

READING BETWEEN THE LINES: THE POTENTIAL AND LIMITATIONS OF AI IN “INTERPRETING” FIGURATIVE LANGUAGE

ČÍTANIE MEDZI RIADKAMI: POTENCIÁL UMELEJ INTELIGENCIE PRI “INTERPRETÁCII” OBRAZNÉHO JAZYKA

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Abstract:

This study explores AI's potential in analyzing figurative language (similes) within Margaret Atwood's short story "There Was Once," (1992), using ChatGPT 3.5 to identify and “interpret” them. The research proved AI excels in recognizing standard simile structures (e.g. *as pretty as a picture*) but struggles with nuanced variations, critical for humor in literature. While enhancing speed and efficiency, AI offers insights into simile roles, yet requires human oversight for accurate interpretation and contextual understanding. The findings highlight AI's promise as a tool for processing large blocks of texts but underscore the ongoing necessity of human involvement to navigate figurative language's complexities effectively.

Keywords: AI, literary analysis, figurative language, simile, metaphor, metonymy, reading comprehension.

Abstrakt:

Predložená štúdia skúma potenciál umelej inteligencie (AI) pri analýze obrazného jazyka (prirovnání) v poviedke M. Atwoodovej *Kde bolo, tam bolo* (1992), pričom využíva ChatGPT 3.5 na ich identifikáciu a “interpretáciu”. Výskum ukázal, že AI má dobré rozlišovacie schopnosti pri rozpoznávaní štandardných štruktúr (napr. *taký pekný, ako obrázok*), ale nedokáže rozlíšiť sémanticky príbuzné variácie prirovnání (napr. metafory a metonymie), ktoré sú kľúčové pre čítanie s prozumením a humor v literatúre. Štúdia poukazuje na efektivitu AI pri spracovaní dlhších textov, no zdôrazňuje, že AI stále vyžaduje korekciu ľudskými čitateľmi tak, by získali presnú interpretáciu a porozumenie celého kontextu textu. Závery zdôrazňujú potenciál AI ako nástroj pre literárnu analýzu, tiež však ukazujú na nevyhnutnosť kritického čítania a revidovania textov, generovaných AI.

Kľúčové slová: AI, literárna analýza, obrazný jazyk, prirovnanie, metafora, metonymia, čítanie s porozumením.

Introduction

The potential of artificial intelligence (AI) in literary analysis is an emerging field that warrants thorough investigation. Existing studies on AI and literary analysis typically focus on either specific authors and works or the general process of comprehension and the advantages offered by AI. Notably, the recent publication "What is ChatGPT Doing...and Why Does it Work" (Wolfram, 2023) examines the processes and algorithms involved in generating AI-encoded texts, highlighting AI's speed and efficiency. However, unlike humans, who create complex thoughts, based on advanced cognitive operations, AI only generates words, combined into human-like language, that fit within certain context. Therefore, most people prefer the verb “to generate” and hesitate to apply verbs, such as “think”, “interpret” and “analyze” to the AI's production.

Other research, such as that by Bewersdorf, Zhai, and Roberts (2023), explores AI's overall contribution to teaching and learning literature. Jebaselvi, Moharaj, and Anitha (2024, pp. 55 – 58), on the other hand, outline overall benefits of using AI in English as a Foreign Language

(EFL) contexts. Among these are the speed and volume of rapidly produced texts, almost endless variety of AI-generated genres and styles, instant translations, but also more advanced cognitive processes, such as sentiment analysis, prediction of story developments, and estimate of the impact of the text on projected reader. AI also has the capability to improve and correct itself based on new data. However, AI as a tool for literary analysis has its limitations. It relies on input data and, unlike humans, cannot draw insights from real-life emotions and experiences. Furthermore, when employing mathematical algorithms to describe psychological and social phenomena, AI is fallible, and its errors can accumulate.

This research presents results of literary research of figurative language (specifically: metaphor, metonymy, and simile) and the potential of AI in their correct identification and explication within the framework of an artistic text. The research was based on the short story of Margaret Atwood's modern short story "There Was Once" (published in the collection "Good Bones," 1992), parody of a traditional folk tale, which satirizes Western cultural stereotypes and political correctness to the extent that the narrator is unable to complete the story, employing figurative language and irony. Gradual alternations of traditional simile (She was as pretty as she was good), characteristic of traditional folk fairy tales are crucial for understanding the story and its humor.

Our findings demonstrate that AI controlled enough analytical algorithms to identify pre-formatted figures of speech, such as similes (*as – as*), however, it failed to identify their alternations, modified by the author for humorous reasons. AI was even more fallible in identification of metaphors (we discovered the tendency to classify every sample of figurative language as a metaphor) and failed to distinguish subtle nuances between metaphors and metonymies. On the other hand, AI was able to identify the meaning of these tropes for the overall meaning of the work of art; thus, we recognize its usefulness, when used responsibly, as a consultant for translators and educators. Limitations of the research lie in the fact, that there already might be extensive corpus of texts and data on Margaret Atwood's fiction in the ChatGPT database.

Research corpus, procedure, and research tools

Analyzed figurative language (research corpus) was selected on the textual basis of a modern short story. "There was Once" (604 words) is a parody of a traditional fairy tale, presenting many ethnic and gender stereotypes. The narrative is presented as a dialogue between the narrator (presumably a man) and the interlocutor (listener to the story who is most likely a woman), objecting to various cultural and ethnic stereotypes, such as beauty, goodness, and poverty of the main heroine of the story. These objections ultimately prevent the narrator from completing the story, imbuing it with satirical undertones. The text features familiar and predictable elements and clichés, such as the opening phrase "There was once..." and the presence of familiar characters (e.g., the pretty but poor young maiden, the evil sister) (EB, 2024). However, unlike traditional tales, it includes the character of the fictitious narratee (the listener), who possesses a distinct and critical voice. Table 1 presents selected parameters of the text:

Trope	No.	Examples
Simile	5	<ul style="list-style-type: none"> - There was once a poor girl, <i>as beautiful as she was good...</i> - There was once a poor girl, <i>as beautiful as she was good...</i> - There was once a middle-class girl, <i>as beautiful as she was good...</i> - There was once a girl of indeterminable descent, <i>as average-looking as she was good...</i> - There was once a girl, <i>as average-looking as she was well-adjusted...</i>

Tab. 1 Similes: figurative language of the text. Source: authors. The analysis of the selected trope (simile, also metaphor and metonymy) was conducted by AI (ChatGPT 3.5) in March 2024.

AI's Potential in Interpreting Similes and Distinguishing them from Semantically Related Tropes (Metaphors and Metonymies)

Holman and Harmon note (1986, p. 471) that a simile (Latin: neuter of *similis*, like) is an easily identifiable trope (figure of speech), as it denotes explicit similarity between two essentially unlike objects, directly expressed by pre-formatted structures (tenor and vehicle), such as: *as ... as, like, far more than*, and more figuratively by words such as *compare, liken, resemble*, etc. Thus, the structure of a conventional (rhetorical) simile is usually the following:

Furnaces of Liège rose along the line *like* ancient castles.
tenor *vehicle*

Similes often employ adverbs (*as*) and prepositions (*like, nothing like*), and their variants, such as in:

1. She is *as fit as a fiddle* (idiom).
2. "Coral is *far more red than* her lips' red." (William Shakespeare, *Sonnet CXXX*, 1609).
3. "My mistress eyes are *nothing like* the sun." (William Shakespeare, *Sonnet CXXX*, 1609).
4. "The great blast furnaces of Liège rose along the line *like* ancient castles burning in a border raid." (Graham Greene, *Stamboul Train*, 1932).

However, in distinguishing figurative similes from non-figurative comparisons, we need to consider the degree of figurativeness. The sentences "My house is *like* your house" and "She's not singing *as loud as* she can" do not employ similes despite containing a preposition (*like*). These sentences lack the necessary level of figurativeness, required for artistic language. Some variants of similes include, for example, epic simile, i.e. extended simile, running into several lines, e.g. in Milton's *Paradise Lost* (even fifteen to twenty, Cuddon, p. 273).

In the short story "There was Once", five similes were used (two similes were repeated twice), with various level of figurativeness. The story opened with a simile, conventional for traditional folk tales (*There was once a poor girl, as beautiful as she was good...*). This simile is figurative as it likens two essentially unlike phenomena (visible physical appearance and invisible quality of character; Lacoff, Johnson, 1980). The humor of the story lies in the fact that the listener of the story keeps interrupting and challenging various traditional stereotypes, often used in folk fairy tales, such as polarized characters (e.g. good and beautiful heroine versus evil antagonist). Thus, the phrase "as beautiful as she was good" is being altered to gradually sound more and more politically correct (Atwood, 1992):

Example 1.1 There was once a poor girl (later changed to "a middle class girl"), *as beautiful as she was good...* (simile repeated four times)

Example 1.2 There was once a girl of indeterminable descent, *as average-looking as she was good...*

Example 1.3 There was once a girl, *as average-looking as she was well-adjusted....*

Repetitions and gradual alternations of the traditional fairy tale phrase add to the humor of the story and mock excessive sensitiveness to language and extreme political correctness. AI was able to identify one example of it considered similes (Image 1):



In the provided text, there is only one simile:

1. "as beautiful as she was good"

A simile is a figure of speech that directly compares two different things, typically using the words "like" or "as." In this text, the phrase "as beautiful as she was good" is the only instance that fits this definition.



Image 1: Limitations of AI in identifying similes.

However, upon request to correct itself, AI produced three other options (Image 2):



ChatGPT

The text contains 3 similes. They are:

1. "There was once a poor girl, as beautiful as she was good..."
2. "There was once a girl who was a little overweight and whose front teeth stuck out, who..."
3. "There was once a girl of indeterminate descent, as average-looking as she was good..."

Thus, AI scored well in pre-formatted formulas, such as identifying the most obvious example of a simile (Example 1.1: as beautiful as she was good, and Example 1.2: There was once a girl of indeterminate descent, *as average-looking as she was good...*). In Example 1.1, the simile "as beautiful as she was good" semantically expresses abundance: the girl was *excessively* beautiful and *very* good. The alteration in 1.2 replaces "beautiful" with "average-looking", conveying the semantic meaning that average looks are a desired quality. AI completely failed to notice the altered example 1.3, which is also crucial for the humor and complex understanding of the story. The expression "well-adjusted", just like 1.2 (average-looking) further modifies the original perfection of the character. The original message of the description in the fairy tale conveyed the girl exceeded the average woman both in looks and in moral virtues. The humor in Atwood's story lies in the gradual diminishing of her looks and character, indicating that mediocrity is both a satisfactory and even desired quality in present-day society. This gradual deterioration of the original fairy tale wording is the key trope in the story; however, as it relates to the whole meaning of the story and to external information about politically correct language, AI failed to identify it properly. Interestingly, the AI algorithm misclassified the structure (*There was once a girl who was a little overweight and whose front teeth stuck out...*) for simile, despite it does not contain tenor, vehicle and preposition or adverb, necessary for similes. That proves fallibility of AI, especially when misled by identical opening phrase (*There was once...*)

In addition to AI's potential in identification of similes, we were also interested in its effectiveness in distinguishing similes from semantically related tropes, such as metaphors and metonymies. Metaphors are forms of figurative language based on indirect, implicit comparison. Unlike similes, metaphors do not employ prepositions and adverbs such as *like*, *than*, *as* – *as*, and the like. Thus, they require more intellectual analysis and cognitive operations to identify them in a text or to distinguish them from other tropes. Metaphors were elaborated upon by Roman Jakobson (1956), George Lakoff and Mark Johnson (1980), and David Lodge (1988). Some examples of metaphors are:

1. "All the *world's* a *stage*, and *all the men and women* merely *players*. " (William Shakespeare, *As you like it*, 1623).
2. "Her mouth was a *fountain of delight*. " (Kate Chopin, *The Storm*, 1898).
3. "But, soft! What light through yonder window breaks? / It is the east, and *Juliet* is the *sun*. " (William Shakespeare, *The Tragedy of Romeo and Juliet*, 1623).

Borrowing from Allison Bresson (2022), metaphors are used to add creativity, to bring emotional intensity, to use the power of imagery, to provoke thought, and to create atmosphere. There are various taxonomies of metaphors, for example: standard metaphors (*That baby is a treasure*), implied metaphors (*She hissed her warning – Keep your mouth shut or I'll shut it for you.*), visual metaphors, that show, rather than directly state, the comparison (often used in advertising), extended metaphors, that continue over multiple lines or stanzas of poetry, or sentences or paragraphs or segments of prose, and dead metaphors, i.e. clichés (*heart of stone, heart of gold*). Special category is represented by political metaphors, aiming at disguising, camouflaging, or depersonalization of the object (Cingerová, Dulebová, Štefančík, 2021, p. 83). For example, some right-wing politicians call certain minorities in Slovakia “*parasites* to accentuate their uselessness and dependence on the system, with the aim to heat emotions toward the whole community (Hunková, 2013, p. 1).

Metonymy (Greek: *name change*) is a figure of speech (Lacoff and Johnson, 1980, recognize it to be a variant of metaphor), in which the name of an attribute or a thing is substituted for the thing itself, such as in:

1. *The Stage* for the theatrical profession,
2. *The Crown* for the monarchy,
3. *The Bench* for the judiciary
4. *Dante* for his work (Cuddon, 1994).

Identification of both metaphors and metonymies in the text requires advanced cognitive operations. Image 3 demonstrates, AI's algorithm was not able to distinguish the syntagmatic and paradigmatic relationships, as well as nuances between similes and metaphors, and miscategorized several expressions:



In the provided text, there are a total of 5 metaphors. Here they are identified:

1. "as beautiful as she was good" - comparing the girl's beauty to her goodness.
2. "forest is passé" - metaphorically suggesting that the forest setting is outdated.
3. "come down to where they sleep in cardboard boxes" - metaphorically describing extreme poverty.
4. "come to the subway stations after dark" - metaphorically describing places of urban poverty.
5. "come down to the park" - metaphorically describing a location where homeless people might stay.

These instances highlight indirect comparisons or symbolic representations used to convey certain meanings or ideas in the text.



Image 3. Miscategorized similes and metonymies by AI.

Image 3 demonstrates, AI misclassified a simile for a metaphor (as beautiful as she was good) and metonymy (forest and wilderness stuff used to represent traditional, old-fashioned setting of folk fairy tales; cardboard boxes representing places of extreme poverty, or poverty itself). When asked to correct itself, AI correctly classified the metonymies (Image 4).

In spite AI struggled with correct identification of semantically related tropes, it was able to identify the role of altering similes for the overall meaning of the story: “In the provided text, the simile “as beautiful as she was good” plays a crucial role in setting up the traditional fairy tale

imagery and expectations, which then become the focal point for deconstruction and satire. Here's a detailed analysis of its role:

1. Establishing Tradition and Contrast:

The simile sets up the traditional fairy tale motif of a girl who is both physically beautiful and morally good. This classic setup creates a starting point for the subsequent dialogue, which systematically critiques and dismantles these conventional narrative elements.

2. Highlighting Societal Expectations:

The initial use of the simile highlights societal expectations regarding beauty and goodness. The critique of the simile by one of the characters reflects modern concerns about the impact of such stereotypes, especially on women's self-image and societal roles.

3. Critiquing Norms and Stereotypes:

By challenging the simile, the characters in the text question and critique broader societal norms and stereotypes. The discussion touches on issues like socio-economic status, body image, racial representation, and the portrayal of women in media.

4. Driving the Satirical Tone:

The critique of the simile is part of a larger satirical commentary on how fairy tales and traditional narratives can be outdated or problematic when viewed through a modern, critical lens. The dialogue humorously exposes the absurdity and contradictions in trying to modernize or politically correct these age-old stories.

5. Transition from Fairy Tale to Modern Storytelling:

The simile serves as a bridge between the traditional fairy tale opening and the modern, critical reinterpretation that follows. It represents the "old" way of storytelling that the characters progressively dismantle and attempt to update according to contemporary values and sensibilities (AI, March 2024).



Metonymy is a figure of speech in which one thing is represented by another that is commonly and often physically associated with it. In the provided text, examples of metonymy include:

1. "Forest is passé, I mean, I've had it with all this wilderness stuff."
 - Here, "forest" and "wilderness stuff" are used metonymically to represent traditional, old-fashioned storytelling settings.
2. "Come down to the park, come to the subway stations after dark, come down to where they sleep in cardboard boxes, and I'll show you poor!"
 - "Cardboard boxes" is used metonymically to represent homelessness and extreme poverty. "Park" and "subway stations" are also metonyms for places where homeless people often reside.

These metonymic expressions help convey broader concepts and contexts, such as traditional storytelling and homelessness, by referring to specific, associated elements.



Image 4. Examples of Metonymies: correction done by AI.

The abundance and quality of AI-generated solutions for the request on the importance of similes for the story is impressive. It may be explained by the fact that Margaret Atwood and her fiction is a popular cultural phenomenon and there might be enough texts on her artistry in the AI databases. It undoubtedly has limitations in analyzing figurative language, however, its responsible use may offer great potential for educators and creators of texts.

Conclusion

Culture and art hold a special position within any human society (Hohn, 2017, p. 11). Reading of literary works helps to cultivate readers, extend their intercultural, aesthetic, and ethical dimensions (Lenčová, 2008). AI opens new ways for literary analysis, as employed by educators, students, as well as artists. Responsibly used artificial intelligence has tremendous potential even in humanities, arts, and foreign language teaching and learning. AI's ability to learn and improve in a diverse body of fields, including natural languages, is fascinating. In the presented research, we confirmed the potential of AI (Chat GPT 3.5) in interpreting figurative language, specifically similes and their impact on the overall work of art. The strengths of AI in analyzing similes lie in:

1. Speed of produced answers: ability to rapidly analyze even extended blocks of text, such as short stories, novels, etc.
2. Relative reliability of answers: most of provided answers were correct, however, it required human reader to correct and adjust answers to reach maximum correctness.
3. AI's ability to correct itself.
4. Understanding of general role and importance of the selected trope for the overall text: in spite only generating words into human-like language, AI was able to verbalize the role of similes as navigational trope in the selected short story in a concise and logical way, acceptable as an "explanation" of the role of the trope within the complex context of the story.

Kolb, Dressler, and Mattiello (2023, p. 551) explained the potential of AI (deepL and Google translator) in translation of artistic texts with specific forms of figurative language, e.g. occasionalisms (unique new words, usually compounds, created for artistic and dramatic effect). The authors proved that AI actually outperformed human translators in several domains. In translation of figurative language, specifically occasionalisms, AI reached higher number of errors than human translators, however, it was more inventive and used significantly more usable translation of occasionalisms than human translators. Despite the fact AI could not use compensatory stylistic devices like human translators (Kolb, Dressler, and Mattiello, 2023, p. 555), it showed great potential for defamiliarizing as a result of literal translation.

On the other hand, limitations of AI interpreting figurative language lie in its fallibility and inability to detect finer semantic nuances, e.g. differences between similes, metaphors, and metonymies. Also, AI was only able to identify one example of simile and did not take repetitions into account, in spite they played quite significant role in the story, adding to its humor and narrative structure.

AI provides immense possibilities for educators and learners, including EFL learners. However, its responsible use requires a set of new 21st century skills (Lenčová, 2008), such as advanced academic skills and critical reading (Šipošová, 2021; Hanesová, 2014). Thus, in analyzing figurative language, AI is yet not able to function without human readers and reviewers.

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