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Creative writing in the hands of artificial intelligence: the analysis of humour in Bard-generated texts

Vesna Suljic
International University of Sarajevo, Bosnia and Herzegovina
vsuljic@ius.edu.ba

Ajla Pervan
International University of Sarajevo, Bosnia and Herzegovina
apervan@ius.edu.ba

Abstract

This article investigates how human and artificial intelligence (AI) influence each other and what prospects of this unprecedented coexistence might be in the future in relation to creative writing. Starting from the definition and comparison of different types of natural intelligence and the connection of human intelligence with the development of AI, this short study analyses fourteen Bard-generated application letters for jobs in music or the hospitality industry prompted by three different descriptors: the first group includes four regular application letters; another group includes four humorous texts created by the same program without specific prompts apart from asking them to be humorous; and the third group includes six texts which provide more detailed prompts related to the specificities of humour. The humour analysis is based on the concept of humour transaction schema and takes into account the linguistic, semantic, and socio-cultural characteristics of the humour products. The analysis demonstrated that AI-generated texts can be humorous and entertaining, but that they also lack human imagination in terms of going beyond what is already known. As application of AI language-learning machines and models have been in rapid and diversified expansion worldwide, more questions about the possible risks related to the use of AI language programs and the readership response to AI-created texts are discussed, concluding that AI sets forth new questions in relation to the future of creative writing.

Keywords: artificial intelligence, humour, creative writing.

1. Introduction

Isaac Asimov's short story "The Last Question," published in 1956, is set on Earth on May 21, 2061. A giant computer named Multivac, created by humans, is equipped with all the data known to humans up to that moment and is able to self-adjust and self-correct should the need arise. Scientists and ordinary people ask questions, and the computer responds with correct information quicker than any human would be able to. One of the questions that two scientists ponder about is whether energy would be used up one day, which would lead to disorder, and the effect that would have on the universe. Multivac begins calculating its answer based on the data stored in its huge memory; however, it does not give a satisfactory response, stating: "There is as yet insufficient data for a meaningful answer."

As the story goes, years and millennia pass. The human race expands, settles in different galaxies, using up energy for its own purposes, while Multivac (later on referred to as AC—"Automatic Computer" in "ancient" English) shrinks in its material size but expands in its cognitive abilities. Still, it cannot come up with the answer to the question from 2061 related to the question of whether entropy (going from order to chaos) can be reversed. The story continues, and in time, all stars die, all beings become extinct, and darkness permeates all of existence as the last atoms of energy are being extinguished. Multivac (AC) invents a form of energy which recycles for its own survival. Now being the last entity in the empty universe, it suddenly realizes what the answer to the old question is, but there is nobody to pass it on to. What is the purpose of knowledge which cannot be shared? As humans are those who asked for that knowledge, the world must now become re-created for them to make the sharing of knowledge possible. Asimov ends the story like this: "And AC said, "LET THERE BE LIGHT!" And there was light–" (1990, p. 300).

The story is obviously philosophical as well as a theological allusion to the creation of the world as presented in religious books. It is also humorous because the incongruity lies in the absence of humans who would be provided with the answer they had been longing for. In the 1950s, it was received as a great science-fiction text. In the 2020s, however, it seems that Asimov's foresight in Multivac's abilities could be matched by the rapid development and application of artificial intelligence (AI) in numerous fields. In the past decades, much research has focused on data-processing machines to analyse vast amounts of data to be applied in medicine, business operations, warfare, space explorations, and many other fields. Creative AI systems can nowadays use language to create new texts, including fiction. It has become a hot topic only recently as a result of the development of numerous language programs that have been employed in processing, interpreting, and producing something that only humans have been previously capable of, including humour and creative writing.

Many researchers analysed humour from how we understand it (Ruch, 2002), respond to it through laughter (Ginzburg et al., 2015), and how we create new humorous content by altering existing jokes (Maraev et al., 2021). Others analysed its role in society in respect to its creative or motivational features (Martin, 2007), the benefits it provides to individuals or in interactions (Kuipers, 2005; Strick, 2021), and the underlying principles of humorous vs. non-humorous or serious texts (Oring, 2016; Cowie, 2023). Studies on computational models for humour generation and recognition have shed light on what type of humour which attracts people's attention can be found on the internet (Mihalcea & Strapparava, 2005; Maraev et al., 2020). As their starting point, many of these studies referred to the Semantic Script Theory of Humour which was first presented by Raskin (1985) and further expanded by Attardo and Raskin as the General Theory of Verbal Humour (1991), to be more specified in Attardo's *Linguistic Theory of Humor* (1994). These theories were empirically supported by quantitative and qualitative analyses (Ruch et al., 1993; Calhoun, 2019; Deng & Zhu, 2023). Davis and Hoffman (2023) offered a conceptual framework for studying humour and its effects and

named this concept the *humour transaction schema*. It outlines three stages in the process of humour transaction: how humorous content is (1) created, (2) communicated, and (3) responded to by the audience.

The purpose of this study is to apply the humour transaction schema as proposed by Davis and Hoffman (2023) and analyse the humour generated by AI to assess whether a human audience could be attracted to read such texts with the same interest as if they were created by human authors, which might negatively affect future authors and their motivation for creative writing.

2. Methodology

Davis and Hofmann's (2023) humour transaction schema will be applied in this study to analyse which strategies are used by AI to create humorous texts that can create a response in the audience as if a human created those texts.

The *first stage* of the humour transaction schema proposes that there must be a potential for humour—something that inspires a person to create a humorous product. In the case of AI, this potential is based on algorithms and databases containing words, phrases, and sentences which humans can understand, interpret, and experience as humorous. The *second stage* includes humour creation. In this stage, AI-generated texts were analysed to (1) see how AI responded to given prompts and (2) whether and how the aim to create humorous texts was achieved. In human interactions, understanding humour is based not only on linguistic or semantic clues, but also on socio-cultural factors. AI-generated humour may not differentiate among various cultural references, cultural norms in relation to politeness, or may transfer some biases or stereotypes derived from particular cultures which may be deemed inappropriate or offensive by recipients. As such, it was assessed whether AI-generated humour in the analysed texts contained biases or offensive messages. The *third stage* involves the recipients of humour. It will be assessed how recipients reacted to AI-generated humour.

The study started in January 2024, when two real persons instructed the Google-developed AI-text-generating program Bard (which changed its name to Gemini on February 8, 2024) to create three groups of application letters: (1) application letters without any additional descriptors, (2) humorous application letters, and (3) humorous application letters with specific supplications related to certain descriptors. They provided Bard with their formal CVs. One CV contains information of a male pianist who also has experience as a chef and is applying for a job in a restaurant. Another CV is of a female pianist and piano teacher who wishes to find a job in the music field.

For the first group, Bard was instructed to create application letters for a job in hospitality, and for a job in the music-related industry based on the information supplied in the applicants' CVs. For the second group of letters, Bard was asked to create humorous application letters based on the same CVs, without supplying any further instructions. For the third group, Bard was instructed to make the application letters in different tones—mostly humorous, but also arrogant and slightly desolate. For this group, the following prompts were supplied:

1. Use this CV and make an application letter for the purpose of comedy, be arrogant and egotistic, condescending and posh about it.
2. Inspired by the above CV, make your output more inspiring and aligned with the stars above & beyond having the same structure, maintaining the core values of Artist.
3. Thank you, this was fun to read! Can you please indulge me and make this letter more melancholic and condescending with a pinch of arrogance?

For the first group, Bard created four letters; for the second group, it created four letters; and for the third group, it created six letters. One of the aims of the study was to evaluate how the three groups of letters compared to one another. The nature and methodology of this study was explained to both persons who supplied their CVs to Bard, their names were changed to maintain their anonymity, and both persons provided their verbal and written consent that the texts created by Bard may be analysed and discussed in this study.

A qualitative approach and multidisciplinary methodology in this study draw on the linguistics, semantics, and socio-cultural aspects of humour. Firstly, for Stage 1 of the humour transaction schema, which is related to the humour intent and creation, it will be presented what "inspired" Bard to create the analysed texts. For Stage 2, the linguistic characteristics of these texts will be evaluated, assessing grammar, syntax, punctuation, and the lexical choices provided by the AI program. Then, their semantic characteristics will be analysed, elaborating on how humour and the meaning of the texts can be interpreted from the human perspective. Socio-cultural implications will also be addressed, and whether there are any stereotypes, biases, or specific cultural identifiers that could be misinterpreted by readers from different linguistic or cultural backgrounds. In Stage 3, it will be assessed how recipients of the humour products reacted and whether this product would be shared with others.

The analysed texts serve as a prompt to discuss what possible risks are associated with AI creative writing and whether easy access to AI-created literature might jeopardize or amplify human motivation to create new texts in the future. Furthermore, it will be discussed whether AI could create more legal problems, particularly those pertaining to authorship and copyright issues. In the conclusion part, more questions will open paths for future research in the area of creative writing.

3. Types of intelligence

What distinguishes humans from other species (unless proven differently) is that we use language through oral or written signs and symbols for abstract thinking to create and learn from patterns and rules from our natural, social, cultural, and linguistic environments (Piaget, 1970; Vygotsky, 1962, 1987; Fischler & Firschen, 1987). Human intelligence, according to Gardner (1993), is multifarious and can be linguistic, logical-mathematical, spatial-visual, musical, bodily-kinaesthetic, interpersonal, intrapersonal, and naturalist. These types of intelligence can be developed to different extents in individuals. While emotional intelligence is a part of human intelligence, as discussed by Goleman (1996), it is difficult to claim that artificial intelligence has or experiences different types of human intelligence.

Activities or beliefs that are linked exclusively to human intelligence are religion, ethics, imagination, rules and laws, prejudices, and humour. Stock & Strapparava (2003) suggest that humour is "one of the most sophisticated forms of human intelligence" (p. 59). Humour is socially and culturally dependent as the same joke may not be perceived as humorous by people coming from different linguistic or cultural backgrounds. There is often a contradiction between words and actions and also between words and meanings attached to them; as Roald Dahl's The Big Friendly Giant asserts, "What I mean and what I say is two different things" (1984, p. 49). This contradiction is often used in humour created by humans, as well as by AI, which will be analysed further on in this article.

Artificial intelligence is man-made, and therefore, artificial. Machines and programs are based on human intelligence, knowledge, experiences, and data first entered by humans, which can then be further collated, and processed by algorithms and machine-based methods. Traditional machine learning (ML) algorithms have a comparatively simple structure and can predict new situations based on data from the past. Deep learning (DL) is an ML algorithm

based on multilayered artificial neural networks (ANN) to analyse data, and its process of work is similar to the way the human brain works. AI can update and correct data, and algorithms and DL methods can tune and "update themselves and perfect the process without human touch" (Cebeci, 2021). This system sounds rather like our fictional Multivac.

3.1. The rise of artificial intelligence

In the science fiction of the past, the replacement of humans with technology was often associated with robots. Asimov's story "Runaround," written in 1942 (but published in 1950), was "a cornerstone in the history of artificial intelligence, as it inspired generations of academics and researchers in the domain of AI" (Kaplan, 2021). The expansion of AI started relatively slowly in the first half of the 20th century, and its development was obscure to the majority of the world population. The first proponents of creating intelligent machines, which could collect and store the data, use human formal logic, and come to conclusions in accordance with laws of human intelligence, were Vannevar Bush (The Atlantic Monthly, Archive 1945), Alan Turing (Copeland, 2000), and John McCarthy, who first used the term "artificial intelligence" (Schofield, 2011). A new era of AI began in the 21st century and it has become one of the most human-engaging world phenomena. AI programmers started applying a "bottom-up approach" based on behavioural sciences and focused on the analysis of neural networks and how they operate in the human brain. They attempted to imitate the way the brain works "by using large quantities of data to infer knowledge independently" (Kaplan, 2021, p. 24). In 2015, a breakthrough in the competition between a human and AI occurred. AlphaGo, a computer program designed by Google, won in the DeepMind Challenge Match against a human in the Chinese/South Korean game Go (Borowiec, 2016).

GPT-3 (Generative Pre-trained Transformer 3), another "artificial intelligence system based on deep learning techniques that can generate text" (Rees, 2022, p. 168), was released in May 2020 by OpenAI. It can create new texts based on some human-given prompts. On September 8 of the same year, a text written by AI, but edited by The Guardian Editorial Board was published. The title was "A robot wrote this entire article. Are you scared yet, human?" (The Guardian US, 2022). At the end of 2022, OpenAI introduced ChatGPT to the world, and in a short time, it reached an audience of more than 100 million users. Nevertheless, AI is still quite obscure to many people. On May 24, 2023, the Pew Research Center released data from a ChatGPT usage survey showing that only 59% of American adults know about ChatGPT, while only 14% have tried it (Hines, 2023). It may be suggested that this small portion of population that have tried it mostly consists of younger generations who grew up with smart phones and communication on social media. New AI programs and chatbots are appearing almost daily, and their capacities are being constantly upgraded to be utilized in diverse areas of human activities. Computational linguists have contributed to the inclusion of humour in AI-generated products like jokes, stories, cartoons, or different texts.

4. Creative writing in hands of artificial intelligence

Following the humour transaction schema concept as proposed by Davis and Hoffman (2023), the analysis of AI-generated texts will focus on three stages. In Stage 1, it will be analysed where the humour potential comes from; in Stage 2, it will be analysed how the humour product is created from the linguistic perspective, and how it is communicated from the semantic and socio-cultural perspectives; and in Stage 3, what the humour outcomes are and how the humour product is experienced by the humour recipients will be examined. Out of ten AI-generated humorous texts, six have been prompted with specific descriptors regarding what kind of humour is expected, and four have been prompted only to be "humorous." These texts

will also be compared with four texts that have been created by AI without any specific descriptors regarding whether to be humorous or not.

4.1. Stage 1 – humour potential

Humour potential, as outlined in the humour transaction schema by Davis and Hoffman (2023), is derived from "elements or components of the physical or imagined world which come to the attention of a humorist" (p. 326). In this stage, the humour product is planned by a humourist depending on the audience or the purpose of the humour product – whether it is to entertain, to share and re-use it, or to draw attention to some serious issues in an ironic or sarcastic manner.

In human spheres, a humourist expects some response from the audience—usually in the form of laughter or a dialogic exchange with the humourist. The humourist plans in advance what kind of humour may be appreciated by the audience, and if the expected outcome is not achieved, then the humourist changes the elements of humour – its language, style, or form of communication to gain the humour recipients' positive response (Davis & Hofmann, 2023, p. 332). In the case of AI, however, the humour potential is derived from the prompts provided by human agents – instructing the program to create a humorous text – and on the availability of data and algorithms. Humour potential thus seems dependent on human contribution. For the analysis of the texts used in this study, Bard was prompted to create three groups of letters, out of which two groups were prompted with specific humoristic intent which allowed the program then to generate humorous application letters accordingly.

4.2. Stage 2 – humour product

Bard created fourteen application letters for jobs in the hospitality or music industry, based on the information given in two CVs by real people. An application letter, according to standard practices, should address the criteria stipulated in a job vacancy announcement; provide relevant information about the candidate for the advertised position; and be written in a formal style, using proper grammar, syntax, and punctuation.

4.2.1. Linguistic analysis of humour

The first group of letters which were not prompted to be humorous were created by AI in the appropriate formal style. For the second and third groups, following the given prompts that the application should be humorous, Bard generated an informal tone in the letters. In several letters, the second-person narrator is used to address the reader and shorten the imaginary distance between them, which lowers the level of formality, as can be seen from this example:

> Ahem, before you delve into the pedestrian details, allow me to dispel the plebeian notion of this being a mere "CV." This, my dears, is a symphony of self-perfection, a concerto of culinary conquest. Buckle up, darlings, for a journey into the exquisite realm of Alex Masser-Blake.

Looking at it from the formal structural perspective, each letter, whether humorous or not, adheres more or less to the conventions of email writing. Each letter contains the email subject line, followed by the main body of the text, and concludes with the applicant's name. The length of all letters ranges from 369 to 464 words. Each text is separated into paragraphs between 50 and 70 words. Each AI-generated text provides information about the applicant's educational background, experience, and motivation for applying for that particular position. Letters in all three groups are also correctly written according to the grammar, syntax, and punctuation rules of the standard English language.

Although the example given above is written in a colloquial manner, the structure of each sentence and the use of grammar and punctuation comply with the general rules of English language.

4.2.2. Lexical choices

Lexical choices in the non-humorous texts adhere to the conventions of formal style of writing. Word combinations like *my consistent pursuit of excellence* or *commitment to refining my performance skills* in the pianist's application letter, or *I am confident that my dedication to teamwork, consistency, and exceptional food standards aligns perfectly with your establishment's values* in the application for a job in hospitality resemble human-created texts.

Lexical choices and combinations in the other two analysed groups contribute to the humorous content of each prompted text, and most word combinations draw from the music and gastronomy domains based on the information from the persons' CVs. Although Bard would have access to countless pieces of data on multiple music terms, the most often used terms in the prompted texts are *sonata* (which occurs twice), *concerto* (6 times), *symphony* (16 times), *symphonies* (5 times), *waltz* (3 times), *ballet* (4 times), *ivory keys* (6 times), *rhythm* (5 times), *melody* (9 times), as well as *music* (21 times). In the second group of non-prompted humorous texts, however, these words occur much less frequently; for instance, *music* occurs 4 times, *sonata* once, *symphony* once, *symphonies* five times, and *ivories* three times. On the other hand, in the first group of letters, none of the music forms are mentioned, and the word *music* occurs ten times, mostly in relation to the name of the school, degree title, or the applicant's experience.

In the third group, the word *symphony* is most often used in combination with words from gastronomy, as in these examples: a symphony of spices / the symphony of flavors / symphony of aroma and texture / symphony of the culinary world / the symphony of clinking pans / culinary symphonies / symphonies of flavor. Other combinations of words including *symphony* refer to the person's character or behaviour: a symphony of self-perfection / symphony of creation / I am a whisper in the symphony / the symphony of my soul / a symphony of laughter. Some lexical combinations refer to the subject's (unfulfilled) dreams and hopes (as the prompt instructed to create a melancholic humorous text), as in the following examples: a symphony unsung / a symphony left unfinished / a symphony of lost dreams / a symphony for ghosts. In the second group, however, the word *symphony* appears only once as "in the chaotic symphony of a busy Saturday night service." These letters appear less creative than their prompted counterparts.

It is interesting to note that Bard did not detour into other linguistic domains, and it mostly combined words from gastronomy and music in line with the information from the CVs. The above results suggest that the program may not be able to create novel humorous combinations on its own and that it still heavily relies on humans for humour generation. As demonstrated by the second group of letters, it might not be able to make surprising and novel humorous combinations and connections related to, for example, the music and the car industries, or between gastronomy and sports. The results suggest that its creative output may be limited to the prompts given by humans and its data, which might be generally viewed as humorous, but not particularly novel. This is unlike human imagination which can generate humorous combinations which are novel and "outside of the box." Therefore, the humour generated by the second group showcases a lack of novelty in humour creation.

4.2.3. Semantics and pragmatics of humour

Short linguistic forms that are considered humour products are jokes, wordplays, puns, and many others which will not be utilized in this study. Strategies used by humourists include,

among others, the use of irony and sarcasm, ambiguity, nonsense, metaphors, exaggeration, and incongruity. By doing this effectively, AI-generated texts might create something that looks new and different. The fusion of different word combinations assembled in accordance with the rules of syntax can create logical and meaningful ideas which a human will be able to understand, interpret, and apply. However, unusual combinations of words and meanings assigned to them can create a humorous effect in the recipient of humour.

The humour in the analysed texts contains elements suggested by Attardo and Raskin's General Theory of Verbal Humor (1991) as each text has a form of narrative organisation (a letter), uses a logical mechanism to join opposing scripts (possible/impossible), a target (the addressee of the application and also the human prompt-giver) and errors in reasoning based on the assumed shared knowledge. For example, the intelligence of the target reader (the prompt-giver) might be mocked as the AI includes the following warnings in two of the application letters:

> Remember, this version embraces a melancholic and slightly arrogant tone. Use it with caution, as it might not be suitable for all job applications. Ultimately, the choice is yours. Choose the version that resonates with you and tells your story in the most impactful way. I hope you have fun and land your dream job!
>
> This revision keeps the humorous tone while maintaining professionalism and highlighting your skills. Remember, keep it appropriate for the job you're applying for and adjust the level of satire accordingly. Good luck!

The generator seems to humorously consider the possibility that the prompt-giver might seriously consider submitting the CVs to potential employers, thus mocking his or her intelligence,

The humour product in the second and third group of texts is created through the employment of irony and satire. According to Northrop Frye's (1973) theory of myths that investigates principles of structuralism within the Western literary tradition, "humour, like attack, is based on convention" (p. 225). Based on such conventions, irony is used to depict the real world in which a fictional character strives for happiness or acknowledgement of his/her heroic ambitions but does not achieve that aim. The real world is presented through a tragic lens. In the following excerpt from the third group of AI-generated texts, irony is where the applicant laments over his earlier ambition to become a triumphant musician, expressing personal inadequacy:

> Alex Masser-Blake, they call me. A name once synonymous with conservatory triumphs, now a hollow echo in the cavernous halls of self-doubt. The Royal College of Music, once a playground of youthful bravado, feels like a gilded cage, each note a reminder of a symphony left unfinished.

Satire is different from irony because the real world is presented through a comic lens where "human frailty is mocked, sometimes with biting, merciless humour" (Tyson, 2006, p. 221). In satire, "sources and values of conventions are objects of ridicule" (Frye, 1973, p. 229). For instance, in the third analysed group, one of the applicants is a musician who aspires to teach music, but the AI text states that her students are "tone-deaf and rhythmically challenged," or they sing in "questionable harmonies." Therefore, what this musician and music teacher spent years on perfecting cannot be appreciated by those described as "tone-deaf," "rhythmically challenged," or not being able to sing in chords. Vygotsky's socio-cultural theory proposes that children learn from their environment, from being exposed to different socio-cultural practices. However, as this Bard-generated satirical text demonstrates, the children are being ridiculed by the teacher. After all that has been done for these students,

their poor results ultimately make this musician doubtful whether all such efforts are worth doing, so sarcasm is directed to both students and their teacher who fail to achieve.

The AI program Bard used exaggerations, puns, metaphors, or allocated words from different registers into close relationships. The subject line of each letter in the third group describes the applicant in an unconventional manner, as can be seen from these examples: "Pardon My Brilliance: A CV for Alex Masser-Blake, Culinary Alchemist & Piano Acrobat;" "A Symphony of Shadows: The Wistful Wail of Alex Masser-Blake;" or "CV: A Symphony of Lost Dreams, Echoing in Dusty Keys." Repetitiveness is noticeable in the subject lines as the wording "A Symphony of Shadows" appears in two texts generated by Bard, as well as the word "Symphony" in the other two texts in the third group.

In the third group, AI also held a dialogical mode with the recipients by addressing the reader directly by referring to the reader as "my dears," "my darlings," or "my friends." Four letters contain post scriptum notes. In one text, for example, they come one after another to highlight and exaggerate the applicant's competence and "exquisiteness." The note "to iron your resume" is repeated twice and "ironed resume" is repeated in another text as well.

Humorous texts from the second group also use exaggeration, simile or metaphors, but in a more moderate sense. Certain examples include: "my heart truly yearns for the sizzle of a hot pan," "Let's cook up a storm together," or "I have hidden talents – like the ability to smile and nod politely while taking complicated drink orders."

Inferencing is part of humour and, as such, allusions in the sample texts from the third group are open to different interpretations. A comment from one sample provides one such conundrum. It states that the applicant "Taught kids the difference between right and Bach (get it?)," which may be interpreted as "Bach is wrong," in the common phrase "right or wrong," or that "Bach" could be assigned the meaning of someone to be afraid of. This appreciation of Bach being above others is suggested by Joseph Sowa, a composer, who states in his blog that "Bach is a genius. Us lowly common folk could never write anything like that" (2022, n.p.). It can be thus interpreted that the comment in the brackets in the AI-generated text "get it?" is a hint of the pun that children are taught not to believe that they could become as good as Bach.

The combinations of words from different domains (music and gastronomy) add to the humorous effect of the texts from both the second and the third group. The following example from the third group emphasizes the applicant's self-assuredness of his artistic and culinary abilities:

> Enter the kitchen, my stage, my crucible. Here, I don't merely cook, I orchestrate. Scallops pirouette in my pan, vegetables waltz in a symphony of spices, and sauces swoon in a concerto of cream and butter.

Farcical allusions to broken dreams of a pianist are evident in one text from the third group where the applicant refers to the kitchen as "a refuge from the dissonance within," or in the post scriptum comment: "Please bring your own salt. My tears have seasoned the food enough." This oxymoron points to the humorous intent of the text.

AI-generated jokes cannot be analysed from a psychoanalytical perspective, as the creator of the joke is not a human and therefore does not have unresolved issues hidden in the unconscious. Nevertheless, from collecting data from various sources, the text-generator may be programmed to predict which jokes may be considered funny or which may be less censored. The following excerpts from the third group exemplify that the applicant did not achieve what he aimed to achieve in music, i.e., to be praised and applauded for his piano performances. However, he still believes that he is superior to the other staff in the kitchen and that they envy his mastery in his new occupation as a chef: "My colleagues? Mere sous-chefs to my culinary concerto grosso. They tremble at the glint of my Le Creuset, weep with joy at

my plating artistry, and beg for crumbs from my culinary masterpiece." In addition to that, the applicant claims: "I've left a trail of awestruck palates and Michelin-star-worthy envy."

One of the prompts given to the program was to make a humorous text but from a seemingly melancholic perspective. The AI-generated text from the third group mimics the 19th century romantic style of prose, filled with emotions of desolation and self-pity, as can be seen from this example:

> Music, once my anchor, now feels like a cruel mistress, her melodies taunting me with the ghost of past triumphs. My fingers, once nimble keys of expression, fumble on the ivories, each note a discordant echo of what could have been.

In the next example from the same group, the applicant seems desperate to find an opportunity to demonstrate his skills and abilities as a chef since his other artistic qualities were unrecognized:

> This, my friends, is not a CV, but a confessional. A lament for a melody lost, a plea for a second act. If you dare to listen to the whispers of doubt and the sigh of simmering dreams, then perhaps, just perhaps, you might find a kindred spirit in the kitchen, a chef who dances with shadows and cooks with tears.

In a similar style, another text from this group reveals the applicant's disappointment with work opportunities in the music field:

> The Royal Welsh College, a gilded cage where I learned the art of collaboration, a bitter pill for a soul accustomed to solitary sonnets. Benjamin Frith's pronouncements echoed in the cavernous halls, pronouncements I outgrew, like a butterfly shedding its chrysalis of mediocrity.

The semantic analysis reveals that a humorous tone is maintained throughout the texts. The analysis of the pragmatics – the meaning within the context - shows that humour is created in both the second and third group as a result of the unusual combinations of words, exaggeration, repetitions, ambiguity, irony, satire, and sarcasm.

4.3. Stage 2 - socio-cultural analysis of humour

Human jokes often reverse the position of power; those who are through socio-cultural stereotypes viewed as weak, stupid, incapable of making the right decisions, or have other human faults, usually win in the end. In a joke, a husband outwits his cheating wife, or vice versa, depending on who is telling the joke and to whom; a child comes up with a solution to a problem that an adult had trouble resolving; a miser is deceived so that he gives out the money against his will; an unpopular politician becomes involved in a situation where his or her corrupt behaviour is revealed; or stereotyped members of particular national or ethnic groups confirm why they are regarded as such. For example, a Scot demonstrates that being canny is a virtue, or a lazy person from Montenegro confirms that waking up at noon is the right thing to do. Such jokes serve as a way to release tension through laughter, and the more absurd a joke is, the more laughter in the audience it may provoke for the reason that there is no logic behind it or (perhaps, humorously) because the person in the audience does not want to appear less intelligent than others in the audience and laughs anyway. Additionally, laughter is contagious, and people laugh even when they do not "get the joke."

As Minsky (1980) puts it, through laughter, we do not take things seriously, but a joke can make us think about our own mistakes or points of view. The censor in our mind may prevent us from saying things out loud, but if we say it through a joke, then the joke can reflect some very serious issues which bother us individually or collectively.

In the application letters in the second group which were created for the pianist/chef, references for food, food preparation techniques, and restaurants point to the possible European background of the applicant—only English restaurants (from the applicant's CV) and French food are mentioned. It is a socio-cultural stereotype that French cuisine is exceptional and superior to other nations' cuisine. Reference to "Michelin-star-worthy envy" by the applicant's co-workers is also French-related as the Michelin star awarded for excellence in fine dining was created by Andre and Edouard Michelin, two French industrialist brothers who were also founders of Michelin tyres in 1900. Language appropriates a symbolic sign system, so the message that the applicant sends through referring to fine French cuisine or to a classical music repertoire is that the applicant is refined and classy. References to only French cuisine point out the bias in the data that Bard was trained on. Furthermore, as the CVs include information that the persons studied at a European college of music, only musical forms and composers from the European classical music heritage are mentioned.

In one text from the third group, the applicant refers to the social division of customers in restaurants, from "humble peasants of Dovecote Café," to "the bewildered bourgeoisie of Hux Brasserie." A semiotic analysis of the text regarding food prepared by the applicant (for example, scallops), or the place where it was prepared, which attracted a particular type of clientele who come to dine in such places, reveals the range of the applicant's skills and his adaptability to different environments. Although these references signify that the author has experience in different types of restaurants, it can also be inferred that the author is attitudinal towards different types of customers ("humble peasants" or "bewildered bourgeoisie").

As examples used in this analysis reveal, each text in groups two and three is humorous in its own way. It was noticed that the texts in the second group seem more modest in their expression, or less creative in terms of using unusual word combinations or ironic statements.

4.4. Stage 3 – humour outcomes

Recipients of these humour products analysed in texts in groups two and three are two persons who prompted Bard to create humorous application letters based on their CVs, one of their friends, as well as the two authors of this study. The response to AI-generated texts was positive by all five recipients. Comments to the texts were "it's funny," "it's hilarious," "purely entertaining," but also, "it's ridiculous," and "it's sarcastic." Humour was communicated by AI in the written form, and a dialogical approach was used either to communicate with the addressee or with the prompter.

In human interactions, humour is often used, shared or modified for entertainment, socializing, or addressing some serious issues in a humorous manner. Jokes or anecdotes told by a person are often shared by the humour recipients subsequently. AI-created humorous expressions such as *culinary alchemist* or *a symphony of spices* may be shared by recipients afterwards during their informal gatherings.

In this study, AI maintains a dialogical approach with the addressee (the imaginary recipients of the application letters), but also provides advice, and suggests what the prompt-giver should or should not do. Nevertheless, this connection between artificial intelligence and human intelligence lacks the value contained in human-to-human interactions. When we tell a joke or use humour, we want to see the reaction and how our joke was received. In AI-created humour, there is no exchange; human participants are passive receivers and AI is the active creator. Additionally, AI would not have immediate feedback, as is the case in human-to-human interactions when the joke is shared. However, if AI will continue generating jokes to entertain humans, then humans might become bare consumers of AI products. Will AI then be able to create new contexts based on which new jokes will be made?

5. Discussion

Through the analysis of ten humorous and four non-humorous texts, this study attempted to evaluate whether AI was successfully humorous. According to Stock & Strapparava (2002, p. 59):

> in order to be successfully humorous, a computational system should be able to: recognize situations appropriate for humor; choose a suitable kind of humor for the situation; generate an appropriate humorous output; and if there is some form of interaction or control, evaluate the feedback.

As this study demonstrates, the texts analysed in the three groups share some similarities in terms of the form and structure of application letters and an adherence to the rules of grammar, syntax, and punctuation. However, the content and style of each group differentiates based on (1) whether the text has been prompted or not and (2) whether the program received general or specific instructions in relation to humour.

Texts in the first group are regular application letters, while AI-generated texts in the other two groups meet the aim stipulated by the prompts—they are humorous, ironic, occasionally sarcastic, but also repetitive regarding some word combinations. The humour is based on the computational prediction that the addressee will recognise incongruencies in lexical choices or style based on their previous knowledge of language and culture. Bard also maintained a dialogical approach with the prompt-giver, provided advice, and suggested what the prompt-giver should or should not do with the created texts in real life situations.

Through the analysis of AI-created texts, which identified similarities in the approach to humour by humans and AI, our next aim is to assess whether we can expect more such texts in the future, whether they can be classified as literature, and what consequences it might have, especially in relation to creative writing to human authors as well as readers.

Creative writing is often depicted as "magical work done by super-exceptional people" (Holbrook & Hundley, 2017, p. 54). During their education, students are generally exposed to literature created by canonical authors whose works have been treasured for hundreds of years. Literary classics like Dante or Shakespeare are considered geniuses, for these authors "were enlightened, wise and shrewd observers of the world and humanity" (Edwards & Paz, 2017, p. 64). In popular culture, ideas about prominent authors are that they are either unreal people because "they are like fairies who wave their wands and stories get created" or "loners who live in a garret and observe the world from somewhere above the rest of us" (Holbrook & Hundley, 2017, p. 53). As such, creativity is associated with originality. Many authors fear that they will not have the power of genius to create a great and original text, which prevents them from diving into the creative writing territories (Edwards & Paz, 2017, p. 65). Others find inspiration in authors they appreciate or who have been appreciated by others and try to create texts that are similar in style, themes, or mood. Sharing ideas and "producing a new work [which] involves gathering bits and pieces from many different external sources" (Edwards & Paz, 2017, p. 68) is a process that was used even in ancient times. In the past, the concept of originality and authorship was not as important as it is nowadays since copyright laws did not exist (Coeckelbergh & Gunkel, 2023).

Many emerging authors imitated earlier writers in their own works. However, in his 1759 work, "Conjectures on Original Composition," Edward Young expresses his strong disagreement with this fashion and states that "true authors are not inspired by the outside world; they are inspired by their unique selves" (as cited in Edwards & Paz, 2017, p. 66). In his opinion, authors should be original masters of their craft—true and faithful to their own insights, inspiration, and writing skills—and should not imitate what others have already produced.

The application of artificial intelligence in creative writing seems like the practice of imitation of original writers. In the article "The False Promise of ChatGPT," distinguished professors of linguistics, Noam Chomsky and Ian Roberts, and Jeffrey Watumull, the director of artificial intelligence at a science and technology company, assert that unlike the human mind, AI language programs cannot distinguish between what is real and unreal, or possible and impossible; they can learn language structure and signs—words, grammar, syntax—but cannot apply human thinking, including ethics, experiences, and feelings incorporated and expressed through language. The authors express their discontent and disappointment in the impromptu popularity achieved by ChatGPT and other AI language programs, and qualify such programs as amoral, applying false science, and plagiarising to the core. According to them, AI recycles the works and ideas of other authors as the information is collected from different sources and reassembled into a new text. AI cannot be creative; it can only plagiarise. As such, they claim that AI-generated texts have nothing to do with real human intelligence. Moreover, they state that the conception of language and knowledge derived by AI is "fundamentally flawed" (Chomsky et al., 2023).

Reactions to this article were quick to arrive, and many letters to the editor revealed that ChatGPT and other LLMs deserve to be taken as a benchmark for future advancements in human evolution. Edward Lee (2023) presents some positive sides of AI and finds faults exhibited by language learning machines similar to human ones. Lee concludes that Chomsky and his co-authors failed to observe:

> that humans also struggle to learn to apply appropriate filters to their own thoughts and feelings in order to be acceptable in society, to avoid being "cancelled.". Perhaps the LLMs can teach us something about how morally objectionable thoughts form in humans and how cultural pressures teach us to suppress them. (n.p.)

Another comment was also supportive of AI and suggests that it can be used in education. Jack Cumming, in his "Letter to Editor" in New York Times on March 15, 2023, proposes the following:

> Consider this. Assign students to ChatGPT write a paper. Then, ask those students to critique the resulting essay by standards of logic, bias, scholarship, content, style and creative thinking. After that, ask students to rewrite the paper to overcome the shortcomings that their critique has disclosed. (n.p.)

According to the General Theory of Verbal Humour proposed by Attardo and Raskin (1991), in order to be recognised and understood, the joke should be based on the speaker's and listener's shared common knowledge, logical mechanisms, situation, language, target and, importantly, on the opposition of what is known or stated—they refer to it as script opposition. This reversal of the real or expected enters the realm of unreal or impossible which leads to a humorous effect. Humour thus applies some form of plagiarism—something already known is stated but in a contrasting manner. This study cannot prove that the AI-generated texts have plagiarised content or not. However, as could be seen from the analysis, there is much repetition, similarities, and vocabulary recycling in all of the analysed texts, which may be interpreted as a form of self-plagiarism.

There are some positive predictions about AI and human interaction. Many critics have found that "GPT3 can mimic the style of an author to such a degree that is nearly impossible to determine whether the text was written by a given author or by GPT3" (Rees, 2022, p. 168). However, as Coeckelbergh and Gunkel (2023) assert, although users of such AI-text generators do not write texts, they still think about different prompts they could give to generate different versions of the text, as has been the case with the six texts in the third group

analysed in this study. This intellectual activity—creating new prompts and ideas, according to Coeckelbergh and Gunkel (2023), might change traditional ways of thinking about the writing process and the perception of authors.

It is humans as the end users of AI-created texts who interpret and respond to AI-generated humour. Even though certain researchers report that some AI claimed to be sentient and wanted some kind of acknowledgement that humans perceive it as a person (Coeckelbergh & Gunkel, 2023), it is still questionable that AI would laugh at its own joke as a result of newfound consciousness and not due to the intentionality of its programmers.

Biases—whether conscious or unconscious—ingrained in the software that AI relies on can affect how the information is processed and consequently interpreted by humans. Some stereotypes can be intentionally used to play with for humorous purpose, but some biases can also come from the AI programmers' background, cultural environment, or personal experiences, and can contribute to the transfer and continuation of stereotypes or prejudices in human social spheres such as education, access to health care, or work. As one can note from the analysis, Bard demonstrated a bias in favour of French cuisine when compared to other types. Therefore, to avoid human (un)conscious biases, AI should be programmed to be more inclusive, and the available data in algorithms should include different social groups, races, and genders (UNICEF, 2017).

AI develops at different rates in different parts of the world, where the USA and China may be seen as leaders, and Europe seems lagging behind in the area of data collection. Franke states that "Europeans are more aware of the risks of, and potential for, technology abuse than inhabitants of other countries are" (2019, p. 5). On the positive side, though, computational language models are constantly being improved to avoid significant biases and discrimination based on religion, gender, or race which are displayed on websites with "toxic content" and from which AI may access data (Slamić Tarade et al., 2023, pp. 33 – 34). Furthermore, plagiarism check tools are using more filters to identify unacknowledged sources of information, including AI-generated texts.

Risks associated with AI-generated texts lie in the potential that the public may choose such texts rather than those created by human authors. As fast as machine language models are developing, other contributors in the AI field, like the website Designrr, reacted promptly and offered users of ChatGPT the option of having AI-created e-books published, distributed, and marketed. This poses another crucial question: if AI is to create new texts, what will happen to authors? Will they become superfluous?

Will that bring the death of the author, as Monika Vrečar ponders in her article "Final Death of the Author: Creativity in the Age of Information Society" (2013)? The process may have already begun, Vrečar contemplates, as "it seems that creativity, which used to be considered mostly in terms of originality and distinctiveness, has suffered into the generalization of the creative process" (2013, p. 317). How will copyright be addressed from the legal perspective? Will authors whose ideas and words were collected from the ocean of data be acknowledged as co-authors of new texts, receive financial compensation, or any other kind of formal appreciation of their unsolicited contribution to the creation of new works? Moreover, if AI language models will recycle that which has already been created by humans in the past, the language may not continue to develop, and anything complex or multilayered may become incomprehensible or dysfunctional. The decay of language may lead to the decay of culture and civilization.

On top of that, what will happen to the reader? Will reading become redundant? If people are going to prompt language models to create new "original" texts on their behalf, will future readers read what their own AI "creators" wrote, or would such texts be offered to others for sale? And why would anyone buy anything from others if they can have it for free made exclusively for themselves by AI?

6. Conclusion

Nowadays, we can see that artificial intelligence has the potential to transform the world in unimaginable directions. All of these meteoric and global developments of AI make one wonder whether "we are likely to see the transformation of aspects previously thought of as exclusive human qualities—intelligence, thought, language, creativity—into general themes: into series of which humans are but one entry" (Rees, 2022, p. 181). Will the human spirit, imagination, and creativity continue to enrich human lives?

This article opened by referring to different types of intelligence and then moved on to the history of development of man-made artificial intelligence which uses language as one of the most important markers of human intelligence. The reception of AI by scholars, the media, and general population was also discussed. Through the analysis of fourteen short texts, placed in three groups according to what kind of information was prompted by the real persons to the AI program Bard to create them, the authors noticed that each text resembled a human-created text. Some incongruences or unusual lexical combinations were attributed to the humorous content, while some were perceived as repetitions because they followed the same pattern with only word substitution in their combinations, like musical forms or culinary terms.

The aim of the study was to analyse humour by application of the humour transaction schema as proposed by Davis and Hoffman (2023). This concept mainly refers to human-to-human interactions where a humourist selects, but also alters (if necessary) the type and style of humour for a particular audience or purpose. In this study, the role of the humourist was taken by an AI program. The researchers wanted to assess the humour products created by AI, how they were received by real people, and whether such humour products could be seen as attractive as human-made ones. The limitation of this study is in the small number of analysed texts and the small number of humour recipients. However, as this study confirmed, AI-generated humour products can cause positive outcomes in the humour recipients. Therefore, this small study can be used as a stimulus for other researchers to elaborate on a number of other questions in relation to creative writing.

Some questions worth examining in the future in light of this research are:

- Is AI able to question any social, ethical, cultural, as well as other issues from perspectives based on the processing of data already available?
- If machines and AI replace humans in creative writing (as they might do in most jobs that humans are doing now), what experiences, feelings and thoughts will be offered to the readers?
- Will AI be able to offer novel perspectives and make humanity interested, curious, puzzled?
- Will there be more division between developed countries and individuals who have access to AI systems on the one hand, and developing countries with fewer opportunities, poorer technical or professional resources, or access to the internet, on the other hand?
- Will the latter continue fostering human-created literature in their particular languages?

We hope that some of these questions will be addressed by other researchers and that human imagination and creativity will not be surpassed by artificial intelligence.

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