

Initial Situation: Vasilisa has a miraculous doll and lives without a father figure.

Lack: Tsar lacks a wife. (Note: not directly affecting Vasilisa, but creates initial context)

Sphere of Action 2: Departure

Beginning of the Counteraction: Vasilisa goes to town (implicitly seeking opportunity).

Sphere of Action 3: The Hero's Actions

Hero's Departure: Vasilisa leaves her home environment.

First Function of the Donor: Old woman provides flax (indirect aid).

Tests of the Hero: Task of spinning fine yarn (challenge).

Acquisition of Magic Agent: Doll magically creates a loom for Vasilisa.

Hero's Reaction: Uses the loom to weave fine linen.

Spatial Translocation: Linen reaches the Tsar.

Sphere of Action 4: Return

Return: Tsar acknowledges the linen and initiates contact with Vasilisa.

Return: Vasilisa arrives at the Tsar's court.

Sphere of Action 5: Recognition and Reward

Unrecognized Arrival: Vasilisa implicitly demonstrates her skills.

Difficult Task: Sewing the shirts (implicit test of skill).

Exposure of the False Hero: N/A

Transfiguration: Vasilisa gains new status as Tsar's wife.

Wedding: Marriage to the Tsar (reward).

Sphere of Action 6: Resolution

Resolution: Lack of the Tsar is addressed (gains a wife), and Vasilisa finds a new life.

A girl called Vasilisa has a miraculous doll (Acquisition of Magical Agent). The tsar does not have a wife (Lack). Vasilisa goes to town. Vasilisa settles in an old woman's house (Unrecognised Arrival). The old woman buys Vasilisa some flax. Vasilisa spins unusually fine yarn from the flax. The doll makes a loom for Vasilisa in one night (Acquisition of Magical Agent). Vasilisa weaves unusually fine linen on the loom. The old woman takes the linen to the tsar. The tsar orders that shirts be sewn by the one who has spun and woven the linen (Difficult Task). The girl sews the shirts from the linen (Task Resolved). The tsar sends for Vasilisa. Vasilisa marries the tsar (Wedding).

Initial Situation: Vasilisa has a miraculous doll and lives without a father figure.

Lack: Tsar lacks a wife. (Note: not directly affecting Vasilisa, but creates initial context)

Beginning of the Counteraction: Vasilisa goes to town (implicitly seeking opportunity).

Hero's Departure: Vasilisa leaves her home environment.

First Function of the Donor: Old woman provides flax (indirect aid).

Tests of the Hero: Task of spinning fine yarn (challenge).

Acquisition of Magic Agent: Doll magically creates a loom for Vasilisa.

Hero's Reaction: Uses the loom to weave fine linen.

Spatial Translocation: Linen reaches the Tsar.

Return: Tsar acknowledges the linen and initiates contact with Vasilisa.

Return: Vasilisa arrives at the Tsar's court.

Unrecognized Arrival: Vasilisa implicitly demonstrates her skills.

Difficult Task: Sewing the shirts (implicit test of skill).

Exposure of the False Hero: N/A

Transfiguration: Vasilisa gains new status as Tsar's wife.

Wedding: Marriage to the Tsar (reward).

Resolution: Lack of the Tsar is addressed (gains a wife), and Vasilisa finds a new life.

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Prompt that explicitly provides the tags to use (1)

For the character types:

- + Hero: The role model of a story.
- + Villain: The negative character who creates struggles for the hero.
- + Donor: The character who provides some magical object to the hero.
- + Helper: The character who helps the hero.
- + Princess: The character who becomes a companion of the hero.
- + Dispatcher: The character who illustrates the need for the hero's quest and sends the hero off.
- + False Hero: The character who takes credit for the hero's actions

For the narrative functions:

- + Absentation: The villain or a member of the family leaves the home
- + Branding: The hero is marked or identified
- + Interdiction: A prohibition is imposed on the hero
- + Victory: The hero defeats the villain
- + Interdiction violation: The interdiction is violated
- + Resolution of trigger: Villainy or lack resolved
- + Reconnaissance: The villain attempts to obtain information
- + Return: The hero returns
- + Delivery: The villain gains information or an object

Prompt that explicitly provides the tags to use (2)

- + Pursuit: The villain chases the hero
- + Trickery: The villain deceives the hero to gain an advantage
- + Rescue from pursuit: The hero is saved from pursuit or danger
- + Complicity: The victim submits to deception
- + Unrecognized arrival: The hero arrives unrecognized
- + Villainy or lack: The villain causes harm or injury or someone lacks something they want
- + Unfounded claims: A false hero claims hero status
- + Mediation: Misfortune is made known
- + Difficult task: The hero is given a difficult task
- + Counteraction: The hero reacts to the villain's actions
- + Solution: The task is accomplished or resolved
- + Departure: The hero leaves home
- + Recognition: The hero is recognized or acknowledged
- + 1st donor function: The hero is tested by a potential donor
- + Exposure: The villain's identity or deception is exposed
- + Hero's reaction: The hero reacts to the test
- + Transfiguration: The hero undergoes a transformation
- + Receipt of agent: The hero acquires a magical agent
- + Punishment: The villain receives punishment or consequences
- + Transfer: The hero is hero directed or taken to new location
- + Wedding: The hero marries or is rewarded
- + Struggle: The hero and villain engage in direct conflict

Annotate this tale: <story>

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Character Types:

Hero: Vasilisa

Villain: None explicitly mentioned

Donor: The miraculous doll

Helper: The old woman

Princess: Vasilisa herself, who becomes the tsar's wife

Dispatcher: The tsar

False Hero: None explicitly mentioned

Narrative Functions:

Dispatcher: The tsar sends for Vasilisa.

1st donor function: The miraculous doll aids Vasilisa in spinning and weaving.

Receipt of agent: The doll makes a loom for Vasilisa.

Delivery: Vasilisa presents the fine linen to the tsar.

Difficult task: The tsar orders shirts to be sewn from the fine linen.

Solution: Vasilisa sews the shirts.

Wedding: Vasilisa marries the tsar.

Few-Shot Tagging Using ChatGPT

A girl called Vasilisa has a miraculous doll (*Acquisition of Magical Agent*). The tsar does not have a wife (*Lack*). Vasilisa goes to town. Vasilisa settles in an old woman's house (*Unrecognised Arrival*). The old woman buys Vasilisa some flax. Vasilisa spins unusually fine yarn from the flax. The doll makes a loom for Vasilisa in one night (*Acquisition of Magical Agent*). Vasilisa weaves unusually fine linen on the loom. The old woman takes the linen to the tsar. The tsar orders that shirts be sewn by the one who has spun and woven the linen (*Difficult Task*). The girl sews the shirts from the linen (*Task Resolved*). The tsar sends for Vasilisa. Vasilisa marries the tsar (*Wedding*).

Dispatcher: The tsar sends for Vasilisa.

1st donor function: The miraculous doll aids Vasilisa in spinning and weaving.

Receipt of agent: The doll makes a loom for Vasilisa.

Delivery: Vasilisa presents the fine linen to the tsar.

Difficult task: The tsar orders shirts to be sewn from the fine linen.

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Annotating the Tale of Vasilisa using Propp's Framework

Characters:

Hero: Vasilisa

Donor: The Doll (magical helper)

Dispatcher (indirect): The Tsar's lack of wife creates an opportunity for Vasilisa.

Narrative Functions:

Absentation: The Tsar lacks a wife (lack).

Hero's possession of a magical agent: Vasilisa has the miraculous doll.

Departure: Vasilisa goes to town (possibly seeking a new life).

Helper: The old woman provides Vasilisa with flax.

Difficult Task (indirect): Vasilisa spins unusually fine yarn, implying exceptional skill.

Receipt of Magical Agent (indirect): The doll creates a loom for Vasilisa, demonstrating its magical abilities.

Difficult Task: Vasilisa weaves unusually fine linen, again showcasing her skill.

Mediation: The old woman takes the linen to the Tsar, revealing Vasilisa's talent.

Transfer: The Tsar sends for Vasilisa, bringing her closer to her potential reward.

Marriage: Vasilisa marries the Tsar (fulfills the lack and resolves the story).

Notes:

This tale is a simplified version and omits some of the more complex elements of Propp's morphology.

The villain and some other functions (e.g., struggle, victory) are absent.

The focus is on Vasilisa's exceptional skills, aided by the magical doll, which ultimately lead to her marriage with the Tsar.

Few-Shot Tagging Using Gemini

A girl called Vasilisa has a miraculous doll (*Acquisition of Magical Agent*). The tsar does not have a wife (*Lack*). Vasilisa goes to town. Vasilisa settles in an old woman's house (*Unrecognised Arrival*). The old woman buys Vasilisa some flax. Vasilisa spins unusually fine yarn from the flax. The doll makes a loom for Vasilisa in one night (*Acquisition of Magical Agent*). Vasilisa weaves unusually fine linen on the loom. The old woman takes the linen to the tsar. The tsar orders that shirts be sewn by the one who has spun and woven the linen (*Difficult Task*). The girl sews the shirts from the linen (*Task Resolved*). The tsar sends for Vasilisa. Vasilisa marries the tsar (*Wedding*).

Absentation: The Tsar lacks a wife (lack).

Hero's possession of a magical agent: Vasilisa has the miraculous doll.

Departure: Vasilisa goes to town (possibly seeking a new life).

Helper: The old woman provides Vasilisa with flax.

Difficult Task (indirect): Vasilisa spins unusually fine yarn, implying exceptional skill.

Receipt of Magical Agent (indirect): The doll creates a loom for Vasilisa, demonstrating its magical abilities.

Difficult Task: Vasilisa weaves unusually fine linen, again showcasing her skill.

Mediation: The old woman takes the linen to the Tsar, revealing Vasilisa's talent.

Transfer: The Tsar sends for Vasilisa, bringing her closer to her potential reward.

Marriage: Vasilisa marries the Tsar (fulfills the lack and resolves the story).

Text	Propp	ChaGPT self	ChatGPT prompted	Gemini	Gemini prompted
A girl called Vasilisa has a miraculous doll.	Acquisition Magical Agent			Initial Situation	Hero's possession of a magical agent
the tsar does not have a wife.		Lack		Lack	Absentation
Vasilisa goes to town.				Hero's Departure, Beginning of the Counteraction	Departure
Vasilisa settles in an old woman's house.	Unrecognised Arrival				
The old woman buys Vasilisa some flax.				First Function of the Donor	Helper
Vasilisa spins unusually fine yarn from the flax.		Task		Tests of the Hero	Difficult Task
the doll makes a loom for Vasilisa in one night .	Acquisition Magical Agent		Receipt of agent	Acquisition of Magic Agent	Receipt of Magical Agent
Vasilisa weaves unusually fine linen on the loom.				Hero's Reaction	Difficult Task
The old woman takes the linen to the tsar.			Delivery	Spatial Translocation	Mediation
the tsar orders that shirts be sewn by the one who has spun and woven the linen.	Difficult Task	Task	Difficult task	Difficult Task	
The girl sews the shirts from the linen.	Task Resolved	Solution	Solution		
The tsar sends for Vasilisa.		Arrival	Dispatcher	Return	Transfer

Text	Propp	ChaGPT self	ChatGPT prompted	Gemini	Gemini prompted
A priest has his wife, his son Ivanuska, and daughter Alenuska.					
Alenuska goes out into the woods for berries.	Absentation		Departure	Departure	Departure
Alenuska's mother orders Alenuska to take her brother Ivanuska along with her.	Interdiction Announced			Spatial Displacement	Interdiction
Ivanuska gathers more berries than Alenuska.					
Alenuska says "Let me look for lice in your hair".	Trickery				
Ivanuska falls asleep.	complicity				
Alenuska kills Ivanuska.	Villainy	Interdiction / Violation of Interdiction	Resolution of trigger	Villainy	Villainy or Lack
A thin reed grows upon the grave.	Acquisition Magical Agent		Absence		
A shepherd plucks it and makes a pipe out of it.		Reconnaissance	Mediation		
The pipe plays and reveals Alenuska as the murderess.	False Hero Exposed			Donor,Exposure	Exposure, Identification
The parents expel their daughter Alenuska.	Hero Dispatched Villain Punished	Punishment	Punishment	Punishment	Punishment

Discussion

Responses = label + justification of which part of the story the label is assigned to

Labels and justifications are paraphrases rather than references to specific character function names or specific segments of the text.

Precision and recall metrics not sufficiently informative

Additional metrics computed in the hope of providing insights

	ChatGPT		Gemini	
	zero shot	few-shot	zero shot	few-shot
Precision	0.38	0.37	0.41	0.46
Recall	0.26	0.22	0.31	0.34
Assignment meaningful	70	66	77	78
Response required	33	33	74	72
Incorrect assignments	26	29	16	44
Invented labels	01	03	10	04

All metrics show relatively low values

For several of the metrics the zero-shot approach performs better than the few-shot approach

For zero-shot Gemini better than ChatGPT (less confusion on character functions)

Gemini improves slightly with prompting, ChatGPT does not

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Conclusions

Zero-shot performance constrained by incomplete knowledge of concepts required

Performance very tightly coupled with particular choices of prompt

Precision and recall very low

Evidence of complex linguistic inference

Inferences often do not comply with accepted understanding of Propp's account

Future Work

More experiments with different prompting

Establish standardized format for output

Consider full text of tales rather than synopses

Compare with sources other than Propp

Thank you!

`http://nil.fdi.ucm.es/`